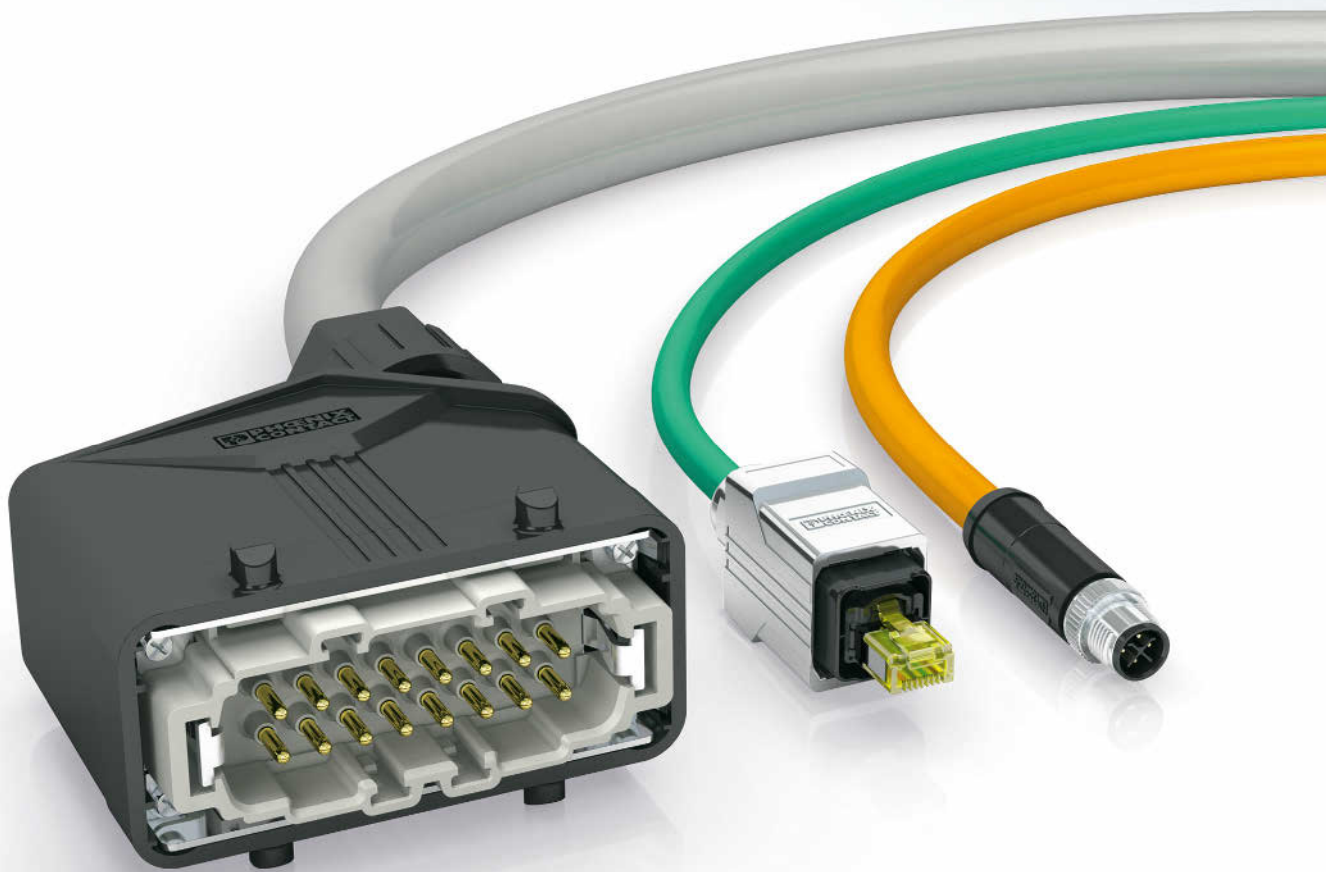


Sensor/Actuator Cabling and Industrial Plug-in Connectors

2013/2014

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PCB connection technology and electronics housing

- PCB terminal blocks and plug-in connectors
- Electronics housing



Connection technology for field devices

- Plug-in connectors
- Cables and connectors



Modular terminal blocks

- Modular terminal blocks



Sensor/actuator cabling and industrial plug-in connectors



Marking systems, tools, and mounting material

- Marking and labeling
- Tools
- Installation and mounting material



Surge protection and power supply units

- Lightning monitoring system
- Surge protection and interference filters
- Power supply units and UPS
- Protective devices



Interface technology and switching devices

- Electronic switching devices and motor control
- Measurement and control technology • Monitoring
- Relay modules • System cabling for controllers



Control technology, I/O systems and automation infrastructure

- Ethernet networks • Functional safety • HMIs and industrial PCs • I/O systems
- Industrial lighting and signaling • Industrial communication technology
- Fieldbus components and systems • Wireless data communication
- Process infrastructure • Software • Controllers

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Implement your individual connection for field cabling with the expertise of Phoenix Contact

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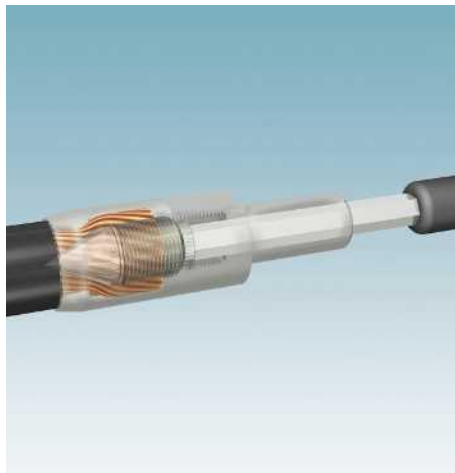
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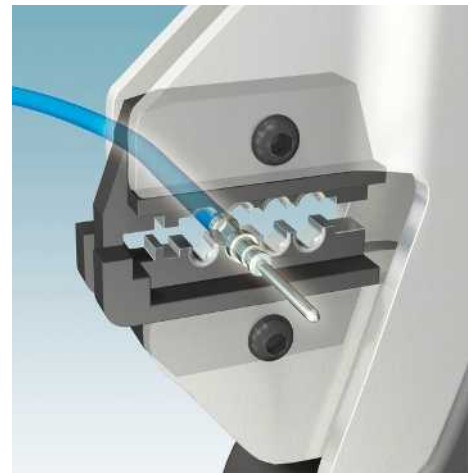
Screw connection

The screw connection is the most universal and globally accepted conductor connection technology. An important characteristic is the maintenance-free conductor contact. It is not necessary to tighten the terminal screw again. All kinds of copper cables can be clamped without pretreatment, thereby making gas-tight and reliable contact. The wire protector, which protects the individual litz wires from damage, is located between the screw and the conductor. It also performs a screw locking function to prevent release due to vibrations and temperature fluctuations. Splicing protection can be implemented in the form of ferrules. With a screw connection, several wires may also be clamped under one screw. The current-carrying parts of the screw connections are made of high-grade, strain-crack, and corrosion-proof copper alloys.



Axial screw connection

With this method, the wire end to be contacted is guided into the connection area of the pin or socket contact. A cone-shaped prong (part of the contact) is then screwed into the stranded wire from the front. The strands of the wire are radially pressed against the contact wall. This results in a gas-tight connection with long-term stability between the wire and contact. It is important that the specified tightening torque is observed. The prong is pressed in using a hexagon key which is applied to the front of the contact. This connection technology combines the advantages of screw and crimp connection. It requires very little space, is easy to execute, and only requires a standard Allen key.



Crimp connection

The crimp connection impresses with its small space requirements and its cost-effective creation in series production. For a reliable connection, it is essential that the conductor cross section, the crimp contact, and the crimping tool are compatible. Furthermore, the crimping process must be monitored during large-scale production as the crimping tools are subject to a certain degree of wear.

Crimp connections can be established with the aid of crimping pliers or crimp machines through specific deformation of the crimping ranges of the contact. The requirements for crimp connections are defined in DIN EN 60352-2. Proof of the quality of a crimp connection can be seen in the tensile strength of the connection and crack-free deformation of the crimp contact. Crimping must not result in impermissible elongation of crimp contacts, as this would prevent them from latching correctly in the contact carrier. The contact is released using a contact removal tool. Assembly tools are also available for very thin conductors.



Spring-cage connection

The spring-cage connection contains a steel spring which pushes the stripped conductor against a power rail. The terminal point is opened with a standard screwdriver. After the conductor has been inserted into the clamping space, the screwdriver is removed and the conductor automatically makes contact. The contact force is independent of the user and a vibration-proof, gas-tight connection with long-term stability is established. The front connection provides an additional advantage. The conductor and screwdriver come in parallel from the same direction and are always within the user's field of vision. Contact inserts can thereby also be connected or re-wired even when mounted. All kinds of copper cables can be clamped without pretreatment, thereby making gas-tight and reliable contact. Splicing protection can also be implemented in the form of a ferrule.



Push-in connection

Stranded conductors with ferrules or solid conductors can be quickly and easily inserted directly into the connection without tools. The contact spring is formed in such a way that it opens automatically when the conductor is pushed in and thereby provides the required pressure force against the current bar for a gas-tight, vibration and shock-proof connection. With the aid of the orange pusher, the terminal block can be opened manually so that conductors with smaller cross sections can also be securely connected. To release the conductor, the orange pusher features a confusion-free and defined operating element. The conductive metals are made from high-grade copper alloys. All metal parts of the connection are made of corrosion-resistant materials.



QUICKON fast connection for single wires

The QUICKON connection is equipped with an IDC insulation displacement contact. The term "IDC" stands for Insulation Displacement Connection. With this connection method, a non-stripped wire with insulation is positioned in front of the gap of the insulation displacement contact and then pushed into the blade gap through insulation displacement. In so doing, the wire insulation is severed and a gas-tight contact is made between the wire and the contact. This can save at least 60% of connection time.

The connection force is independent of the user and completely reliable provided the permitted conductor cross sections and connection conditions are observed. Solid and stranded conductors can be rewired up to 10 times. However, the wire end should be cut off before connecting again.

QUICKON connections have proven themselves in numerous applications for Phoenix Contact over recent years, such as plug-in connectors, for COMBICON, and modular terminal blocks to CEE plug-in equipment from 0.14 to 6.0 mm².

Sensor/actuator cabling and industrial plug-in connectors

Product range overview

Sensor/actuator cabling



For M5 and M8 flush-type plug-in connectors with litz wires, see Catalog 2



For M12 flush-type plug-in connector with litz wire, see Catalog 2



For 7/8" flush-type plug-in connectors with litz wires, see Catalog 2



M8 plug-in connector, for assembly page 16



M12 plug-in connector, for assembly page 20



7/8" plug-in connector, for assembly page 27



For M17 to M58 plug-in connectors for signals and power, for assembly, see Catalog 2



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4-pos. sensor/actuator cable in M5, M8, and M12 page 34



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6-pos. sensor/actuator cable in M8 page 56



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Sensor/actuator cabling



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Product range overview

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Heavy-duty plug-in connectors



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Cable marking
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Sensor/actuator cabling

A one-stop-shop for the entire range of solutions for field installation

With distributed connection technology, passive distributor systems connect the I/O devices to the PLC controller. Phoenix Contact offers the most comprehensive range of sensor/actuator cabling on the market. Passive M5, M8, M12, and 7/8" components consisting of distributor boxes, cables, and plug-in connectors for assembly are available from stock.

The 1/2" and 7/8" range for the North American market can be found on our website.

Customer/sector-specific solutions

In order to be able to respond flexibly to your needs, cables and boxes can be manufactured to suit with specific cable lengths and types (e.g., a different sheath color).

For increased requirements, such as the railway or food industry, the long-term use of products outdoors and cables for flexible use in drag chains or robot applications, Phoenix Contact offers a range of suitable product series.

Faster assembly with the SPEEDCON rapid interlock system

SPEEDCON is the logical development of the M12 plug-in connector system that has been established and accepted for many years. Following the principle of "Plug & Turn", the connection time for M12 plug-in connectors is reduced by 90%.

Due to the 100% compatibility, redundant warehousing is eliminated.

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User-friendly configuration

By entering technical parameters, you can quickly and easily find your product for sensor/actuator cabling.



EPLAN data

We support you in the creation of circuit diagrams with EPLAN Electric P8.

The required product data can be found on our website under "Service and Support".



Customized solutions

The Service Center for industrial plug-in connectors at Phoenix Contact will transform your requirements into a custom product within just a few days.



Correct connection

Always the right connection technology for your application: IDC, spring-cage, pierce or screw connection offer various advantages that can be utilized in your specific application.



Easy detection

A particularly user-friendly feature is diagnostics in the event of an error. LEDs can be used to detect errors in the signal path quickly and easily. This can directly increase your machine availability.



Safe transmission

With 360° shielded plug-in connectors and cables, you can transmit signals reliably even in critical EMI applications.



SPEEDCON: compatibility

The SPEEDCON rapid interlock system is based on the principle of "Plug & Turn" and is 100% compatible with all M12 plug-in connectors with M12x1 thread on the market.



SPEEDCON: fast assembly

Just half a turn and the SPEEDCON M12 rapid interlock system creates the perfect plug-in connection. Reduce your assembly time by 90%.



SPEEDCON: safe operation

SPEEDCON meets all the electrical and mechanical properties of a conventional M12 plug-in connection, plus all accepted standards and requirements.



High standard

Our standard PUR cables are resistant to aggressive media. They are halogen, PVC, and silicone-free plus flame-retardant and are suitable for use in drag chains.



Cables for every application

Whether extreme mechanical strain, chemical loads, UV and atmospheric influences or welding sparks - we have the right cable for your requirements.



High-quality materials and innovative designs

For increased requirements, we have developed solutions which meet the needs of your application through innovative design and material selection.

Sensor/actuator cabling

Sensor/actuator plug-in connectors for assembly



Signal plug-in connectors

Plug-in connectors for signal transmission are available in types M8 and M12 with various connection technologies.



Power plug-in connectors

Plug-in connectors for power transmission are available in types M12 to M40 and 7/8".



Valve plug-in connectors

The product range consists of valve plug-in connectors with various types (A, B, Bl, C, Cl, AD) and protective circuits.



Insulation displacement connection

With QUICKON connection technology, an insulation displacement contact cuts through the conductor insulation and makes spring-loaded, vibration-resistant, and gas-tight contact with the litz wire.

Advantage:

- Fastest connection on the market



Spring-cage connection

Stranded conductors with ferrules or solid conductors can be quickly and easily inserted directly into the connection without tools.

Advantage:

- Vibration and shock-proof connection



Piercecon® connection

With Piercecon® connection technology, the electrical connection is made by a contact pin that axially pierces the litz wires.

Advantage:

- Most compact design on the market



Screw connection

Just like spring-cage connection technology, connection can be made irrespective of the conductor insulation material.

Advantage:

- Multi-conductor connection



SPEEDCON: fast, safe, and compatible

The SPEEDCON rapid interlock system is 100% compatible with all M12 plug-in connectors with standard M12x1 thread. The assembly time is reduced by 90%.



High packing density

High-pos. versions are available in types M8 and M12, which feature a compact design. This means that up to 8 positions can be accommodated in type M8 and up to 17 positions in type M12.

Sensor/actuator cabling

Sensor/actuator plug-in connectors for assembly

M8, insulation displacement connection



0.08 mm² - 0.25 mm²,
3, 4-pos.



0.25 mm² - 0.5 mm²,
3, 4-pos.



Technical data

	3-pos.	4-pos.
General data		
M8 circular plug-in connector according to:	IEC 61076-2-104	
Pollution degree	3	
Degree of protection	IP65/67	
Connection method	Insulation displacement connection	
Cable diameter	2.5 mm ... 5 mm ±0.2 mm	
Electrical data		
Rated voltage	60 V	30 V
Rated current	4 A	
Volume resistance	≤ 5 mΩ	
Insulation resistance	≥ 100 MΩ	
Material data		
Material contact / contact surface	CuSn / Ni/Au	
Contact carrier material	TPU GF	
Inflammability class according to UL 94	HB	
Temperature data		
Plug / socket	-25 ... 80 [°C]	



Technical data

	3-pos.	4-pos.
General data		
M8 circular plug-in connector according to:	IEC 61076-2-104	
Pollution degree	3	
Degree of protection	IP65/67	
Connection method	Insulation displacement connection	
Cable diameter	2.5 mm ... 5 mm ±0.2 mm	
Electrical data		
Rated voltage	60 V	30 V
Rated current	4 A	
Volume resistance	≤ 5 mΩ	
Insulation resistance	≥ 100 MΩ	
Material data		
Material contact / contact surface	CuSn / Ni/Au	
Contact carrier material	TPU GF	
Inflammability class according to UL 94	HB	
Temperature data		
Plug / socket	-25 ... 80 [°C]	

Ordering data

Description	3-pos.		4-pos.	
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Plug-in connectors				
Socket, straight	1441040	1	1441053	1
Plug, straight	1441008	1	1441011	1

Ordering data

Description	3-pos.		4-pos.	
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Plug-in connectors				
Socket, straight	1441066	1	1441079	1
Plug, straight	1441024	1	1441037	1

M8, screw connections



Unshielded,
3, 4-pos.



Shielded,
3, 4-pos.



	Technical data	
	3-pos.	4-pos.
General data	IEC 61076-2-104	
M8 circular plug-in connector according to:	3	
Pollution degree	IP67	
Degree of protection	Screw connection	
Connection method	3.5 mm ... 5 mm	
Cable diameter	0.14 mm ² ... 0.5 mm ²	
Connection cross section [mm ²]	60 V	30 V
Electrical data	4 A	
Rated voltage	≤ 3 mΩ	
Rated current	≥ 100 MΩ	
Volume resistance	CuZn / Au	
Insulation resistance	PA	
Material data	HB	
Material contact / contact surface	-40 ... 85	
Contact carrier material		
Inflammability class according to UL 94		
Temperature data		
Plug / socket	[°C]	

	Technical data	
	3-pos.	4-pos.
General data	IEC 61076-2-104	
M8 circular plug-in connector according to:	3	
Pollution degree	IP67	
Degree of protection	Screw connection	
Connection method	3.5 mm ... 5 mm	
Cable diameter	0.14 mm ² ... 0.5 mm ²	
Connection cross section [mm ²]	60 V	30 V
Electrical data	4 A	
Rated voltage	≤ 3 mΩ	
Rated current	≥ 100 MΩ	
Volume resistance	CuSn / Au	
Insulation resistance	PUR / PA66	
Material data	HB	
Material contact / contact surface	-40 ... 85	
Contact carrier material		
Inflammability class according to UL 94		
Temperature data		
Plug / socket	[°C]	

Description	Ordering data			
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.	
Plug-in connectors				
Socket, straight	1506888	1	1506891	1
Plug, straight	1501252	1	1501265	1
Socket, angled	1407582	1	1407584	1
Plug, angled	1407583	1	1407585	1

Description	Ordering data			
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.	
Plug-in connectors				
Socket, straight	1542907	1	1542910	1
Plug, straight	1542884	1	1542897	1

Pressure screw and seal, for cable diameter:	Accessories		
	Order No.	Pcs. / Pkt.	Order No.
2.5 mm ... 3.5 mm	SACC-M 8-SET/2,2-3,5	1436945	5

Pressure screw and seal, for cable diameter:	Accessories		
	Order No.	Pcs. / Pkt.	Order No.
2.5 mm ... 3.5 mm			

Sensor/actuator cabling

Sensor/actuator plug-in connectors for assembly

M8, solder connection



Unshielded,
3, 4-pos.



Shielded,
3, 4-pos.



Technical data

3-pos. 4-pos.

General data		
M8 circular plug-in connector according to:	IEC 61076-2-104	
Pollution degree	3	
Degree of protection	IP67	
Connection method	Solder connection	
Cable diameter	3.5 mm ... 5 mm	
Connection cross section [mm ²]	0.08 mm ² ... 0.25 mm ²	
Electrical data		
Rated voltage	60 V	30 V
Rated current	4 A	
Volume resistance	≤ 3 mΩ	
Insulation resistance	≥ 100 MΩ	
Material data		
Material contact / contact surface	CuSn / Au	
Contact carrier material	PUR / PA66	
Inflammability class according to UL 94	V0	
Temperature data		
Plug / socket	-40 ... 85 [°C]	

Ordering data

Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.	
Plug-in connectors				
Socket, angled	1529399	1	1513444	1
Plug, angled	1699902	1	1554209	1
Socket, straight	1681172	1	1681185	1
Plug, straight	1681156	1	1681169	1

Accessories

Pressure screw and seal, for cable diameter:		
2.5 mm ... 3.5 mm	SACC-M 8-SET/2,2-3,5	1436945 5

Technical data

3-pos. 4-pos.

General data		
M8 circular plug-in connector according to:	IEC 61076-2-104	
Pollution degree	3	
Degree of protection	IP67	
Connection method	Solder connection	
Cable diameter	3.5 mm ... 5 mm	
Connection cross section [mm ²]	0.08 mm ² ... 0.25 mm ²	
Electrical data		
Rated voltage	60 V	30 V
Rated current	4 A	
Volume resistance	≤ 3 mΩ	
Insulation resistance	≥ 100 MΩ	
Material data		
Material contact / contact surface	CuSn / Au	
Contact carrier material	PUR / PA66	
Inflammability class according to UL 94	HB	
Temperature data		
Plug / socket	-40 ... 85 [°C]	

Ordering data

Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.	
Plug-in connectors				
Socket, angled	1436479	1	1436482	1
Plug, angled	1436453	1	1436466	1
Socket, straight	1506927	1	1506930	1
Plug, straight	1506901	1	1506914	1

Accessories

Pressure screw and seal, for cable diameter:		
2.5 mm ... 3.5 mm		

M12, solder and Piercecon® connection



**Solder connection,
12-pos.**



**Piercecon® connection,
12, 17-pos.**



	Technical data			
	Unshielded		Shielded	
General data				
M12 circular plug-in connector according to:	IEC 61076-2-101		IEC 61076-2-101	
Pollution degree	3		3	
Degree of protection	IP67		IP67	
Connection method	Solder connection		Piercecon® fast connection	
Cable diameter	6 mm ... 8 mm		5.4 mm ... 8.2 mm	
Electrical data				
Rated voltage	30 V		30 V	
Rated current	1 A		1.5 A	
Volume resistance	≤ 3 mΩ		≤ 5 mΩ	
Insulation resistance	> 10 GΩ		≥ 100 MΩ	
Material data				
Material contact / contact surface	CuSn / Au		CuZn / Ni/Au	
Contact carrier material	PA		PA	
Inflammability class according to UL 94	-		V0	
Temperature data				
Plug / socket	-25 ... 85 [°C]		-25 ... 85	

	Ordering data				
	Unshielded		Shielded		
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Plug-in connectors					
Socket, straight	A - standard	1404420	1	1404411	1
Plug, straight	A - standard	1404419	1	1404410	1
Socket, angled	A - standard	1404423	1	1404413	1
Plug, angled	A - standard	1404421	1	1404412	1

	Technical data			
	12-pos.		17-pos.	
General data				
M12 circular plug-in connector according to:	IEC 61076-2-101		IEC 61076-2-101	
Pollution degree	3		3	
Degree of protection	IP67		IP67	
Connection method	Piercecon® fast connection		Piercecon® fast connection	
Cable diameter	5.4 mm ... 8.2 mm		5.4 mm ... 8.2 mm	
Electrical data				
Rated voltage	30 V		30 V	
Rated current	1.5 A		1.5 A	
Volume resistance	≤ 5 mΩ		≤ 5 mΩ	
Insulation resistance	≥ 100 MΩ		≥ 100 MΩ	
Material data				
Material contact / contact surface	CuZn / Ni/Au		CuZn / Ni/Au	
Contact carrier material	PA		PA	
Inflammability class according to UL 94	-		V0	
Temperature data				
Plug / socket	-25 ... 85		-25 ... 85	

	Ordering data				
	12-pos.		17-pos.		
Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
1559631	1	1559644	1		
1559592	1	1559602	1		

Sensor/actuator cabling

Sensor/actuator plug-in connectors for assembly

M12, insulation displacement connection



0.14 mm² ... 0.34 mm²,
4-pos.



0.34 mm² ... 0.75 mm²,
4-pos.



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Pollution degree	3
Degree of protection	IP65/67
Connection method	Insulation displacement connection
Cable diameter	3.5 mm ... 6 mm
Electrical data	
Rated voltage	125 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Insulation resistance	≥ 100 MΩ
Material data	
Material contact / contact surface	CuSn / Ni/Au
Contact carrier material	TPU
Inflammability class according to UL 94	V0
Temperature data	
Plug / socket	-25 ... 80 [°C]

4-pos.	
IEC 61076-2-101	
3	
IP65/67	
Insulation displacement connection	
3.5 mm ... 6 mm	
125 V	
4 A	
≤ 5 mΩ	
≥ 100 MΩ	
CuSn / Ni/Au	
TPU	
V0	
-25 ... 80 [°C]	



Technical data

4-pos.	
IEC 61076-2-101	
3	
IP65/67	
Insulation displacement connection	
4 mm ... 8 mm	
250 V	
4 A	
≤ 5 mΩ	
≥ 100 MΩ	
CuSn / Ni/Au	
TPU	
V0	
-25 ... 80 [°C]	

Ordering data

Description	Coding
Plug-in connector, with plastic knurl	
Socket, straight	A - standard
Plug, straight	A - standard
Plug-in connector, with metal knurl, SPEEDCON	
Socket, straight	A - standard
Plug, straight	A - standard
Plug-in connector, with metal knurl	
Socket, straight	A - standard
Plug, straight	A - standard
Plug-in connector, with stainless steel knurl	
Socket, straight	A - standard
Plug, straight	A - standard

Type	Order No.	Pcs. / Pkt.
SACC-M12FS-4QO-0,34	1641701	1
SACC-M12MS-4QO-0,34	1641714	1
SACC-FS-4QO-0,34-M SCO	1521588	1
SACC-MS-4QO-0,34-M SCO	1521575	1
SACC-M12FS-4QO-0,34-M	1641688	1
SACC-M12MS-4QO-0,34-M	1641691	1
SACC-M12FS-4QO-0,34-VA	1440766	1
SACC-M12MS-4QO-0,34-VA	1440753	1

Ordering data

Type	Order No.	Pcs. / Pkt.
SACC-M12FS-4QO-0,75	1641756	1
SACC-M12MS-4QO-0,75	1641769	1
SACC-FS-4QO-0,75-M SCO	1521601	1
SACC-MS-4QO-0,75-M SCO	1521591	1
SACC-M12FS-4QO-0,75-M	1641772	1
SACC-M12MS-4QO-0,75-M	1641785	1
SACC-M12FS-4QO-0,75-VA	1440782	1
SACC-M12MS-4QO-0,75-VA	1440779	1

M12, spring-cage connections



Unshielded,
4, 5-pos.



Shielded,
4, 5-pos.



	Technical data	
	4-pos.	5-pos.
General data		
M12 circular plug-in connector according to:	IEC 61076-2-101	
Pollution degree	3	
Degree of protection	IP67	
Connection method	Spring-cage conn.	
Cable diameter	4 mm ... 8 mm	
Connection cross section [mm ²]	0.14 mm ² ... 0.5 mm ²	
Electrical data		
Rated voltage	250 V	60 V
Rated current	4 A	
Volume resistance	≤ 8 mΩ	
Insulation resistance	≥ 100 MΩ	
Material data		
Material contact / contact surface	CuSn / Ni/Au	
Contact carrier material	TPU	
Inflammability class according to UL 94	V0	
Temperature data		
Plug / socket	-40 ... 85	



	Technical data	
	4-pos.	5-pos.
General data		
M12 circular plug-in connector according to:	IEC 61076-2-101	
Pollution degree	3	
Degree of protection	IP67	
Connection method	Spring-cage conn.	
Cable diameter	4 mm ... 8 mm	
Connection cross section [mm ²]	0.14 mm ² ... 0.5 mm ²	
Electrical data		
Rated voltage	60 V	
Rated current	4 A	
Volume resistance	≤ 8 mΩ	
Insulation resistance	≥ 100 MΩ	
Material data		
Material contact / contact surface	CuSn / Ni/Au	
Contact carrier material	TPU	
Inflammability class according to UL 94	V0	
Temperature data		
Plug / socket	-40 ... 85	

Description	Coding	Ordering data			
		4-pos.		5-pos.	
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Plug-in connector , terminal marking: standard color coding and numbering					
Socket, angled	A - standard	1432622	1	1432596	1
Plug, angled	A - standard	1432606	1	1432570	1
Socket, straight	A - standard	1432619	1	1432583	1
Plug, straight	A - standard	1432635	1	1432567	1

Description	Coding	Ordering data			
		4-pos.		5-pos.	
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Plug-in connector , terminal marking: standard color coding and numbering					
Socket, angled	A - standard	1432758	1	1432677	1
Plug, angled	A - standard	1432732	1	1432651	1
Socket, straight	A - standard	1432745	1	1432664	1
Plug, straight	A - standard	1432729	1	1432648	1

Sensor/actuator cabling

Sensor/actuator plug-in connectors for assembly

M12, screw connections



Plastic knurl,
4, 5-pos.



Metal knurl, SPEEDCON,
4, 5-pos.



Technical data	
4-pos.	5-pos.
General data	
M12 circular plug-in connector according to:	
IEC 61076-2-101	
Pollution degree	
3	
Degree of protection	
IP67	
Connection method	
Screw connection	
Connection cross section [mm ²]	
0.25 mm ² ... 0.75 mm ²	
Electrical data	
Rated voltage	250 V
Rated current	4 A
Volume resistance	≤ 8 mΩ
Insulation resistance	≥ 100 MΩ
Material data	
Material contact / contact surface	CuZn / CuSnZn
Contact carrier material	PA 66
Inflammability class according to UL 94	HB
Temperature data	
Plug / socket	-40 ... 85 [°C]

Technical data	
4-pos.	5-pos.
General data	
M12 circular plug-in connector according to:	
IEC 61076-2-101	
Pollution degree	
3	
Degree of protection	
IP67	
Connection method	
Screw connection	
Connection cross section [mm ²]	
0.25 mm ² ... 0.75 mm ²	
Electrical data	
Rated voltage	250 V
Rated current	4 A
Volume resistance	≤ 8 mΩ
Insulation resistance	≥ 100 MΩ
Material data	
Material contact / contact surface	CuZn / CuSnZn
Contact carrier material	PA 66
Inflammability class according to UL 94	HB
Temperature data	
Plug / socket	-40 ... 85 [°C]

Technical data	
4-pos.	5-pos.
General data	
M12 circular plug-in connector according to:	
IEC 61076-2-101	
Pollution degree	
3	
Degree of protection	
IP67	
Connection method	
Screw connection	
Connection cross section [mm ²]	
0.25 mm ² ... 0.75 mm ²	
Electrical data	
Rated voltage	250 V
Rated current	4 A
Volume resistance	≤ 8 mΩ
Insulation resistance	≥ 100 MΩ
Material data	
Material contact / contact surface	CuZn / CuSnZn
Contact carrier material	PA 66
Inflammability class according to UL 94	HB
Temperature data	
Plug / socket	-40 ... 85 [°C]

Ordering data	
Description	Coding
Plug-in connector, with Pg7 screw connection, cable diameter: 4 mm ... 6 mm	
Socket, angled	A - standard
Plug, angled	A - standard
Socket, straight	A - standard
Plug, straight	A - standard
Plug-in connector, with Pg9 screw connection, cable diameter: 6 mm ... 8 mm	
Socket, angled	A - standard
Plug, angled	A - standard
Socket, straight	A - standard
Plug, straight	A - standard
Power plug-in connector, with Pg11 screw connection, cable diameter: 8 mm ... 10 mm, rated current: up to 8 A (5th pos. max. 2 A) with 1.5 mm² wires/litz wires	
Socket, straight	A - standard
Plug, straight	A - standard

Ordering data					
Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
4-pos.		5-pos.			
1681130	1	1662308	1		
1681091	1	1662269	1		
1681114	1	1662298	1		
1681088	1	1662256	1		
		1500790	1		
		1513431	1		
		1500787	1		
		1500774	1		

Ordering data					
Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
4-pos.		5-pos.			
1543058	1	1543061	1		
1542981	1	1542994	1		
1543029	1	1543032	1		
1542952	1	1542965	1		
		1543414	1		
		1543003	1		
		1543045	1		
		1542978	1		

Accessories	
Pressure screw and seal, for cable diameter:	
2.5 mm ... 3.5 mm	

Accessories	
SACC-M12-SET/2,5-3,5	
1436505	5

Accessories	
SACC-M12-SET/2,5-3,5	
1436505	5



Metal knurl,
4, 5, 8-pos.



Metal knurl,
4, 5-pos.,
with SKINTOP® screw connection



Stainless steel knurl,
4, 5-pos.



Technical data		
4-pos.	5-pos.	8-pos.
IEC 61076-2-101		
3		
IP67		
Screw connection		
0.25 mm ² ... 0.75 mm ²	0.25 mm ² ... 0.5 mm ²	
250 V	60 V	30 V
4 A		2 A
≤ 8 mΩ		≤ 3 mΩ
	≥ 100 MΩ	
CuZn / CuSnZn		CuZn / Au
	PA 66	
	HB	
	-40 ... 85	

Technical data		
4-pos.	5-pos.	
IEC 61076-2-101		
3		
IP67		
Screw connection		
0.25 mm ² ... 0.75 mm ²	- ... -	
250 V	125 V	-
4 A		-
≤ 8 mΩ		-
	≥ 100 MΩ	-
CuZn / CuSnZn		- / -
	PA 66	-
	HB	-
	-20 ... 80	-

Technical data		
4-pos.	5-pos.	
IEC 61076-2-101		
3		
IP67/IP69K		
Screw connection		
0.25 mm ² ... 0.75 mm ²	- ... -	
250 V	60 V	-
4 A		-
≤ 3 mΩ		-
	≥ 100 MΩ	-
CuZn / Au		- / -
	PA 66	-
	V0	-
	-40 ... 85	-

Ordering data					
Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
4-pos.		5-pos.		8-pos.	
1681143	1	1662984	1		
1681101	1	1663129	1		
1681127	1	1662968	1		
1662528	1	1663116	1		
		1681499	1		
		1681473	1		
		1681486	1	1513347	1
		1681460	1	1513334	1
1404416	1	1404418	1		
1404415	1	1404417	1		

Ordering data					
Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
4-pos.		5-pos.			
1430381	1	1559000	1		
1556870	1	1456466	1		
		1556812	1		
		1561742	1		
		1556838	1		
		1556825	1		

Ordering data					
Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
4-pos.		5-pos.			
1553284	1	1553297	1		
1553200	1	1553213	1		
1553242	1	1553255	1		
1553161	1	1553187	1		
		1553307	1		
1553226	1	1553239	1		
1553268	1	1553271	1		
1553174	1	1553190	1		

Accessories			
Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
SACC-M12-SET/2,5-3,5		1436505	5

Accessories			
Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.

Accessories			
Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
SACC-M12-SET/2,5-3,5		1436505	5

M12, power plug-in connector, screw connection



**Metal knurl,
3-pos. + PE, S-coded**



**Metal knurl,
4-pos., T-coded**

Technical data	
3-pos. + PE	
General data	
Pollution degree	3
Degree of protection	IP67
Connection method	Screw connection
Connection cross section [mm ²]	0.75 mm ² ... 1.5 mm ²
Electrical data	
Rated voltage	630 V
Rated current	12 A
Volume resistance	≤ 3 mΩ
Insulation resistance	> 10 GΩ
Material data	
Material contact / contact surface	CuZn / Au
Contact carrier material	PA 46
Inflammability class according to UL 94	V0
Temperature data	
Plug / socket	-40 ... 85 [°C]

Technical data	
4-pos.	
General data	
Pollution degree	3
Degree of protection	IP67
Connection method	Screw connection
Connection cross section [mm ²]	0.75 mm ² ... 1.5 mm ²
Electrical data	
Rated voltage	60 V
Rated current	12 A
Volume resistance	≤ 3 mΩ
Insulation resistance	> 10 GΩ
Material data	
Material contact / contact surface	CuZn / Au
Contact carrier material	PA 46
Inflammability class according to UL 94	V0
Temperature data	
Plug / socket	-40 ... 85

Ordering data		
Type	Order No.	Pcs. / Pkt.
Plug-in connector, with Pg11 screw connection, cable diameter: 8 mm ... 10 mm		
Socket, straight	SACC-M12FSS-3PECON-PG11-M	1404642
Plug, straight	SACC-M12MSS-3PECON-PG11-M	1404641
Socket, angled	SACC-M12FRS-3PECON-PG11-M	1408987
Plug, angled	SACC-M12MRS-3PECON-PG11-M	1408985

Ordering data		
Type	Order No.	Pcs. / Pkt.
Plug-in connector, with Pg11 screw connection, cable diameter: 8 mm ... 10 mm		
Socket, straight	SACC-M12FST-3PECON-PG11-M	1404644
Plug, straight	SACC-M12MST-3PECON-PG11-M	1404643
Socket, angled	SACC-M12FRT-3PECON-PG11-M	1408989
Plug, angled	SACC-M12MRT-3PECON-PG11-M	1408988

Sensor/actuator cabling

Sensor/actuator plug-in connectors for assembly

M12, DUO plug-in connector, screw connection

Notes:

SPEEDCON and plastic knurls without key areas.



**Metal knurl,
4, 5-pos.**



**SPEEDCON metal knurl/plastic knurl,
5 pos.**



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Pollution degree	3
Degree of protection	IP67
Connection method	Screw connection
Connection cross section [mm ²]	0.25 mm ² ... 0.75 mm ²
Electrical data	
Rated voltage	250 V
Rated current	4 A
Volume resistance	≤ 8 mΩ
Insulation resistance	≥ 100 MΩ
Material data	
Material contact / contact surface	CuZn / CuSnZn
Contact carrier material	PA 66
Inflammability class according to UL 94	V0
Temperature data	
Plug / socket	-40 ... 85 [°C]

Ordering data

Description	Coding	4-pos.		5-pos.	
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Plug-in connector, with Pg11 DUO screw connection, cable diameter: 2 x 3 mm ... 5.2 mm					
Socket, straight	A - standard				
Plug, straight	A - standard	1507052	1	1662748	1
Plug, angled	A - standard				



Technical data

Metal knurl, SPEEDCON, 5-pos.		Plastic knurl, 5-pos.	
General data			
M12 circular plug-in connector according to:			
IEC 61076-2-101			
Pollution degree			
3			
Degree of protection			
IP67			
Connection method			
Screw connection			
Connection cross section [mm ²]			
0.25 mm ² ... 0.75 mm ²			
Electrical data			
Rated voltage			
60 V			
Rated current			
4 A			
Volume resistance			
≤ 8 mΩ			
Insulation resistance			
≥ 100 MΩ			
Material data			
Material contact / contact surface			
CuZn / CuSnZn			
Contact carrier material			
PA 66			
Inflammability class according to UL 94			
V0			
Temperature data			
-40 ... 85		-25 ... 85	

Ordering data

Metal knurl, SPEEDCON, 5-pos.		Plastic knurl, 5-pos.	
Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
1543016	1	1694596	1
		1662285	1
		1531044	1

7/8", screw connection



Connection cross section: 1.5 mm²,
3, 4, 5-pos.



Connection cross section: 2.5 mm²,
5-pos.



	Technical data		
	3-pos.	4-pos.	5-pos.
General data			
Pollution degree		3	
Degree of protection		IP67	
Connection method		Screw connection	
Connection cross section		0.34 mm ² ... 1.5 mm ²	
Connection cross section AWG		22 ... 16	
Electrical data			
Rated voltage		250 V	
Rated current	12 A		9 A
Volume resistance		≤ 5 mΩ	
Insulation resistance		≥ 100 MΩ	
Material data			
Material contact / contact surface		CuZn / Au	
Contact carrier material		PUR / PA66	
Inflammability class according to UL 94		HB	
Temperature data			
Plug / socket		-25 ... 85	

	Technical data		
	5-pos.		
General data			
Pollution degree	3		-
Degree of protection	IP67		-
Connection method	Screw connection		-
Connection cross section	0.34 mm ² ... 2.5 mm ²	- ... -	-
Connection cross section AWG	22 ... 14	- ... -	-
Electrical data			
Rated voltage	250 V		-
Rated current	9 A		-
Volume resistance	≤ 5 mΩ		-
Insulation resistance	≥ 100 MΩ		-
Material data			
Material contact / contact surface	CuZn / Au		- / -
Contact carrier material	PUR / PA66		-
Inflammability class according to UL 94	HB		-
Temperature data			
Plug / socket	-25 ... 85		-

Description	Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Plug-in connector, with Pg9 screw connection, cable diameter: 6 mm ... 8 mm						
Socket, angled	1521478	1	1521494	1	1521517	1
Plug, angled	1521465	1	1521481	1	1521504	1
Socket, straight	1521300	1	1521342	1	1521384	1
Plug, straight	1521287	1	1521326	1	1521668	1
Plug-in connector, with Pg11 screw connection, cable diameter: 8 mm ... 10 mm						
Socket, angled						
Plug, angled						
Socket, straight						
Plug, straight						
Plug-in connector, with Pg13.5 screw connection, cable diameter: 10 mm ... 12 mm						
Socket, angled						
Plug, angled						
Socket, straight	1521313	1	1521355	1	1521397	1
Plug, straight	1521290	1	1521339	1	1521371	1
Plug-in connector, with Pg16 screw connection, cable diameter: 12 mm ... 14 mm						
Socket, straight					1559071	1
Plug, straight					1559039	1

Description	Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Plug-in connector, with Pg9 screw connection, cable diameter: 6 mm ... 8 mm						
Socket, angled						
Plug, angled						
Socket, straight						
Plug, straight						
Plug-in connector, with Pg11 screw connection, cable diameter: 8 mm ... 10 mm						
Socket, angled	1456297	1				
Plug, angled	1456242	1				
Socket, straight	1456271	1				
Plug, straight	1456226	1				
Plug-in connector, with Pg13.5 screw connection, cable diameter: 10 mm ... 12 mm						
Socket, angled	1456307	1				
Plug, angled	1456255	1				
Socket, straight	1456284	1				
Plug, straight	1456213	1				
Plug-in connector, with Pg16 screw connection, cable diameter: 12 mm ... 14 mm						
Socket, straight					1456268	1
Plug, straight					1456239	1

Sensor/actuator cabling

Sensor/actuator plug-in connectors for assembly

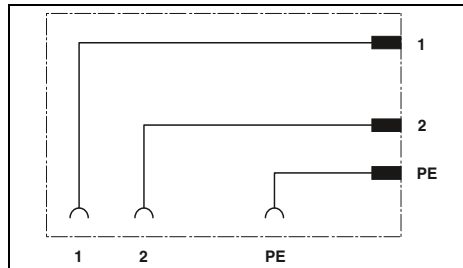
Valve connectors, type A, screw connection



Without protective circuit

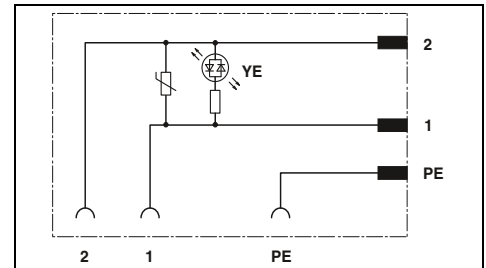


Protective circuit: varistor



Technical data

General data	
Valve connector according to:	EN 175301-803
Pollution degree	3
Degree of protection	IP65
Connection method	Screw connection
Electrical data	
Rated current	10 A
Volume resistance	≤ 4 MΩ
Insulation resistance	> 2 GΩ
Material data	
Material contact valve connector	CuZn
Material contact surface valve connector	CuSn
Inflammability class according to UL 94	HB
Temperature data	
Valve connectors	-25 ... 60 [°C]



Technical data

General data	
Valve connector according to:	EN 175301-803
Pollution degree	3
Degree of protection	IP65
Connection method	Screw connection
Electrical data	
Rated current	1.5 A
Volume resistance	≤ 4 MΩ
Insulation resistance	> 2 GΩ
Material data	
Material contact valve connector	CuZn
Material contact surface valve connector	CuSn
Inflammability class according to UL 94	HB
Temperature data	
Valve connectors	-25 ... 60

Ordering data

Description	
Valve connector, without protective circuit, rated voltage: 230 V	
3-pos.	SACC-VB-3CON-M16/A
4-pos.	SACC-VB-4CON-M16/A
Valve connector, with protective circuit, rated voltage:	
24 V	
110 V	
230 V	
Valve connector, 5-pos., type A, for pressure switch, 2 LEDs, without protective circuit, M16 cable gland, rated voltage: 24 V	
Valve connector, with protective circuit, rated voltage: 24 V, cable gland:	
Pg9	
M16	

Type	Order No.	Pcs. / Pkt.
SACC-VB-3CON-M16/A	1452123	1
SACC-VB-4CON-M16/A	1452136	1

Ordering data

Type	Order No.	Pcs. / Pkt.
SACC-VB-3CON-M16/A-1L-SV 24V	1452149	1
SACC-VB-3CON-M16/A-1L-SV 110V	1452152	1
SACC-VB-3CON-M16/A-1L-SV 230V	1452165	1



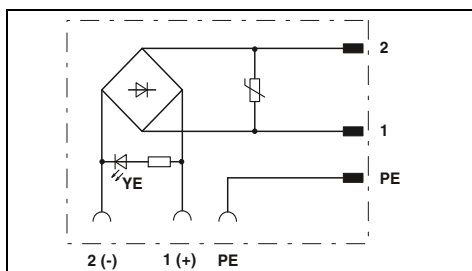
Protective circuit: varistor and rectifier



Pressure switch



Protective circuit: Z diode



Technical data

EN 175301-803
3
IP65
Screw connection

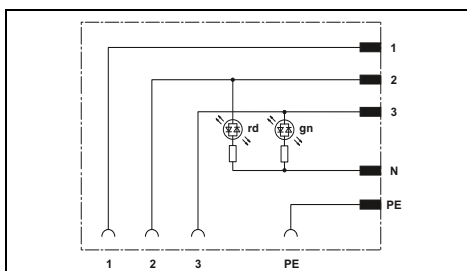
1.5 A
≤ 4 MΩ
> 2 GΩ

CuZn
CuSn
HB

-25 ... 60

Ordering data

Type	Order No.	Pcs. / Pkt.
SACC-VB-3CON-M16/A-GVL 12/24V	1452178	1
SACC-VB-3CON-M16/A-GVL 110V	1452181	1
SACC-VB-3CON-M16/A-GVL 230V	1452194	1



Technical data

-
3
IP65
Screw connection

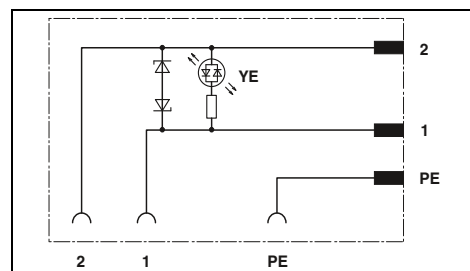
1.5 A
≤ 4 MΩ
> 2 GΩ

CuZn
CuSn
HB

-25 ... 60

Ordering data

Type	Order No.	Pcs. / Pkt.
SACC-VB-5CON-M16/AD-2L 24V	1457908	1



Technical data

EN 175301-803
3
IP65
Screw connection

4 A
≤ 4 MΩ
> 2 GΩ

CuSn
Ag
HB

-25 ... 60

Ordering data

Type	Order No.	Pcs. / Pkt.
SACC-V-3CON-PG9/A-1L-S	1671137	1
SACC-V-3CON-M16/A-1L-S	1544714	1

Sensor/actuator cabling

Sensor/actuator plug-in connectors for assembly

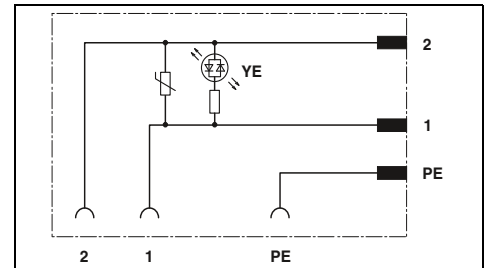
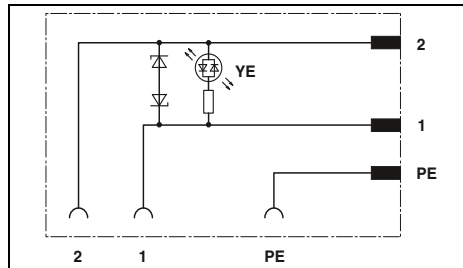
Valve connector, types B and BI, screw connection



Protective circuit: Z diode



Protective circuit: varistor



Technical data

Type B	Type BI
EN 175301-803	-
3	-
IP65	-
Screw connection	-
24 V	-
4 A	-
$\leq 4 \text{ M}\Omega$	-
$> 2 \text{ G}\Omega$	-
Ag	-
PA	-
HB	-
-25 ... 60	-

Ordering data

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Type B		Type BI	
1671153	5	1671140	5

Technical data

Type B	Type BI
EN 175301-803	-
3	-
IP65	-
Screw connection	-
24 V	-
1.5 A	-
$\leq 4 \text{ M}\Omega$	-
$> 2 \text{ G}\Omega$	-
CuSn	-
PA	-
HB	-
-25 ... 60	-

Ordering data

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Type B		Type BI	
1452204	1	1452233	1
1452217	1	1452246	1
1452220	1	1452259	1

General data	
Valve connector according to:	
Pollution degree	
Degree of protection	
Connection method	
Electrical data	
Rated voltage	
Rated current	
Volume resistance	
Insulation resistance	
Material data	
Material contact surface valve connector	
Material housing valve connector	
Inflammability class according to UL 94	
Temperature data	
Valve connectors	[°C]

Description

Valve connector, 3-pos., with protective circuit, Pg9 cable gland

Valve connector, with protective circuit, yellow LED, rated voltage:

24 V

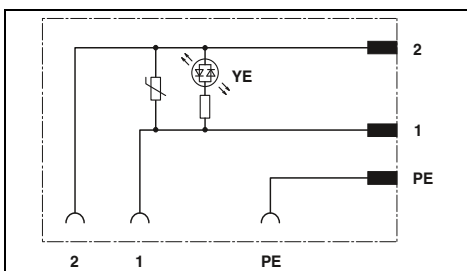
110 V

230 V

Valve connectors, type C and CI, screw connection



Protective circuit: varistor



Technical data

General data	Type C	Type CI
	Valve connector according to:	EN 175301-803
Pollution degree		3
Degree of protection		IP65
Connection method	Screw connection	
Electrical data		
Rated current	1.5 A	
Volume resistance	≤ 4 MΩ	
Insulation resistance	> 2 GΩ	
Material data		
Material contact valve connector	CuZn	
Material contact surface valve connector	CuSn	
Inflammability class according to UL 94	HB	
Temperature data		
Valve connectors	-25 ... 60 [°C]	

Ordering data

Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	Type C		Type CI	
Valve connector, with protective circuit, yellow LED, rated voltage:				
24 V	1452262	1	1452291	1
110 V	1452275	1	1452301	1
230 V	1452288	1	1452314	1



Signal plug-in connectors

Assembled cables are available in types M5, M8, and M12. PUR cabling, which is used as standard, meets the requirements of many fields of application.



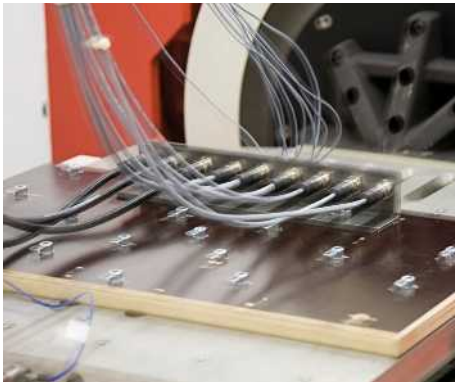
Power plug-in connectors

Plug-in connectors for power transmission are available in types M12 to M40 and 7/8".



Valve plug-in connectors

Choose from a range of cables with assembled valve plug-in connectors in various types (A, B, BI, C, CI, AD) as well as various protective circuits.



Securely locked

An integrated vibration brake prevents the unintentional loosening of the plug-in connection in the event of vibrations and ensures a secure, permanent connection.



Safe transmission

With 360° shielded plug-in connectors and cables, you can transmit signals reliably even in critical EMI applications.



High packing density

Our high-pos. M8 and M12 versions feature a compact design. This means that up to 8 positions can be accommodated in type M8 and up to 17 positions in type M12.



SPEEDCON: fast, safe, and compatible

The SPEEDCON rapid interlock system is based on the principle of "Plug & Turn" and is 100% compatible with all M12 plug-in connectors with M12x1 thread on the market.



Variety of cables for KMAT

Standard items are produced with high-quality PUR cable. For special applications, different cable types for KMAT are available.



M12 plug-in connectors for power

With new T and S-coded power plug-in connectors for up to 12 A and 630 V, the M12 design opens up new areas of application for supplying power.



High-quality materials and innovative designs

For increased requirements, we have developed solutions which meet the needs of your application through innovative design and material selection.



Easy detection

A particularly user-friendly feature is diagnostics in the event of an error. LEDs can be used to detect errors in the signal path quickly and easily. This can directly increase your machine availability.



100% tested

All supplied components are 100% electrically checked by Quality Assurance.

Sensor/actuator cabling

Assembled cables

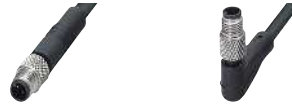
M5 SAC cable, 3 and 4-pos.

Notes:
For information about the cable qualities, see page 184

Free end



M5 plug, 3-pos.



M5 plug, 4-pos.



Ordering data

Ordering data

Ordering data

Ordering data

Ordering data

Free end

Order No.

Order No.

Order No.

Order No.

Order No.



1.5 m	1530265	1.5 m	1530346	1.5 m	1530304	1.5 m	1530388
3 m	1530278	3 m	1530359	3 m	1530317	3 m	1530391
5 m	1530281	5 m	1530362	5 m	1530320	5 m	1530401
10 m	1530294	10 m	1530375	10 m	1530333	10 m	1530414

M5 socket, 3-pos., straight



1.5 m	1530427
3 m	1530430
5 m	1530443
10 m	1530456

M5 socket, 3-pos., angled



1.5 m	1530508
3 m	1530511
5 m	1530524
10 m	1530537

M5 socket, 4-pos., straight



1.5 m	1530469
3 m	1530472
5 m	1530485
10 m	1530498

M5 socket, 4-pos., angled



1.5 m	1530540
3 m	1530553
5 m	1530566
10 m	1530579

Cable description	Cable type	Color coding	Pin assignment 3-pos.	Color coding	Pin assignment 4-pos.
PUR/PVC - black	PUR M5	BN	1	BN	1
		BK	4	WH	2
		BU	3	BK	4
				BU	3

		Technical data	Technical data
		M5 3-pos.	M5 4-pos.
Rated voltage	[V]	125	125
Rated current	[A]	1	1
Volume resistance		≤ 3 mΩ	≤ 3 mΩ
Contact material		CuZn	CuZn
Contact surface material		Au	Au
Material of grip body		PUR	PUR
M5 circular plug-in connector according to:		IEC 61076-2-105	IEC 61076-2-105
Degree of protection		IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data			
Plug / socket	[°C]	-25 ... 80	-25 ... 80

Sensor/actuator cabling

Assembled cables

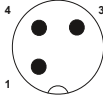
M8 SAC cable, snap-in, 3 and 4-pos.

Notes:
For information about the cable qualities, see page 184

Free end



M12 plug, 3-pos.



Ordering data

Ordering data

Ordering data

M8 socket, snap-in, 3-pos., straight



5 m **1519875**
Variable **1697593**

Variable **1696853**

M8 socket, snap-in, 3-pos., angled



5 m **1519891**
Variable **1697629**

Variable **1696882**

M8 socket, snap-in, 3-pos., with LEDs, angled



Variable **1513402**

Variable **1515675**

M8 socket, snap-in, 4-pos., straight



Variable **1513389**

M8 socket, snap-in, 4-pos., angled



Variable **1513392**

M8 socket, snap-in, 4-pos., with LEDs, angled



Variable **1511954**

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 3-pos. M12 plug and a straight M8 snap-in socket, the ordering data is as follows:

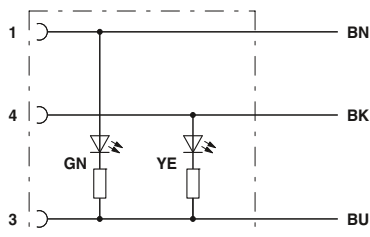
Order No.	Cable type	Length [m] Max. 40 m
1696853	PUR	4.5
Minimum order amount = 25 Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	Cable type	Suitable for	Color coding	Pin assignment 3-pos.
PUR, halogen-free - black E221474	PUR	3/4-pos.	BN BK	1 4
PUR, halogen-free - gray E221474	280	3-pos.	BU	3
PUR/PVC - gray E221474	100	3/4-pos.		
PUR/PVC - yellow E221474	140	3/4-pos.		
TPE-U highly flexible - gray E221474	800	3/4-pos.		

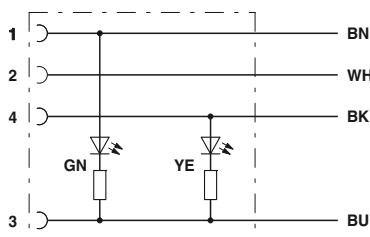
Color coding	Pin assignment 4-pos.
BN	1
WH	2
BK	4
BU	3

With a combination of M12 and M8 plug-in connectors, the limiting M8 value applies to the rated voltage.

	Technical data	Technical data	Technical data	Technical data
	M8 3-pos.	M8 3-pos., with LEDs	M8 4-pos.	M8 4-pos., with LED
Rated voltage [V]	60	24	30	24
Rated current [A]	4	4	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au	Ni/Au	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
M8 circular plug-in connector according to:	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104
Degree of protection	IP65 / IP67 / IP68	IP65 / IP67 / IP68	IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data				
Plug / socket [°C]	-25 ... 90	-25 ... 90	-25 ... 90	-25 ... 90



Contact assignment of the M8 socket with LED, 3-pos.



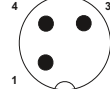
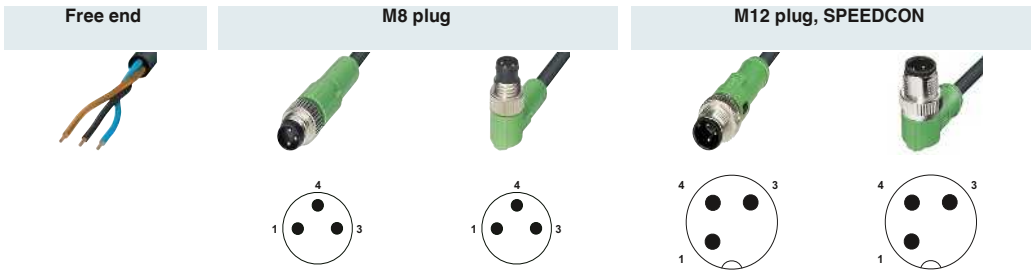
Contact assignment of the M8 socket with LED, 4-pos.

Sensor/actuator cabling

Assembled cables

M8 and M12 SPEEDCON SAC cable, 3-pos.

Notes:
For information about the cable qualities, see page 184



		Ordering data		Ordering data		Ordering data		Ordering data		Ordering data	
Free end		Order No.		Order No.		Order No.		Order No.		Order No.	
			1.5 m	1681664	1.5 m	1681693	1.5 m	1518643	1.5 m	1518685	
			3 m	1681677	3 m	1681703	3 m	1518656	3 m	1518698	
			5 m	1681680	5 m	1681716	5 m	1518669	5 m	1518708	
			10 m	1693584	10 m	1694114	10 m	1518672	10 m	1518711	
			Variable	1697548	Variable	1697551	Variable	1523515	Variable	1523531	
M8 socket, straight			1.5 m	1669712	0.3 m	1681907	0.3 m	1682029			
			3 m	1669725	0.6 m	1681910	0.6 m	1682032			
			5 m	1669628	1.5 m	1681923	1.5 m	1682045			
			10 m	1694101	3 m	1681936	3 m	1682058			
			Variable	1697580	Variable	1697632	Variable	1697661	Variable	1535736	Variable
M8 socket, angled			1.5 m	1669738	0.3 m	1681949	0.3 m	1682061			
			3 m	1669741	0.6 m	1681952	0.6 m	1682074			
			5 m	1669631	1.5 m	1681965	1.5 m	1682087			
			10 m	1694169	3 m	1681978	3 m	1682090			
			Variable	1697603	Variable	1697645	Variable	1697674	Variable	1540763	Variable
M8 socket, angled, with 2 LEDs			1.5 m	1671069	0.3 m	1681981	0.3 m	1682100			
			3 m	1671072	0.6 m	1681994	0.6 m	1682113			
			5 m	1671085	1.5 m	1682003	1.5 m	1682126			
			10 m	1683594	3 m	1682016	3 m	1682139			
			Variable	1697616	Variable	1697658	Variable	1697687	Variable	1535710	Variable
M12 socket, SPEEDCON, straight			1.5 m	1536243			0.3 m	1518724	0.3 m	1518766	
			3 m	1536256			0.6 m	1518737	0.6 m	1518779	
			5 m	1536269			1.5 m	1518740	1.5 m	1518782	
			10 m	1536272			3 m	1518753	3 m	1518795	
			Variable	1535778	Variable	1541911	Variable	1541940	Variable	1523544	Variable
M12 socket, SPEEDCON, straight, pin 2 - 4 bridged											
			Variable	1542046					Variable	1542091	Variable
M12 socket, SPEEDCON, straight, with 2 LEDs											
			Variable	1542059	Variable	1541843	Variable	1553501	Variable	1542017	Variable
M12 socket, SPEEDCON, angled			1.5 m	1536366							
			3 m	1536379							
			5 m	1536382							
			10 m	1536395							
			Variable	1536492	Variable	1541924	Variable	1541953	Variable	1542101	Variable
M12 socket, SPEEDCON, angled, pin 2 - 4 bridged											
			Variable	1542075					Variable	1542114	Variable
M12 socket, SPEEDCON, angled, with 2 LEDs			1.5 m	1407774							
			3 m	1407775							
			5 m	1407776							
			10 m	1407777							
			Variable	1535752	Variable	1541937	Variable	1541966	Variable	1538225	
M12 socket, SPEEDCON, angled, with 2 LEDs, pin 2 - 4 bridged											
			Variable	1542088					Variable	1542127	Variable

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 3-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

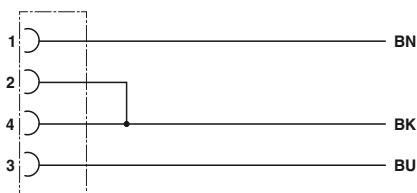
Order No.	Cable type	Length [m] Max. 40 m
1523544	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	UL _{OS}	Cable type	Suitable for:
PUR, halogen-free - black E221474	UL _{OS}	PUR	M8/M12
PUR, halogen-free - gray E221474	UL _{OS}	280	M8/M12
PUR/PVC - gray E221474	UL _{OS}	100	M8/M12
PUR/PVC - yellow E221474	UL _{OS}	140	M8/M12
TPE-U highly flexible - gray E221474	UL _{OS}	800	M8/M12
PUR irradiated - orange E221474	UL _{OS}	150	M12
PVC - black E221474	UL _{OS}	PVC	M8/M12
PVC - gray E221474	UL _{OS}	500	M8/M12
PVC - yellow E221474	UL _{OS}	540	M12
PVC 105° - yellow E221474	UL _{OS}	542	M12

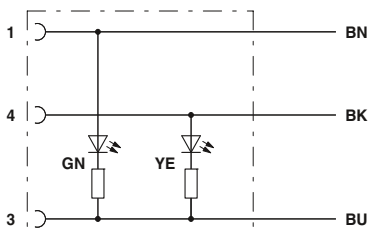
Color coding	Pin assignment
BN	1
BK	4
BU	3

With a combination of M12 and M8 plug-in connectors, the limiting M8 value applies to the rated voltage.

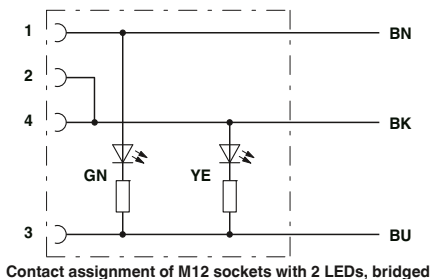
Technical data	Technical data	Technical data	Technical data
M8 3-pos.	M8 3-pos., with LED	M12 3-pos.	M12 3-pos., with LEDs
Rated voltage [V]	60	250	24
Rated current [A]	4	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
M8 circular plug-in connector according to:	IEC 61076-2-104	-	-
M12 circular plug-in connector according to:	-	IEC 61076-2-101	IEC 61076-2-101
Degree of protection	IP65 / IP67 / IP68	IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data	-25 ... 90	-25 ... 90	-25 ... 90
Plug / socket	[-25 ... 90]	[-25 ... 90]	[-25 ... 90]



Contact assignment of M12 sockets bridged



Contact assignment of M8/M12 socket with two LEDs



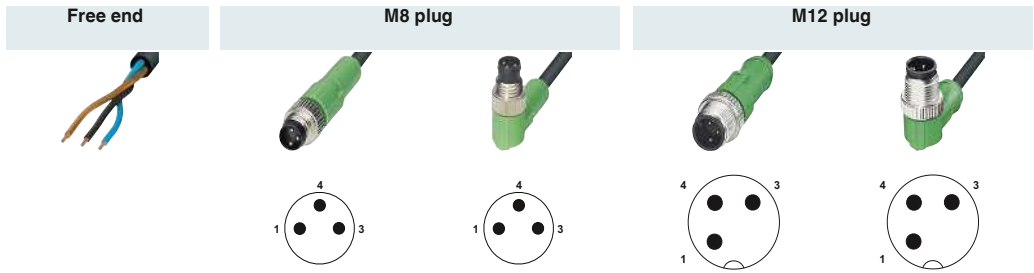
Contact assignment of M12 sockets with 2 LEDs, bridged

Sensor/actuator cabling

Assembled cables

M8 and M12 SAC cable, 3-pos.

Notes:
For information about the cable qualities, see page 184



		Ordering data		Ordering data		Ordering data		Ordering data		Ordering data	
Free end		Order No.		Order No.		Order No.		Order No.		Order No.	
			1.5 m	1681664	1.5 m	1681693	1.5 m	1668014	1.5 m	1668137	
			3 m	1681677	3 m	1681703	3 m	1668027	3 m	1668140	
			5 m	1681680	5 m	1681716	5 m	1668030	5 m	1668153	
			10 m	1693584	10 m	1694114	10 m	1682566	10 m	1694444	
			Variable	1697548	Variable	1697551	Variable	1696662	Variable	1696675	
M8 socket, straight			1.5 m	1669712	0.3 m	1681907	0.3 m	1668797	0.3 m	1668878	
			3 m	1669725	0.6 m	1681910	0.6 m	1668807	0.6 m	1668881	
			5 m	1669628	1.5 m	1681923	1.5 m	1668810	1.5 m	1668894	
			10 m	1694101	3 m	1681936	3 m	1668823	3 m	1668904	
			Variable	1697580	Variable	1697632	Variable	1696840	Variable	1696895	
M8 socket, angled			1.5 m	1669738	0.3 m	1681949	0.3 m	1668836	0.3 m	1668917	
			3 m	1669741	0.6 m	1681952	0.6 m	1668849	0.6 m	1668920	
			5 m	1669631	1.5 m	1681965	1.5 m	1668852	1.5 m	1668933	
			10 m	1694169	3 m	1681978	3 m	1668865	3 m	1668946	
			Variable	1697603	Variable	1697645	Variable	1696866	Variable	1696905	
M8 socket, angled, with 2 LEDs			1.5 m	1671069	0.3 m	1681981	0.3 m	1682100	0.3 m	1694884	
			3 m	1671072	0.6 m	1681994	0.6 m	1682113	0.6 m	1694897	
			5 m	1671085	1.5 m	1682003	1.5 m	1682126	1.5 m	1694907	
			10 m	1683594	3 m	1682016	3 m	1682139	3 m	1694910	
			Variable	1697616	Variable	1697658	Variable	1697687	Variable	1696879	Variable
											1696918
M12 socket, straight			1.5 m	1694486	0.3 m	1682304	0.3 m	1682388	0.3 m	1681509	
			3 m	1694499	0.6 m	1682317	0.6 m	1682391	0.6 m	1681512	
			5 m	1683510	1.5 m	1682320	1.5 m	1682401	1.5 m	1681525	
			10 m	1693034	3 m	1682333	3 m	1682414	3 m	1681538	
			Variable	1696688	Variable	1697690	Variable	1697726	Variable	1696756	
M12 socket, straight, pin 2 - 4 bridged			1.5 m	1668072					0.3 m	1668315	0.3 m
			3 m	1668085					0.6 m	1668328	0.6 m
			5 m	1668098					1.5 m	1668331	1.5 m
			10 m	1694208					3 m	1668344	3 m
			Variable	1696691					Variable	1696769	Variable
											1668551
											1668564
											1668577
											1668580
											1696811
M12 socket, straight, with LED			1.5 m	1694185							
			3 m	1694198							
			5 m	1694787							
			10 m	1694790							
			Variable	1696701	Variable	1514197			Variable	1511802	Variable
											1524763
M12 socket, angled			1.5 m	1694509	0.3 m	1682346	0.3 m	1682427	0.3 m	1681541	
			3 m	1694512	0.6 m	1682359	0.6 m	1682430	0.6 m	1681554	
			5 m	1694525	1.5 m	1682362	1.5 m	1682443	1.5 m	1681567	
			10 m	1694538	3 m	1682375	3 m	1682456	3 m	1681570	
			Variable	1696714	Variable	1697700	Variable	1697739	Variable	1696772	
M12 socket, angled, pin 2 - 4 bridged			1.5 m	1668195					0.3 m	1668399	0.3 m
			3 m	1668205					0.6 m	1668409	0.6 m
			5 m	1668218					1.5 m	1668412	1.5 m
			10 m	1681017					3 m	1668425	3 m
			Variable	1696727					Variable	1696785	Variable
											1668632
											1668645
											1668658
											1668661
											1696824
M12 socket, angled with LED			1.5 m	1694392	0.3 m	1693351	0.3 m	1682469	0.3 m	1694554	
			3 m	1694402	0.6 m	1693364	0.6 m	1682472	0.6 m	1694567	
			5 m	1694415	1.5 m	1693380	1.5 m	1682485	1.5 m	1694570	
			10 m	1694428	3 m	1693403	3 m	1682498	3 m	1694583	
			Variable	1696730	Variable	1697713	Variable	1697742	Variable	1696798	
M12 socket, angled, with LED, pin 2 - 4 bridged			1.5 m	1668250					0.3 m	1668438	
			3 m	1668263					0.6 m	1668441	
			5 m	1668276					1.5 m	1668454	
			10 m	1681059					3 m	1668467	
			Variable	1696743					Variable	1696808	Variable
											1696837

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 3-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

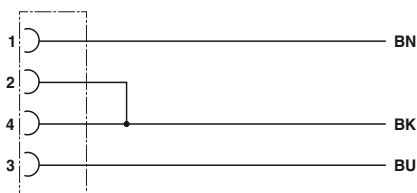
Order No.	Cable type	Length [m] 40 m, max.
1696756	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description		Cable type	Suitable for:
PUR, halogen-free - black E221474		PUR	M8/M12
PUR, halogen-free - gray E221474		280	M8/M12
PUR/PVC - gray E221474		100	M8/M12
PUR/PVC - yellow E221474		140	M8/M12
TPE-U highly flexible - gray E221474		800	M8/M12
PUR irradiated - orange E221474		150	M12
PVC - black E221474		PVC	M8/M12
PVC - gray E221474		500	M8/M12
PVC - yellow E221474		540	M12
PVC 105° - yellow E221474		542	M12

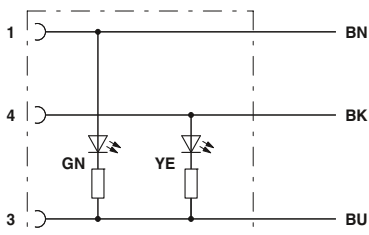
Color coding	Pin assignment
BN	1
BK	4
BU	3

With a combination of M12 and M8 plug-in connectors, the limiting M8 value applies to the rated voltage.

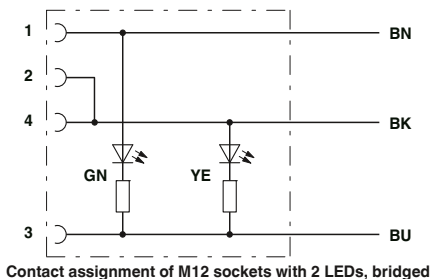
	Technical data	Technical data	Technical data	Technical data
	M8 3-pos.	M8 3-pos., with LEDs	M12 3-pos.	M12 3-pos., with LEDs
Rated voltage [V]	60	24	250	24
Rated current [A]	4	4	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au	Ni/Au	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
M8 circular plug-in connector according to:	IEC 61076-2-104	IEC 61076-2-104	-	-
M12 circular plug-in connector according to:	-	-	IEC 61076-2-101	IEC 61076-2-101
Degree of protection	IP65 / IP67 / IP68	IP65 / IP67 / IP68	IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data	-25 ... 90	-25 ... 90	-25 ... 90	-25 ... 90
Plug / socket	[°C]	[°C]	[°C]	[°C]



Contact assignment of M12 sockets bridged



Contact assignment of M8/M12 socket with two LEDs



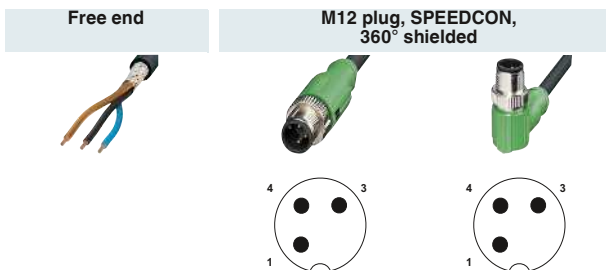
Contact assignment of M12 sockets with 2 LEDs, bridged

Sensor/actuator cabling

Assembled cables

M12 SPEEDCON SAC cable, 3-pos., shielded

Notes:
For information about the cable qualities, see page 184



Ordering data Ordering data Ordering data

Free end	Order No.	Order No.	Order No.
	Variable	1523706	Variable
M12socket, SPEEDCON, straight, 360° shielded	Variable	1536528	Variable
M12 socket, SPEEDCON, angled, 360° shielded	Variable	1536557	Variable

Ordering data for products with variable cables:

For a shielded sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 3-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

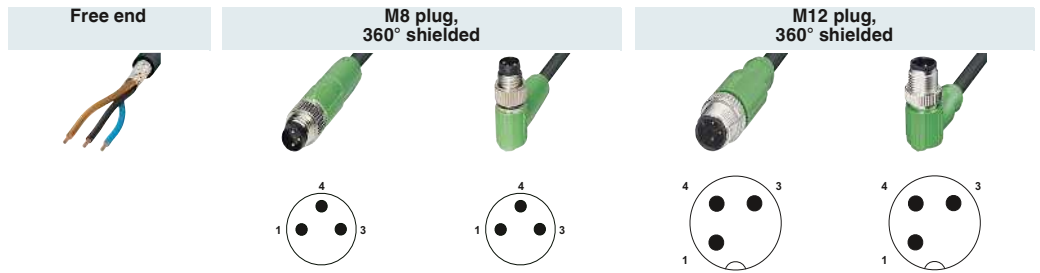
Order No.	Cable type	Length [m] Max. 40 m
1523748	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	Cable type	Suitable for:	Color coding	Pin assignment
PUR, halogen-free - black E221474	PUR	M8/M12	BN	1
PUR/PVC - gray E221474	100	M12	BK	4
PVC - black E221474	PVC	M12	BU	3
PVC - gray E221474	500	M12		

Technical data	
M12 3-pos., shielded	
Rated voltage [V]	250
Rated current [A]	4
Volume resistance	≤ 5 mΩ
Contact material	CuSn
Contact surface material	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection	IP65 / IP67
Temperature data	
Plug / socket [°C]	-25 ... 90

M8 and M12 SAC cable, 3-pos., shielded

Notes:
For information about the cable qualities, see page 184



Ordering data

Free end	Order No.	Order No.	Order No.	Order No.	Order No.			
	1.5 m	1521614	1.5 m	1521669	1.5 m	1682650	1.5 m	1682689
	3 m	1521527	3 m	1521672	3 m	1682663	3 m	1682692
	5 m	1521630	5 m	1521685	5 m	1682676	5 m	1682702
	10 m	1521643	10 m	1521698	10 m	1500664	10 m	1500677
	Variable	1521656	Variable	1521708	Variable	1697425	Variable	1697438
M8 socket, straight, 360° shielded 	1.5 m	1521711	0.3 m	1456310				
	3 m	1521724	0.6 m	1456323				
	5 m	1521737	1.5 m	1455285				
	10 m	1521740	3 m	1455298				
	Variable	1521753	Variable	1552052	Variable	1552078		
M8 socket, angled, 360° shielded 	1.5 m	1521766						
	3 m	1521779						
	5 m	1521782						
	10 m	1521795						
	Variable	1521805	Variable	1552065	Variable	1552081		
M12 socket, straight, 360° shielded 	1.5 m	1682786			0.3 m	1500800		
	3 m	1682799			0.6 m	1500813		
	5 m	1682809			1.5 m	1500826		
	10 m	1500680			3 m	1500839		
	Variable	1697441			Variable	1536049	Variable	1536065
M12 socket, angled, 360° shielded 	1.5 m	1682812			0.3 m	1500923		
	3 m	1682825			0.6 m	1500936		
	5 m	1682838			1.5 m	1500949		
	10 m	1500693			3 m	1500952		
	Variable	1697454			Variable	1536052	Variable	1536078

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a shielded sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 3-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 40 m
1536049	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	Cable type	Suitable for:
PUR, halogen-free - black E221474	PUR	M8/M12
PUR/PVC - gray E221474	100	M12
PVC - black E221474	PVC	M12
PVC - gray E221474	500	M12

Color coding	Pin assignment
BN	1
BK	4
BU	3

With a combination of M12 and M8 plug-in connectors, the limiting M8 value applies to the rated voltage.

	Technical data	Technical data
	M8 3-pos., shielded	M12 3-pos., shielded
Rated voltage [V]	60	250
Rated current [A]	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
M8 circular plug-in connector according to:	IEC 61076-2-104	-
M12 circular plug-in connector according to:	-	IEC 61076-2-101
Degree of protection	IP65 / IP67	IP65 / IP67
Temperature data		
Plug / socket	-25 ... 90	-25 ... 90

Sensor/actuator cabling

Assembled cables

M8 and M12 SPEEDCON SAC cable, 4-pos.

Notes:
For information about the cable qualities, see page 184



	Free end	M8 plug		M12 plug, SPEEDCON	
	Ordering data	Ordering data	Ordering data	Ordering data	Ordering data
Free end	Order No.	Order No.	Order No.	Order No.	Order No.
		1.5 m 1681787	1.5 m 1681813	1.5 m 1518805	1.5 m 1518847
		3 m 1681790	3 m 1681826	3 m 1518818	3 m 1518850
		5 m 1681800	5 m 1681839	5 m 1518821	5 m 1518863
		10 m 1694143	10 m 1694156	10 m 1518834	10 m 1518876
		Variable 1697755	Variable 1697768	Variable 1523560	Variable 1523573
M8 socket, straight					
	1.5 m 1681842	0.3 m 1682142	0.3 m 1682223		
	3 m 1681855	0.6 m 1682155	0.6 m 1682236		
	5 m 1681868	1.5 m 1682168	1.5 m 1682249		
	10 m 1683484	3 m 1682171	3 m 1682252		
	Variable 1697771	Variable 1697797	Variable 1697810	Variable 1535749	Variable 1542253
M8 socket, angled					
	1.5 m 1681871	0.3 m 1682184	0.3 m 1682265		
	3 m 1681884	0.6 m 1682197	0.6 m 1682278		
	5 m 1681897	1.5 m 1682207	1.5 m 1682281		
	10 m 1694172	3 m 1682210	3 m 1682294		
	Variable 1697784	Variable 1697807	Variable 1697823	Variable 1542279	
M8 socket, angled, with 2 LEDs					
	Variable 1517673			Variable 1535723	
M12 socket, SPEEDCON, straight					
	1.5 m 1536285			0.3 m 1518889	0.3 m 1518928
	3 m 1536298			0.6 m 1518892	0.6 m 1518931
	5 m 1536308			1.5 m 1518902	1.5 m 1518944
	10 m 1536311			3 m 1518915	3 m 1518957
	Variable 1535781	Variable 1542240		Variable 1523586	Variable 1523599
M12 socket, SPEEDCON, straight, with 2 LEDs					
	Variable 1542321				
M12 socket, SPEEDCON, angled					
	1.5 m 1536405				
	3 m 1536418				
	5 m 1536421				
	10 m 1536434				
	Variable 1537734	Variable 1542266	Variable 1542282	Variable 1537747	Variable 1537828
M12 socket, SPEEDCON, angled, with 3 LEDs					
	1.5 m 1407778				
	3 m 1407779				
	5 m 1407780				
	10 m 1407781				
	Variable 1535765			Variable 1535707	Variable 1542334

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 4-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

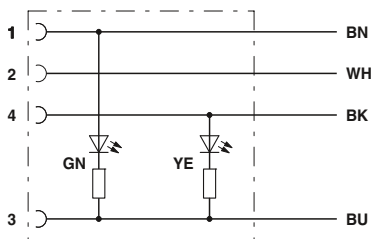
Order No.	Cable type	Length [m] Max. 40 m
1523586	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	Cable type	Suitable for:	Cable description	Cable type	Suitable for:
PUR, halogen-free - black E221474	PUR	M8/M12	PVC - gray E221474	500	M8/M12
PUR, halogen-free - yellow E221474	240	M12	PVC - yellow E221474	540	M12
PUR, halogen-free - gray E221474	280	M8/M12	PVC 105° - yellow E221474	542	M12
PUR/PVC - gray E221474	100	M8/M12			
PUR/PVC - yellow E221474	140	M8/M12			
PUR/PVC - black, 0.75 mm² E221474	186	M12			
TPE-U highly flexible - gray E221474	800	M8/M12			
PUR irradiated - orange E221474	150	M12			
PUR irradiated - yellow E221474	160	M12			
PVC - black E221474	PVC	M8/M12			

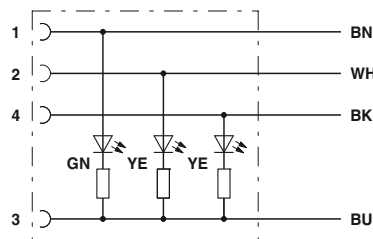
Color coding	Pin assignment
BN	1
WH	2
BK	4
BU	3

With a combination of M12 and M8 plug-in connectors, the limiting M8 value applies to the rated voltage.

	Technical data	Technical data	Technical data	Technical data
	M8 4-pos.	M8 4-pos., with LED	M12 4-pos.	M12 4-pos., with LED
Rated voltage [V]	30	24	250	24
Rated current [A]	4	4	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au	Ni/Au	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
M8 circular plug-in connector according to:	IEC 61076-2-104	IEC 61076-2-104	-	-
M12 circular plug-in connector according to:	-	-	IEC 61076-2-101	IEC 61076-2-101
Degree of protection	IP65 / IP67 / IP68	IP65 / IP67 / IP68	IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data				
Plug / socket [°C]	-25 ... 90	-25 ... 90	-25 ... 90	-25 ... 90



Contact assignment of M8/M12 socket with LED



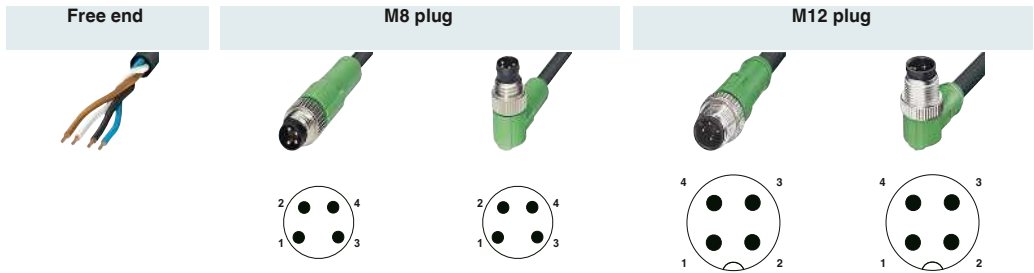
Contact assignment of M12 sockets with LED

Sensor/actuator cabling

Assembled cables

M8 and M12 SAC cable, 4-pos.

Notes:
For information about the cable qualities, see page 184



		Ordering data		Ordering data		Ordering data		Ordering data		Ordering data	
		Order No.		Order No.		Order No.		Order No.		Order No.	
Free end				1.5 m	1681787	1.5 m	1681813	1.5 m	1668043	1.5 m	1668166
				3 m	1681790	3 m	1681826	3 m	1668056	3 m	1668179
				5 m	1681800	5 m	1681839	5 m	1668069	5 m	1668182
				10 m	1694143	10 m	1694156	10 m	1682993	10 m	1694457
				Variable	1697755	Variable	1697768	Variable	1696947	Variable	1696950
M8 socket, straight				1.5 m	1681842	0.3 m	1682142	0.3 m	1682223	0.3 m	1694923
				3 m	1681855	0.6 m	1682155	0.6 m	1682236	0.6 m	1693076
				5 m	1681868	1.5 m	1682168	1.5 m	1682249	1.5 m	1693089
				10 m	1683484	3 m	1682171	3 m	1682252	3 m	1694936
				Variable	1697771	Variable	1697797	Variable	1697810	Variable	1507874
M8 socket, angled				1.5 m	1681871	0.3 m	1682184	0.3 m	1682265	0.3 m	1671551
				3 m	1681884	0.6 m	1682197	0.6 m	1682278	0.6 m	1671564
				5 m	1681897	1.5 m	1682207	1.5 m	1682281	1.5 m	1671577
				10 m	1694172	3 m	1682210	3 m	1682294	3 m	1671580
				Variable	1697784	Variable	1697807	Variable	1697823	Variable	1697085
M8 socket, angled, with 2 LEDs				Variable	1517673			Variable	1515031		
M12 socket, straight				1.5 m	1668108			0.3 m	1668357	0.3 m	1668593
				3 m	1668111			0.6 m	1668360	0.6 m	1668603
				5 m	1668124			1.5 m	1668373	1.5 m	1668616
				10 m	1683002			3 m	1668386	3 m	1668629
				Variable	1696963	Variable	1506697	Variable	1697001	Variable	1697030
M12 socket, straight, with 2 LEDs				1.5 m	1694800						
				3 m	1694813						
				5 m	1694826						
				10 m	1694839						
				Variable	1696976						
M12 socket, angled				1.5 m	1668221			0.3 m	1668470	0.3 m	1668713
				3 m	1668234			0.6 m	1668483	0.6 m	1668726
				5 m	1668247			1.5 m	1668496	1.5 m	1668739
				10 m	1681389			3 m	1668506	3 m	1668742
				Variable	1696989	Variable	1511718	Variable	1697836	Variable	1697043
M12 socket, angled, with 3 LEDs				1.5 m	1668289			0.3 m	1668519	0.3 m	1668755
				3 m	1668292			0.6 m	1668522	0.6 m	1668768
				5 m	1668302			1.5 m	1668535	1.5 m	1668771
				10 m	1681020			3 m	1668548	3 m	1668784
				Variable	1696992			Variable	1697027	Variable	1697056

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 4-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

Order No.	Cable type	Length [m] 40 m, max.
1697001	PUR	4.5

Minimum order amount = 25

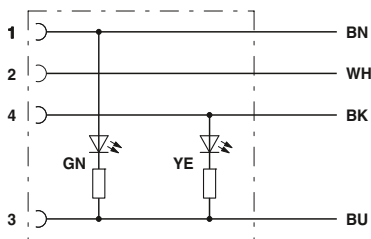
Increments:
0.2 ... 3 m = 0.1 m
> 3 m = 0.5 m

Cable description	Cable type	Suitable for:	Cable description	Cable type	Suitable for:
PUR, halogen-free - black E221474	PUR	M8/M12	PVC - gray E221474	500	M8/M12
PUR halogen-free - yellow E221474	240	M12	PVC - yellow E221474	540	M12
PUR, halogen-free - gray E221474	280	M8/M12	PVC 105° - yellow E221474	542	M12
PUR/PVC - gray E221474	100	M8/M12			
PUR/PVC - yellow E221474	140	M8/M12			
PUR/PVC - black, 0.75 mm² E221474	186	M12			
TPE-U highly flexible - gray E221474	800	M8/M12			
PUR irradiated - orange E221474	150	M12			
PUR irradiated - yellow E221474	160	M12			
PVC - black E221474	PVC	M8/M12			

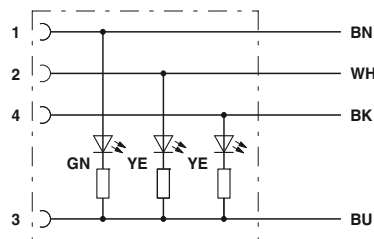
Color coding	Pin assignment
BN	1
WH	2
BK	4
BU	3

With a combination of M12 and M8 plug-in connectors, the limiting M8 value applies to the rated voltage.

	Technical data	Technical data	Technical data	Technical data
	M8 4-pos.	M8 4-pos., with LED	M12 4-pos.	M12 4-pos., with LED
Rated voltage [V]	30	24	250	24
Rated current [A]	4	4	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au	Ni/Au	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
M8 circular plug-in connector according to:	IEC 61076-2-104	IEC 61076-2-104	-	-
M12 circular plug-in connector according to:	-	-	IEC 61076-2-101	IEC 61076-2-101
Degree of protection	IP65 / IP67 / IP68	IP65 / IP67 / IP68	IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data				
Plug / socket [°C]	-25 ... 90	-25 ... 90	-25 ... 90	-25 ... 90



Contact assignment of M8/M12 socket with LED



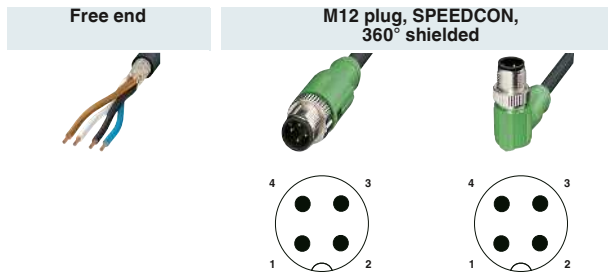
Contact assignment of M12 sockets with LED


Sensor/actuator cabling

Assembled cables

M12 SPEEDCON SAC cable, 4-pos., shielded





Notes:
For information about the cable qualities, see page 184



	Ordering data	Ordering data	Ordering data
Free end	Order No.	Order No.	Order No.
		1.5 m 1407800	
		3 m 1407801	
		5 m 1407802	
		10 m 1407803	
		Variable 1523764	Variable 1523777
M12 socket, SPEEDCON, straight, 360° shielded			
		1.5 m 1407782	
		3 m 1407784	
		5 m 1407785	
		10 m 1407786	
		Variable 1536531	Variable 1542208
M12 socket, SPEEDCON, angled, 360° shielded			
		1.5 m 1407796	
		3 m 1407797	
		5 m 1407798	
		10 m 1407799	
		Variable 1536560	Variable 1542211

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Cable description	Cable type	Suitable for:	Color coding	Pin assignment
PUR, halogen-free - black E221474	PUR	M8/M12	BN 	1
PUR/PVC - gray E221474	100	M12	WH 	2
PVC - black E221474	PVC	M12	BK 	4
PVC - gray E221474	500	M12	BU 	3

Ordering data for products with variable cables:

For a shielded sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 4-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 40 m
1523803	PUR	4.5
Minimum order amount = 25		
Increments:		
0.2 ... 3 m = 0.1 m		
> 3 m = 0.5 m		

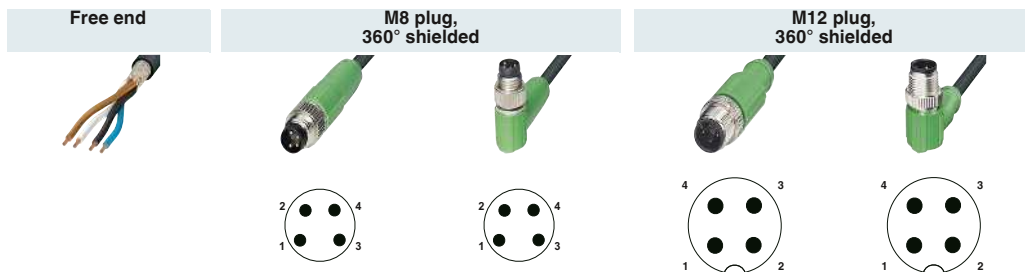
Technical data	
M12	
4-pos., shielded	
Rated voltage	[V] 250
Rated current	[A] 4
Volume resistance	≤ 5 mΩ
Contact material	CuSn
Contact surface material	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection	IP65 / IP67
Temperature data	
Plug / socket	[°C] -25 ... 90

Sensor/actuator cabling

Assembled cables

M8 and M12 SAC cable, 4-pos., shielded

Notes:
For information about the cable qualities, see page 184



	Ordering data	Ordering data	Ordering data	Ordering data	Ordering data			
Free end	Order No.	Order No.	Order No.	Order No.	Order No.			
	1.5 m	1521818	1.5 m	1521863	1.5 m	1682715	1.5 m	1682870
	3 m	1521821	3 m	1521876	3 m	1682618	3 m	1682883
	5 m	1521834	5 m	1521889	5 m	1682647	5 m	1682896
	10 m	1521847	10 m	1521892	10 m	1694389	10 m	1500703
	Variable	1521850	Variable	1521902	Variable	1697467	Variable	1697470
M8 socket, straight, 360° shielded 	1.5 m	1521915	0.3 m	1574580				
	3 m	1521928	0.6 m	1455722				
	5 m	1521931	1.5 m	1455735				
	10 m	1521944	3 m	1574603				
	Variable	1521957	Variable	1552094	Variable	1552104		
M8 socket, angled, 360° shielded 	1.5 m	1521960						
	3 m	1521973						
	5 m	1521986						
	10 m	1521999						
	Variable	1522008	Variable	1552065	Variable	1552120		
M12 socket, straight, 360° shielded 	1.5 m	1682841			0.3 m	1500842		
	3 m	1682854			0.6 m	1500855		
	5 m	1682867			1.5 m	1500868		
	10 m	1500716			3 m	1500871		
	Variable	1697483			Variable	1536081	Variable	1536104
M12 socket, angled, 360° shielded 	1.5 m	1682906			0.3 m	1500965		
	3 m	1682919			0.6 m	1500978		
	5 m	1682922			1.5 m	1500981		
	10 m	1500729			3 m	1500994		
	Variable	1697496			Variable	1536094	Variable	1536117

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a shielded sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 4-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 40 m
1536081	PUR	4.5
Minimum order amount = 25		
Increments:		
0.2 ... 3 m = 0.1 m		
> 3 m = 0.5 m		

Cable description	Cable type	Suitable for:
PUR, halogen-free - black E221474	PUR	M8/M12
PUR/PVC - gray E221474	100	M12
PVC - black E221474	PVC	M12
PVC - gray E221474	500	M12

Color coding	Pin assignment
BN	1
WH	2
BK	4
BU	3

With a combination of M12 and M8 plug-in connectors, the limiting M8 value applies to the rated voltage.

	Technical data	Technical data
	M8 4-pos., shielded	M12 4-pos., shielded
Rated voltage [V]	30	250
Rated current [A]	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
M8 circular plug-in connector according to:	IEC 61076-2-104	-
M12 circular plug-in connector according to:	-	IEC 61076-2-101
Degree of protection	IP65 / IP67	IP65 / IP67
Temperature data		
Plug / socket [°C]	-25 ... 90	-25 ... 90

**M8 SAC cable,
5-pos., B-coded**

Free end

M8 plug

Notes:

For information about the cable qualities, see page 184



Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.	Order No.
	1.5 m	1404461	1.5 m	1404465
	3 m	1404462	3 m	1404466
	5 m	1404463	5 m	1404467
	10 m	1404464	10 m	1404468
M8 socket, straight 	1.5 m	1404470	0.3 m	1404479
	3 m	1404471	0.6 m	1404480
	5 m	1404473	1.5 m	1404481
	10 m	1404474	3 m	1404482
M8 socket, angled 	1.5 m	1404475		
	3 m	1404476		
	5 m	1404477		
	10 m	1404478		

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black	115	BN WH BK BU GY	1 2 4 3 5

Technical data

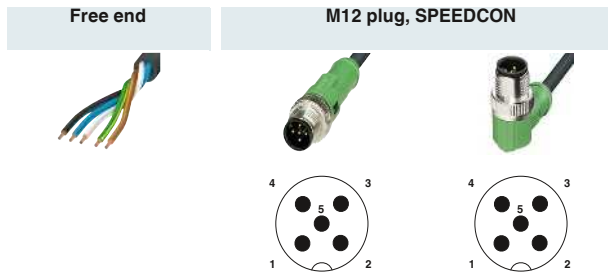
		M8 5-pos.
Rated voltage	[V]	30
Rated current	[A]	3
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		TPU, hardly inflammable, self-extinguishing
Material, knurls		Zinc die-cast, nickel-plated
M8 circular plug-in connector according to:		IEC 61076-2-104
Degree of protection		IP65 / IP67 / IP68
Temperature data		
Plug / socket	[°C]	-25 ... 90

Sensor/actuator cabling

Assembled cables

M12 SPEEDCON SAC cable, 5-pos.

Notes:
For information about the cable qualities, see page 184



	Ordering data	Ordering data	Ordering data
Free end	Order No.	Order No.	Order No.
	1.5 m	1518960	1.5 m 1519008
	3 m	1518973	3 m 1519011
	5 m	1518986	5 m 1519024
	10 m	1518999	10 m 1519037
	Variable	1523609	Variable 1523612
M12 socket, SPEEDCON, straight 	1.5 m	1536324	0.3 m 1519040
	3 m	1536337	0.6 m 1519053
	5 m	1536340	1.5 m 1519066
	10 m	1536353	3 m 1519079
	Variable	1536489	Variable 1523625
M12 socket, SPEEDCON, angled 	1.5 m	1536447	Variable 1542415
	3 m	1536450	Variable 1542389
	5 m	1536463	
	10 m	1536476	
	Variable	1536515	
M12 socket, SPEEDCON, angled, with 3 LEDs 	Variable	1542428	Variable 1542431

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 5-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 40 m
1523625	PUR	4.5
Minimum order amount = 25		Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m

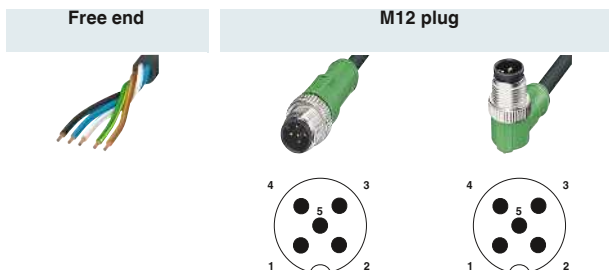
Cable description	Cable type	Cable description	Cable type
PUR, halogen-free - black E221474	PUR	PVC 105° - yellow E221474	540
PUR, halogen-free - black, 5th wire gray E221474	115	PVC 105° - yellow, 5th wire gray E221474	542
PUR/PVC - gray E221474	100		
PUR/PVC - yellow E221474	140		
PUR/PVC - black, 0.75 mm ² E221474	186		
TPE-U highly flexible - gray, 5th wire gray E221474	800		
PUR irradiated - orange E221474	150		
PVC - black E221474	PVC		
PVC - black, 5th wire gray E221474	515		
PVC - gray E221474	500		

Color coding	Pin assignment
BN	1
WH	2
BK	4
BU	3
GNYE	5

	Technical data	Technical data
	M12 5-pos.	M12 5-pos., with LED
Rated voltage [V]	60	24
Rated current [A]	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101
Degree of protection	IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data		
Plug / socket [°C]	-25 ... 90	-25 ... 90

M12 SAC cable, 5-pos.

Notes:
For information about the cable qualities, see page 184



Ordering data

Free end	Order No.	Order No.	Order No.
	1.5 m	1669767	1.5 m 1669796
	3 m	1669770	3 m 1669806
	5 m	1669783	5 m 1669819
	10 m	1683361	10 m 1694460
	Variable	1697098	Variable 1697108
M12 socket, straight 	1.5 m	1669822	0.3 m 1681583
	3 m	1669835	0.6 m 1681596
	5 m	1669848	1.5 m 1681606
	10 m	1683374	3 m 1681619
	Variable	1697111	Variable 1697140
M12 socket, angled 	1.5 m	1669851	0.3 m 1681622
	3 m	1669864	0.6 m 1681635
	5 m	1669877	1.5 m 1681648
	10 m	1694541	3 m 1681651
	Variable	1697124	Variable 1697153
M12 socket, angled, with 3 LEDs 	1.5 m	1669880	0.3 m 1694635
	3 m	1669893	0.6 m 1694648
	5 m	1669903	1.5 m 1694651
	10 m	1694431	
	Variable	1697137	Variable 1697166

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free **PUR** cable type and are available from stock.

Ordering data for products with variable cables:

For a sensor/actuator cable, PUR, halogen-free black, 4.5 m long, with a straight 5-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

Order No.	Cable type	Length [m]
1697140	PUR	4.5
Minimum order amount = 25		Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m

Cable description	Cable type	Cable description	Cable type
PUR, halogen-free - black E221474	PUR	PVC 105° - yellow E221474	540
PUR, halogen-free - black, 5th wire gray E221474	115	PVC 105° - yellow, 5th wire gray E221474	542
PUR/PVC - gray E221474	100		
PUR/PVC - yellow E221474	140		
PUR/PVC - black, 0.75 mm ² E221474	186		
TPE-U highly flexible - gray, 5th wire gray E221474	800		
PUR irradiated - orange E221474	150		
PVC - black E221474	PVC		
PVC - black, 5th wire gray E221474	515		
PVC - gray E221474	500		

Color coding	Pin assignment
BN	1
WH	2
BK	4
BU	3
GNYE	5

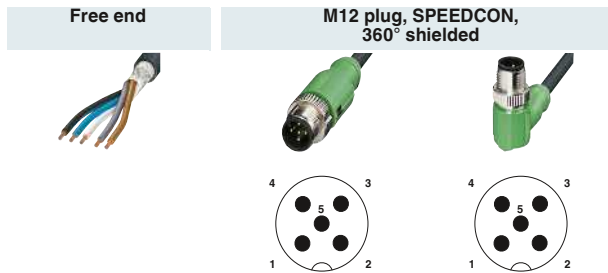
Technical data	Technical data
M12 5-pos.	M12 5-pos., with LED
Rated voltage [V]	60
Rated current [A]	4
Volume resistance	≤ 5 mΩ
Contact material	CuSn
Contact surface material	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection	IP65 / IP67 / IP68
Temperature data	-25 ... 90
Plug / socket [°C]	-25 ... 90

Sensor/actuator cabling

Assembled cables

M12 SPEEDCON SAC cable, 5-pos., shielded

Notes:
For information about the cable qualities, see page 184



	Ordering data	Ordering data	Ordering data			
Free end	Order No.	Order No.	Order No.			
		1.5 m	1407804			
		3 m	1407805			
		5 m	1407806			
		10 m	1407807			
		Variable	1523829	Variable	1523832	
M12 socket, SPEEDCON, straight, 360° shielded						
		1.5 m	1407787			
		3 m	1407788			
		5 m	1407789			
		10 m	1407790			
		Variable	1536544	Variable	1523861	Variable
M12 socket, SPEEDCON, angled, 360° shielded						
		1.5 m	1407808			
		3 m	1407809			
		5 m	1407810			
		10 m	1407811			
		Variable	1536573	Variable	1523874	Variable

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a shielded sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 5-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

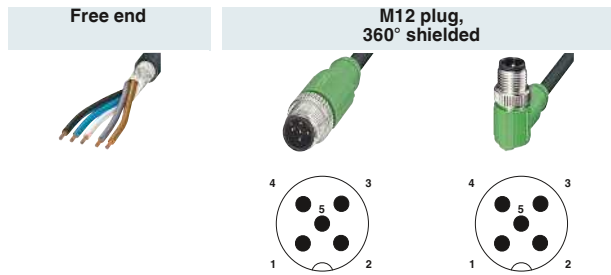
Order No.	Cable type	Length [m] Max. 40 m
1523861	PUR	4.5
Minimum order amount = 25		Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black E221474	PUR	BN WH	1 2
PUR/PVC - gray E221474	100	BK BU	4 3
PVC - black E221474	PVC	GY	5
PVC - gray E221474	500		

Technical data	
M12	
5-pos., shielded	
Rated voltage	[V] 60
Rated current	[A] 4
Volume resistance	≤ 5 mΩ
Contact material	CuSn
Contact surface material	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection	IP65 / IP67
Temperature data	
Plug / socket	[°C] -25 ... 90

M12 SAC cable, 5-pos., shielded

Notes:
For information about the cable qualities, see page 184



Ordering data

Free end	Order No.	Order No.	Order No.
	1.5 m	1682728	1.5 m 1682757
	3 m	1682744	3 m 1682760
	5 m	1682731	5 m 1682773
	10 m	1500732	10 m 1500745
	Variable	1697506	Variable 1697519
M12 socket, straight, 360° shielded 	1.5 m	1682935	0.3 m 1500884
	3 m	1682948	0.6 m 1500897
	5 m	1682951	1.5 m 1500907
	10 m	1500758	3 m 1500910
	Variable	1697522	Variable 1536120
M12 socket, angled, 360° shielded 	1.5 m	1682964	0.3 m 1501003
	3 m	1682977	0.6 m 1501029
	5 m	1682980	1.5 m 1501045
	10 m	1500761	3 m 1501058
	Variable	1697535	Variable 1536133

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free **PUR** cable type and are available from stock.

Ordering data for products with variable cables:

For a shielded sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 5-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 40 m
1536120	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black E221474	PUR	BN	1
		WH	2
PUR/PVC - gray E221474	100	BK	4
		BU	3
PVC - black E221474	PVC	GY	5
PVC - gray E221474	500		

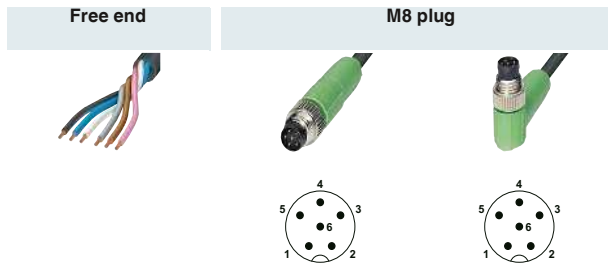
Technical data	
M12 5-pos., shielded	
Rated voltage [V]	60
Rated current [A]	4
Volume resistance	≤ 5 mΩ
Contact material	CuSn
Contact surface material	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection	IP65 / IP67
Temperature data	
Plug / socket [°C]	-25 ... 90

Sensor/actuator cabling

Assembled cables

M8 SAC cable, 6-pos.

Notes:
For information about the cable qualities, see page 184



	Ordering data	Ordering data	Ordering data
Free end	Order No.	Order No.	Order No.
	1.5 m	1522095	1.5 m 1522147
	3 m	1522105	3 m 1522150
	5 m	1522118	5 m 1522163
	10 m	1522121	10 m 1522176
	Variable	1522134	Variable 1522189
M8 socket, straight 	1.5 m	1522192	
	3 m	1522202	
	5 m	1522215	
	10 m	1522228	
	Variable	1522231	Variable 1551927 Variable 1551943
M8 socket, angled 	1.5 m	1522244	
	3 m	1522257	
	5 m	1522260	
	10 m	1522273	
	Variable	1522286	Variable 1551930 Variable 1551956

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Cable description	Cable type	Color coding	Pin assignment																		
PUR, halogen-free - black E221474	PUR	<table border="1"> <tr><td>BN</td><td></td><td>1</td></tr> <tr><td>WH</td><td></td><td>2</td></tr> <tr><td>BU</td><td></td><td>3</td></tr> <tr><td>BK</td><td></td><td>4</td></tr> <tr><td>GY</td><td></td><td>5</td></tr> <tr><td>PK</td><td></td><td>6</td></tr> </table>	BN		1	WH		2	BU		3	BK		4	GY		5	PK		6	
BN		1																			
WH		2																			
BU		3																			
BK		4																			
GY		5																			
PK		6																			

Ordering data for products with variable cables:

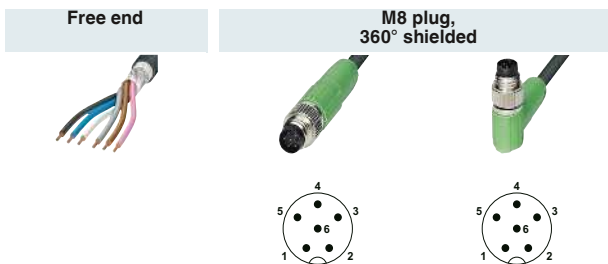
For a shielded sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 6-pos. M8 plug and open cable end, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 40 m
1522134	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Technical data	
M8 6-pos.	
Rated voltage [V]	30
Rated current [A]	1.5
Volume resistance	≤ 5 mΩ
Contact material	CuZn
Contact surface material	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing
M8 circular plug-in connector according to:	IEC 61076-2-104
Degree of protection	IP65 / IP67 / IP68
Temperature data	
Plug / socket [°C]	-25 ... 90

M8 SAC cable, 6-pos., shielded

Notes:
For information about the cable qualities, see page 184



	Ordering data	Ordering data	Ordering data
Free end	Order No.	Order No.	Order No.
	1.5 m	1522299	1.5 m 1522341
	3 m	1522309	3 m 1522354
	5 m	1522312	5 m 1522367
	10 m	1522325	5 m 1522370
	Variable	1522338	Variable 1522383
M8 socket, straight, 360° shielded	Order No.	Order No.	Order No.
	1.5 m	1522396	
	3 m	1522406	
	5 m	1522419	
	10 m	1522422	
	Variable	1522435	Variable 1552010
M8 socket, angled, 360° shielded	Order No.	Order No.	Order No.
	1.5 m	1522448	
	3 m	1522451	
	5 m	1522464	
	10 m	1522477	
	Variable	1522480	Variable 1552023
	Variable	1552023	Variable 1552049

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black E221474	PUR	BN	1
		WH	2
		BU	3
		BK	4
		GY	5
		PK	6

Ordering data for products with variable cables:

For a shielded sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 6-pos. M8 plug and a straight M8 socket, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 40 m
1552010	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Technical data	
M8 6-pos., shielded	
Rated voltage	[V] 30
Rated current	[A] 1.5
Volume resistance	≤ 5 mΩ
Contact material	CuZn
Contact surface material	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing
M8 circular plug-in connector according to:	IEC 61076-2-104
Degree of protection	IP65 / IP67
Temperature data	
Plug / socket	[°C] -25 ... 90

Sensor/actuator cabling

Assembled cables

M8 SAC cable, 8-pos.

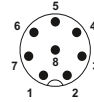
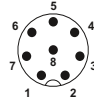
Notes:

For information about the cable qualities, see page 184

Free end



M8 plug



Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.
	1.5 m	1404178	1.5 m 1404182
	3 m	1404180	3 m 1404186
	5 m	1404181	5 m 1404185
	10 m	1404179	10 m 1404183
M8 socket, straight 	1.5 m	1404187	0.3 m 1404196
	3 m	1404188	0.6 m 1404198
	5 m	1404189	1.5 m 1404199
	10 m	1404190	3 m 1404200
M8 socket, angled 	1.5 m	1404191	0.3 m 1404201
	3 m	1404192	0.6 m 1404202
	5 m	1404193	1.5 m 1404203
	10 m	1404194	3 m 1404204

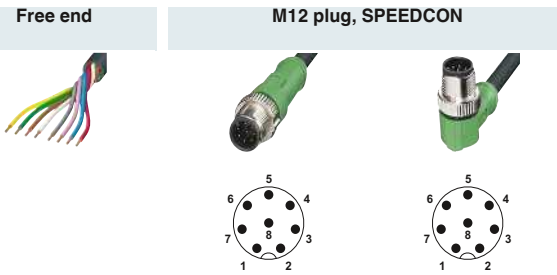
Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black	PUR	WH	1
		BN	2
		GN	3
		YE	4
		GY	5
		PK	6
		BU	7
		RD	8

Technical data

		M8 8-pos.
Rated voltage	[V]	30
Rated current	[A]	1.5
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		TPU, hardly inflammable, self-extinguishing
Material, knurls		Zinc die-cast, nickel-plated
M8 circular plug-in connector according to:		IEC 61076-2-104
Degree of protection		IP65 / IP67 / IP68
Temperature data		
Plug / socket	[°C]	-25 ... 85

M12 SPEEDCON SAC cable, 8-pos.

Notes:
For information about the cable qualities, see page 184



Ordering data

Free end	Order No.	Order No.	Order No.
	Variable	1523641	Variable 1523654
M12 socket, SPEEDCON, straight			
	1.5 m	1407791	
	3 m	1401793	
	5 m	1401691	
	10 m	1407792	
	Variable	1523667	Variable 1523683
			Variable 1552191
M12 socket, SPEEDCON, angled			
	Variable	1523670	Variable 1523696
			Variable 1552201

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 8-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 40 m
1523683	PUR	4.5
Minimum order amount = 25		
Increments:		
0.2 ... 3 m = 0.1 m		
> 3 m = 0.5 m		

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black E221474	PUR	WH	1
PUR/PVC - gray E221474	100	BN	2
TPE-U highly flexible - gray E221474	800	GN	3
PVC - black E221474	PVC	YE	4
PVC - gray E221474	500	GY	5
		PK	6
		BU	7
		RD	8

Technical data

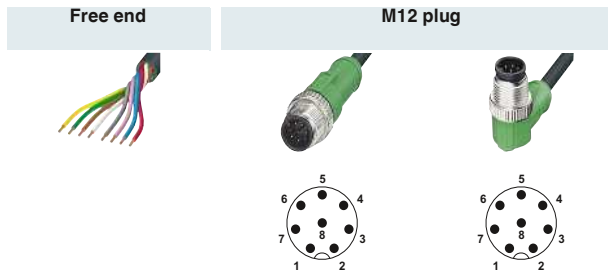
		M12 8-pos.
Rated voltage	[V]	30
Rated current	[A]	2
Volume resistance		≤ 5 mΩ
Contact material		CuZn
Contact surface material		Ni/Au
Material of grip body		TPU, hardly inflammable, self-extinguishing
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68
Temperature data		
Plug / socket	[°C]	-25 ... 90

Sensor/actuator cabling

Assembled cables

M12 SAC cable, 8-pos.

Notes:
For information about the cable qualities, see page 184



	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Free end			
		1.5 m 1522493	1.5 m 1522545
		3 m 1522503	3 m 1522558
		5 m 1522516	5 m 1522561
		10 m 1522529	10 m 1522574
		Variable 1522532	Variable 1522587
M12 socket, straight			
		0.3 m 1522671	
	1.5 m 1522590	0.6 m 1522684	
	3 m 1522600	1.5 m 1522697	
	5 m 1520369	3 m 1522707	
	10 m 1520372	Variable 1522710	Variable 1551969
	Variable 1522613		
M12 socket, angled			
		0.3 m 1522723	
	1.5 m 1522626	0.6 m 1522736	
	3 m 1522639	1.5 m 1522749	
	5 m 1522642	3 m 1522752	
	10 m 1522655	Variable 1522765	Variable 1551972
	Variable 1522668		

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 8-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

Order No.	Cable type	Length [m]
1522710	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black E221474	PUR	WH	1
		BN	2
PUR/PVC - gray E221474	100	GN	3
		YE	4
TPE-U highly flexible - gray E221474	800	GY	5
		PK	6
PVC - black E221474	PVC	BU	7
PVC - gray E221474	500	RD	8

Technical data

		M12 8-pos.
Rated voltage	[V]	30
Rated current	[A]	2
Volume resistance		≤ 5 mΩ
Contact material		CuZn
Contact surface material		Ni/Au
Material of grip body		TPU, hardly inflammable, self-extinguishing
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68
Temperature data		
Plug / socket	[°C]	-25 ... 90

**M8 SAC cable,
8-pos., shielded**

Free end

M8 plug



Notes:

For information about the cable qualities, see page 184

Ordering data

Ordering data

Ordering data

Free end	Order No.	Ordering data	Order No.	Ordering data	Order No.
		1.5 m	1404137		
		3 m	1404140		
		5 m	1404141		
		10 m	1404138		
M8 socket, straight 	1.5 m	1404147	0.3 m	1404133	
	3 m	1404148	0.6 m	1404134	
	5 m	1404149	1.5 m	1404135	
	10 m	1404150	3 m	1404136	

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black	PUR	WH	1
		BN	2
		GN	3
		YE	4
		GY	5
		PK	6
		BU	7
		RD	8

Technical data

		M8 8-pos.
Rated voltage	[V]	30
Rated current	[A]	1.5
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		TPU, hardly inflammable, self-extinguishing
Material, knurls		Zinc die-cast, nickel-plated
M8 circular plug-in connector according to:		IEC 61076-2-104
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-25 ... 85

Sensor/actuator cabling

Assembled cables

M12 SPEEDCON SAC cable, 8-pos., shielded

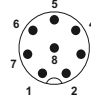
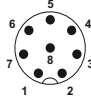
Notes:
For information about the cable qualities, see page 184



Free end



M12 plug, SPEEDCON, 360° shielded



Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.	
		1.5 m	1407812	
		3 m	1556773	
		5 m	1407813	
		10 m	1407814	
		Variable	1523887	Variable
M12 socket, SPEEDCON, straight, 360° shielded				
		1.5 m	1407793	
		3 m	1556786	
		5 m	1407794	
		10 m	1407795	
		Variable	1523900	Variable
M12 socket, SPEEDCON, angled, 360° shielded				
	Variable	1523913	Variable	1523939

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a shielded sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 8-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 40 m
1523926	PUR	4.5
Minimum order amount = 25		
Increments:		
0.2 ... 3 m = 0.1 m		
> 3 m = 0.5 m		

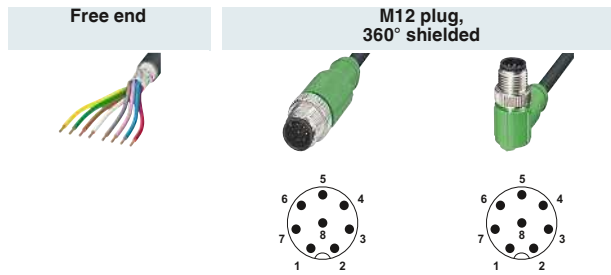
Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black E221474	PUR	WH	1
		BN	2
		GN	3
		YE	4
		GY	5
		PK	6
		BU	7
		RD	8
PUR, halogen-free - gray E221474	280		
PVC - black E221474	PVC		

Technical data

		M12 8-pos., shielded
Rated voltage	[V]	30
Rated current	[A]	2
Volume resistance		≤ 5 mΩ
Contact material		CuZn
Contact surface material		Ni/Au
Material of grip body		TPU, hardly inflammable, self-extinguishing
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-25 ... 90

M12 SAC cable, 8-pos., shielded

Notes:
For information about the cable qualities, see page 184



	Ordering data		Ordering data		Ordering data		
Free end	Order No.	Length	Order No.	Length	Order No.	Length	
		1.5 m	1522778	1.5 m	1522817		
		3 m	1522781	3 m	1522820		
		5 m	1526981	5 m	1522833		
		10 m	1522794	10 m	1522846		
		Variable		1522804	Variable	1522859	
M12 socket, straight, 360° shielded 		1.5 m	1522862	0.3 m	1522969		
		3 m	1522875	0.6 m	1522972		
		5 m	1522888	1.5 m	1522985		
		10 m	1522891	3 m	1522998		
		Variable		1522901	Variable	1523007	Variable
M12 socket, angled, 360° shielded 		1.5 m	1522914	0.3 m	1523010		
		3 m	1522927	0.6 m	1523023		
		5 m	1522930	1.5 m	1523036		
		10 m	1522943	3 m	1523049		
		Variable		1522956	Variable	1523052	Variable

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a shielded sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 8-pos. M12 plug and a straight M12 socket, the ordering data is as follows:

Order No.	Cable type	Length [m]
1523007	PUR	4.5
Minimum order amount = 25		Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black E221474	PUR	WH	1
		BN	2
PUR, halogen-free - gray E221474	280	GN	3
		YE	4
PVC - black E221474	PVC	GY	5
		PK	6
		BU	7
		RD	8

Technical data	
M12 8-pos., shielded	
Rated voltage	[V] 30
Rated current	[A] 2
Volume resistance	≤ 5 mΩ
Contact material	CuZn
Contact surface material	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection	IP65 / IP67
Temperature data	
Plug / socket	[°C] -25 ... 90

Sensor/actuator cabling

Assembled cables

M12 SPEEDCON SAC cable, 12 and 17-pos. PUR cable

Notes:
For information about the cable qualities, see page 184



	Ordering data	Ordering data	Ordering data	Ordering data	Ordering data
Free end	Order No.	Order No.	Order No.	Order No.	Order No.
		1.5 m 1430530	1.5 m 1430572	1.5 m 1430695	1.5 m 1430734
		3 m 1430543	3 m 1430585	3 m 1430705	3 m 1430747
		5 m 1430556	5 m 1430598	5 m 1430718	5 m 1430750
		10 m 1430569	10 m 1430608	10 m 1430721	10 m 1430763
M12 socket, SPEEDCON, 12-pos., straight					
	1.5 m	1430611			
	3 m	1430624			
	5 m	1430637			
	10 m	1430640			
M12 socket, SPEEDCON, 12-pos., angled					
	1.5 m	1430653			
	3 m	1430666			
	5 m	1430679			
	10 m	1430682			
M12 socket, SPEEDCON, 17-pos., straight					
	1.5 m	1430776			
	3 m	1430789			
	5 m	1430792			
	10 m	1430802			
M12 socket, SPEEDCON, 17-pos., angled					
	1.5 m	1430815			
	3 m	1430828			
	5 m	1430831			
	10 m	1430844			

Cable description	Cable type	Color coding	Pin assignment, 12-pos.	Color coding	Pin assignment, 17-pos.
PUR halogen-free - black	PUR	BN	1	BN	1
		BU	2	BU	2
		WH	3	WH	3
		GN	4	GN	4
		PK	5	PK	5
		YE	6	YE	6
		BK	7	BK	7
		GY	8	GY	8
		RD	9	RD	9
		VT	10	VT	10
		GYPK	11	GYPK	11
		RDBU	12	RDBU	12
				WHGN	13
				BNGN	14
		WHYE	15		
		YEBN	16		
		WHGY	17		

		Technical data	Technical data
		M12 12-pos.	M12 17-pos.
Rated voltage	[V]	30	30
Rated current	[A]	1.5	1.5
Volume resistance		≤ 5 mΩ	≤ 5 mΩ
Contact material		CuZn	CuZn
Contact surface material		Ni/Au	Ni/Au
Material of grip body		TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data			
Plug / socket	[°C]	-25 ... 90	-25 ... 90

M12 SPEEDCON SAC cable, 12 and 17-pos. PVC cable

Notes:

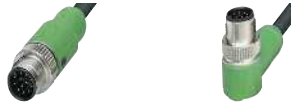
For information about the cable qualities, see page 184



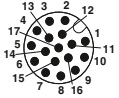
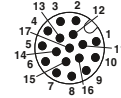
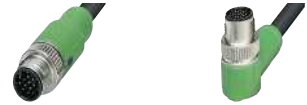
Free end



M12 plug, SPEEDCON, 12-pos.



M12 plug, SPEEDCON, 17-pos.



Ordering data

Ordering data

Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.	Order No.	Order No.
	1.5 m	1554775	1.5 m	1554814	1.5 m
	3 m	1554788	3 m	1554827	3 m
	5 m	1554791	5 m	1554830	5 m
	10 m	1554801	10 m	1554843	10 m
	1.5 m	1554856	1.5 m	1555266	1.5 m
	3 m	1554869	3 m	1555279	3 m
	5 m	1554872	5 m	1555282	5 m
	10 m	1554885	10 m	1555295	10 m
	1.5 m	1554898	1.5 m	1555347	1.5 m
	3 m	1554908	3 m	1555350	3 m
	5 m	1554924	5 m	1555363	5 m
	10 m	1554937	10 m	1555376	10 m
	1.5 m	1555389	1.5 m	1555392	1.5 m
	3 m	1555392	3 m	1555392	3 m
	5 m	1555402	5 m	1555402	5 m
	10 m	1555415	10 m	1555415	10 m

Cable description	Cable type	Color coding	Pin assignment, 12-pos.	Color coding	Pin assignment, 17-pos.
PVC - black	PVC	BN	1	BN	1
		BU	2	BU	2
		WH	3	WH	3
		GN	4	GN	4
		PK	5	PK	5
		YE	6	YE	6
		BK	7	BK	7
		GY	8	GY	8
		RD	9	RD	9
		VT	10	VT	10
		GYPK	11	GYPK	11
		RDBU	12	RDBU	12
		WHGN		WHGN	13
		BNGN		BNGN	14
		WHYE		WHYE	15
		YEBN		YEBN	16
		WHGY		WHGY	17

		Technical data	
		M12 12-pos.	M12 17-pos.
Rated voltage	[V]	30	30
Rated current	[A]	1.5	1.5
Volume resistance		≤ 5 mΩ	≤ 5 mΩ
Contact material		CuZn	CuZn
Contact surface material		Ni/Au	Ni/Au
Material of grip body		TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data			
Plug / socket	[°C]	-25 ... 90	-25 ... 90

Sensor/actuator cabling

Assembled cables

M12 SPEEDCON and M23 SAC cable, 12-pos., shielded

Notes:

For information about the cable qualities, see page 184



Ordering data

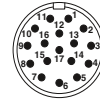
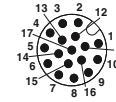
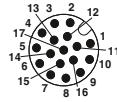
Free end	Order No.	Order No.	Order No.	Order No.	Order No.	
		1.5 m	1430048	1.5 m	1430080	
		3 m	1430051	3 m	1430093	
		5 m	1430064	5 m	1430103	
		10 m	1430077	10 m	1430116	
M12 socket, SPEEDCON, straight, 360° shielded 	0.5 m	1437083		0.5 m	1437287	
	1 m	1434730		1 m	1437290	
	1.5 m	1430129		2 m	1437300	
	3 m	1430132	3 m	1402551	5 m	1437313
	5 m	1430145				
M12 socket, SPEEDCON, angled, 360° shielded 	1.5 m	1430161				
	3 m	1430174				
	5 m	1430187				
	10 m	1430190				
M23 socket, straight, 360° shielded 	0.5 m	1437326				
	1 m	1437339				
	2 m	1437342				
	5 m	1437355				

Cable description	Cable type	Color coding	Pin assignment	
			M12	M23
PUR/PVC - black, twisted pair	35T	BN	1	1
		BU	2	2
		WH	3	3
		GN	4	4
		PK	5	5
		YE	6	6
		BK	7	7
		GY	8	8
		RD	9	9
		VT	10	10
		GYPK	11	11
		RDBU	12	12

		Technical data	
		M12 12-pos.	M23, 12-pos.
Rated voltage	[V]	30	30
Rated current	[A]	1.5	1.5
Volume resistance		≤ 5 mΩ	≤ 5 mΩ
Contact material		CuZn	CuZn
Contact surface material		Ni/Au	Ni/Au
Material of grip body		TPU, hardly inflammable, self-extinguishing	PUR
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101
Degree of protection		IP65 / IP67	IP65 / IP67
Temperature data			
Plug / socket	[°C]	-25 ... 90	-25 ... 90

M12 SPEEDCON and M23 SAC cable, 17-pos., shielded

Notes:
For information about the cable qualities, see page 184



Ordering data

Free end	Order No.	Order No.	Order No.	Order No.	Order No.	
		1.5 m	1430200	1.5 m	1430242	
			3 m	1430213	3 m	1430255
			5 m	1430226	5 m	1430268
			10 m	1430239	10 m	1430271
M12 socket, SPEEDCON, straight, 360° shielded 				0.5 m	1437368	
		1.5 m	1430284		1 m	1437371
		3 m	1430297		2 m	1437384
		5 m	1430307	5 m	5 m	1437397
M12 socket, SPEEDCON, angled, 360° shielded 		1.5 m	1430323			
		3 m	1430336			
		5 m	1430349			
		10 m	1430352			
M23 socket, straight, 360° shielded 				0.5 m	1437407	
				1 m	1437410	
				2 m	1437423	
				5 m	1437436	

Cable description	Cable type	Color coding	Pin assignment	
			M12	M23
PUR/PVC - black, twisted pair	35T	BN	1	1
		BU	2	2
		WH	3	3
		GN	4	4
		PK	5	5
		YE	6	6
		BK	7	7
		GY	8	8
		RD	9	9
		VT	10	10
		GYPK	11	11
		RDBU	12	12
		WHGN	13	13
		BNGN	14	14
		WHYE	15	15
		YEEN	16	16
		WHGY	17	17

		Technical data	
		M12 17-pos.	M23, 17-pos.
Rated voltage	[V]	30	30
Rated current	[A]	1.5	1.5
Volume resistance		≤ 5 mΩ	≤ 5 mΩ
Contact material		CuZn	CuZn
Contact surface material		Ni/Au	Ni/Au
Material of grip body		TPU, hardly inflammable, self-extinguishing	PUR
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101
Degree of protection		IP65 / IP67	IP65 / IP67
Temperature data			
Plug / socket	[°C]	-25 ... 90	-25 ... 90

Sensor/actuator cabling

Assembled cables

M12-SPEEDCON power cable, 3-pos.+PE, S-coded, unshielded

Notes:
For information about the cable qualities, see page 184

Free end






M12 plug, SPEEDCON



Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.
	1 m	1408835	1408839
	2 m	1408836	1408840
	5 m	1408837	1408841
	10 m	1408838	1408842
M12 socket, SPEEDCON, straight 	1 m	1408843	
	2 m	1408844	
	5 m	1408845	
	10 m	1408846	
M12 socket, SPEEDCON, angled 	1 m	1408848	
	2 m	1408852	
	5 m	1408853	
	10 m	1408854	

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black	PUR	BK1	1
		BK2	2
		BK3	3
		GNYE	PE

Technical data

		M12
Rated voltage	[V]	630
Rated current	[A]	12
Volume resistance		≤ 3 mΩ
Material contact M12		CuZn
Material contact surface M12		Au
Material handle M12		TPU, hardly inflammable, self-extinguishing
Material, knurls		Zinc die-cast, nickel-plated
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-25 ... 85

M12-SPEEDCON power cable, 3-pos.+PE, S-coded, shielded

Notes:
For information about the cable qualities, see page 184



Ordering data Ordering data Ordering data

Free end	Order No.	Order No.	Order No.	Order No.		
		1.5 m	1424104	1.5 m	1424108	
			3 m	1424105	3 m	1424109
			5 m	1424245	5 m	1424110
			10 m	1424107	10 m	1424111
		1.5 m	1424096			
		3 m	1424097			
		5 m	1424098			
		10 m	1424099			
		1.5 m	1424100			
		3 m	1424101			
		5 m	1424102			
		10 m	1424103			

Cable description	Cable type	Color coding		Pin assignment
PUR, halogen-free - orange	PUR	BK1	1	1
		BK2	2	2
		BK3	3	3
		GNYE		PE

		Technical data
		M12
Rated voltage	[V]	630
Rated current	[A]	12
Volume resistance		≤ 3 mΩ
Material contact M12		CuZn
Material contact surface M12		Au
Material handle M12		TPU, hardly inflammable, self-extinguishing
Material, knurls		Zinc die-cast, nickel-plated
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-25 ... 85

Sensor/actuator cabling

Assembled cables

M12-SPEEDCON power cable, 4-pos., T-coded, unshielded

Notes:
For information about the cable qualities, see page 184

Free end



M12 plug, SPEEDCON



Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.
	1 m	1408812	1 m 1408816
	2 m	1408813	2 m 1408819
	5 m	1408814	5 m 1408820
	10 m	1408815	10 m 1408822
M12 socket, SPEEDCON, straight 	1 m	1408823	1 m 1408808
	2 m	1408824	2 m 1408809
	5 m	1408825	5 m 1408810
	10 m	1408826	10 m 1408811
M12 socket, SPEEDCON, angled 	1 m	1408827	
	2 m	1408828	
	5 m	1408829	
	10 m	1408830	

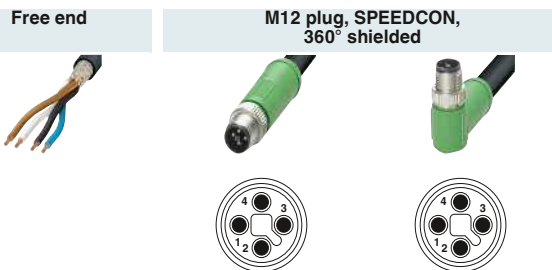
Cable description	Cable type	Color coding	Pin assignment												
PUR, halogen-free - black	PUR	<table border="1"> <tr><td>BN</td><td></td><td>1</td></tr> <tr><td>WH</td><td></td><td>2</td></tr> <tr><td>BK</td><td></td><td>4</td></tr> <tr><td>BU</td><td></td><td>3</td></tr> </table>	BN		1	WH		2	BK		4	BU		3	
BN		1													
WH		2													
BK		4													
BU		3													

Technical data

		M12
Rated voltage	[V]	60
Rated current	[A]	12
Volume resistance		≤ 3 mΩ
Material contact M12		CuZn
Material contact surface M12		Au
Material handle M12		TPU, hardly inflammable, self-extinguishing
Material, knurls		Zinc die-cast, nickel-plated
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-25 ... 85

M12-SPEEDCON power cable, 4-pos., T-coded, shielded

Notes:
For information about the cable qualities, see page 184



Ordering data Ordering data Ordering data

Free end	Order No.	Order No.	Order No.	Order No.	
		1.5 m	1424120	1.5 m	1424124
		3 m	1424121	3 m	1424125
		5 m	1424122	5 m	1424126
		10 m	1424123	10 m	1424127
M12 socket, SPEEDCON, straight, 360° shielded 		1.5 m	1424112		
		3 m	1424113		
		5 m	1424114		
		10 m	1424115		
M12 socket, SPEEDCON, angled, 360° shielded 		1.5 m	1424116		
		3 m	1424117		
		5 m	1424118		
		10 m	1424128		

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black	PUR	BN	1
		WH	2
		BK	4
		BU	3

		Technical data
		M12
Rated voltage	[V]	60
Rated current	[A]	12
Volume resistance		≤ 3 mΩ
Material contact M12		CuZn
Material contact surface M12		Au
Material handle M12		TPU, hardly inflammable, self-extinguishing
Material, knurls		Zinc die-cast, nickel-plated
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-25 ... 85

Sensor/actuator cabling

Assembled cables

**7/8" power cable,
4-pos. + PE,
PUR cable, 1.5 mm²**

Notes:

For information about the cable qualities, see page 194

Free end



7/8" plug



Ordering data

Ordering data

Ordering data

7/8" socket, straight



Order No.	Order No.
1.5 m 1443705	0.3 m 1443802
3 m 1443718	0.6 m 1443815
5 m 1443721	1 m 1443828
7.5 m 1443734	1.5 m 1443831
10 m 1443747	2 m 1443844

7/8" socket, angled



Order No.	Order No.	Order No.
1.5 m 1443750	0.3 m 1443857	0.6 m 1443860
3 m 1443763	1 m 1443873	1.5 m 1443886
5 m 1443776	2 m 1443899	
7.5 m 1443789		
10 m 1443792		

Cable description	Cable type	Color coding	Pin assignment
PUR/PVC 1.5 mm ² - gray	440	BK1	1
		BK2	2
		BK3	3
		BK4	4
		GNYE	3

Technical data

		7/8", 1.5 mm ²
Rated voltage	[V]	600
Rated current	[A]	10
Volume resistance		≤ 5 mΩ
Contact material		CuZn
Contact surface material		AU
Material of grip body		TPU
Degree of protection		IP65 / IP67 / IP68
Temperature data		
Plug / socket	[°C]	-40 ... 90

**7/8" power cable,
4-pos. + PE,
PUR cable, 2.5 mm²**

Notes:

For information about the cable qualities, see page 194

Free end



7/8" plug



Ordering data

Ordering data

Ordering data

7/8" socket, straight

Order No.

Order No.

Order No.



1.5 m	1443909
3 m	1443912
5 m	1443925
7.5 m	1443938
10 m	1443941

0.3 m	1419823
0.6 m	1419836
1 m	1419849
1.5 m	1419852
2 m	1419865

7/8" socket, angled



1.5 m	1443954
3 m	1443967
5 m	1443970
7.5 m	1419807
10 m	1419810

0.3 m	1419878
0.6 m	1419881
1 m	1419894
1.5 m	1419904
2 m	1419917

Cable description	Cable type	Color coding	Pin assignment
PUR/PVC 2.5 mm ² - gray	441	BK1	1
		BK2	2
		BK3	3
		BK4	4
		GNYE	3

Technical data

		7/8", 2.5 mm ²
Rated voltage	[V]	600
Rated current	[A]	13
Volume resistance		≤ 5 mΩ
Contact material		CuZn
Contact surface material		AU
Material of grip body		TPU
Degree of protection		IP65 / IP67 / IP68
Temperature data		
Plug / socket	[°C]	-40 ... 90

Sensor/actuator cabling

Assembled cables

**7/8" power cable,
4-pos. + PE,
PVC cable, 1.5 mm²**

Notes:

For information about the cable qualities, see page 194

Free end



7/8" plug



Ordering data

Ordering data

Ordering data

7/8" socket, straight



Order No.	Order No.
1.5 m 1443307	0.3 m 1443404
3 m 1443310	0.6 m 1443417
5 m 1443323	1 m 1443420
7.5 m 1443336	1.5 m 1443433
10 m 1443349	2 m 1443446

7/8" socket, angled



Order No.	Order No.	Order No.
1.5 m 1443352	0.3 m 1443459	0.6 m 1443462
3 m 1443365	1 m 1443475	1.5 m 1443488
5 m 1443378	2 m 1443491	
7.5 m 1443381		
10 m 1443394		

Cable description	Cable type	Color coding	Pin assignment
PVC 1.5 mm ² - gray	430	BK1	1
		BK2	2
		BK3	3
		BK4	4
		GNYE	5

		Technical data
		7/8", 1.5 mm ²
Rated voltage	[V]	600
Rated current	[A]	10
Volume resistance		≤ 5 mΩ
Contact material		CuZn
Contact surface material		AU
Material of grip body		TPU
Degree of protection		IP65 / IP67 / IP68
Temperature data		
Plug / socket	[°C]	-40 ... 90

**7/8" power cable,
4-pos. + PE,
PVC cable, 2.5 mm²**

Notes:

For information about the cable qualities, see page 194

Free end



7/8" plug



Ordering data

Ordering data

Ordering data

7/8" socket, straight



Order No.	Order No.	Order No.
	0.3 m	1443608
	0.6 m	1443611
	1 m	1443624
1.5 m	1.5 m	1443637
	2 m	1443640
3 m		1443514
5 m		1443527
7.5 m		1443530
10 m		1443543

7/8" socket, angled



	0.3 m	1443653
	0.6 m	1443666
	1 m	1443679
1.5 m	1.5 m	1443682
	2 m	1443695
3 m		1443569
5 m		1443572
7.5 m		1443585
10 m		1443598

Cable description	Cable type	Color coding	Pin assignment
PVC 2.5 mm ² - gray	431	BK1	1
		BK2	2
		BK3	3
		BK4	4
		GNYE	5
			3

Technical data

		7/8", 2.5 mm ²
Rated voltage	[V]	600
Rated current	[A]	13
Volume resistance		≤ 5 mΩ
Contact material		CuZn
Contact surface material		AU
Material of grip body		TPU
Degree of protection		IP65 / IP67 / IP68
Temperature data		
Plug / socket	[°C]	-40 ... 90

Sensor/actuator cabling

Assembled cables

M17 and M23 plastic molded signal plug-in connectors

- Feedback plug-in connectors
- Contact resistance ≤ 0.3 ohms
- Contact material gold-plated CuZn
- Flame-retardant TPU handle material
- Knurl CuZn/Gd-Zn, nickel-plated
- IP67 protection
- Plug head temperature range -40 to +105°C
- Standard and reverse contact numbering
- M17 and M23 standard thread - SPEEDCON rapid interlock system on request
- Angled versions rotatable

M17, 17-pos., socket, standard, 60 V, 9 A

M23, 12-pos., socket, reverse, 150 V, 9 A

M23, 12-pos., socket, reverse, 150 V, 9 A



E01

E00

E00

Ordering data

Ordering data

Ordering data

Order No.

Order No.

Order No.

Free end



	2 m	1624780	2 m	1619247	2 m	1619280
	5 m	1624781	5 m	1619248	5 m	1619281
	10 m	1624782	10 m	1619249	10 m	1619282

M17, 17-pos., pin



	2 m	1624778				
	5 m	1624783				
	10 m	1624784				

M23, 12-pos., pin



	2 m	1619289
	5 m	1619290
	10 m	1619291

M23, 12-pos., pin







M23, 17-pos., pin



Cable information:

Type/application	Color	Structure	Sheath/core material	Assignment	Temperature range
E00 Feedback	Orange	Shielded, 4 x 2 x 0.25 + 2 x 0.5	TPU/PP	1 - pink 2 - red 3 - black 4 - blue 5 - brown 6 - green 7 - violet 8 - gray 9 - exterior shield 10 - white 11 - n.c. 12 - brown	Flexible: -20°C ... 60°C Fixed: -40°C ... 80°C
E01 Feedback	Green	Shielded, 3 x 2 x 0.14 + 2 x 0.5 + 4 x 0.14 + 4 x 0.22	TPU/TPM	1 - yellow 2 - green 3 - red 4 - n.c. 5 - blue 6 - n.c. 7 - brown-blue (encoder) 8 - green-black (+temp.) 9 - green-red (-temp.) 10 - brown-red (P encoder) 11 - black 12 - brown 13 - orange 14 - white-black 15 - brown-gray (OV sense) 16 - brown-yellow (sense) 17 - interior shields 1 - 3"	Flexible: -30°C ... 60°C Fixed: -30°C ... 80°C

M23, 12-pos., socket, standard, 150 V, 9 A		M23, 12-pos., socket, standard, 150 V, 9 A		M23, 17-pos., socket, standard, 100 V, 9 A		M23, 17-pos., socket, standard, 100 V, 9 A	
							
E00		E00		E01		E01	
Ordering data		Ordering data		Ordering data		Ordering data	
Order No.		Order No.		Order No.		Order No.	
2 m	1619250	2 m	1619285	2 m	1619277	2 m	1619286
5 m	1619273	5 m	1619283	5 m	1619278	5 m	1619287
10 m	1619274	10 m	1619284	10 m	1619279	10 m	1619288
2 m	1619292						
5 m	1619293						
10 m	1619294						
				2 m	1619295		
				5 m	1619296		
				10 m	1619297		

Sensor/actuator cabling

Assembled cables

M17 plastic molded power plug-in connectors

- Contact resistance ≤ 0.3 ohms
- Contact material gold-plated CuZn
- Flame-retardant TPU handle material
- Knurl CuZn/Gd-Zn, nickel-plated
- IP67 protection
- Plug head temperature range -40 to +105°C
- Standard contact numbering
- M17 standard thread - SPEEDCON rapid interlock system on request

M17, 3+PE-pos., socket, 630 V, 18 A

M17, 3+PE-pos., socket, 630 V, 26 A

M17, 5+PE-pos., socket, 630 V, 12 A



B00

B01

C00

Ordering data

Ordering data

Ordering data

Order No.

Order No.

Order No.

Free end



	2 m	5 m	10 m	2 m	5 m	10 m	2 m	5 m	10 m
	1619298	1619299	1619300	1619301	1619302	1619303	1619307	1619308	1619309

M17, 3+PE-pos., pin



	2 m	5 m	10 m	2 m	5 m	10 m
	1619304	1619305	1619306	1619326	1619327	1619328

M17, 5+PE-pos., pin



	2 m	5 m	10 m
	1619316	1619317	1619318

M17, 7+PE-pos., pin



Cable information:

Type	Color	Structure	Sheath/core material	Assignment	Temperature range	
B00 Servo	Orange	Shielded, 4 x 1.50	PUR/TPM	1 - black U 2 - black V 3 - black W	Flexible: -20°C ... 60°C Fixed: -40°C ... 80°C	
B01 Servo	Orange	Shielded, 4 x 2.50	TPU/TPM	PE - green/yellow"	Flexible: -20°C ... 70°C Fixed: -50°C ... 80°C	
C00 Servo	Orange	Shielded, 4 x 0.75 + 2 x 0.5	PUR/TPM	1 - black U 6 - black V 7 - black W	3 - black, 5 (brake) 4 - black, 6 (brake)	Flexible: -30°C ... 70°C Fixed: -40°C ... 80°C
C01 Servo	Orange	Shielded, 4G1 + 2 x 0.5	PUR/TPE	PE - green/yellow	Flexible: -5°C ... 70°C Fixed: -30°C ... 70°C	
D00 Servo	Orange	Shielded, 4 x 0.75 + 2 x 2 x 0.34	PUR/TPM	1 - black U 2 - black V 3 - black W	A - black 5 (brake) B - black 6 (brake) C - black 7 (motor temp. +)	Flexible: -30°C ... 90°C Fixed: -40°C ... 90°C
D01 Servo	Orange	Shielded, 4 x 1.0 + 2 x 2 x 0.75	PUR/TPM	PE - green/yellow	D - black 8 (motor temp. -)	Flexible: -20°C ... 60°C Fixed: -40°C ... 80°C

M17, 5+PE-pos.,
socket, 630 V, 15 A



C01

M17, 7+PE-pos.,
socket, 630 V, 12 A



D00

M17, 7+PE-pos.,
socket, 630 V, 15 A



D01

Ordering data		Ordering data		Ordering data	
Order No.		Order No.		Order No.	
2 m	1619310	2 m	1624785	2 m	1619313
5 m	1619311	5 m	1624786	5 m	1619314
10 m	1619312	10 m	1624792	10 m	1619315



2 m	1619319
5 m	1619321
10 m	1619322


	2 m	1624787	2 m	1619323
	5 m	1624788	5 m	1619324
	10 m	1624789	10 m	1619325

Sensor/actuator cabling

Assembled cables

M23 plastic molded power plug-in connectors

- Contact resistance ≤ 0.3 ohms
- Contact material gold-plated CuZn
- Flame-retardant TPU handle material
- Knurl CuZn/Gd-Zn, nickel-plated
- IP67 protection
- Plug head temperature range -40 to +105°C
- Standard contact numbering
- M23 standard thread - SPEEDCON rapid interlock system on request
- Angled version rotatable (only with reinforced device plug-in connector 1620619)

	M23, 3+PE-pos., socket, 630 V, 34 A	M23, 4+PE-pos., socket, 630 V, 34 A	M23, 5+PE-pos., socket, 630 V, 18 A
			
	A00	A01	C02
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Free end	2 m 1624771 5 m 1619622 10 m 1624772	2 m 1625776 5 m 1625777 10 m 1625775	2 m 1618957 5 m 1618958 10 m 1618959
			
M23, 3+PE-pos., pin	2 m 1624773 5 m 1619606 10 m 1624774		
			
M23, 4+PE-pos., pin		2 m 1625779 5 m 1625781 10 m 1625780	
			
M23, 5+PE-pos., pin			2 m 1618964 5 m 1618965 10 m 1618966
			

Cable information:

Type	Color	Structure	Sheath/core material	Assignment	Temperature range
A00 Energy	Gray	Shielded, 4 x 4.0	PVC/PVC	1 - nc 2 - black 3 PE - green/yellow	4 - black 1 5 - black 2 6 - nc Fixed: -40°C ... 90°C
A01 energy	Gray	5 x 4.0	PVC/PVC	1 - black 4 2 - black 3 PE - green/yellow	4 - black 1 5 - black 2 6 - nc Fixed: -40°C ... 90°C
C02 servo	Orange	Shielded, 4 x 1.50 + 2 x 1.5	PUR/TPM	1 - black U 2 - black V 6 - black W PE - green/yellow	4 - black, (BR1 brake) 5 - white, (BR2 brake) Flexible: -20°C ... 60°C Fixed: -40°C ... 80°C
C03 servo	Orange	Shielded, 4 x 2.50 + 2 x 1.5	TPU/TPM		Flexible: -20°C ... 70°C Fixed: -50°C ... 80°C

M23, 5+PE-pos.,
socket, 630 V, 18 A

M23, 5+PE-pos.,
socket, 630 V, 26 A

M23, 5+PE-pos.,
socket, 630 V, 26 A



C02

C03

C03

Ordering data		Ordering data		Ordering data	
Order No.		Order No.		Order No.	
2 m	1620415	2 m	1620396	2 m	1620418
5 m	1620416	5 m	1620397	5 m	1620419
10 m	1620417	10 m	1620398	10 m	1620420



	2 m	1620406	
	5 m	1620407	
	10 m	1620408	

Sensor/actuator cabling

Assembled cables

M23 plastic molded power plug-in connectors

- Contact resistance ≤ 0.3 ohms
- Contact material gold-plated CuZn
- Flame-retardant TPU handle material
- Knurl CuZn/Gd-Zn, nickel-plated
- IP67 protection
- Plug head temperature range -40 to +105°C
- Standard contact numbering
- M23 standard thread - SPEEDCON rapid interlock system on request
- Angled version rotatable (only with reinforced device plug-in connector 1620620)

	M23, 4+3+PE-pos., socket, 250 V/630 V, 18 A	M23, 4+3+PE-pos., socket, 250 V/630 V, 18 A	M23, 4+3+PE-pos., socket, 250 V/630 V, 26 A
			
	D02	D02	D03
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Free end 	2 m 1620399 5 m 1620400 10 m 1620401	2 m 1620421 5 m 1620422 10 m 1620423	2 m 1620402 5 m 1620404 10 m 1620405
M23, 4+3+PE-pos., pin 	2 m 1620409 5 m 1620410 10 m 1620411		2 m 1620412 5 m 1620413 10 m 1620414

Cable information:

Type	Color	Structure	Sheath/core material	Assignment		Temperature range
D02 servo	Orange	Shielded, 4 x 1.5 + 2 x 2 x 0.75	PUR/TPM	1 - black U 3 - black V 4 - black W	A - black 5 (brake) B - black 6 (brake) C - black 7 (motor temp. +) D - black 8 (motor temp. -)	Flexible: -20°C ... 60°C Fixed: -40°C ... 80°C
D03 servo	Orange	Shielded, 4 x 2.5 + 2 x 2 x 0.75	PUR/TPM	PE - green/yellow		Flexible: -20°C ... 60°C Fixed: -40°C ... 80°C

M23, 4+3+PE-pos.,
socket, 250 V/630 V, 26 A



D03

Ordering data

Order No.

2 m	1620424
5 m	1620425
10 m	1620426

Sensor/actuator cabling

Assembled cables

M40 plastic molded power plug-in connectors




- Contact resistance ≤ 0.3 ohms
- Contact material gold-plated CuZn
- Flame-retardant TPU handle material
- Knurl CuZn/Gd-Zn, nickel-plated
- IP67 protection
- Plug head temperature range -40 to +105°C
- Standard contact numbering
- M40 standard thread - SPEEDCON rapid interlock system on request

M40, 2+3+PE-pos., socket, 250 V/630 V, 26 A

M40, 2+3+PE-pos., socket, 250 V/630 V, 34 A

M40, 2+3+PE-pos., socket, 250 V/630 V, 44 A



	C03		C04		C05	
	Ordering data		Ordering data		Ordering data	
	Order No.		Order No.		Order No.	
Free end						
	2 m	1619329	2 m	1620311	2 m	1620316
	5 m	1620309	5 m	1620313	5 m	1620317
	10 m	1620310	10 m	1620314	10 m	1620318
M40, 2+3+PE-pos., pin						
	2 m	1620345	2 m	1620348	2 m	1620376
	5 m	1620346	5 m	1620349	5 m	1620377
	10 m	1620347	10 m	1620375	10 m	1620378
M40, 4+3+PE-pos., pin						
						

Cable information:

Type	Color	Structure	Sheath/core material	Assignment	Temperature range	
C03 Servo	Orange	Shielded, 4 x 2.50 + 2 x 1.5	TPU/TPM	1 - black U 2 - black V 6 - black W PE - green/yellow	4 - black, (BR1 brake) 5 - white, (BR2 brake)	Flexible: -20°C ... 70°C Fixed: -50°C ... 80°C
C04 Servo	Orange	Shielded, 4 x 4.00 + 2 x 1.5	TPU/TPM			Flexible: -20°C ... 70°C Fixed: -50°C ... 80°C
C05 Servo	Orange	Shielded, 4 x 6.00 + 2 x 1.5	PUR/TPE			Flexible: -40°C ... 80°C Fixed: -50°C ... 90°C
C06 Servo	Orange	Shielded, 4 x 10.0 + 2 x 1.5	TPU/TPM			Flexible: -20°C ... 70°C Fixed: -50°C ... 80°C
D03 Servo	Orange	Shielded, 4 x 2.5 + 2 x 2 x 0.75	PUR/TPM	1 - black U 3 - black V 4 - black W PE - green/yellow	A - black 5 (brake) B - black 6 (brake) C - black 7 (motor temp. +) D - black 8 (motor temp. -)	Flexible: -20°C ... 60°C Fixed: -40°C ... 80°C
D04 Servo	Orange	Shielded, 4 x 4.0 + 2 x 1.5 + 2 x 1.0	PUR/TPM			Flexible: -30°C ... 80°C Fixed: -45°C ... 80°C
D05 Servo	Orange	Shielded, 4 x 6.0 + 2 x 1.5 + 2 x 1.0	PUR/TPM			Flexible: -30°C ... 60°C Fixed: -30°C ... 80°C
D06 Servo	Orange	Shielded, 4 x 10 + 2 x 1.5 + 2 x 1.0	PUR/TPM			Flexible: -20°C ... 60°C Fixed: -40°C ... 80°C

M40, 2+3+PE-pos.,
socket, 250 V/630 V, 61 A

M40, 4+3+PE-pos.,
socket, 250 V/630 V, 26 A

M40, 4+3+PE-pos.,
socket, 250 V/630 V, 34 A

M40, 4+3+PE-pos.,
socket, 250 V/630 V, 44 A

M40, 4+3+PE-pos.,
socket, 250 V/630 V, 61 A



C06

D03

D04

D05

D06

Ordering data

Ordering data

Ordering data

Ordering data

Ordering data

Order No.

Order No.

Order No.

Order No.

Order No.

2 m 1620319
5 m 1620320
10 m 1620321

2 m 1620322
5 m 1620323
10 m 1620324

2 m 1620325
5 m 1620337
10 m 1620338

2 m 1620339
5 m 1620340
10 m 1620341

2 m 1620342
5 m 1620343
10 m 1620344

2 m 1620379
5 m 1620380
10 m 1620381

2 m 1620382
5 m 1620383
10 m 1620384

2 m 1620385
5 m 1620386
10 m 1620387

2 m 1620390
5 m 1620391
10 m 1620392

2 m 1620393
5 m 1620394
10 m 1620395

Sensor/actuator cabling

Assembled cables

Valve connectors, type A

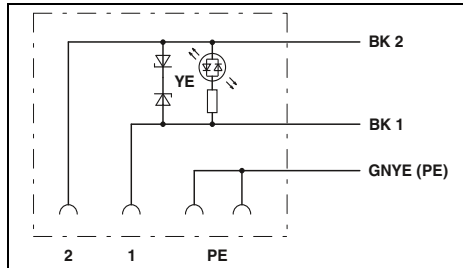
Notes:
For information about the cable qualities, see page 184
For ordering example for valve connector cables with variable cable, see page 101



Valve connector with Z diode

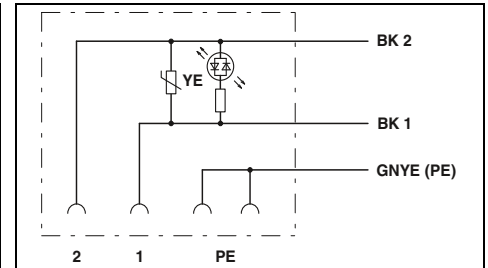


Valve connector with 24 V varistor



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Valve connector according to:	EN 175301-803
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material handle M12	TPU
Material housing valve connector	TPU
Mechanical data	
No. of pos.	3
Temperature data	
Plug / socket	[°C] -25 ... 90
Valve connectors	[°C] -20 ... 85



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Valve connector according to:	EN 175301-803
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material handle M12	TPU
Material housing valve connector	TPU
Mechanical data	
No. of pos.	3
Temperature data	
Plug / socket	[°C] -25 ... 90
Valve connectors	[°C] -20 ... 85

Ordering data

Description	Cable length	Type	Order No.	Pcs. / Pkt.
Assembled cable, with valve connector, and free cable end	1.5 m	SAC-3P- 1,5-PUR/A-1L-Z	1434989	1
	3 m	SAC-3P- 3,0-PUR/A-1L-Z	1434992	1
	5 m	SAC-3P- 5,0-PUR/A-1L-Z	1435001	1
	10 m	SAC-3P-10,0-PUR/A-1L-Z	1435014	1
	Variable	SAC-3P-A-1L-Z/.../...	1435027	1
	Assembled cable, with valve connector, and M12 SPEEDCON connector, straight	0.3 m	SAC-3P-MS/ 0,3-PUR/A-1L-Z SCO	1434882
0.6 m		SAC-3P-MS/ 0,6-PUR/A-1L-Z SCO	1434895	1
1.5 m		SAC-3P-MS/ 1,5-PUR/A-1L-Z SCO	1434905	1
3 m		SAC-3P-MS/ 3,0-PUR/A-1L-Z SCO	1434918	1
Variable		SAC-3P-MS-A-1L-Z SCO/.../...	1434921	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, angled		0.3 m	SAC-3P-MR/ 0,3-PUR/A-1L-Z SCO	1434934
	0.6 m	SAC-3P-MR/ 0,6-PUR/A-1L-Z SCO	1434947	1
	1.5 m	SAC-3P-MR/ 1,5-PUR/A-1L-Z SCO	1434950	1
	3 m	SAC-3P-MR/ 3,0-PUR/A-1L-Z SCO	1434963	1
	Variable	SAC-3P-MR-A-1L-Z SCO/.../...	1434976	1

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-3P- 1,5-PUR/A-1L-V	1443103	1
SAC-3P- 3,0-PUR/A-1L-V	1443116	1
SAC-3P- 5,0-PUR/A-1L-V	1443129	1
SAC-3P-10,0-PUR/A-1L-V	1443132	1
SAC-3P-A-1L-V/.../...	1400876	1
SAC-3P-MS-A-1L-V SCO/.../...	1400874	1
SAC-3P-MR-A-1L-V SCO/.../...	1400875	1



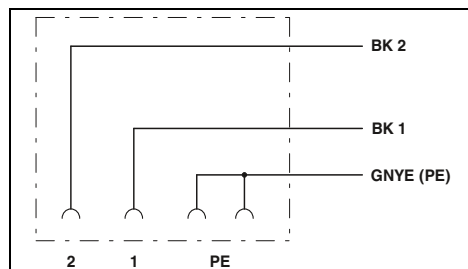
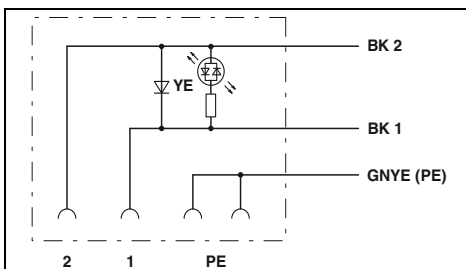
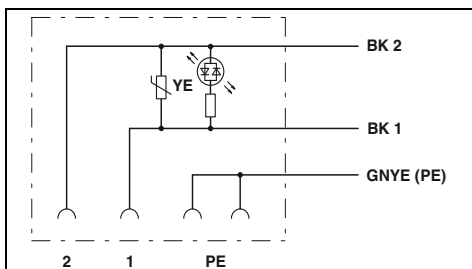
Valve connector with 230 V varistor



Valve connector with freewheeling diode



Valve connector without circuit



Technical data

-
EN 175301-803
IP65/67

230 V
4 A
≤ 5 mΩ

-
CuSn
-
Sn
-
TPU

3

- ... -
-20 ... 85

Technical data

-
EN 175301-803
IP65/67

24 V DC
2 A
≤ 5 mΩ

-
CuSn
-
Sn
-
TPU

3

- ... -
-20 ... 85

Technical data

IEC 61076-2-101
EN 175301-803
IP65/67

230 V
4 A
≤ 5 mΩ

CuSn
CuSn
Ni/Au
Sn
TPU
TPU

3

-25 ... 90
-20 ... 85

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-3P- 1,5-PUR/A-1L-V 230V	1402985	1
SAC-3P- 3,0-PUR/A-1L-V 230V	1400694	1
SAC-3P-5,0-PUR/A-1L-V 230V	1400648	1
SAC-3P-10,0-PUR/A-1L-V 230V	1402986	1

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-3P-1,5-PUR/A-1L-R	1400589	1
SAC-3P-3,0-PUR/A-1L-R	1400588	1
SAC-3P- 5,0-PUR/A-1L-R	1400798	1
SAC-3P-10,0-PUR/A-1L-R	1400799	1

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-3P- 1,5-PUR/A	1402983	1
SAC-3P- 3,0-PUR/A	1439544	1
SAC-3P- 5,0-PUR/A	1402984	1
SAC-3P-10,0-PUR/A	1400732	1
SAC-3P-A/.../...	1400897	1
SAC-3P-MS-A SCO/.../...	1400895	1
SAC-3P-MR-A SCO/.../...	1400896	1

Sensor/actuator cabling

Assembled cables

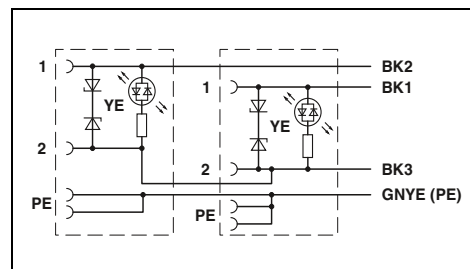
Double valve connector, type A

Notes:

For information about the cable qualities, see page 184



Type A



General data	
Valve connector according to:	EN 175301-803
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V AC/DC
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact valve connector	CuSn
Material contact surface valve connector	Sn
Material housing valve connector	TPU
Mechanical data	
No. of pos.	4
Temperature data	
Valve connectors	[-25 ... 85] [°C]

Technical data

General data	
Valve connector according to:	EN 175301-803
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V AC/DC
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact valve connector	CuSn
Material contact surface valve connector	Sn
Material housing valve connector	TPU
Mechanical data	
No. of pos.	4
Temperature data	
Valve connectors	[-25 ... 85] [°C]

Ordering data

Description	Cable length	Type	Order No.	Pcs. / Pkt.
Pre-assembled cable, 2 valve connectors to free end, valve connector spacing: 10 cm	1.5 m	SAC- 1,5/0,1-116/2XA-1L-Z	1457982	1
	3 m	SAC- 3,0/0,1-116/2XA-1L-Z	1457995	1
	5 m	SAC- 5,0/0,1-116/2XA-1L-Z	1458004	1
	10 m	SAC-10,0/0,1-116/2XA-1L-Z	1458017	1
Pre-assembled cable, 2 valve connectors to free end, valve connector spacing: 15 cm	1.5 m	SAC- 1,5/0,15-116/2XA-1L-Z	1458020	1
	3 m	SAC- 3,0/0,15-116/2XA-1L-Z	1458033	1
	5 m	SAC- 5,0/0,15-116/2XA-1L-Z	1458046	1
	10 m	SAC-10,0/0,15-116/2XA-1L-Z	1458059	1
Pre-assembled cable, 2 valve connectors to free end, valve connector spacing: 20 cm	1.5 m	SAC- 1,5/0,2-116/2XA-1L-Z	1458062	1
	3 m	SAC- 3,0/0,2-116/2XA-1L-Z	1458075	1
	5 m	SAC- 5,0/0,2-116/2XA-1L-Z	1458088	1
	10 m	SAC-10,0/0,2-116/2XA-1L-Z	1458091	1

Sensor/actuator cabling

Assembled cables

Valve connector, type B

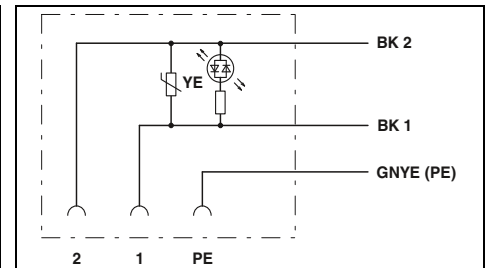
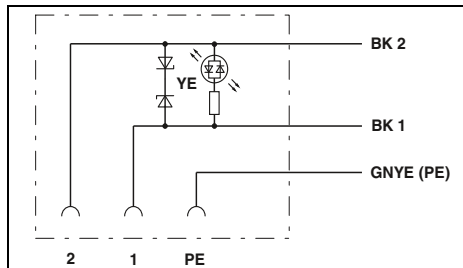
Notes:
For information about the cable qualities, see page 184
For ordering example for valve connector cables with variable cable, see page 101



Valve connector with Z diode



Valve connector with 24 V varistor



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Valve connector according to:	EN 175301-803
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material handle M12	TPU
Material housing valve connector	TPU
Mechanical data	
No. of pos.	3
Temperature data	
Plug / socket	[°C] -25 ... 90
Valve connectors	[°C] -20 ... 85

Technical data	
IEC 61076-2-101	
EN 175301-803	
IP65/67	
Electrical data	
24 V	
4 A	
≤ 5 mΩ	
Material data	
CuSn	
CuSn	
Ni/Au	
Sn	
TPU	
TPU	
Mechanical data	
3	
Temperature data	
-25 ... 90	
-20 ... 85	

Ordering data

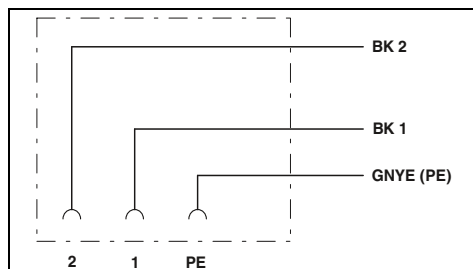
Description	Cable length	Type	Order No.	Pcs. / Pkt.
Assembled cable, with valve connector, and free cable end	1.5 m	SAC-3P- 1,5-PUR/B-1L-Z	1435386	1
	3 m	SAC-3P- 3,0-PUR/B-1L-Z	1435399	1
	5 m	SAC-3P- 5,0-PUR/B-1L-Z	1435409	1
	10 m	SAC-3P-10,0-PUR/B-1L-Z	1435412	1
	Variable	SAC-3P-B-1L-Z/.../...	1435425	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, straight	0.3 m	SAC-3P-MS/ 0,3-PUR/B-1L-Z SCO	1435289	1
	0.6 m	SAC-3P-MS/ 0,6-PUR/B-1L-Z SCO	1435292	1
	1.5 m	SAC-3P-MS/ 1,5-PUR/B-1L-Z SCO	1435302	1
	3 m	SAC-3P-MS/ 3,0-PUR/B-1L-Z SCO	1435315	1
	Variable	SAC-3P-MS-B-1L-Z SCO/.../...	1435328	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, angled	0.3 m	SAC-3P-MR/ 0,3-PUR/B-1L-Z SCO	1435331	1
	0.6 m	SAC-3P-MR/ 0,6-PUR/B-1L-Z SCO	1435344	1
	1.5 m	SAC-3P-MR/ 1,5-PUR/B-1L-Z SCO	1435357	1
	3 m	SAC-3P-MR/ 3,0-PUR/B-1L-Z SCO	1435360	1
	Variable	SAC-3P-MR-B-1L-Z SCO/.../...	1435373	1

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-3P- 1,5-PUR/B-1L-V	1443145	1
SAC-3P- 3,0-PUR/B-1L-V	1443158	1
SAC-3P- 5,0-PUR/B-1L-V	1443161	1
SAC-3P-10,0-PUR/B-1L-V	1443174	1
SAC-3P-B-1L-V/.../...	1400882	1
SAC-3P-MS-B-1L-V SCO/.../...	1400880	1
SAC-3P-MR-B-1L-V SCO/.../...	1400881	1



Valve connector without circuit



Technical data

IEC 61076-2-101
EN 175301-803
IP65/67

230 V
4 A
≤ 5 mΩ

CuSn
CuSn
Ni/Au
Sn
TPU
TPU

3

-25 ... 90
-20 ... 85

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-3P-B/.../...	1400909	1
SAC-3P-MS-B SCO/.../...	1400903	1
SAC-3P-MR-B SCO/.../...	1400905	1

Assembled cables

Valve connector, type BI

Notes:

For information about the cable qualities, see page 184

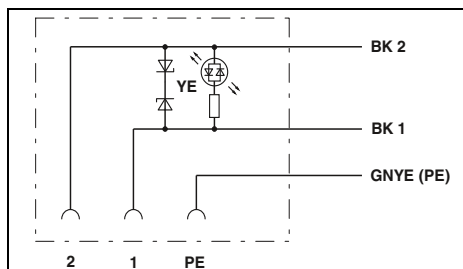
For ordering example for valve connector cables with variable cable, see page 101



Valve connector with Z diode

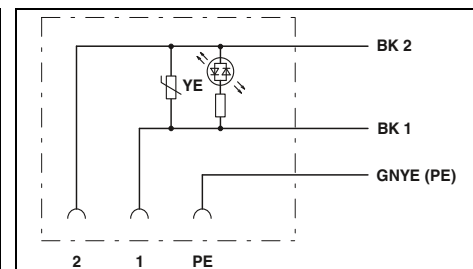


Valve connector with 24 V varistor



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material handle M12	TPU
Material housing valve connector	TPU
Mechanical data	
No. of pos.	3
Temperature data	
Plug / socket	[°C] -25 ... 90
Valve connectors	[°C] -20 ... 85



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material handle M12	TPU
Material housing valve connector	TPU
Mechanical data	
No. of pos.	3
Temperature data	
Plug / socket	[°C] -25 ... 90
Valve connectors	[°C] -20 ... 85

Ordering data

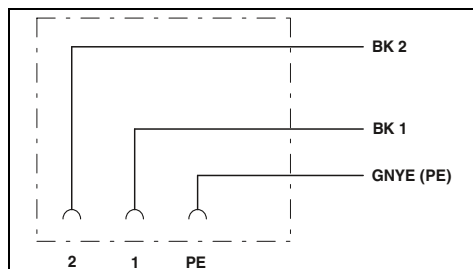
Description	Cable length	Type	Order No.	Pcs. / Pkt.
Assembled cable, with valve connector, and free cable end	1.5 m	SAC-3P- 1,5-PUR/BI-1L-Z	1435234	1
	3 m	SAC-3P- 3,0-PUR/BI-1L-Z	1435247	1
	5 m	SAC-3P- 5,0-PUR/BI-1L-Z	1435250	1
	10 m	SAC-3P-10,0-PUR/BI-1L-Z	1435263	1
	Variable	SAC-3P-BI-1L-Z/.../...	1435276	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, straight	0.3 m	SAC-3P-MS/ 0,3-PUR/BI-1L-Z SCO	1435137	1
	0.6 m	SAC-3P-MS/ 0,6-PUR/BI-1L-Z SCO	1435140	1
	1.5 m	SAC-3P-MS/ 1,5-PUR/BI-1L-Z SCO	1435153	1
	3 m	SAC-3P-MS/ 3,0-PUR/BI-1L-Z SCO	1435166	1
	Variable	SAC-3P-MS-BI-1L-Z SCO/.../...	1435179	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, angled	0.3 m	SAC-3P-MR/ 0,3-PUR/BI-1L-Z SCO	1435182	1
	0.6 m	SAC-3P-MR/ 0,6-PUR/BI-1L-Z SCO	1435195	1
	1.5 m	SAC-3P-MR/ 1,5-PUR/BI-1L-Z SCO	1435205	1
	3 m	SAC-3P-MR/ 3,0-PUR/BI-1L-Z SCO	1435218	1
	Variable	SAC-3P-MR-BI-1L-Z SCO/.../...	1435221	1

Ordering data

Description	Cable length	Type	Order No.	Pcs. / Pkt.
Assembled cable, with valve connector, and free cable end	1.5 m	SAC-3P- 1,5-PUR/BI-1L-V	1443187	1
	3 m	SAC-3P- 3,0-PUR/BI-1L-V	1443190	1
	5 m	SAC-3P- 5,0-PUR/BI-1L-V	1443200	1
	10 m	SAC-3P-10,0-PUR/BI-1L-V	1443213	1
	Variable	SAC-3P-BI-1L-V/.../...	1400879	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, straight	0.3 m	SAC-3P-MS/ 0,3-PUR/BI-1L-Z SCO	1435137	1
	0.6 m	SAC-3P-MS/ 0,6-PUR/BI-1L-Z SCO	1435140	1
	1.5 m	SAC-3P-MS/ 1,5-PUR/BI-1L-Z SCO	1435153	1
	3 m	SAC-3P-MS/ 3,0-PUR/BI-1L-Z SCO	1435166	1
	Variable	SAC-3P-MS-BI-1L-V SCO/.../...	1400877	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, angled	0.3 m	SAC-3P-MR/ 0,3-PUR/BI-1L-Z SCO	1435182	1
	0.6 m	SAC-3P-MR/ 0,6-PUR/BI-1L-Z SCO	1435195	1
	1.5 m	SAC-3P-MR/ 1,5-PUR/BI-1L-Z SCO	1435205	1
	3 m	SAC-3P-MR/ 3,0-PUR/BI-1L-Z SCO	1435218	1
	Variable	SAC-3P-MR-BI-1L-V SCO/.../...	1400878	1



Valve connector without circuit



Technical data

IEC 61076-2-101
IP65/67

230 V
4 A
≤ 5 mΩ

CuSn
CuSn
Ni/Au
Sn
TPU
TPU

3

-25 ... 90
-20 ... 85

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-3P- 5,0-PUR/BI	1439065	1
SAC-3P-10,0-PUR/BI	1438862	1
SAC-3P-BI/.../...	1400902	1
SAC-3P-MS-BI SCO/.../...	1400900	1
SAC-3P-MR-BI SCO/.../...	1400901	1

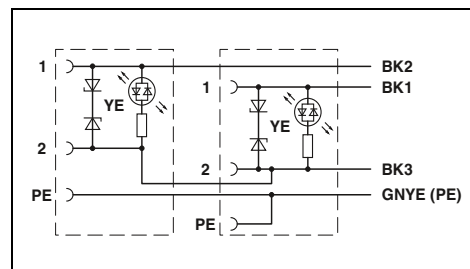
Double valve connector, type B

Notes:

For information about the cable qualities, see page 184



Type B



Technical data

General data	
Valve connector according to:	EN 175301-803
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V AC/DC
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact valve connector	CuSn
Material contact surface valve connector	Sn
Material housing valve connector	TPU
Mechanical data	
No. of pos.	4
Temperature data	
Valve connectors	[-25 ... 85 °C]

Ordering data

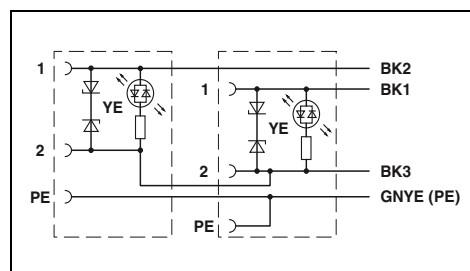
Description	Cable length	Type	Order No.	Pcs. / Pkt.
Pre-assembled cable, 2 valve connectors to free end, valve connector spacing: 10 cm	1.5 m	SAC- 1,5/0,1-116/2XB-1L-Z	1458169	1
	3 m	SAC- 3,0/0,1-116/2XB-1L-Z	1458172	1
	5 m	SAC- 5,0/0,1-116/2XB-1L-Z	1458185	1
	10 m	SAC-10,0/0,1-116/2XB-1L-Z	1458198	1
Pre-assembled cable, 2 valve connectors to free end, valve connector spacing: 15 cm	1.5 m	SAC- 1,5/0,15-116/2XB-1L-Z	1458208	1
	3 m	SAC- 3,0/0,15-116/2XB-1L-Z	1458211	1
	5 m	SAC- 5,0/0,15-116/2XB-1L-Z	1458224	1
	10 m	SAC-10,0/0,15-116/2XB-1L-Z	1458237	1
Pre-assembled cable, 2 valve connectors to free end, valve connector spacing: 20 cm	1.5 m	SAC- 1,5/0,2-116/2XB-1L-Z	1458240	1
	3 m	SAC- 3,0/0,2-116/2XB-1L-Z	1458253	1
	5 m	SAC- 5,0/0,2-116/2XB-1L-Z	1458266	1
	10 m	SAC-10,0/0,2-116/2XB-1L-Z	1458279	1

Double valve connector, type BI

Notes:
For information about the cable qualities, see page 184



Type BI



General data	
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V AC/DC
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact valve connector	CuSn
Material contact surface valve connector	Sn
Material housing valve connector	TPU
Mechanical data	
No. of pos.	4
Temperature data	
Valve connectors	-25 ... 85 [°C]

Technical data

Ordering data

Description	Cable length	Type	Order No.	Pcs. / Pkt.
Pre-assembled cable, 2 valve connectors to free end, valve connector spacing: 10 cm	1.5 m	SAC- 1,5/0,1-116/2XB1-1L-Z	1458347	1
	3 m	SAC- 3,0/0,1-116/2XB1-1L-Z	1458350	1
	5 m	SAC- 5,0/0,1-116/2XB1-1L-Z	1458363	1
	10 m	SAC-10,0/0,1-116/2XB1-1L-Z	1458376	1
	Pre-assembled cable, 2 valve connectors to free end, valve connector spacing: 15 cm	1.5 m	SAC- 1,5/0,15-116/2XB1-1L-Z	1458389
3 m		SAC- 3,0/0,15-116/2XB1-1L-Z	1458392	1
5 m		SAC- 5,0/0,15-116/2XB1-1L-Z	1458402	1
10 m		SAC-10,0/0,15-116/2XB1-1L-Z	1458415	1
Pre-assembled cable, 2 valve connectors to free end, valve connector spacing: 20 cm		1.5 m	SAC- 1,5/0,2-116/2XB1-1L-Z	1458428
	3 m	SAC- 3,0/0,2-116/2XB1-1L-Z	1458431	1
	5 m	SAC- 5,0/0,2-116/2XB1-1L-Z	1458444	1
	10 m	SAC-10,0/0,2-116/2XB1-1L-Z	1458457	1

Assembled cables

Valve connector, type C

Notes:

For information about the cable qualities, see page 184

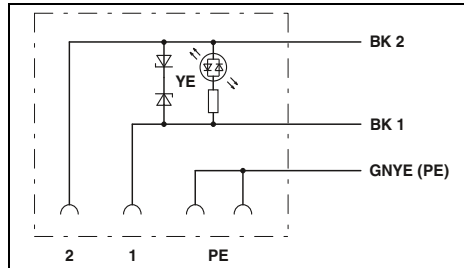
For ordering example for valve connector cables with variable cable, see page 101



Valve connector with Z diode

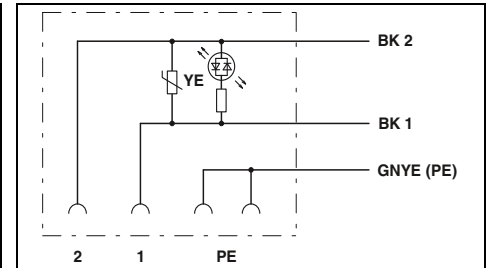


Valve connector with 24 V varistor



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Valve connector according to:	EN 175301-803
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material handle M12	TPU
Material housing valve connector	TPU
Mechanical data	
No. of pos.	3
Temperature data	
Plug / socket	[°C] -25 ... 90
Valve connectors	[°C] -20 ... 85



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Valve connector according to:	EN 175301-803
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material handle M12	TPU
Material housing valve connector	TPU
Mechanical data	
No. of pos.	3
Temperature data	
Plug / socket	[°C] -25 ... 90
Valve connectors	[°C] -20 ... 85

Ordering data

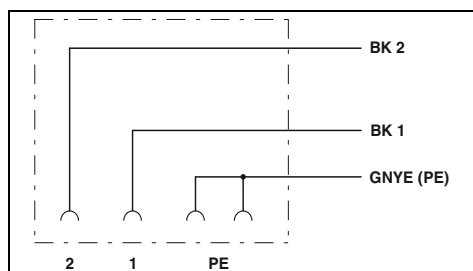
Description	Cable length	Type	Order No.	Pcs. / Pkt.
Assembled cable, with valve connector, and free cable end	1.5 m	SAC-3P- 1,5-PUR/C-1L-Z	1435535	1
	3 m	SAC-3P- 3,0-PUR/C-1L-Z	1435548	1
	5 m	SAC-3P- 5,0-PUR/C-1L-Z	1435551	1
	10 m	SAC-3P-10,0-PUR/C-1L-Z	1435564	1
	Variable	SAC-3P-C-1L-Z/.../...	1435726	1
	Assembled cable, with valve connector, and M12 SPEEDCON connector, straight	0.3 m	SAC-3P-MS/ 0,3-PUR/C-1L-Z SCO	1435438
0.6 m		SAC-3P-MS/ 0,6-PUR/C-1L-Z SCO	1435441	1
1.5 m		SAC-3P-MS/ 1,5-PUR/C-1L-Z SCO	1435454	1
3 m		SAC-3P-MS/ 3,0-PUR/C-1L-Z SCO	1435467	1
Variable		SAC-3P-MS-C-1L-Z SCO/.../...	1435629	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, angled		0.3 m	SAC-3P-MR/ 0,3-PUR/C-1L-Z SCO	1435483
	0.6 m	SAC-3P-MR/ 0,6-PUR/C-1L-Z SCO	1435496	1
	1.5 m	SAC-3P-MR/ 1,5-PUR/C-1L-Z SCO	1435506	1
	3 m	SAC-3P-MR/ 3,0-PUR/C-1L-Z SCO	1435519	1
	Variable	SAC-3P-MR-C-1L-Z SCO/.../...	1435674	1

Ordering data

Description	Cable length	Type	Order No.	Pcs. / Pkt.
Assembled cable, with valve connector, and free cable end	1.5 m	SAC-3P- 1,5-PUR/C-1L-V	1443226	1
	3 m	SAC-3P- 3,0-PUR/C-1L-V	1443239	1
	5 m	SAC-3P- 5,0-PUR/C-1L-V	1443242	1
	10 m	SAC-3P-10,0-PUR/C-1L-V	1443255	1
	Variable	SAC-3P-C-1L-V/.../...	1400894	1
	Assembled cable, with valve connector, and M12 SPEEDCON connector, straight	0.3 m	SAC-3P-MS/ 0,3-PUR/C-1L-Z SCO	1435438
0.6 m		SAC-3P-MS/ 0,6-PUR/C-1L-Z SCO	1435441	1
1.5 m		SAC-3P-MS/ 1,5-PUR/C-1L-Z SCO	1435454	1
3 m		SAC-3P-MS/ 3,0-PUR/C-1L-Z SCO	1435467	1
Variable		SAC-3P-MS-C-1L-V SCO/.../...	1400892	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, angled		0.3 m	SAC-3P-MR/ 0,3-PUR/C-1L-Z SCO	1435483
	0.6 m	SAC-3P-MR/ 0,6-PUR/C-1L-Z SCO	1435496	1
	1.5 m	SAC-3P-MR/ 1,5-PUR/C-1L-Z SCO	1435506	1
	3 m	SAC-3P-MR/ 3,0-PUR/C-1L-Z SCO	1435519	1
	Variable	SAC-3P-MR-C-1L-V SCO/.../...	1400893	1



Valve connector without circuit



Technical data

IEC 61076-2-101
EN 175301-803
IP65/67

230 V
4 A
≤ 5 mΩ

CuSn
CuSn
Ni/Au
Sn
TPU
TPU

3

-25 ... 90
-20 ... 85

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-3P-5,0-PUR/C	1400814	1
SAC-3P-10,0-PUR/C	1400641	1
SAC-3P-C/.../...	1400921	1
SAC-3P-MS-C SCO/.../...	1400919	1
SAC-3P-MR-C SCO/.../...	1400920	1

Assembled cables

Valve connector, type CI

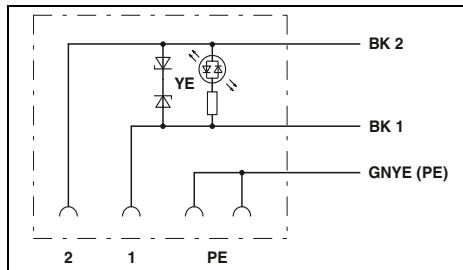
Notes:
For information about the cable qualities, see page 184
For ordering example for valve connector cables with variable cable, see page 101



Valve connector with Z diode

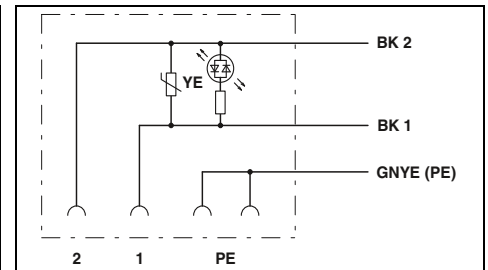


Valve connector with 24 V varistor



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material handle M12	TPU
Material housing valve connector	TPU
Mechanical data	
No. of pos.	3
Temperature data	
Plug / socket	[°C] -25 ... 90
Valve connectors	[°C] -20 ... 85



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material handle M12	TPU
Material housing valve connector	TPU
Mechanical data	
No. of pos.	3
Temperature data	
Plug / socket	[°C] -25 ... 90
Valve connectors	[°C] -20 ... 85

Ordering data

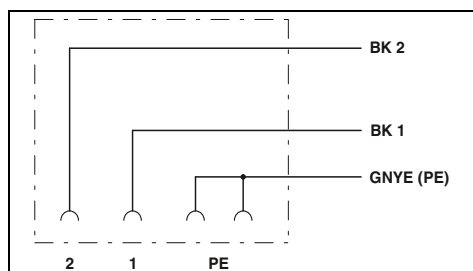
Description	Cable length	Type	Order No.	Pcs. / Pkt.
Assembled cable, with valve connector, and free cable end	1.5 m	SAC-3P- 1,5-PUR/CI-1L-Z	1435687	1
	3 m	SAC-3P- 3,0-PUR/CI-1L-Z	1435690	1
	5 m	SAC-3P- 5,0-PUR/CI-1L-Z	1435700	1
	10 m	SAC-3P-10,0-PUR/CI-1L-Z	1435713	1
	Variable	SAC-3P-CI-1L-Z/.../...	1435577	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, straight	0.3 m	SAC-3P-MS/ 0,3-PUR/CI-1L-Z SCO	1435580	1
	0.6 m	SAC-3P-MS/ 0,6-PUR/CI-1L-Z SCO	1435593	1
	1.5 m	SAC-3P-MS/ 1,5-PUR/CI-1L-Z SCO	1435603	1
	3 m	SAC-3P-MS/ 3,0-PUR/CI-1L-Z SCO	1435616	1
	Variable	SAC-3P-MS-CI-1L-Z SCO/.../...	1435470	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, angled	0.3 m	SAC-3P-MR/ 0,3-PUR/CI-1L-Z SCO	1435632	1
	0.6 m	SAC-3P-MR/ 0,6-PUR/CI-1L-Z SCO	1435645	1
	1.5 m	SAC-3P-MR/ 1,5-PUR/CI-1L-Z SCO	1435658	1
	3 m	SAC-3P-MR/ 3,0-PUR/CI-1L-Z SCO	1435661	1
	Variable	SAC-3P-MR-CI-1L-Z SCO/.../...	1435522	1

Ordering data

Description	Cable length	Type	Order No.	Pcs. / Pkt.
Assembled cable, with valve connector, and free cable end	1.5 m	SAC-3P- 1,5-PUR/CI-1L-V	1443268	1
	3 m	SAC-3P- 3,0-PUR/CI-1L-V	1443271	1
	5 m	SAC-3P- 5,0-PUR/CI-1L-V	1443284	1
	10 m	SAC-3P-10,0-PUR/CI-1L-V	1443297	1
	Variable	SAC-3P-CI-1L-V/.../...	1400891	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, straight	0.3 m	SAC-3P-MS/ 0,3-PUR/CI-1L-Z SCO	1435580	1
	0.6 m	SAC-3P-MS/ 0,6-PUR/CI-1L-Z SCO	1435593	1
	1.5 m	SAC-3P-MS/ 1,5-PUR/CI-1L-Z SCO	1435603	1
	3 m	SAC-3P-MS/ 3,0-PUR/CI-1L-Z SCO	1435616	1
	Variable	SAC-3P-MS-CI-1L-V SCO/.../...	1400889	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, angled	0.3 m	SAC-3P-MR/ 0,3-PUR/CI-1L-Z SCO	1435632	1
	0.6 m	SAC-3P-MR/ 0,6-PUR/CI-1L-Z SCO	1435645	1
	1.5 m	SAC-3P-MR/ 1,5-PUR/CI-1L-Z SCO	1435658	1
	3 m	SAC-3P-MR/ 3,0-PUR/CI-1L-Z SCO	1435661	1
	Variable	SAC-3P-MR-CI-1L-V SCO/.../...	1400890	1



Valve connector without circuit



Technical data

IEC 61076-2-101
IP65/67

230 V
4 A
≤ 5 mΩ

CuSn
CuSn
Ni/Au
Sn
TPU
TPU

3

-25 ... 90
-20 ... 85

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-3P-CI/.../...	1400918	1
SAC-3P-MS-CI SCO/.../...	1400916	1
SAC-3P-MR-CI SCO/.../...	1400917	1

Sensor/actuator cabling

Assembled cables

Valve connectors, type AD pressure switch

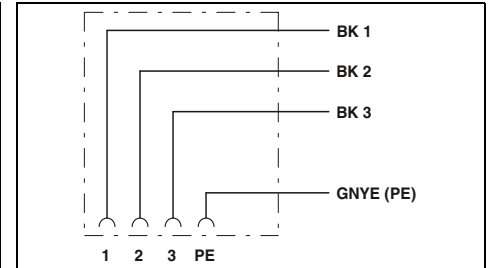
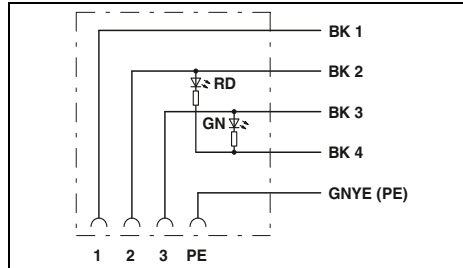
Notes:
For information about the cable qualities, see page 184
For ordering example for valve connector cables with variable cable, see page 101



5-pos., with 2 LEDs



4-pos., not connected



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material handle M12	TPU
Material housing valve connector	TPU
Mechanical data	
No. of pos.	5
Temperature data	
Plug / socket	[°C] -25 ... 90
Valve connectors	[°C] -20 ... 85

Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection	IP65/67
Electrical data	
Rated voltage	230 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material handle M12	TPU
Material housing valve connector	TPU
Mechanical data	
No. of pos.	4
Temperature data	
Plug / socket	[°C] -25 ... 90
Valve connectors	[°C] -20 ... 85

Ordering data

Description	Cable length	Type	Order No.	Pcs. / Pkt.
Assembled cable, with valve connector, and free cable end	1.5 m	SAC-5P- 1,5-PUR/AD-2L	1435085	1
	3 m	SAC-5P- 3,0-PUR/AD-2L	1435098	1
	5 m	SAC-5P- 5,0-PUR/AD-2L	1435108	1
	10 m	SAC-5P-10,0-PUR/AD-2L	1435111	1
	Variable	SAC-5P-AD-2L/.../...	1435124	1
Assembled cable, with valve connector, and M12 SPEEDCON connector, straight	0.3 m	SAC-5P-MS/ 0,3-PUR/AD-2L SCO	1435030	1
	0.6 m	SAC-5P-MS/ 0,6-PUR/AD-2L SCO	1435043	1
	1.5 m	SAC-5P-MS/ 1,5-PUR/AD-2L SCO	1435056	1
	3 m	SAC-5P-MS/ 3,0-PUR/AD-2L SCO	1435069	1
	Variable	SAC-5P-MS-AD-2L SCO/.../...	1435072	1

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-4P-3,0-PUR/AD	1438956	1
SAC-4P-AD/.../...	1400899	1
SAC-4P-MS-AD SCO/.../...	1400898	1

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for type A, B, BI, C, CI valve connector cables with variable cable:

For a sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, type A valve connector with Zener diode and a 3-pos. straight M12 plug, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 40 m
1434921	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black, 0.5 mm ²	PUR	BK1 1	3
PUR, halogen-free - black, 1.0 mm ² Type A valve connector only	121	BK2 2	4
PUR, halogen-free - yellow, 0.5 mm ²	240	GNYE 3	5
PUR, halogen-free - gray, 0.5 mm ²	280		
PUR irradiated - orange, 0.5 mm ²	150		
PUR/PVC - black, 0.75 mm ²	116		
PUR/PVC - gray, 0.75 mm ²	117		
PUR, highly flexible - gray, 0.5 mm ²	800		
PVC - black, 0.5 mm ²	PVC		
PVC - black, 0.75 mm ²	534		
PVC - gray, 0.5 mm ²	500		

Ordering data for type AD valve connector cables with 2 LEDs and variable cable:

For a sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, type AD valve connector with 2 LEDs and a 5-pos. straight M12 plug, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 40 m
1435072	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black, 0.5 mm ²	PUR	BK1 1	1
PUR, halogen-free - yellow, 0.5 mm ²	240	BK2 2	2
PUR, halogen-free - gray, 0.5 mm ²	280	BK3 3	4
PUR irradiated - orange, 0.5 mm ²	150	BK2 4	3
PUR/PVC - black, 0.75 mm ²	116	GNYE 5	5
PUR, highly flexible - gray, 0.5 mm ²	800		
PVC - black, 0.5 mm ²	PVC		
PVC - black, 0.75 mm ²	534		
PVC - gray, 0.5 mm ²	500		

Ordering data for unwired type AD valve connector cables with variable cable:

For a sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, unwired type AD valve connector and a 4-pos. straight M12 plug, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 40 m
1400898	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	Cable type	Color coding	Pin assignment
PUR, halogen-free - black, 0.5 mm ²	PUR	BK1 1	1
PUR/PVC - black, 0.75 mm ²	116	BK2 2	2
PVC - black, 0.5 mm ²	PVC	BK3 3	4
PVC - black, 0.75 mm ²	534	GNYE 5	5

Sensor/actuator cabling

Distributors and adapters

M8 Y-cable, 3-pos., two cable outlets

M8 Y plug



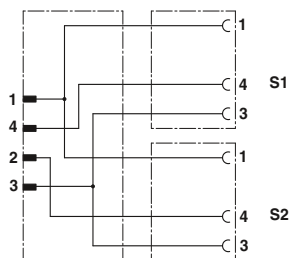
Notes:

For information about the cable qualities, see page 184

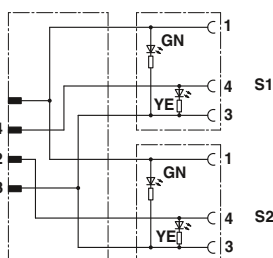
Ordering data

Free end	Order No.
	1.5 m 1458622 3 m 1458635 5 m 1458648 10 m 1458651
M8 socket, straight	
	0.3 m 1458664 0.6 m 1458677 1.5 m 1458680 3 m 1458693
M8 socket, angled	
	0.3 m 1458703 0.6 m 1458716 1.5 m 1458729 3 m 1458732
M8 socket, angled, with 2 LEDs	
	0.3 m 1458745 0.6 m 1458758 1.5 m 1458761 3 m 1458774

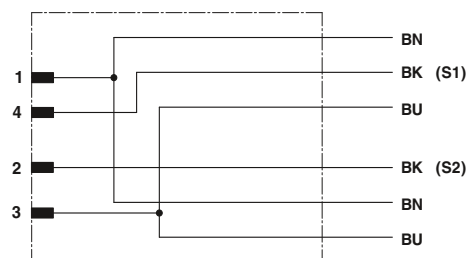
Cable description	Cable type	Color coding	Pin assignment, 3-pos.	
			Plug	Socket
PUR, halogen-free - black	PUR	BN	1	1
		BK	2 + 4	4
		BU	3	3



Contact assignment of the M8 plug and the M8 sockets



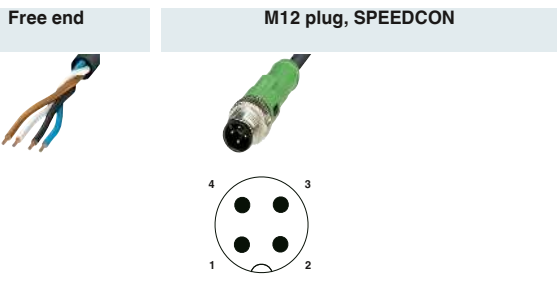
Contact assignment of the M8 plug and the M8 sockets, with LEDs



Contact assignment of the M8 Y plug


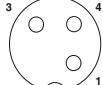
		Technical data	
		Y-M8	Y-M8 with LEDs
Rated voltage	[V]	30	24
Rated current	[A]	4	4
Volume resistance		≤ 5 mΩ	≤ 5 mΩ
Contact material		CuSn	CuSn
Contact surface material		Ni/Au	Ni/Au
Material of grip body		TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
Material, knurls		Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
M8 circular plug-in connector according to:		IEC 61076-2-104	IEC 61076-2-104
Degree of protection		IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data			
Plug / socket	[°C]	-25 ... 90	-25 ... 90

M12 Y SAC cable, one cable outlet



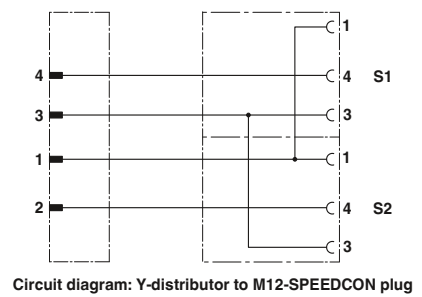
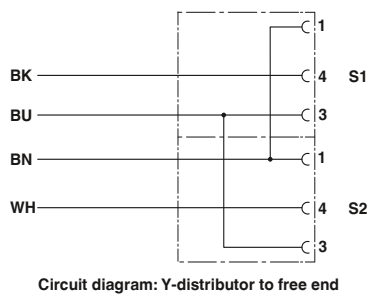
Notes:
 For information about the cable qualities, see page 184
 Further combinations on request.



	Ordering data	Ordering data	Ordering data
Y plug with 2 x M12 SPEEDCON socket	Order No.	Order No.	Order No.
 	1.5 m	1436165	0.3 m 1436204
	3 m	1436178	0.6 m 1436217
	5 m	1436181	1.5 m 1436220
	10 m	1436194	3 m 1436233

Cable description	Cable type	Suitable for:
PUR halogen-free - black	PUR	M12 4-pos.

Color coding	Pin assignment		
	M12 4-pos.	S1	S2
BN	1	1	1
BK	4	4	-
WH	2	-	4
BU	3	3	3



		Technical data
		Y-M12
Rated voltage	[V]	60
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Contact carrier material		TPU GF
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68
Temperature data		
Plug / socket	[°C]	-25 ... 90

Sensor/actuator cabling

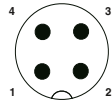
Distributors and adapters

M12 Y SAC cable, two cable outlets

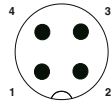
Notes:

For information about the cable qualities, see page 184

M12 Y plug



M12 Y plug, SPEEDCON



Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.	
	1.5 m	1669686	1.5 m	1524200
	3 m	1669699	3 m	1524213
	5 m	1669754	5 m	1524226
	10 m	1694473	10 m	1524239
	Variable	1697357	Variable	1524242
M8 socket, straight 	0.3 m	1671331		
	0.6 m	1671344		
	1.5 m	1671357		
	3 m	1671360		
	Variable	1697399	Variable	1541885
M8 socket, angled 	0.3 m	1671373		
	0.6 m	1671386		
	1.5 m	1671399		
	3 m	1671409		
	Variable	1697409	Variable	1541898
M8 socket, angled, with 2 LEDs 	0.3 m	1671412		
	0.6 m	1671425		
	1.5 m	1671438		
	3 m	1671441		
	Variable	1697412	Variable	1541908
M12 socket, straight (2nd column M12 socket, SPEEDCON) 	Variable	1699766	Variable	1542198
M12 socket, angled (2nd column M12 socket, SPEEDCON) 	Variable	1506419	Variable	1542004
M12 socket, straight, pin 2 - 4 bridged (2nd column M12 socket, SPEEDCON) 	0.3 m	1668959		
	0.6 m	1668962		
	1.5 m	1668975		
	3 m	1668988		
	Variable	1697360	Variable	1542169
M12 socket, angled, pin 2 - 4 bridged (2nd column M12 socket, SPEEDCON) 	0.3 m	1668991		
	0.6 m	1669000		
	1.5 m	1669013		
	3 m	1669026		
	Variable	1697373	Variable	1542172
M12 socket, angled, with LED, pin 2 - 4 bridged (2nd column M12 socket, SPEEDCON) 	0.3 m	1669039		
	0.6 m	1669042		
	1.5 m	1669055		
	3 m	1669068		
	Variable	1697386	Variable	1542185

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the halogen-free PUR cable type and are available from stock.

Ordering data for products with variable cables:

For a sensor/actuator cable, PUR, halogen-free, black, 4.5 m long, with a straight 4-pos. M12 Y plug and two straight M12 sockets, the ordering data is as follows:

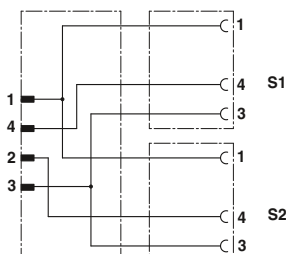
Order No.	Cable type	Length [m] Max. 40 m
1699766	PUR	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	Cable type	Suitable for:
PUR, halogen-free - black E221474	PUR	M8/M12
PUR, halogen-free - gray E221474	280	M12
PUR/PVC - gray E221474	100	M8/M12
PUR/PVC - yellow E221474	140	M8/M12
TPE-U highly flexible - gray E221474	800	M8/M12
PUR irradiated - orange E221474	150	M12
PVC - black E221474	PVC	M8/M12
PVC - gray E221474	500	M8/M12
PVC - yellow E221474	540	M12
PVC 105° - yellow E221474	542	M12

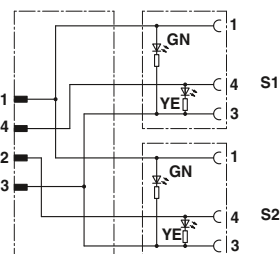
Color coding	Pin assignment, 3-pos.	
	Plug	Socket
BN	1	1
BK	2 + 4	4
BU	3	3

With a combination of M12 and M8 plug-in connectors, the limiting M8 value applies to the rated voltage.

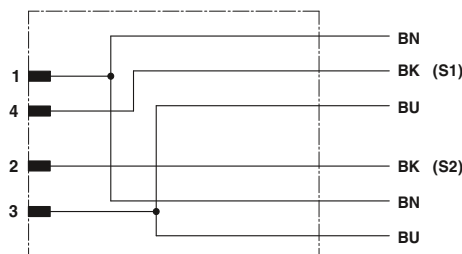
	Technical data	Technical data	Technical data	Technical data
	Y-M8	Y-M8 with LEDs	Y-M12	Y-M12 with LEDs
Rated voltage [V]	60	24	250	24
Rated current [A]	4	4	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au	Ni/Au	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
M8 circular plug-in connector according to:	IEC 61076-2-104	IEC 61076-2-104	-	-
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Degree of protection	IP65 / IP67 / IP68	IP65 / IP67 / IP68	IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data				
Plug / socket [°C]	-25 ... 90	-25 ... 90	-25 ... 90	-25 ... 90



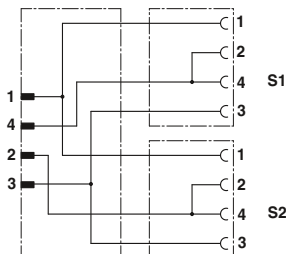
Contact assignment of the M12 plug and the M8/M12 sockets



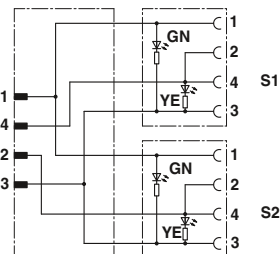
Contact assignment of the M12 plug and the M8 sockets, with LEDs



Contact assignment of the M12 Y plug-in connector



Contact assignment of the M12 plug and the M12 socket, bridged



Contact assignment of the M12 plug and the M12 socket, with LEDs, bridged

Sensor/actuator cabling

Distributors and adapters

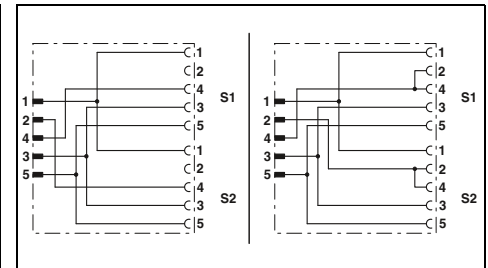
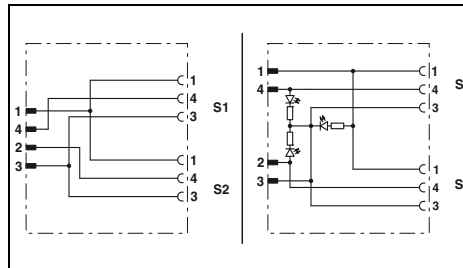
M8/M12 Y-distributors, M12 T-distributors



3-pos.



3+PE-pos.



Technical data

	Without LED	With 3 LEDs
General data		
M8 circular plug-in connector according to:	IEC 61076-2-104	-
M12 circular plug-in connector according to:	IEC 61076-2-101	-
Pollution degree	3	3
Degree of protection	IP65/67	IP65/IP68/IP69K
Electrical data		
Rated voltage	60 V	24 V
Rated current		4 A
Volume resistance		≤ 5 mΩ
Material data		
Contact material		CuZn
Contact surface material		Ni/Au
Inflammability class according to UL 94		HB
Temperature data		
Plug / socket		-25 ... 90

Technical data

	Not bridged	Pins 2 and 4 bridged
General data		
M8 circular plug-in connector according to:		
M12 circular plug-in connector according to:	IEC 61076-2-101	-
Pollution degree	3	3
Degree of protection	IP65/IP68/IP69K	IP65/IP68/IP69K
Electrical data		
Rated voltage	60 V	60 V
Rated current	4 A	4 A
Volume resistance	≤ 5 mΩ	≤ 5 mΩ
Material data		
Contact material		CuZn
Contact surface material		Ni/Au
Inflammability class according to UL 94		HB
Temperature data		
Plug / socket		-25 ... 90

Ordering data

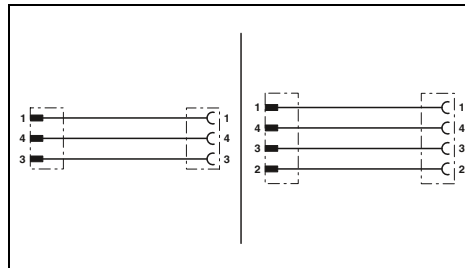
Description	Center distance	Without LED		With 3 LEDs	
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
M8/M12 Y-distributor					
M8 plug to 2 x M8 sockets	12 mm	1696183	5		
M12 plug to 2 x M8 sockets	12 mm	1683471	5		
M8/M12 SPEEDCON Y-distributor					
M12 plug to 2 x M8 sockets	12 mm	1523984	5		
M12 Y-distributor					
M12 plug to 2 x M12 sockets	18 mm				
M12 plug to 2 x M12 sockets	21 mm				
M12 SPEEDCON Y-distributor					
M12 plug to 2 x M12 sockets	18 mm				
M12 plug to 2 x M12 sockets	21 mm			1403627	5
T-distributor					
M12 plug to 2 x M12 sockets					

Ordering data

Description	Center distance	Not bridged		Pins 2 and 4 bridged	
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
M8/M12 Y-distributor					
M8 plug to 2 x M8 sockets	12 mm				
M12 plug to 2 x M8 sockets	12 mm				
M8/M12 SPEEDCON Y-distributor					
M12 plug to 2 x M8 sockets	12 mm				
M12 Y-distributor					
M12 plug to 2 x M12 sockets	18 mm	1683455	5	1683413	5
M12 plug to 2 x M12 sockets	21 mm	1511789	5	1514016	5
M12 SPEEDCON Y-distributor					
M12 plug to 2 x M12 sockets	18 mm	1523971	5	1523968	5
M12 plug to 2 x M12 sockets	21 mm				
T-distributor					
M12 plug to 2 x M12 sockets				1519723	1



3, 4-pos.



Technical data

General data	3-pos.		4-pos.	
	M8 circular plug-in connector according to:	IEC 61076-2-104		
M12 circular plug-in connector according to:	IEC 61076-2-101			
Pollution degree	3			
Degree of protection	IP65/67			
Electrical data	60 V		30 V	
Rated voltage				
Rated current	4 A			
Volume resistance	≤ 5 mΩ			
Material data				
Contact material	CuSn			
Contact surface material	Ni/Au			
Inflammability class according to UL 94	HB			
Temperature data				
Plug / socket	-25 ... 90		[°C]	

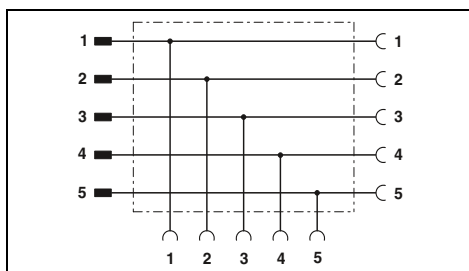
Ordering data

Description	3-pos.		4-pos.	
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Adapter				
M8 plug to M12 socket	1519749	5	1519736	5
M12 plug to M8 socket	1519752	5	1519765	5
M12 plug to M8 snap-in socket	1519781	5	1519778	5

7/8" T-distributors, parallel



5-pos.



Technical data

General data	
Pollution degree	3
Degree of protection	IP65/67
Electrical data	
Rated voltage	250 V
Rated current	10 A
Volume resistance	≤ 5 mΩ
Material data	
Contact material	CuZn
Contact surface material	AU
Inflammability class according to UL 94	HB
Temperature data	
Plug / socket	[°C] -40 ... 80

Ordering data

Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
7/8" T-distributor, 5-pos., 7/8"-16UNF socket to 7/8"-16UNF socket and 7/8"-16UNF plug	SAC-5P-MINT/2XMIN VP	1543977	1

Sensor/actuator cabling

Distributors and adapters

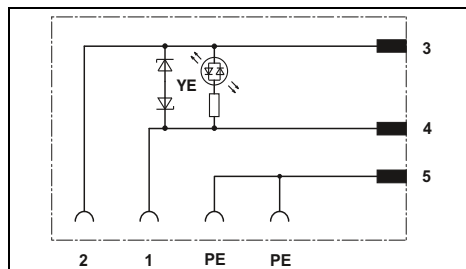
Valve connector adapters with M12 SPEEDCON plug



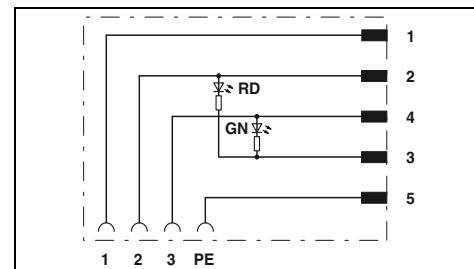
Valve connector type A



Valve connector type AD, pressure switch



Technical data



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Valve connector according to:	EN 175301-803
Degree of protection	IP65/67
Electrical data in acc. with IEC 61076-2-101	
Rated voltage	24 V AC/DC
Rated current	4 A
Cut-off peak	≤ 55 V
Status display	Yellow LED
Material data	
Contact material valve connector	CuSn
Contact surface material valve connector	Sn
Contact material M12 plug	CuSn
Contact surface material M12 plug	Ni/Au
Material housing valve connector	TPU
Inflammability class according to UL 94	HB
Temperature data	
Ambient temperature (operation)	-25 °C ... 85 °C (valve connector)

Technical data		
IEC 61076-2-101		
EN 175301-803		
IP65/67		
24 V AC/DC		
4 A		
≤ 55 V		
Yellow LED		
CuSn		
Sn		
CuSn		
Ni/Au		
TPU		
HB		
-25 °C ... 85 °C (valve connector)		

Technical data	
IEC 61076-2-101	
-	
IP65/67	
24 V AC/DC	
4 A	
-	
2 LEDs	
CuSn	
Sn	
CuSn	
Ni/Au	
TPU	
HB	
-25 °C ... 85 °C (valve connector)	

Ordering data	
Description	
Valve connector type A, PE bridged, 18 mm contact spacing	
- Vertical M12 SPEEDCON plug	
- Horizontal M12 SPEEDCON plug	
Valve connector type AD, 18 mm contact spacing	
- Vertical M12 SPEEDCON plug	
- Horizontal M12 SPEEDCON plug	
Valve connector type B, 10 mm contact spacing	
- Vertical M12 SPEEDCON plug	
- Horizontal M12 SPEEDCON plug	
Valve connector type BI, 11 mm contact spacing	
- Vertical M12 SPEEDCON plug	
- Horizontal M12 SPEEDCON plug	
DESINA valve connector type A, 18 mm contact spacing	
- Vertical M12 SPEEDCON plug	

Type	Order No.	Pcs. / Pkt.
SAC-3P-MS/A-1L-Z SCO	1458525	1
SAC-3P-MR/A-1L-Z SCO	1458538	1

Type	Order No.	Pcs. / Pkt.
SAC-5P-MS/AD-2L SCO	1458596	1
SAC-5P-MR/AD-2L SCO	1458606	1



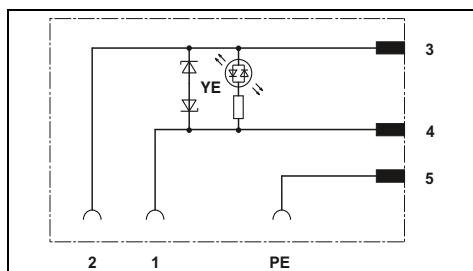
Valve connector type B



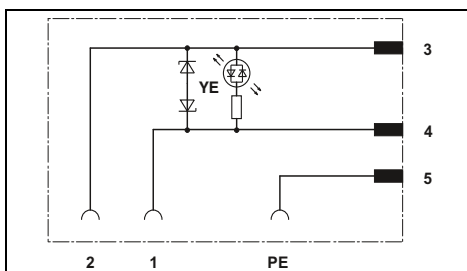
Valve connector type BI



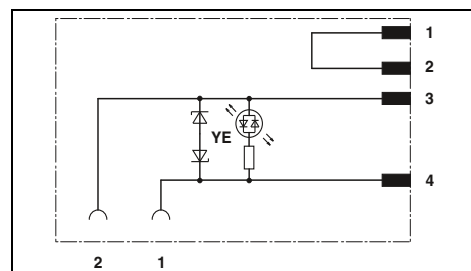
DESINA valve connector type A



Technical data



Technical data



Technical data

IEC 61076-2-101
EN 175301-803
IP65/67

24 V AC/DC
4 A
≤ 55 V
Yellow LED

CuSn
Sn
CuSn
Ni/Au
TPU
HB

-25 °C ... 85 °C (valve connector)

IEC 61076-2-101
-
IP65/67

24 V AC/DC
4 A
≤ 55 V
Yellow LED

CuSn
Sn
CuSn
Ni/Au
TPU
HB

-25 °C ... 85 °C (valve connector)

IEC 61076-2-101
EN 175301-803
IP65/67

24 V AC/DC
4 A
≤ 55 V
Yellow LED

CuSn
Sn
CuSn
Ni/Au
TPU
HB

-25 °C ... 85 °C (valve connector)

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-3P-MS/B-1L-Z SCO	1458541	1
SAC-3P-MR/B-1L-Z SCO	1458554	1

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-3P-MS/BI-1L-Z SCO	1458567	1
SAC-3P-MR/BI-1L-Z SCO	1458570	1

Ordering data

Type	Order No.	Pcs. / Pkt.
SAC-4P-MS/A-1L-Z D SCO	1458583	1

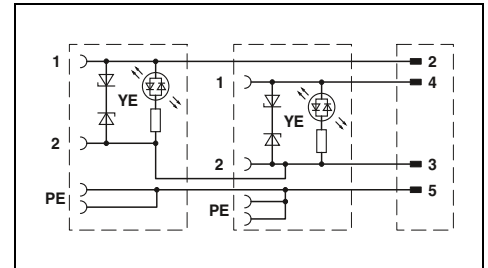
Sensor/actuator cabling

Distributors and adapters

Double valve connector adapter with M12-SPEEDCON plug, type A



Type A



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Valve connector according to:	EN 175301-803
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V AC/DC
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material housing valve connector	TPU
Temperature data	
Valve connectors	-25 ... 85 [°C]

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Double valve plug-in connector , plug spacing: 10 cm, valve connector to valve connector adapter with:			
- Vertical M12 SPEEDCON plug	SAC-MS/0,1-116/2XA-1L-Z SCO	1458101	1
- Horizontal M12 SPEEDCON plug	SAC-MR/0,1-116/2XA-1L-Z SCO	1458130	1
Double valve plug-in connector , plug spacing: 15 cm, valve connector to valve connector adapter with:			
- Vertical M12 SPEEDCON plug	SAC-MS/0,15-116/2XA-1L-Z SCO	1458114	1
- Horizontal M12 SPEEDCON plug	SAC-MR/0,15-116/2XA-1L-Z SCO	1458143	1
Double valve plug-in connector , plug spacing: 20 cm, valve connector to valve connector adapter with:			
- Vertical M12 SPEEDCON plug	SAC-MS/0,2-116/2XA-1L-Z SCO	1458127	1
- Horizontal M12 SPEEDCON plug	SAC-MR/0,2-116/2XA-1L-Z SCO	1458156	1

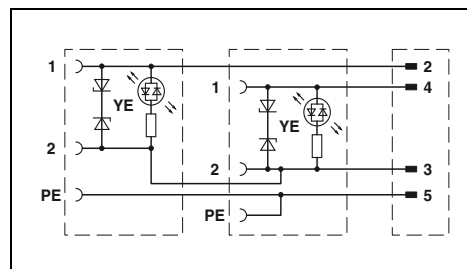
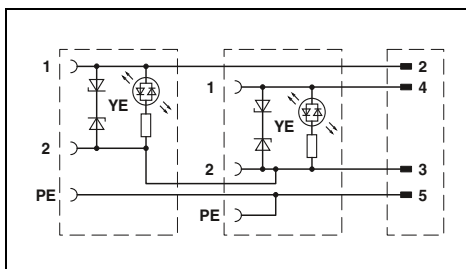
Double valve connector adapter with M12-SPEEDCON plug, type B and BI



Type B



Type BI



Technical data

Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Valve connector according to:	EN 175301-803
Degree of protection	IP65/67
Electrical data	
Rated voltage	24 V AC/DC
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Material contact M12	CuSn
Material contact valve connector	CuSn
Material contact surface M12	Ni/Au
Material contact surface valve connector	Sn
Material housing valve connector	TPU
Temperature data	
Valve connectors	-25 ... 85 [°C]

Technical data	
IEC 61076-2-101	
EN 175301-803	
IP65/67	
Electrical data	
24 V AC/DC	
4 A	
≤ 5 mΩ	
Material data	
CuSn	
CuSn	
Ni/Au	
Sn	
TPU	
Temperature data	
-25 ... 85	

Technical data	
IEC 61076-2-101	
-	
IP65/67	
Electrical data	
24 V AC/DC	
4 A	
≤ 5 mΩ	
Material data	
CuSn	
CuSn	
Ni/Au	
Sn	
TPU	
Temperature data	
-25 ... 85	

Ordering data

Ordering data

Description
Double valve plug-in connector , plug spacing: 10 cm, valve connector to valve connector adapter with:
- Vertical M12 SPEEDCON plug
- Horizontal M12 SPEEDCON plug
Double valve plug-in connector , plug spacing: 15 cm, valve connector to valve connector adapter with:
- Vertical M12 SPEEDCON plug
- Horizontal M12 SPEEDCON plug
Double valve plug-in connector , plug spacing: 20 cm, valve connector to valve connector adapter with:
- Vertical M12 SPEEDCON plug
- Horizontal M12 SPEEDCON plug

Type	Order No.	Pcs. / Pkt.
SAC-MS/0,1-116/2XB-1L-Z SCO	1458282	1
SAC-MR/0,1-116/2XB-1L-Z SCO	1458318	1
SAC-MS/0,15-116/2XB-1L-Z SCO	1458295	1
SAC-MR/0,15-116/2XB-1L-Z SCO	1458321	1
SAC-MS/0,2-116/2XB-1L-Z SCO	1458305	1
SAC-MR/0,2-116/2XB-1L-Z SCO	1458334	1

Type	Order No.	Pcs. / Pkt.
SAC-MS/0,1-116/2XBI-1L-Z SCO	1458460	1
SAC-MR/0,1-116/2XBI-1L-Z SCO	1458499	1
SAC-MS/0,15-116/2XBI-1L-Z SCO	1458473	1
SAC-MR/0,15-116/2XBI-1L-Z SCO	1458509	1
SAC-MS/0,2-116/2XBI-1L-Z SCO	1458486	1
SAC-MR/0,2-116/2XBI-1L-Z SCO	1458512	1



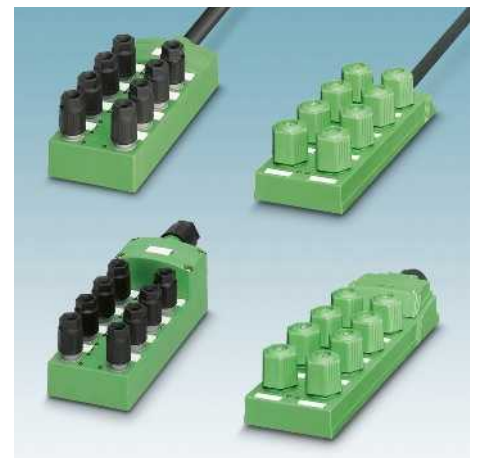
M8 distributor boxes

Fully molded distributors with M8 metal thread are already equipped for the production environment. Thanks to their compact design, up to 20 signals can be transmitted in a confined space.



M12 distributor boxes

Distributors with M12 thread are available in various materials and designs. The right distributor box is available for your specific application.



Distributor boxes with IDC technology

With the QUICKON insulation displacement connection, open cable ends are connected unstripped, thereby saving on plug-in connectors.



Reliable in every environment

The fully molded distributors offer comprehensive protection for the PCB even against corrosive effects.



Safe transmission

With 360° shielded sensor/actuator boxes, cables, and plug-in connectors, you can transmit signals reliably even in critical EMI applications.



Flexibility thanks to double assignment

By using Y-distributors, up to two signals can be connected per slot. This saves space in the system and reduces cabling costs.



SPEEDCON: fast, safe, and compatible

The SPEEDCON rapid interlock system is based on the principle of "Plug & Turn" and is 100% compatible with all M12 plug-in connectors with M12x1 thread on the market.



Variety of cables for KMAT

Standard items are produced with high-quality PUR cable. For special applications, different cable types for KMAT are available.



Plug-in master cable connection

A pre-assembled master cable simplifies installation. The plug-in version allows the box and cable to be replaced separately during servicing.



High-quality materials and innovative designs

For increased requirements, we have developed solutions which meet the needs of your application through innovative design and material selection.



Easy detection

A particularly user-friendly feature is diagnostics in the event of an error. LEDs can be used to detect errors in the signal path quickly and easily. This can directly increase your machine availability.



100% tested

All supplied components are 100% electrically checked by Quality Assurance.

Distributor boxes

M8 distributor with metal thread



With a master cable



M12 plug-in connection, vertical



M12 plug-in connection, vertical

General data

Degree of protection in acc. with IEC 60529/EN 60529
M8 circular plug-in connector according to:
M12 circular plug-in connector according to:

Electrical data

Rated current for each I/O signal	[A]	2
Rated current per slot	[A]	2
Rated current, total	[A]	6

Dimensions

Width x height	[mm]	30 x 22
Length (4 / 6 / 8 / 10 slots)	[mm]	102 / 122 / 141 / 161

Temperature data

Distributor box	[°C]	-30 ... 80
Master cable, fixed installation	[°C]	-40 ... 90
Master cable, flexible installation	[°C]	-5 ... 80

Status indication	Signal type	Rated voltage	Slots	Cable length
With LED	pnp	24 V DC	4	-
With LED	pnp	24 V DC	4	5 m
With LED	pnp	24 V DC	4	10 m
With LED	pnp	24 V DC	4	Variable
With LED	pnp	24 V DC	6	-
With LED	pnp	24 V DC	6	5 m
With LED	pnp	24 V DC	6	10 m
With LED	pnp	24 V DC	6	Variable
With LED	pnp	24 V DC	8	-
With LED	pnp	24 V DC	8	5 m
With LED	pnp	24 V DC	8	10 m
With LED	pnp	24 V DC	8	Variable
With LED	pnp	24 V DC	10	-
With LED	pnp	24 V DC	10	5 m
With LED	pnp	24 V DC	10	10 m
With LED	pnp	24 V DC	10	Variable

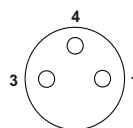
For accessories, see page
For master cable rings, see page
For master cable data, see page

Technical data		Technical data		Technical data	
IP65 / IP67 IEC 61076-2-104		IP65 / IP67 IEC 61076-2-104 IEC 61076-2-101		IP65 / IP67 IEC 61076-2-104 IEC 61076-2-101	
2		2		1.5	
2		2		1.5	
6		4		1.5	
30 x 22		30 x 27		30 x 27	
102 / 122 / 141 / 161		93 / 113 / - / -		- / - / 133 / 152	
-30 ... 80		-30 ... 80		-30 ... 80	
-40 ... 90		-		-	
-5 ... 80		-		-	
Ordering data		Ordering data		Ordering data	
Single occupancy	Double occupancy	Single occupancy	Double occupancy	Single occupancy	Double occupancy
-	-	1516234	-	-	-
1516014	-	-	-	-	-
1516027	-	-	-	-	-
1516137	-	-	-	-	-
-	-	1516247	-	-	-
1516030	-	-	-	-	-
1516043	-	-	-	-	-
1516140	-	-	-	-	-
-	-	-	-	1434840	-
1516056	1516111	-	-	-	-
1516069	1516124	-	-	-	-
1516153	1516179	-	-	-	-
-	-	-	-	1434853	-
1516072	-	-	-	-	-
1516085	-	-	-	-	-
1516166	-	-	-	-	-
Notes:		Notes:		Notes:	
177		177		177	
202		170		170	

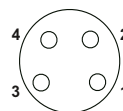
Ordering example for products with variable master cable:

For a distributor with 4 single-occupancy slots and a master cable length of 34.5 m, the ordering data is as follows:

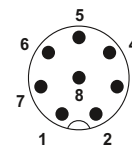
Order No.	Length [m]
1516137	34.5
Increment: 0.5 m; Length min.: 0.5 m Length max.: 50 m	



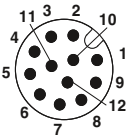
Pin assignment M8 socket, 3-pos.



Pin assignment M8 socket, 4-pos.



Pin assignment M12 plug, 8-pos.



Pin assignment M12 plug, 12-pos.



M16 plug-in connection, vertical



Spring-cage connection, horizontal



Plug-in screw connection, horizontal



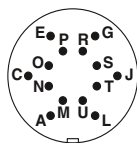
Header for plug-in screw connection



Connector hood, with a master cable



Technical data		Technical data		Technical data		Technical data		Technical data	
IP65 / IP67 IEC 61076-2-104		IP65 / IP67 IEC 61076-2-104		IP65 / IP67 IEC 61076-2-104		IP65 / IP67 IEC 61076-2-104		-	
-		-		-		-		-	
2		2		2		2		2	
2		2		2		2		-	
6		6		8		8		8	
30 x 26 93 / 113 / 132 / 152		30 x 44 122 / 142 / 176 / 196		30 x 44 122 / 142 / 176 / 196		30 x 20 122 / 142 / 176 / 196		30 x 24 - / - / - / -	
-30 ... 80		-30 ... 80		-30 ... 80		-30 ... 80		-30 ... 80 -40 ... 90 -5 ... 80	
-		-		-		-		-	
Ordering data		Ordering data		Ordering data		Ordering data		Ordering data	
Single occupancy	Double occupancy	Single occupancy	Double occupancy	Single occupancy	Double occupancy	Single occupancy	Double occupancy	Single occupancy	Double occupancy
1516182	-	1503386	-	1503412	-	1516250	-	-	-
-	-	-	-	-	-	-	-	1516292	-
-	-	-	-	-	-	-	-	1516302	-
-	-	-	-	-	-	-	-	1516373	-
1516195	-	1503399	-	1503425	-	1516263	-	-	-
-	-	-	-	-	-	-	-	1516315	-
-	-	-	-	-	-	-	-	1516328	-
-	-	-	-	-	-	-	-	1516386	-
1516205	-	1511747	1503454	1511750	1503467	1516276	-	-	-
-	-	-	-	-	-	-	-	1516331	-
-	-	-	-	-	-	-	-	1516344	-
-	-	-	-	-	-	-	-	1516399	-
1516218	-	1503409	-	1503438	-	1516289	-	-	-
-	-	-	-	-	-	-	-	1516357	-
-	-	-	-	-	-	-	-	1516360	-
-	-	-	-	-	-	-	-	1516409	-
Notes:		Notes:		Notes:		Notes:		Notes:	
176 170		176 170		176 170		176		176 202	



Pin assignment M16 plug, 14-pos.

Sensor/actuator cabling

Distributor boxes

M12 distributor with plastic thread, middle duty



With a master cable



Spring-cage connection, horizontal



Plug-in screw connection, horizontal

General data	
Degree of protection in acc. with IEC 60529/EN 60529	
M12 circular plug-in connector according to:	
Electrical data	
Rated current for each I/O signal	[A]
Rated current per slot	[A]
Rated current, total	[A]
Dimensions	
Width x height	[mm]
Length (4 / 6 / 8 / 10 slots)	[mm]
Temperature data	
Distributor box	[°C]
Master cable, fixed installation	[°C]
Master cable, flexible installation	[°C]

Technical data	Technical data	Technical data
IP65 / IP67 IEC 61076-2-101	IP65 / IP67 IEC 61076-2-101	IP65 / IP67 IEC 61076-2-101
2 4 12	2 4 12	2 4 10
54 x 23 117 / 123 / 149 / -	54 x 42 117 / 123 / 149 / -	54 x 43 117 / 123 / 149 / -
-25 ... 80 -40 ... 90 -5 ... 80	-25 ... 80 - -	-25 ... 80 - -

Status indication	Signal type	Rated voltage	Slots	Cable length
Without LED	Universal	120 V	4	-
Without LED	Universal	120 V	4	5 m
Without LED	Universal	120 V	4	10 m
Without LED	Universal	120 V	6	-
Without LED	Universal	120 V	6	5 m
Without LED	Universal	120 V	6	10 m
Without LED	Universal	120 V	8	-
Without LED	Universal	120 V	8	5 m
Without LED	Universal	120 V	8	10 m
With LED	pnp	24 V DC	4	-
With LED	pnp	24 V DC	4	5 m
With LED	pnp	24 V DC	4	10 m
With LED	pnp	24 V DC	4	Variable
With LED	pnp	24 V DC	6	-
With LED	pnp	24 V DC	6	5 m
With LED	pnp	24 V DC	6	10 m
With LED	pnp	24 V DC	6	Variable
With LED	pnp	24 V DC	8	-
With LED	pnp	24 V DC	8	5 m
With LED	pnp	24 V DC	8	10 m
With LED	pnp	24 V DC	8	Variable
With LED	nnp	24 V DC	4	5 m
With LED	nnp	24 V DC	4	10 m
With LED	nnp	24 V DC	6	5 m
With LED	nnp	24 V DC	6	10 m
With LED	nnp	24 V DC	8	5 m
With LED	nnp	24 V DC	8	10 m

Ordering data		Ordering data		Ordering data	
Single occupancy	Double occupancy	Single occupancy	Double occupancy	Single occupancy	Double occupancy
-	-	1452929	1452932	1452741	1452754
1452398	1452424	-	-	-	-
1452408	1452437	-	-	-	-
-	-	1452945	1452958	1452767	1452770
1452453	1452482	-	-	-	-
1452466	1452495	-	-	-	-
-	-	1452961	1452974	1452783	1452796
1452518	1452547	-	-	-	-
1452521	1452550	-	-	-	-
-	-	1452987	1452990	1452806	1452819
1452576	1452602	-	-	-	-
1452589	1452615	-	-	-	-
1401376	1401419	-	-	-	-
-	-	1453009	1453012	1452822	1452835
1452631	1452660	-	-	-	-
1452644	1452673	-	-	-	-
1401379	1401380	-	-	-	-
-	-	1453025	1453038	1452848	1452851
1452699	1452725	-	-	-	-
1452709	1452738	-	-	-	-
1401382	1401383	-	-	-	-
1405678	1405713	-	-	-	-
1405687	1405732	-	-	-	-
1405733	1405735	-	-	-	-
1405734	1405736	-	-	-	-
1405737	1405739	-	-	-	-
1405738	1405740	-	-	-	-

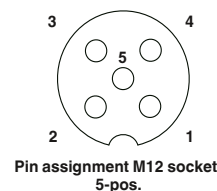
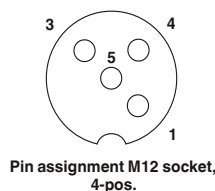
For accessories, see page
 For master cable rings, see page
 For master cable data, see page

Notes:	Notes:	Notes:
178	178	178
203	170	170

Ordering example for products with variable master cable:

For a distributor with 4 single-occupancy slots and a master cable length of 34.5 m, the ordering data is as follows:

Order No.	Length [m]
1401376	34.5
Increment: 0.5 m; Length min.: 0.5 m Length max.: 50 m	



Sensor/actuator cabling

Distributor boxes

M12 distributor with metal thread, heavy-duty



With a master cable



With halogen-free master cable



Plug-in screw connection, horizontal

General data

Degree of protection in acc. with IEC 60529/EN 60529
M12 circular plug-in connector according to:

Electrical data

Rated current for each I/O signal	[A]	2
Rated current per slot	[A]	4
Rated current, total	[A]	12
Total rated current for electrical isolation	[A]	-

Dimensions

Width x height	[mm]	58 x 26
Length (4 / 6 / 8 / 10 slots)	[mm]	117 / 126 / 153 / -
Temperature data		
Distributor box	[°C]	-30 ... 90
Master cable, fixed installation	[°C]	-40 ... 90
Master cable, flexible installation	[°C]	-5 ... 80

Status indication	Signal type	Rated voltage	Slots	Cable length
Without LED	Universal	120 V	4	-
Without LED	Universal	120 V	4	5 m
Without LED	Universal	120 V	4	10 m
Without LED	Universal	120 V	6	-
Without LED	Universal	120 V	6	5 m
Without LED	Universal	120 V	6	10 m
Without LED	Universal	120 V	8	-
Without LED	Universal	120 V	8	5 m
Without LED	Universal	120 V	8	10 m
With LED	pnp	24 V DC	4	-
With LED	pnp	24 V DC	4	5 m
With LED	pnp	24 V DC	4	10 m
With LED	pnp	24 V DC	4	Variable
With LED	pnp	24 V DC	6	-
With LED	pnp	24 V DC	6	5 m
With LED	pnp	24 V DC	6	10 m
With LED	pnp	24 V DC	6	Variable
With LED	pnp	24 V DC	8	-
With LED	pnp	24 V DC	8	1.5 m
With LED	pnp	24 V DC	8	5 m
With LED	pnp	24 V DC	8	10 m
With LED	pnp	24 V DC	8	Variable
With LED	nnp	24 V DC	4	-
With LED	nnp	24 V DC	4	Variable
With LED	nnp	24 V DC	6	-
With LED	nnp	24 V DC	6	Variable
With LED	nnp	24 V DC	8	-
With LED	nnp	24 V DC	8	Variable

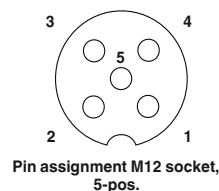
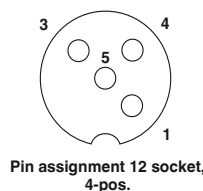
For accessories, see page
For master cable rings, see page
For master cable data, see page

Technical data		Technical data		Technical data	
IP65 / IP67 / IP69K IEC 61076-2-101		IP65 / IP67 / IP69K IEC 61076-2-101		IP65 / IP67 / IP69K IEC 61076-2-101	
Ordering data		Ordering data		Ordering data	
Single occupancy	Double occupancy	Single occupancy	Double occupancy	Single occupancy	Double occupancy
-	-	-	-	1516849	1516852
1516962	1516988	-	1517204	-	-
1516975	1516991	-	1517217	-	-
-	-	-	-	1516865	1516878
1517000	1517026	-	1517220	-	-
1517013	1517039	-	1517233	-	-
-	-	-	-	1516881	1516894
1517042	1517068	-	1517246	-	-
1517055	1517071	-	1517259	-	-
-	-	-	-	1516784	1516797
1517084	1517107	-	1517262	-	-
1517097	1517110	-	1517275	-	-
1516904	1516917	-	-	-	-
-	-	-	-	1516807	1516810
1517123	1517149	-	1517288	-	-
1517136	1517152	-	1517291	-	-
1516920	1516933	-	-	-	-
-	-	-	-	1516823	1516836
-	-	-	-	-	-
1517165	1517181	-	1517301	-	-
1517178	1517194	-	1517314	-	-
1516946	1516959	-	-	-	-
-	-	-	-	1537077	1537103
1537019	1537048	-	-	-	-
-	-	-	-	1537080	1537116
1537022	1537051	-	-	-	-
-	-	-	-	1537093	1537129
1537035	1537064	-	-	-	-
Notes:		Notes:		Notes:	
179		179		179	
203		205		170	

Ordering example for products with variable master cable:

For a distributor with 4 single-occupancy slots and a master cable length of 34.5 m, the ordering data is as follows:

Order No.	Length [m]
1516904	34.5
Increment: 0.5 m; Length min.: 0.5 m Length max.: 50 m	



Sensor/actuator cabling

Distributor boxes

**QUICKON distributor,
connection cross section:
0.14 mm² ... 0.34 mm²**



With a master cable



Plug-in screw connection,
horizontal

General data	
Degree of protection in acc. with IEC 60529/EN 60529	
Electrical data	
Rated current for each I/O signal	[A]
Rated current per slot	[A]
Rated current, total	[A]
Total rated current for electrical isolation	[A]
Dimensions	
Width x height	[mm]
Length (4 / 6 / 8 / 10 slots)	[mm]
Temperature data	
Distributor box	[°C]
Master cable, fixed installation	[°C]
Master cable, flexible installation	[°C]

Technical data		Technical data	
IP65 / IP67 / IP69K		IP65 / IP67 / IP69K	
	2		2
	4		4
	12		10
	-		2x 8
	58 x 45		58 x 45
	116 / 126 / 153 / -		117 / 126 / 153 / -
	-30 ... 80		-30 ... 80
	-40 ... 90		-
	-5 ... 80		-

Status indication	Signal type	Rated voltage	Slots	Cable length
Without LED	Universal	48 V	4	-
Without LED	Universal	48 V	4	Variable
Without LED	Universal	48 V	6	-
Without LED	Universal	48 V	6	Variable
Without LED	Universal	48 V	8	-
Without LED	Universal	48 V	8	Variable
With LED	pnp	24 V DC	4	-
With LED	pnp	24 V DC	4	5 m
With LED	pnp	24 V DC	4	10 m
With LED	pnp	24 V DC	4	Variable
With LED	pnp	24 V DC	6	-
With LED	pnp	24 V DC	6	5 m
With LED	pnp	24 V DC	6	10 m
With LED	pnp	24 V DC	6	Variable
With LED	pnp	24 V DC	8	-
With LED	pnp	24 V DC	8	5 m
With LED	pnp	24 V DC	8	10 m
With LED	pnp	24 V DC	8	Variable

Ordering data		Ordering data	
Single occupancy	Double occupancy	Single occupancy	Double occupancy
-	-	1548354	1548419
1548642	1548671	-	-
-	-	1548367	1548422
1548655	1548684	-	-
-	-	1548370	1548435
1548668	1548697	-	-
-	-	1548325	1548383
1548448	1548532	-	-
1548451	1548545	-	-
1548503	1548590	-	-
-	-	1548338	1548396
1548464	1548558	-	-
1548477	1548561	-	-
1548516	1548600	-	-
-	-	1548341	1548406
1548480	1548574	-	-
1548493	1548587	-	-
1548529	1548613	-	-

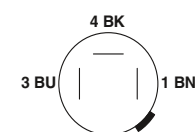
For accessories, see page
For master cable rings, see page
For master cable data, see page

Notes:	Notes:
181	181
202	170

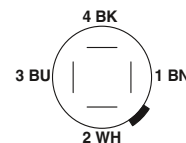
Ordering example for products with variable master cable:

For a distributor with 4 single-occupancy QUICKON slots and a master cable length of 34.5 m, the ordering data is as follows:

Order No.	Length [m]
1548503	34.5
	Increment: 0.5 m; Length min.: 0.5 m Length max.: 50 m



Pin assignment QUICKON connection, 3-pos.



Pin assignment QUICKON connection, 4-pos.

**QUICKON distributor,
connection cross section:
0.34 mm² ... 0.75 mm²**



With a master cable



Spring-cage connection,
horizontal

General data	
Degree of protection in acc. with IEC 60529/EN 60529	
Electrical data	
Rated current for each I/O signal	[A]
Rated current per slot	[A]
Rated current, total	[A]
Dimensions	
Width x height	[mm]
Length (4 / 6 / 8 / 10 slots)	[mm]
Temperature data	
Distributor box	[°C]
Master cable, fixed installation	[°C]
Master cable, flexible installation	[°C]

Technical data		Technical data	
IP65 / IP67		IP65 / IP67	
4		4	
4		4	
12		12	
60 x 44		60 x 44	
97 / 134 / 170 / -		132 / 168 / 205 / -	
-25 ... 60		-25 ... 60	
-40 ... 90		-	
-5 ... 80		-	

Status indication	Signal type	Rated voltage	Slots	Cable length
Without LED	Universal	120 V	4	-
Without LED	Universal	120 V	4	5 m
Without LED	Universal	120 V	4	10 m
Without LED	Universal	120 V	6	-
Without LED	Universal	120 V	6	5 m
Without LED	Universal	120 V	6	10 m
Without LED	Universal	120 V	8	-
Without LED	Universal	120 V	8	5 m
Without LED	Universal	120 V	8	10 m
With LED	npn	24 V DC	4	-
With LED	npn	24 V DC	4	5 m
With LED	npn	24 V DC	4	10 m
With LED	npn	24 V DC	4	Variable
With LED	npn	24 V DC	6	-
With LED	npn	24 V DC	6	5 m
With LED	npn	24 V DC	6	10 m
With LED	npn	24 V DC	6	Variable
With LED	npn	24 V DC	8	-
With LED	npn	24 V DC	8	5 m
With LED	npn	24 V DC	8	10 m
With LED	npn	24 V DC	8	Variable
With LED	nnp	24 V DC	4	-
With LED	nnp	24 V DC	6	-
With LED	nnp	24 V DC	8	-

Ordering data		Ordering data	
Single occupancy	Double occupancy	Single occupancy	Double occupancy
-	-	1683633	-
1683662	-	-	-
1683675	-	-	-
-	-	1683646	-
1683688	-	-	-
1683691	-	-	-
-	-	1683659	-
1683701	-	-	-
1683714	-	-	-
-	-	1662939	-
1695223	-	-	-
1695236	-	-	-
1695249	-	-	-
-	-	1662942	-
1695252	-	-	-
1695265	-	-	-
1695278	-	-	-
-	-	1662955	-
1695281	-	-	-
1695294	-	-	-
1695304	-	-	-
-	-	1680856	-
-	-	1680869	-
-	-	1680872	-

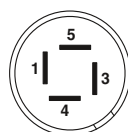
For accessories, see page
For master cable rings, see page
For master cable data, see page

Notes:	Notes:
182	182
203	170

Ordering example for products with variable master cable:

For a distributor with 4 single-occupancy QUICKON slots and a master cable length of 34.5 m, the ordering data is as follows:

Order No.	Length [m]
1695249	34.5
	Increment: 0.5 m;
	Length min.: 0.5 m
	Length max.: 50 m



Pin assignment QUICKON connection, 4-pos.

Distributor boxes

M12 distributors, shielded, with metal housing



With a master cable



M23 plug-in connection, vertical

General data

Degree of protection in acc. with IEC 60529/EN 60529
M12 circular plug-in connector according to:

Electrical data

Rated current for each I/O signal	[A]
Rated current per slot	[A]
Rated current, total	[A]

Dimensions

Width x height	[mm]
Length (4 / 6 / 8 / 10 slots)	[mm]
Temperature data	
Distributor box	[°C]
Master cable, fixed installation	[°C]
Master cable, flexible installation	[°C]



Technical data

IP65 / IP67
IEC 61076-2-101

2
4
12

61 x 24
116 / 129 / 156 / -

-25 ... 70
-40 ... 90
-5 ... 80



Technical data

IP65 / IP67
IEC 61076-2-101

2
4
12

61 x 31
117 / 130 / 157 / -

-25 ... 70
-
-

Ordering data

Single occupancy	Double occupancy
-	-
-	1695786
-	1695799

Ordering data

Single occupancy	Double occupancy
-	1695757
-	-
-	-

Status indication	Signal type	Rated voltage	Slots	Cable length
Without LED	Universal	48 V	4	-
Without LED	Universal	48 V	4	5 m
Without LED	Universal	48 V	4	10 m
Without LED	Universal	48 V	6	-
Without LED	Universal	48 V	6	5 m
Without LED	Universal	48 V	6	10 m
Without LED	Universal	48 V	8	-
Without LED	Universal	48 V	8	5 m
Without LED	Universal	48 V	8	10 m

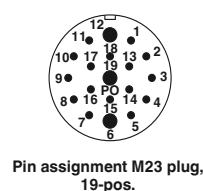
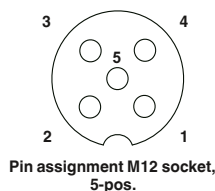
Notes:

Notes:

For accessories, see page
For master cable rings, see page
For master cable data, see page

180
204

180
170



M5 distributor with metal thread



With a master cable



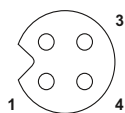
M12 plug-in connection, vertical

General data	
Degree of protection in acc. with IEC 60529/EN 60529	
M5 circular plug-in connector according to:	
M12 circular plug-in connector according to:	
Electrical data	
Rated current for each I/O signal	[A]
Rated current per slot	[A]
Rated current, total	[A]
Dimensions	
Width x height	[mm]
Length (4 / 6 / 8 / 10 slots)	[mm]
Temperature data	
Distributor box	[°C]
Master cable, fixed installation	[°C]
Master cable, flexible installation	[°C]

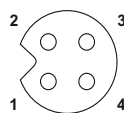
Technical data		Technical data	
IP67		IP67	
IEC 61076-2-105		IEC 61076-2-105	
-		IEC 61076-2-101	
1		1	
1		1	
3		3	
20 x 14		20 x 28	
76 / - / 116 / -		76 / - / 116 / -	
-25 ... 80		-25 ... 80	
-30 ... 70		-	
-5 ... 70		-	

Status indication	Signal type	Rated voltage	Slots	Cable length
With LED	pnp	24 V DC	4	-
With LED	pnp	24 V DC	4	5 m
With LED	pnp	24 V DC	4	10 m
With LED	pnp	24 V DC	8	-
With LED	pnp	24 V DC	8	5 m
With LED	pnp	24 V DC	8	10 m

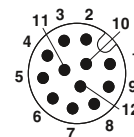
Ordering data		Ordering data	
Single occupancy	Double occupancy	Single occupancy	Double occupancy
-	-	1530760	-
1530663	1530702	-	-
1530676	1530715	-	-
-	-	1530773	-
1530689	1530744	-	-
1530692	1530757	-	-



Pin assignment M5 socket, 3-pos.



Pin assignment M5 socket, 4-pos.



Pin assignment M12 plug, 12-pos.

Sensor/actuator cabling

Sensor/actuator cabling for the railway industry



Optimally coordinated

Through the use of selected, flame-retardant, and smoke-minimizing materials, we adapt our products to the requirements of the railway industry.

Versatile

Whether in the railway station, for control tasks or within rolling stock - our cables for the railway industry support flexible use.

100% tested

Our products for data transmission are tested according to network specifications CAT5 and CAT5e, and the relevant test documentation is retained.



Flame-retardant material

An important aspect in the selection of the plastics used in the railway industry is their flame retardancy. We use flame-retardant grips made from PA 6.6 and RADOX® cables.



Safe transmission

With 360° shielded plug-in connectors and cables, you can transmit signals reliably even in critical EMI applications.



Securely locked

The vibration brake in the form of a wave shape with counterpart prevents the unintentional loosening of the plug-in connection in the event of vibrations.



SPEEDCON: fast, safe, and compatible

The SPEEDCON rapid interlock system is based on the principle of “Plug & Turn” and is 100% compatible with all M12 plug-in connectors with M12x1 thread on the market.



Temperature testing

Our products are intensively tested for an extended temperature range and for resistance to temperature shocks.



Certified according to IRIS

The Phoenix Contact Group is currently IRIS certified (as of 2013). IRIS is an international railway industry standard for quality management systems.



Plug-in connectors for assembly

Spring-cage connection technology, which is particularly safe and is accepted by the railway industry, is used in our plug-in connectors for assembly.



Assembled cables

The assembled signal and data cables are available in socket or pin and straight or angled versions.



Cable for signals and data

Our range includes shielded signal cables with various numbers of positions, as well as 4-pos. data cables for Ethernet and PROFINET.

Sensor/actuator cabling

Sensor/actuator cabling for the railway industry

M12 plug-in connector, spring-cage connection, A-coded

– Tested according to EN 50155:2001 (shock and vibration)



Shielded,
4, 5-pos.

Technical data

	4-pos.	5-pos.
General data		
M12 circular plug-in connector according to:	IEC 61076-2-101	
Pollution degree	3	
Degree of protection	IP67	
Connection method	Spring-cage conn.	
Cable diameter	4 mm ... 8 mm	
Connection cross section [mm ²]	0.14 mm ² ... 0.5 mm ²	
Electrical data		
Rated voltage	60 V	
Rated current	4 A	
Volume resistance	≤ 8 mΩ	
Insulation resistance	≥ 100 MΩ	
Material data		
Material contact / contact surface	CuSn / Ni/Au	
Contact carrier material	TPU	
Inflammability class according to UL 94	V0	
Temperature data		
Plug / socket	-40 ... 85	

Ordering data

Description	Coding	4-pos.		5-pos.	
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Plug-in connector , terminal marking: standard color coding and numbering					
Socket, angled	A - standard	1432758	1	1432677	1
Plug, angled	A - standard	1432732	1	1432651	1
Socket, straight	A - standard	1432745	1	1432664	1
Plug, straight	A - standard	1432729	1	1432648	1

Accessories

Torque screwdriver With preset torque of 0.4 Nm and 4 mm hexagonal drive	TSD 04 SAC	1208429	1
With preset torque of 0.8 Nm and 4 mm hexagonal drive	TSD 08 SAC	1212597	1
Adjustable from 0.3 - 1.2 Nm	TSD-M 1,2NM	1212224	1
Adapter insert For torque screwdrivers with adjustable torque, for accommodating plug attachments with 4 mm hexagonal drive	TSD-M SAC-BIT ADAPTER	1212600	1
Nut For assembling SACC M12 plug-in connectors, excluding those with insulation displacement connection, for 4 mm hexagonal screwdriver	SACC BIT M12-D20	1208445	1
Stripping tool , for multiple-stage repositioning of shielded conductors	VS-CABLE-STRIP-VARIO	1657407	1

M12 plug-in connector, spring-cage connection, D-coded

- Tested according to EN 50155:2001
(shock and vibration)

**PROFI
NET**

**SPEEDCON
LOCKING**



Shielded,
4-pos.

Technical data

4-pos.

General data			
M12 circular plug-in connector according to:	IEC 61076-2-101	-	
Pollution degree	3	-	
Degree of protection	IP67	-	
Connection method	Spring-cage conn.	-	
Cable diameter	4 mm ... 8 mm	-	
Connection cross section [mm ²]	0.14 mm ² ... 0.5 mm ²	- ... -	
Electrical data			
Rated voltage	60 V	-	
Rated current	4 A	-	
Volume resistance	≤ 8 mΩ	-	
Insulation resistance	≥ 100 MΩ	-	
Material data			
Material contact / contact surface	CuSn / Ni/Au	- / -	
Contact carrier material	TPU	-	
Inflammability class according to UL 94	V0	-	
Temperature data			
Plug / socket	-40 ... 85	-	[°C]

Ordering data

Description	Coding	Order No.		Pcs. / Pkt.	
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
4-pos.					
Plug-in connector , terminal marking: color-coded, to match the bus system					
Socket, angled	D - data	1436767	1		
Plug, angled	D - data	1436754	1		
Socket, straight	D - data	1436741	1		
Plug, straight	D - data	1436738	1		

Accessories

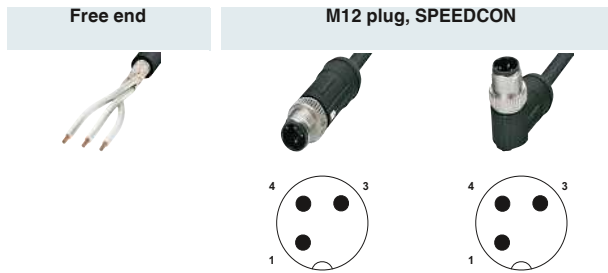
Torque screwdriver With preset torque of 0.4 Nm and 4 mm hexagonal drive	TSD 04 SAC	1208429	1
With preset torque of 0.8 Nm and 4 mm hexagonal drive	TSD 08 SAC	1212597	1
Adjustable from 0.3 - 1.2 Nm	TSD-M 1,2NM	1212224	1
Adapter insert For torque screwdrivers with adjustable torque, for accommodating plug attachments with 4 mm hexagonal drive	TSD-M SAC-BIT ADAPTER	1212600	1
Nut For assembling SACC M12 plug-in connectors, excluding those with insulation displacement connection, for 4 mm hexagonal screwdriver	SACC BIT M12-D20	1208445	1
Stripping tool , for multiple-stage repositioning of shielded conductors	VS-CABLE-STRIP-VARIO	1657407	1

Sensor/actuator cabling

Sensor/actuator cabling for the railway industry

M12 SAC cable, 3-pos., type 28R

Notes:
For information about the cable qualities, see page 201



Free end	Ordering data	Ordering data	Ordering data
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Free end	Order No.	Order No.	Order No.
	2 m	1407296	2 m 1407299
	5 m	1407297	5 m 1407300
	10 m	1407298	10 m 1407302

M12 socket, SPEEDCON, straight	Order No.	Order No.
	2 m 1407303	2 m 1407309
	5 m 1407304	5 m 1407310
	10 m 1407305	

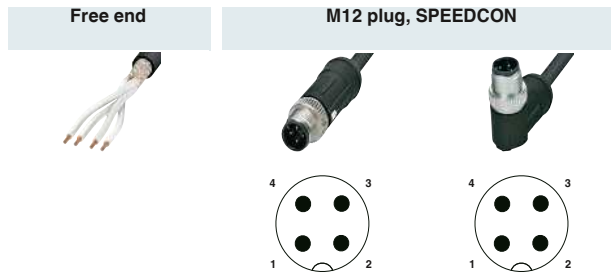
M12 socket, SPEEDCON, angled	Order No.	Order No.
	2 m 1407306	
	5 m 1407307	
	10 m 1407308	

Cable description	Cable type	Color coding	Pin assignment									
RADOX® GWK S - black	28R	<table border="1"> <tr><td>WH1</td><td>1</td></tr> <tr><td>WH2</td><td>2</td></tr> <tr><td>WH3</td><td>3</td></tr> </table>	WH1	1	WH2	2	WH3	3	<table border="1"> <tr><td>1</td></tr> <tr><td>3</td></tr> <tr><td>4</td></tr> </table>	1	3	4
WH1	1											
WH2	2											
WH3	3											
1												
3												
4												

		Technical data
		M12 3-pos.
Rated voltage	[V]	250
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		PA 6.6
Material, knurls		Zinc die-cast, nickel-plated
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-40 ... 85

**M12 SAC cable,
4-pos., type 28R**

Notes:
For information about the cable qualities, see page 201



Ordering data

Free end	Order No.	Order No.	Order No.
		2 m	1407311
		5 m	1407312
		10 m	1407313
		2 m	1407314
		5 m	1407315
		10 m	1407316

M12 socket, SPEEDCON, straight



2 m	1407317	2 m	1407323
5 m	1407318	5 m	1407324
10 m	1407319		

M12 socket, SPEEDCON, angled



2 m	1407320
5 m	1407321
10 m	1407322

Cable description	Cable type	Color coding		Pin assignment
RADOX® GWK S - black	28R	WH1	1	1
		WH2	2	3
		WH3	3	4
		WH4	4	2

Technical data

		M12 4-pos.
Rated voltage	[V]	250
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		PA 6.6
Material, knurls		Zinc die-cast, nickel-plated
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-40 ... 85

Sensor/actuator cabling

Sensor/actuator cabling for the railway industry

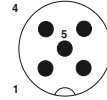
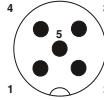
M12 SAC cable, 5-pos., type 28R

Notes:
For information about the cable qualities, see page 201

Free end



M12 plug, SPEEDCON



Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.
	2 m	1407325	2 m 1407328
	5 m	1407326	5 m 1407329
	10 m	1407327	10 m 1407330
M12 socket, SPEEDCON, straight 	2 m	1407331	2 m 1407337
	5 m	1407332	5 m 1407338
	10 m	1407333	
M12 socket, SPEEDCON, angled 	2 m	1407334	
	5 m	1407335	
	10 m	1407336	

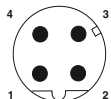
Cable description	Cable type	Color coding	Pin assignment															
RADOX® GWK S - black	28R	<table border="1"> <tr><td>WH1</td><td>1</td></tr> <tr><td>WH2</td><td>2</td></tr> <tr><td>WH3</td><td>3</td></tr> <tr><td>WH4</td><td>4</td></tr> <tr><td>WH5</td><td>5</td></tr> </table>	WH1	1	WH2	2	WH3	3	WH4	4	WH5	5	<table border="1"> <tr><td>1</td></tr> <tr><td>3</td></tr> <tr><td>4</td></tr> <tr><td>2</td></tr> <tr><td>5</td></tr> </table>	1	3	4	2	5
WH1	1																	
WH2	2																	
WH3	3																	
WH4	4																	
WH5	5																	
1																		
3																		
4																		
2																		
5																		

Technical data

		M12 5-pos.
Rated voltage	[V]	60
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		PA 6.6
Material, knurls		Zinc die-cast, nickel-plated
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-40 ... 85

**M12 SAC cable,
patch cable, type 937**

**M12 plug,
SPEEDCON**





Notes:

For information about the cable qualities, see page 364

Ordering data

Free end	Order No.
	2 m 1407339 5 m 1407340 10 m 1407341

M12 plug, SPEEDCON, straight	Order No.
 	2 m 1407342 5 m 1407343

Pin	Wire color	Signal
1	YE	TD+
3	OG	TD-
2	WH	RD+
4	BU	RD-

Technical data

**M12
Shielded**

Rated voltage	[V]	250
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		PA 6.6
Material, knurls		Zinc die-cast, nickel-plated
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-40 ... 85

Sensor/actuator cabling

Sensor/actuator cabling for the food industry



Resistance to cleaning agents

The plug-in connectors in hygienic and washdown design are tested for resistance to cleaning agents commonly used in the food industry in accordance with Diversey and ECOLAB standards.



Product-contacting area

The components and devices used here must meet the highest hygienic requirements. Our cabling in hygienic design is suitable for use in this area.



Splash zone

The products in washdown design are suitable for the splash zone. Cost-effective features include resistance to cleaning agents and cleaning methods.



Protection against contamination

Thanks to the special design and use of plastic, plug-in connectors in hygienic design make it impossible for residual food material and bacteria to accumulate.



Mechanical resistance

All components for the food industry are IP69K tested. This means guaranteed sealing for applications with steam jets, even after repeated temperature shocks.



Safe transmission

With 360° shielded sensor/actuator boxes, cables, and plug-in connectors, you can transmit signals reliably even in critical EMI applications.



High-quality materials and innovative designs

The hygienic design is characterized by seamless surfaces and knurls made from stainless steel 1.4404. The plug-in connector grips and cables are made from polypropylene.



Hygienic design - certificates and tests

All electrical components are designed according to the EHEDG design guidelines. The materials comply with FDA guidelines and are tested in accordance with ECOLAB and Diversey standards.



100% tested

All supplied components are 100% electrically checked by Quality Assurance.



Plug-in connectors for the splash zone

For the special requirements of the food industry, we offer flush-type plug-in connectors and plug-in connectors with stainless steel components for assembly.



Assembled cables for all areas

Molded cables are available with plug-in connectors in sizes M8 and M12 in hygienic or washdown design.



Distributor boxes for the splash zone

Distributor boxes with stainless steel housing and permanently connected PVC master cable in washdown design are available for the splash zone.

Sensor/actuator cabling

Sensor/actuator cabling for the food industry

M12 flush-type plug-in connector, front mounting, with 0.5 m long litz wires

– Housing material, stainless steel 1.4404



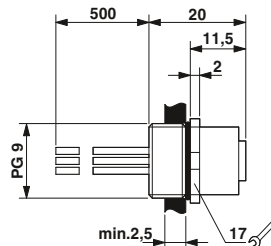
4, 5, 8-position



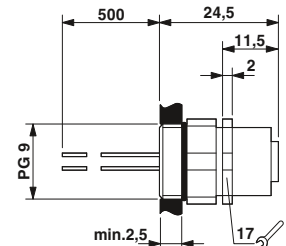
Can be positioned, 4, 5, 8-pos.



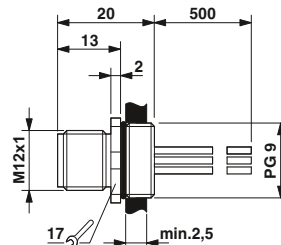
	Technical data			Technical data			
	4-pos.	5-pos.	8-pos.	4-pos.	5-pos.	8-pos.	
General data							
M12 circular plug-in connector according to:	IEC 61076-2-101			IEC 61076-2-101			
Pollution degree	3			3			
Degree of protection	IP67/IP69K			IP67/IP69K			
Connection method	Individual wires			Individual wires			
Electrical data							
Rated voltage	250 V	60 V	30 V	250 V	60 V	30 V	
Rated current	4 A		2 A	4 A		2 A	
Volume resistance	$\leq 3 \text{ m}\Omega$			$\leq 3 \text{ m}\Omega$			
Insulation resistance	$> 100 \text{ M}\Omega$			$> 100 \text{ M}\Omega$			
Material data							
Material contact / contact surface	CuZn / Au			CuZn / Au			
Contact carrier material	PA66 GF			PA66 GF			
Inflammability class according to UL 94	V0			V0			
Temperature data							
Plug / socket	[°C]	-25 ... 85		[°C]	-25 ... 85		
Cable, fixed installation	[°C]	-25 ... 90		[°C]	-25 ... 90		
Ordering data							
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.	
Device plug-in connector, Pg9 fastening thread							
Socket	A - standard	1555448	1	1699863	1	1554607	1
Plug	A - standard	1554555	1	1554568	1	1554571	1
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.	
		1554649	1	1554652	1	1554665	1
		1554610	1	1554623	1	1554636	1



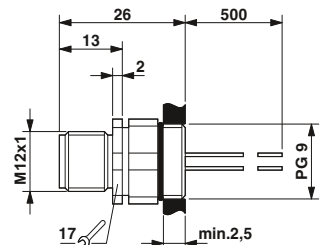
M12 flush-type socket



M12 flush-type socket, can be positioned



M12 flush-type plug



M12 flush-type plug, can be positioned

M12 flush-type plug-in connector, front mounting, M20 fastening thread, with 0.5 m long litz wires

– Housing material, stainless steel 1.4404



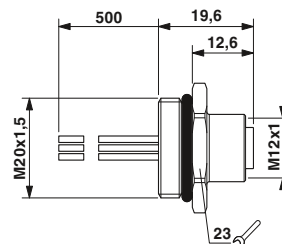
5, 8-pos.

Technical data

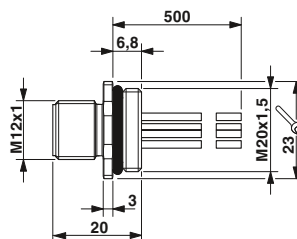
General data	5-pos.		8-pos.	
	M12 circular plug-in connector according to:	IEC 61076-2-101		
Pollution degree	3			
Degree of protection	IP67/IP69K			
Connection method	Individual wires			
Electrical data	60 V		30 V	
Rated voltage	4 A		2 A	
Rated current	≤ 3 mΩ			
Volume resistance	≥ 100 MΩ			
Insulation resistance	CuZn / Au			
Material data	PA 66			
Material contact / contact surface	V0			
Contact carrier material	-25 ... 85			
Inflammability class according to UL 94	-25 ... 90			
Temperature data	[°C]			
Plug / socket	[°C]			
Cable, fixed installation				

Ordering data

Description	Coding	5-pos.		8-pos.	
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Device plug-in connectors					
Socket	A - standard	1452071	1	1452110	1
Plug	A - standard	1452068	1	1452107	1
Socket	B - inverse	1452097	1		
Plug	B - inverse	1452084	1		



M12 flush-type socket



M12 flush-type plug

Sensor/actuator cabling

Sensor/actuator cabling for the food industry

M12 flush-type plug-in connector, rear mounting

– Housing material, stainless steel 1.4404



With 0.5 m long litz wires,
5, 8-pos.



For wave soldering processes,
5, 8-pos.



Technical data	
5-pos.	
General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Pollution degree	3
Degree of protection	IP67/IP69K
Connection method	Individual wires
Electrical data	
Rated voltage	60 V
Rated current	4 A
Volume resistance	$\leq 3 \text{ m}\Omega$
Insulation resistance	$\geq 100 \text{ M}\Omega$
Material data	
Material contact / contact surface	CuZn / Au
Contact carrier material	PA 66
Inflammability class according to UL 94	V0
Temperature data	
Plug / socket	-25 ... 85 [°C]

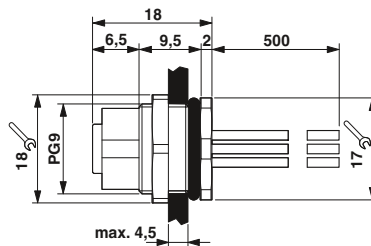
Technical data	
8-pos.	
General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Pollution degree	3
Degree of protection	IP67/IP69K
Connection method	Individual wires
Electrical data	
Rated voltage	30 V
Rated current	2 A
Volume resistance	$\leq 3 \text{ m}\Omega$
Insulation resistance	$\geq 100 \text{ M}\Omega$
Material data	
Material contact / contact surface	CuZn / Au
Contact carrier material	PA 66
Inflammability class according to UL 94	V0
Temperature data	
Plug / socket	-25 ... 85

Technical data	
5-pos.	
General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Pollution degree	3
Degree of protection	IP67/IP69K
Connection method	Solder pins
Electrical data	
Rated voltage	60 V
Rated current	4 A
Volume resistance	$\leq 3 \text{ m}\Omega$
Insulation resistance	$\geq 100 \text{ M}\Omega$
Material data	
Material contact / contact surface	CuZn / Au
Contact carrier material	PA 66
Inflammability class according to UL 94	V0
Temperature data	
Plug / socket	-25 ... 85

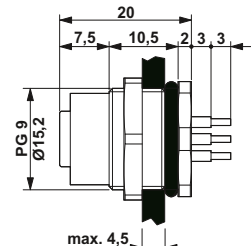
Ordering data	
Description	Coding
Device plug-in connectors	
Socket	A - standard
Plug	A - standard

Ordering data	
Order No.	Pcs. / Pkt.
5-pos.	8-pos.
1554717	1
1554681	1

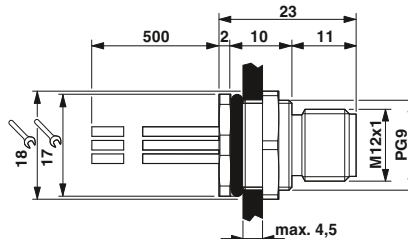
Ordering data	
Order No.	Pcs. / Pkt.
5-pos.	8-pos.
1554733	20
1554746	20
1529797	20
1529807	20



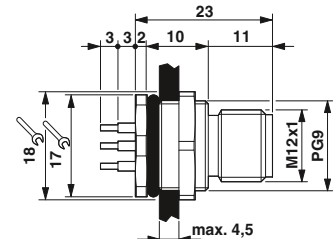
M12 flush-type socket



M12 flush-type socket



M12 flush-type plug



M12 flush-type plug

Sensor/actuator cabling

Sensor/actuator cabling for the food industry

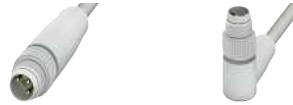
M8 SAC cable, 3-pos., washdown design, plastic knurl

Notes:
For information about the cable qualities, see page 200

Free end



M8 plug



Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.
	1.5 m	1406469	1.5 m 1406473
	3 m	1406470	3 m 1406474
	5 m	1406471	5 m 1406475
	10 m	1406472	10 m 1406476
M8 socket, straight 	1.5 m	1406477	0.3 m 1406490
	3 m	1406478	0.6 m 1406491
	5 m	1406479	1.5 m 1406492
	10 m	1406480	3 m 1406493
M8 socket, angled 	1.5 m	1406481	0.3 m 1406494
	3 m	1406482	0.6 m 1406495
	5 m	1406484	1.5 m 1406496
	10 m	1406485	3 m 1406497
M8 socket, angled, with 2 LEDs 	1.5 m	1406486	0.3 m 1406498
	3 m	1406487	0.6 m 1406499
	5 m	1406488	1.5 m 1406500
	10 m	1406489	3 m 1406524

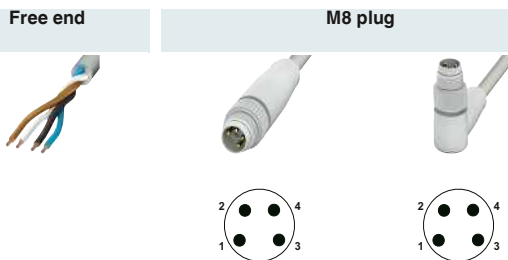
Cable description	Cable type	Color coding	Pin assignment
PP-EPDM - gray (RAL 7035)	PP	BN	1
		BK	4
		BU	3

	Technical data	Technical data
	M8, 3-pos.	M8, 3-pos., with LED
Rated voltage [V]	60	24
Rated current [A]	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au
Material of grip body	PP	PP
Material, knurls	PP	PP
M8 circular plug-in connector according to:	IEC 61076-2-104	IEC 61076-2-104
Degree of protection	IP65 / IP67 / IP68 / IP69K	IP65 / IP67 / IP68 / IP69K
Temperature data		
Plug / socket [°C]	-40 ... 105	-40 ... 105

**M8 SAC cable,
4-pos., washdown design,
plastic knurl**

Notes:

For information about the cable qualities, see page 200



Ordering data **Ordering data** **Ordering data**

Free end	Order No.	Order No.	Order No.	Order No.		
		1.5 m	1406835	1.5 m	1406841	
			3 m	1406837	3 m	1406843
			5 m	1406839	5 m	1406844
			10 m	1406840	10 m	1406845
M8 socket, straight 		1.5 m	1406846	0.3 m	1406858	
			3 m	1406847	0.6 m	1406859
			5 m	1406848	1.5 m	1406860
			10 m	1406849	3 m	1406861
M8 socket, angled 		1.5 m	1406850	0.3 m	1406862	
			3 m	1406851	0.6 m	1406863
			5 m	1406852	1.5 m	1406864
			10 m	1406853	3 m	1406865
M8 socket, angled, with 2 LEDs 		1.5 m	1406854	0.3 m	1406866	
			3 m	1406855	0.6 m	1406867
			5 m	1406856	1.5 m	1406868
			10 m	1406857	3 m	1406869

Cable description	Cable type	Color coding	Pin assignment
PP-EPDM - gray (RAL 7035)	PP	BN	1
		WH	2
		BK	4
		BU	3

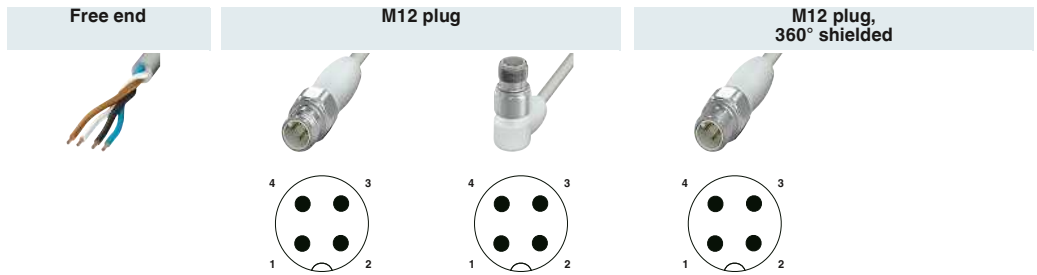
		Technical data
		M8, 4-pos.
Rated voltage	[V]	30
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		PP
Material, knurls		PP
M8 circular plug-in connector according to:		IEC 61076-2-104
Degree of protection		IP65 / IP67 / IP68 / IP69K
Temperature data		
Plug / socket	[°C]	-40 ... 105






Sensor/actuator cabling





Sensor/actuator cabling for the food industry

M12 SAC cable, 4-pos., hygienic design, stainless steel knurl

Notes:
For information about the cable qualities, see page 200



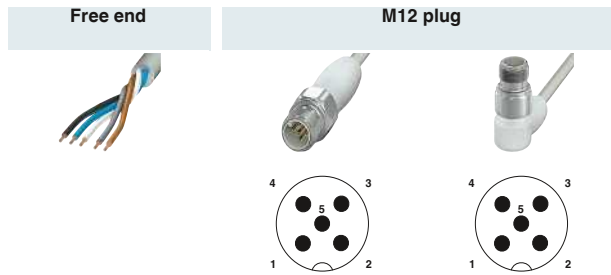
	Ordering data	Ordering data	Ordering data	Ordering data	Ordering data	
Free end	Order No.	Order No.	Order No.	Order No.	Order No.	
	1.5 m	1403947	1.5 m	1403952	1.5 m	1403981
	3 m	1403948	3 m	1403953	3 m	1403982
	5 m	1403949	5 m	1403954	5 m	1403983
	10 m	1403951	10 m	1403955	10 m	1403984
M12 socket, straight						
	1.5 m	1403956	0.3 m	1403968		
	3 m	1403957	0.6 m	1403969		
	5 m	1403958	1.5 m	1403970		
	10 m	1403959	3 m	1403971		
M12 socket, angled						
	1.5 m	1403960	0.3 m	1403972		
	3 m	1403961	0.6 m	1403973		
	5 m	1403962	1.5 m	1403974		
	10 m	1403963	3 m	1403975		
M12 socket, angled, with 3 LEDs						
	1.5 m	1403964	0.3 m	1403976		
	3 m	1403965	0.6 m	1403977		
	5 m	1403966	1.5 m	1403978		
	10 m	1403967	3 m	1403979		
M12 socket, straight, 360° shielded						
	1.5 m	1403985		0.3 m	1403990	
	3 m	1403986		0.6 m	1403991	
	5 m	1403987		1.5 m	1403992	
	10 m	1403989		3 m	1403993	

Cable description	Cable type	Color coding	Pin assignment
PP-EPDM - gray (RAL 7035)	PP	BN 	1
		WH 	2
		BK 	4
		BU 	3

	Technical data	Technical data	Technical data
	M12 4-pos.	M12 4-pos., shielded	M12 4-pos., with LED
Rated voltage [V]	250	250	24
Rated current [A]	4	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au	Ni/Au
Material of grip body	PP	PP	PP
Material, knurls	Stainless steel	Stainless steel	Stainless steel
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Degree of protection	IP65 / IP67 / IP68 / IP69K	IP65 / IP67 / IP68 / IP69K	IP65 / IP67 / IP68 / IP69K
Temperature data			
Plug / socket [°C]	-40 ... 105	-40 ... 105	-40 ... 105

M12 SAC cable, 5-pos., hygienic design, stainless steel knurl

Notes:
For information about the cable qualities, see page 200



Ordering data

Free end	Order No.	Order No.	Order No.
	1.5 m	1404039	1.5 m 1404044
	3 m	1404041	3 m 1404046
	5 m	1404042	5 m 1404047
	10 m	1404043	10 m 1404048
M12 socket, straight 	1.5 m	1404049	0.3 m 1404063
	3 m	1404050	0.6 m 1404064
	5 m	1404051	1.5 m 1404065
	10 m	1404052	3 m 1404066
M12 socket, angled 	1.5 m	1404053	0.3 m 1404067
	3 m	1404054	0.6 m 1404068
	5 m	1404055	1.5 m 1404069
	10 m	1404056	3 m 1404070
M12 socket, angled, with 3 LEDs 	1.5 m	1404057	0.3 m 1404071
	3 m	1404059	0.6 m 1404072
	5 m	1404060	1.5 m 1404073
	10 m	1404062	3 m 1404550

Cable description	Cable type	Color coding	Pin assignment
PP-EPDM - gray (RAL 7035)	PP	BN	1
		WH	2
		BK	4
		BU	3
		GY	5

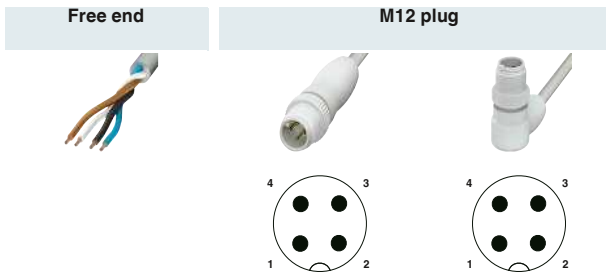
		Technical data	Technical data
		M12 5-pos.	M12 5-pos., with LED
Rated voltage	[V]	60	24
Rated current	[A]	4	4
Volume resistance		≤ 5 mΩ	≤ 5 mΩ
Contact material		CuSn	CuSn
Contact surface material		Ni/Au	Ni/Au
Material of grip body		PP	PP
Material, knurls		Stainless steel	Stainless steel
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68 / IP69K	IP65 / IP67 / IP68 / IP69K
Temperature data			
Plug / socket	[°C]	-40 ... 105	-40 ... 105

Sensor/actuator cabling

Sensor/actuator cabling for the food industry

M12 SAC cable, 4-pos., washdown design, plastic knurl

Notes:
For information about the cable qualities, see page 200



Ordering data

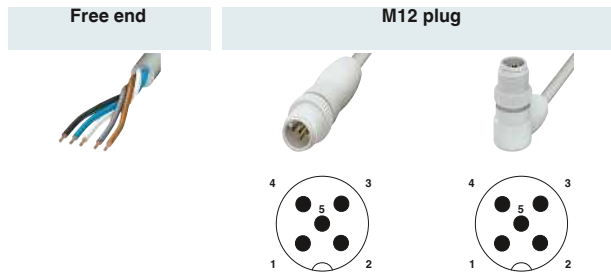
Free end	Order No.	Order No.	Order No.
	1.5 m	1404002	1.5 m 1404006
	3 m	1404003	3 m 1404007
	5 m	1404004	5 m 1404008
	10 m	1404005	10 m 1404009
M12 socket, straight 	1.5 m	1404010	0.3 m 1404023
	3 m	1404011	0.6 m 1404024
	5 m	1404012	1.5 m 1404025
	10 m	1404013	3 m 1404026
M12 socket, angled 	1.5 m	1404014	0.3 m 1404027
	3 m	1404015	0.6 m 1404028
	5 m	1404017	1.5 m 1404030
	10 m	1404018	3 m 1404031
M12 socket, angled, with 3 LEDs 	1.5 m	1404019	0.3 m 1404033
	3 m	1404020	0.6 m 1404034
	5 m	1404021	1.5 m 1404035
	10 m	1404022	3 m 1404036

Cable description	Cable type	Color coding	Pin assignment
PP-EPDM - gray (RAL 7035)	PP	BN	1
		WH	2
		BK	4
		BU	3

		Technical data	Technical data
		M12 4-pos.	M12 4-pos., with LED
Rated voltage	[V]	250	24
Rated current	[A]	4	4
Volume resistance		≤ 5 mΩ	≤ 5 mΩ
Contact material		CuSn	CuSn
Contact surface material		Ni/Au	Ni/Au
Material of grip body		PP	PP
Material, knurls		Polypropylene	Polypropylene
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68 / IP69K	IP65 / IP67 / IP68 / IP69K
Temperature data			
Plug / socket	[°C]	-40 ... 105	-40 ... 105

M12 SAC cable, 5-pos., washdown design, plastic knurl

Notes:
For information about the cable qualities, see page 200



Ordering data

Free end	Order No.	Order No.	Order No.
	1.5 m	1404075	1.5 m 1404079
	3 m	1404076	3 m 1404080
	5 m	1404077	5 m 1404081
	10 m	1404078	10 m 1404082
M12 socket, straight 	1.5 m	1404083	0.3 m 1404097
	3 m	1404084	0.6 m 1404098
	5 m	1404085	1.5 m 1404099
	10 m	1404086	3 m 1404101
M12 socket, angled 	1.5 m	1404088	0.3 m 1404102
	3 m	1404089	0.6 m 1404103
	5 m	1404091	1.5 m 1404104
	10 m	1404092	3 m 1404105
M12 socket, angled, with 3 LEDs 	1.5 m	1404093	0.3 m 1404106
	3 m	1404094	0.6 m 1404107
	5 m	1404095	1.5 m 1404108
	10 m	1404096	3 m 1404109

Cable description	Cable type	Color coding	Pin assignment
PP-EPDM - gray (RAL 7035)	PP	BN	1
		WH	2
		BK	4
		BU	3
		GY	5

		Technical data	Technical data
		M12 5-pos.	M12 5-pos., with LED
Rated voltage	[V]	60	24
Rated current	[A]	4	4
Volume resistance		≤ 5 mΩ	≤ 5 mΩ
Contact material		CuSn	CuSn
Contact surface material		Ni/Au	Ni/Au
Material of grip body		PP	PP
Material, knurls		Polypropylene	Polypropylene
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68 / IP69K	IP65 / IP67 / IP68 / IP69K
Temperature data			
Plug / socket	[°C]	-40 ... 105	-40 ... 105

Sensor/actuator cabling

Sensor/actuator cabling for the food industry

M12 distributors with stainless steel housing, washdown design

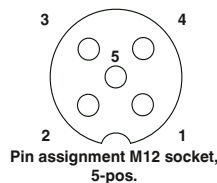
The housing of the sensor/actuator boxes for the food industry is made of 1.4404 stainless steel. The stainless steel distributor, which is provided with spacers, can be easily cleaned from all sides.

The distributors meet the requirements for IP69K protection. The range includes double-occupancy boxes with a 5 and 10 m long master cable.



With master cable

General data		Technical data		
M12 circular plug-in connector according to:		IEC 61076-2-101		
Degree of protection in acc. with IEC 60529/EN 60529		IP65/IP67/IP69K		
Electrical data				
Rated voltage		24 V DC		
Rated current for each I/O signal		2 A		
Rated current per slot		4 A		
Total rated current		12 A		
Material data				
Housing material		Stainless steel 1.4404		
Dimensions				
Width x height x length [mm]		60 x 35 x 170		
Temperature data				
Distributor box		-30 °C ... 80 °C		
Master cable, fixed installation [°C]		-40 ... 90		
Master cable, flexible installation [°C]		-5 ... 80		
Description		Ordering data		
	Cable length	Type	Order No.	Pcs. / Pkt.
Sensor/actuator box with stainless steel housing, eight M12 slots, 5-pos., with status indicator and permanently connected PVC master cable				
	5 m	SACB-8/16-L- 5,0PVC FB	1555541	1
	10 m	SACB-8/16-L-10,0PVC FB	1555554	1
M12 screw plug made of stainless steel		Accessories		
For unused M12 sockets of the sensor/actuator cables, boxes, and flush-type plug-in connectors in the food and outdoor range		PROT-M12 FB	1555538	5
Torque screwdriver		TSD 04 SAC	1208429	1
With preset torque of 0.4 Nm and 4 mm hexagonal drive		SAC BIT M12-W14	1212513	1
Nut		TSD-M 1,2NM	1212224	1
For mounting M12 plug-in connectors with hexagonal stainless steel knurl, wrench size 14, with 4 mm hexagonal drive		SF-BIT-SL 1,2X6,5-70	1212577	5
Torque screwdriver, accuracy according to standard EN ISO 6789				
Adjustable from 0.3 - 1.2 Nm				
Screw bit, slotted, E6,3-1/4" drive, hardened, suitable for holder according to DIN 3126-F 6.3/ISO 1173				
Size: 1.2 x 6.5 x 70 mm				



Sensor/actuator cabling

Sensor/actuator cabling for outdoor applications



Adapted to the relevant requirements

Through the selection of special materials, the components are designed for use outdoors. The materials are resistant to UV, ozone, corrosion, and temperatures.



For a variety of applications

Outdoor components are particularly suitable for use in traffic management systems, snow cats and snow cannons, photovoltaic systems or wind power plants.



UV and ozone test

Testing with special climate cabinets ensures that the plug-in connectors and cables are suitable for the control of solar plants, for example, without any restrictions.



Temperature testing

In the field of climatic tests, our products are subjected to low temperature, high temperature, and temperature shock tests.



Salt spray test

The effects of damp and corrosive atmospheric influences on our products are tested to simulate outdoor use.



Resistance to oils and chemicals

Due to the special material selection, our outdoor range is resistant to liquids such as mineral oils, acids, and lyes, plus chemicals.



Corrosive gas test

Resistance to corrosive gases is also tested for our products for outdoor use.



Vibration and shock test

If plug-in connectors pass this series of tests, they will not come loose when used in this area of application.



IP69K protection

For outdoor applications, a high IP protection class is essential because products are exposed to direct atmospheric influences.



Plug-in connectors for assembly

The plug-in connector knurls are made from stainless steel and the plastics are resistant to atmospheric influences. The plug-in connectors are available with insulation displacement connection and screw connection.



Assembled cables

In addition to 4, 5, and 8-pos. shielded and unshielded versions, PROFINET and Ethernet cables for data applications are also available.



Distributor boxes

Robust, fully molded sensor/actuator distributor boxes with 8 slots are available with fixed master cable or plug-in screw connection.

Sensor/actuator cabling

Sensor/actuator cabling for outdoor applications

M12 flush-type plug-in connector, front mounting, with 0.5 m long litz wires

– Housing material, stainless steel 1.4404



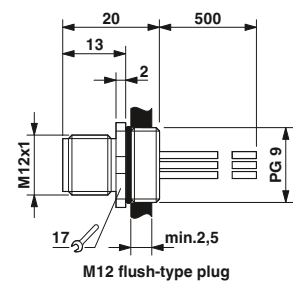
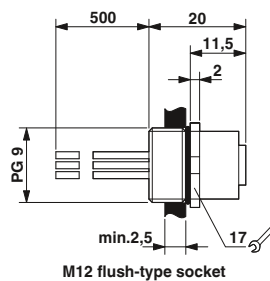
4, 5-pos.



Can be positioned, 4, 5-pos.



	Technical data		Technical data						
	4-pos.	5-pos.	4-pos.	5-pos.					
General data									
M12 circular plug-in connector according to:	IEC 61076-2-101		IEC 61076-2-101						
Pollution degree	3		3						
Degree of protection	IP67/IP69K		IP67/IP69K						
Connection method	Individual wires		Individual wires						
Electrical data									
Rated voltage	250 V	60 V	250 V	60 V					
Rated current	4 A		4 A						
Volume resistance	$\leq 3 \text{ m}\Omega$		$\leq 3 \text{ m}\Omega$						
Insulation resistance	$> 100 \text{ M}\Omega$		$> 100 \text{ M}\Omega$						
Material data									
Material contact / contact surface	CuZn / Au		CuZn / Au						
Contact carrier material	PA66 GF		PA66 GF						
Inflammability class according to UL 94	V0		V0						
Temperature data									
Plug / socket	-25 ... 85		-25 ... 85						
	Ordering data		Ordering data						
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.					
	4-pos.	5-pos.	4-pos.	5-pos.					
Device plug-in connector, Pg9 fastening thread									
Socket	A - standard	1555448	1	1699863	1	1554649	1	1554652	1
Plug	A - standard	1554555	1	1554568	1	1554610	1	1554623	1



Device plug-in connector, rear mounting

– Housing material, stainless steel 1.4404



With litz wires



For wave soldering processes



Technical data

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Pollution degree	3
Degree of protection	IP67/IP69K
Connection method	Individual wires
Electrical data	
Rated voltage	60 V
Rated current	4 A
Volume resistance	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ
Material data	
Material contact / contact surface	CuZn / Au
Contact carrier material	PA 66
Inflammability class according to UL 94	V0
Temperature data	
Plug / socket	-25 ... 85 [°C]

Ordering data

Description	Coding
Device plug-in connectors	
Socket	A - standard
Plug	A - standard

Type	Order No.	Pcs. / Pkt.
SACC-DSI-M12FS-5CON-PG9/0,5 VA	1554717	1
SACC-DSI-M12MS-5CON-PG9/0,5 VA	1554681	1

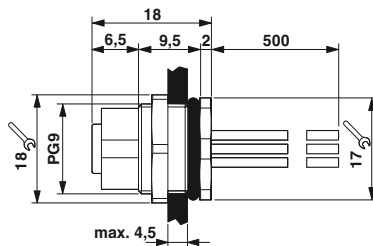


Technical data

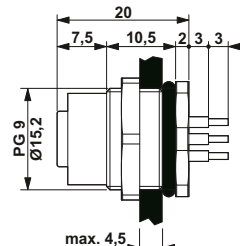
General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Pollution degree	3
Degree of protection	IP67/IP69K
Connection method	Solder pins
Electrical data	
Rated voltage	60 V
Rated current	4 A
Volume resistance	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ
Material data	
Material contact / contact surface	CuZn / Au
Contact carrier material	PA 66
Inflammability class according to UL 94	V0
Temperature data	
Plug / socket	-25 ... 85 [°C]

Ordering data

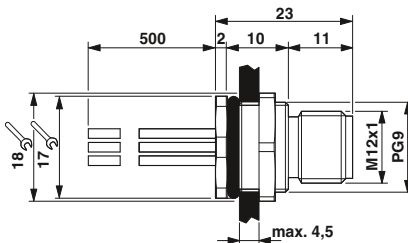
Type	Order No.	Pcs. / Pkt.
SACC-DSI-M12FS-5CON-L180 VA	1554733	20
SACC-DSI-M12MS-5CON-L180 VA	1554746	20



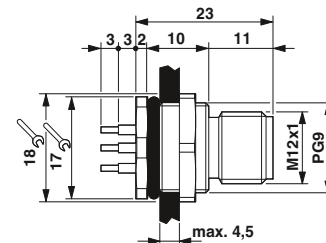
M12 flush-type socket



M12 flush-type socket



M12 flush-type plug



M12 flush-type plug

Sensor/actuator cabling

Sensor/actuator cabling for outdoor applications

Plug-in connector, for assembly

– Material for screw connection, stainless steel 1.4405



Insulation displacement connection, unshielded, 4-pos.



Screw connection, shielded, 5-pos.



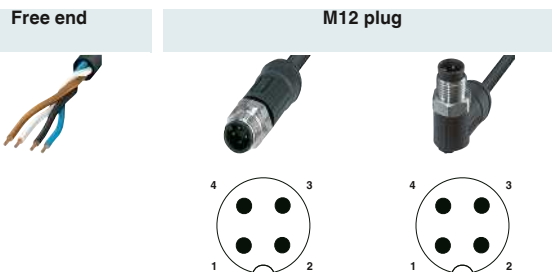
	Technical data		Technical data	
	0.14 mm ² - 0.34 mm ²	0.34 mm ² - 0.75 mm ²	0.25 mm ² - 0.75 mm ²	
General data				
M12 circular plug-in connector according to:	IEC 61076-2-101		IEC 61076-2-101	-
Pollution degree	3		3	-
Degree of protection	IP65/67		IP67/IP69K	-
Connection method	Insulation displacement connection		Screw connection	-
Electrical data				
Rated voltage	125 V	250 V	60 V	-
Rated current	4 A		4 A	-
Volume resistance	≤ 5 mΩ		≤ 3 mΩ	-
Insulation resistance	≥ 100 MΩ		≥ 100 MΩ	-
Material data				
Material contact / contact surface	CuSn / Ni/Au		CuZn / Au	- / -
Contact carrier material	TPU		PA 66	-
Inflammability class according to UL 94	V0		V0	-
Cable diameter	3.5 mm ... 6 mm	4 mm ... 8 mm	5.5 mm ... 8.6 mm	-
Temperature data				
Plug / socket	-25 ... 80		-40 ... 85	-

Description	Coding	Ordering data				Ordering data			
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		0.14 mm ² - 0.34 mm ²		0.34 mm ² - 0.75 mm ²		0.25 mm ² - 0.75 mm ²			
Plug-in connector, with stainless steel knurl									
Socket, straight	A - standard	1440766	1	1440782	1				
Plug, straight	A - standard	1440753	1	1440779	1				
Plug-in connector, with M16 screw connection, cable diameter: 3 mm ... 5.5 mm									
Socket, straight	A - standard					1440038	1		
Plug, straight	A - standard					1440012	1		
Plug-in connector, with M16 screw connection, cable diameter: 5.5 mm ... 8.6 mm									
Socket, straight	A - standard					1440041	1		
Plug, straight	A - standard					1440025	1		

**M12 SAC cable,
4-pos., cable type 28X,
stainless steel knurl**

Notes:

For information about the cable qualities, see page 199



Ordering data **Ordering data** **Ordering data**

Free end	Order No.	Order No.	Order No.
		2 m 1454040	2 m 1407965
		5 m 1454053	5 m 1407966
		10 m 1454066	10 m 1407967
M12 socket, straight 		2 m 1454079	2 m 1454105
		5 m 1454082	5 m 1454118
		10 m 1454095	
M12 socket, angled 		2 m 1407968	
		5 m 1407969	
		10 m 1407970	

Cable description	Cable type	Color coding	Pin assignment
PE-X, halogen-free - black	28X	BN	1
		WH	2
		BK	4
		BU	3

		Technical data
		M12
		4-pos.
Rated voltage	[V]	250
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		PP
Material, knurls		Stainless steel
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68 / IP69K
Temperature data		
Plug / socket	[°C]	-40 ... 105

Sensor/actuator cabling

Sensor/actuator cabling for outdoor applications

M12 SAC cable, 4-pos., cable type 28X, stainless steel knurl, shielded

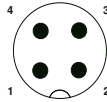
Notes:

For information about the cable qualities, see page 199

Free end





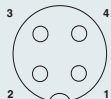
M12 plug,
360° shielded







Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.	
		2 m	1454121	
		5 m	1454134	
		10 m	1454147	
 	2 m	1454150	2 m	1454189
	5 m	1454163	5 m	1454192
	10 m	1454176		

Cable description	Cable type	Color coding	Pin assignment
PE-X, halogen-free - black	28X	BN 	1
		WH 	2
		BK 	4
		BU 	3

Technical data

		M12 4-pos.
Rated voltage	[V]	250
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		PP
Material, knurls		Stainless steel
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68 / IP69K
Temperature data		
Plug / socket	[°C]	-40 ... 105

**M12 SAC cable,
5-pos., cable type 28X,
stainless steel knurl**

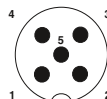
Notes:

For information about the cable qualities, see page 199

Free end



M12 plug



Ordering data

Ordering data

Ordering data

Free end	Order No.	Ordering data	Order No.	Ordering data	Order No.
		2 m	1407255		
		5 m	1407256		
		10 m	1407257		
M12 socket, straight 		2 m	1407258	2 m	1407261
		5 m	1407259	5 m	1407262
		10 m	1407260		

Cable description	Cable type	Color coding	Pin assignment
PE-X, halogen-free - black	28X	BN	1
		WH	2
		BK	4
		BU	3
		GY	5

Technical data

		M12 5-pos.
Rated voltage	[V]	60
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		PP
Material, knurls		Stainless steel
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68 / IP69K
Temperature data		
Plug / socket	[°C]	-40 ... 105

Sensor/actuator cabling

Sensor/actuator cabling for outdoor applications

M12 SAC cable, 5-pos., cable type 28X, stainless steel knurl, shielded

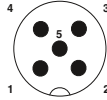
Notes:

For information about the cable qualities, see page 199

Free end



M12 plug,
360° shielded



Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.
	2 m	1407263	
	5 m	1407264	
	10 m	1407265	
 	2 m	1407266	2 m
	5 m	1407267	5 m
	10 m	1407268	5 m

Cable description	Cable type	Color coding	Pin assignment
PE-X, halogen-free - black	28X	BN	1
		WH	2
		BK	4
		BU	3
		GY	5

Technical data

		M12 5-pos., shielded
Rated voltage	[V]	60
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		PP
Material, knurls		Stainless steel
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68 / IP69K
Temperature data		
Plug / socket	[°C]	-40 ... 105

**M12 SAC cable,
8-pos., cable type 28X,
stainless steel knurl**

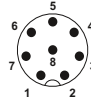
Notes:

For information about the cable qualities, see page 199

Free end



M12 plug



Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.
		2 m	1407271
		5 m	1407272
		10 m	1407273
M12 socket, straight 	2 m	1407274	2 m
	5 m	1407275	5 m
	10 m	1407276	5 m

Cable description	Cable type	Color coding	Pin assignment
PE-X, halogen-free - black	28X	WH	1
		BN	2
		GN	3
		YE	4
		GY	5
		PK	6
		BU	7
		RD	8

Technical data

		M12 8-pos.
Rated voltage	[V]	30
Rated current	[A]	2
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		PP
Material, knurls		Stainless steel
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68 / IP69K
Temperature data		
Plug / socket	[°C]	-40 ... 105

Sensor/actuator cabling

Sensor/actuator cabling for outdoor applications

M12 SAC cable, 8-pos., cable type 28X, stainless steel knurl, shielded

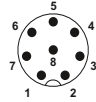
Notes:

For information about the cable qualities, see page 199

Free end



M12 plug,
360° shielded



Ordering data

Ordering data

Ordering data

Free end



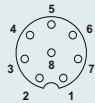
Order No.

Order No.

Order No.

2 m	1407279
5 m	1407280
10 m	1407281

M12 socket, straight, 360° shielded



2 m	1407282
5 m	1407283
10 m	1407284

2 m	1407285
5 m	1407286

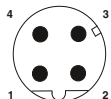
Cable description	Cable type	Color coding	Pin assignment
PE-X, halogen-free - black	28X	WH	1
		BN	2
		GN	3
		YE	4
		GY	5
		PK	6
		BU	7
		RD	8

Technical data

		M12 8-pos., shielded
Rated voltage	[V]	30
Rated current	[A]	2
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		PP
Material, knurls		Stainless steel
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68 / IP69K
Temperature data		
Plug / socket	[°C]	-40 ... 105

M12 Ethernet/PROFINET cable, 4-pos., cable type 93X, stainless steel knurl

M12 plug



Ordering data

Free end		Order No.
	2 m	1454202
	5 m	1454215
	10 m	1454228

M12 plug, straight		Order No.
	2 m	1454231
	5 m	1454244

Pin M12	Wire color	Signal
1	YE	TD+
3	OG	TD-
2	WH	RD+
4	BU	RD-

Technical data

		M12 4-pos.
Rated voltage	[V]	250
Rated current	[A]	4
Volume resistance		--
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		PP
Material, knurls		Stainless steel
M12 circular plug-in connector according to:		IEC 61076-2-101
Degree of protection		IP65 / IP67 / IP68 / IP69K
Temperature data		
Plug / socket	[°C]	-40 ... 105

Sensor/actuator cabling

Sensor/actuator cabling for outdoor applications

M12 distributor with corrosion-resistant metal thread

Notes:
For accessories, see page 179
For master cable rings, see page 170
For master cable data, see page 203



With master cable



Plug-in screw connection, horizontal



General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection in acc. with IEC 60529/EN 60529	IP65/IP67/IP69K
Electrical data	
Rated voltage	120 V
Rated current for each I/O signal	2 A
Rated current per slot	4 A
Total rated current	12 A
Housing material	PBT
Dimensions	
Width x height x length [mm]	58 x 26 x 153
Temperature data	
Distributor box	-30 °C ... 90 °C
Master cable, fixed installation [°C]	-40 ... 90
Master cable, flexible installation [°C]	-5 ... 80

Technical data		
IEC 61076-2-101		
IP65/IP67/IP69K		
Electrical data		
120 V		
2 A		
4 A		
12 A		
PBT		
Dimensions		
58 x 26 x 153		
Temperature data		
-30 °C ... 90 °C		
-40 ... 90		
-5 ... 80		

Technical data		
IEC 61076-2-101		
IP65/67		
Electrical data		
120 V		
2 A		
4 A		
10 A		
PBT		
Dimensions		
58 x 45 x 153		
Temperature data		
-30 °C ... 80 °C		
- ... -		
- ... -		

Description		Cable length
Sensor/actuator box, M12 socket, 8 slots, 5-pos., double occupancy, status indicator: no		
		5 m
		10 m

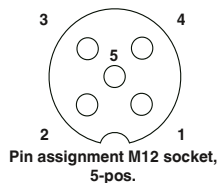
Ordering data		
Type	Order No.	Pcs. / Pkt.
SACB-8/16- 5,0PUR OD	1457364	1
SACB-8/16-10,0PUR OD	1457377	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
SACB-8/16-C OD	1457380	1

M12 screw plug made of stainless steel	
For unused M12 sockets of the sensor/actuator cables, boxes, and flush-type plug-in connectors in the food and outdoor range	
Torque screwdriver	
With preset torque of 0.4 Nm and 4 mm hexagonal drive	
With preset torque of 2.5 Nm and 4 mm hexagonal drive	
Nut	
For mounting M12 plug-in connectors with hexagonal stainless steel knurl, wrench size 14, with 4 mm hexagonal drive	
For reliable tightening of the pressure nuts with a wrench size of 24 mm, for 4 mm hexagonal screwdriver	
Torque screwdriver , accuracy according to standard EN ISO 6789	
Adjustable from 0.3 - 1.2 Nm	
Screw bit , PZ cross, E6.3-1/4" drive, hardened, suitable for holder according to DIN 3126-F 6.3/ISO 1173	
Size: PZ 1 x 50 mm	

Accessories		
PROT-M12 FB	1555538	5
TSD 04 SAC	1208429	1
SAC BIT M12-W14	1212513	1

Accessories		
PROT-M12 FB	1555538	5
TSD 04 SAC	1208429	1
TSD 25 SAC	1212315	1
SAC BIT M12-W14	1212513	1
SAC BIT HOOD-W 24	1212486	1
TSD-M 1,2NM	1212224	1
SF-BIT-PZ 1-50	1212591	5



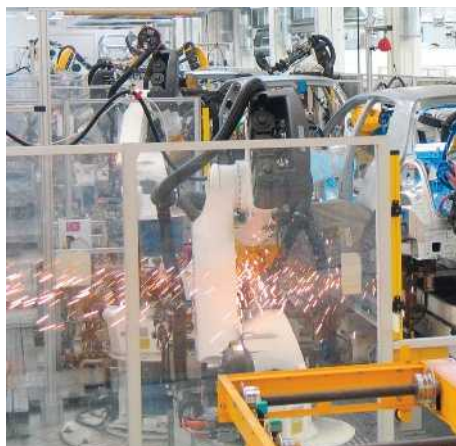
Sensor/actuator cabling

Sensor/actuator cabling for robots and drag chains



High level of durability

With their special design, our cables provide a high level of durability under alternating bending stress, e.g., in drag chains.



High level of resistance to welding sparks

The robust TPE-U outer sheath of the highly flexible cables is resistant to welding sparks and is particularly suitable for use in the field of resistance welding processes.



High level of durability under torsional stress

Our cables achieve a high level of durability - even with large angles of torsion and simultaneous bending stress.



Properties of the highly flexible sensor/actuator cable

Suitable for use with drag chain (min. 15 million cycles), suitable for torsional stress (min. 13 million cycles), resistant to welding sparks, temperature-resistant.



Properties of the master cable

UL style, good oil/chemical resistance, suitable for use with drag chain (min. 5 million cycles), suitable for torsional stress (min. 3 million cycles), flame-retardant.



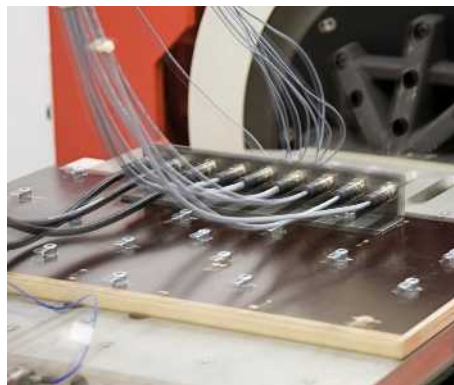
High degree of flexibility

Use the SAC and master cable rings, which are available online, to achieve the required cable lengths - even with highly flexible cable.



Easy detection

A particularly user-friendly feature is diagnostics in the event of an error. LEDs can be used to detect the error location quickly and easily. This can directly increase your machine availability.



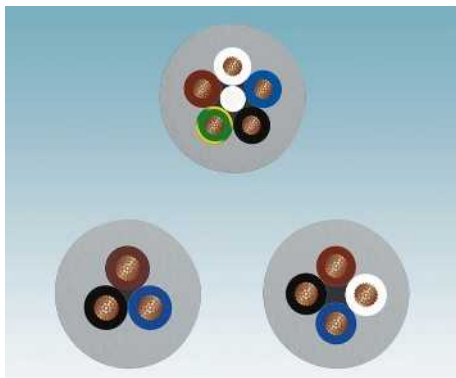
Securely locked

The vibration brake in the form of a wave shape with counterpart prevents the unintentional loosening of the plug-in connection in the event of vibrations.



100% tested

All supplied components are 100% electrically checked by Quality Assurance.



Large selection of number of positions

Our sensor/actuator cables for robots and drag chains are available in 3, 4, and 5-pos. versions.



Large selection of plug-in connectors

Sensor/actuator cables with molded plug-in connectors are available both as plugs and sockets and with a straight or angled cable outlet.



Highly flexible master cable

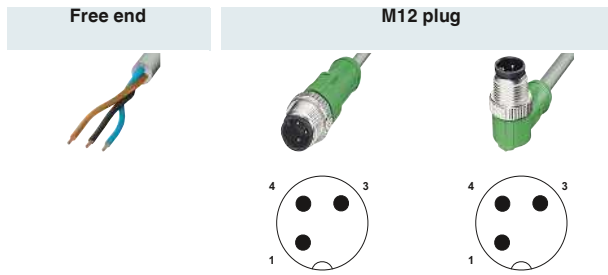
For the distribution or grouping of signals at industrial robots, we offer a corresponding sensor/actuator box with special master cable.

Sensor/actuator cabling

Sensor/actuator cabling for robots and drag chains

M12 SAC cable, 3-pos., cable type 800

Notes:
For information about the cable qualities, see page 190



		Ordering data		Ordering data		Ordering data	
		Order No.		Order No.		Order No.	
Free end				1.5 m	1456734	1.5 m	1456899
				3 m	1456747	3 m	1456909
				5 m	1456750	5 m	1456912
				10 m	1456763	10 m	1456925
				Variable	1696662	Variable	1696675
M12 socket, straight				0.3 m	1456776		
		1.5 m	1456679	0.6 m	1456789		
		3 m	1456682	1.5 m	1456792		
		5 m	1456695	3 m	1456802		
		10 m	1456705	Variable	1696756		
		Variable	1696688				
M12 socket, angled				0.3 m	1456815		
		1.5 m	1454260	0.6 m	1456828		
		3 m	1456718	1.5 m	1456831		
		5 m	1454273	3 m	1456844		
		10 m	1454299	Variable	1696772		
		Variable	1696714				
M12 socket, angled, with 2 LEDs				0.3 m	1456857		
		1.5 m	1454312	0.6 m	1456860		
		3 m	1456721	1.5 m	1456873		
		5 m	1454325	3 m	1456886		
		10 m	1454341	Variable	1696798		
		Variable	1696730				

Ordering data for products with variable cables:

For a sensor/actuator cable, TPE-U 800, 4.5 m long, with a straight 3-pos. M12 plug and free cable end, the ordering data is as follows:

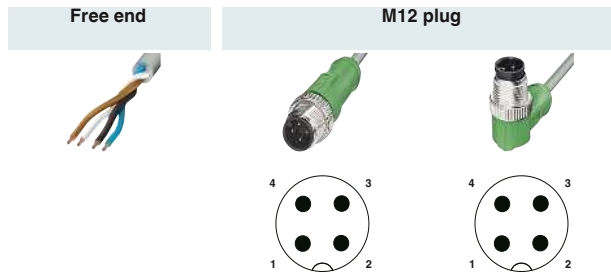
Cable description	Cable type	Color coding	Pin assignment
TPE-U highly flexible - gray Robots and drag chains	800	BN BK BU	1 4 3

Order No.	Cable type	Length [m] Max. 40 m
1696662	800	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

	Technical data	Technical data
	M12 3-pos.	M12 3-pos., with LEDs
Rated voltage [V]	250	24
Rated current [A]	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
Material, knurls	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101
Degree of protection	IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data		
Plug / socket [°C]	-25 ... 90	-25 ... 90

**M12 SAC cable,
4-pos., cable type 800**

Notes:
For information about the cable qualities, see page 190



Ordering data

Free end	Order No.	Order No.	Order No.
	1.5 m	1457018	1.5 m 1457128
	3 m	1457021	3 m 1457131
	5 m	1457034	5 m 1457144
	10 m	1457047	10 m 1457157
	Variable	1696947	Variable 1696950
M12 socket, straight 	1.5 m	1456938	0.3 m 1457050
	3 m	1456941	0.6 m 1457063
	5 m	1567322	1.5 m 1567270
	10 m	1567335	3 m 1457076
	Variable	1696963	Variable 1697001
M12 socket, angled 	1.5 m	1456954	0.3 m 1457089
	3 m	1456967	0.6 m 1567225
	5 m	1456970	1.5 m 1567238
	10 m	1456983	3 m 1457092
	Variable	1696989	Variable 1697014
M12 socket, angled, with 3 LEDs 	1.5 m	1456996	0.3 m 1457102
	3 m	1457005	0.6 m 1567173
	5 m	1567351	1.5 m 1567199
	10 m	1567364	3 m 1457115
	Variable	1696992	Variable 1697027

**Ordering data for products
with variable cables:**

For a sensor/actuator cable, TPE-U 800, 4.5 m long, with a straight 4-pos. M12 plug and free cable end, the ordering data is as follows:

Cable description	Cable type	Color coding	Pin assignment
TPE-U highly flexible - gray Robots and drag chains	800	BN WH BK BU	1 2 4 3

Order No.	Cable type	Length [m] Max. 40 m
1696947	800	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

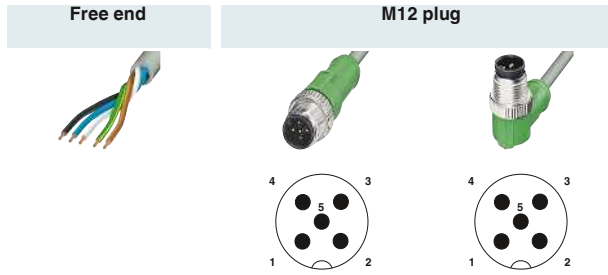
	Technical data	
	M12 4-pos.	M12 4-pos., with LED
Rated voltage [V]	250	24
Rated current [A]	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
Material, knurls	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101
Degree of protection	IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data		
Plug / socket [°C]	-25 ... 90	-25 ... 90

Sensor/actuator cabling

Sensor/actuator cabling for robots and drag chains

M12 SAC cable, 5-pos., cable type 802

Notes:
For information about the cable qualities, see page 190



	Ordering data	Ordering data	Ordering data			
Free end	Order No.	Order No.	Order No.			
		1.5 m	1457225	1.5 m	1457322	
			3 m	1457238	3 m	1457335
			5 m	1457241	5 m	1457348
			10 m	1457254	10 m	1457351
			Variable	1697098	Variable	1697108
M12 socket, straight 		1.5 m	1454419	0.3 m	1457267	
			3 m	1457160	0.6 m	1454561
			5 m	1454422	1.5 m	1454587
			10 m	1454448	3 m	1457270
			Variable	1697111	Variable	1697140
M12 socket, angled 		1.5 m	1457173	0.3 m	1457283	
			3 m	1457186	0.6 m	1454516
			5 m	1457199	1.5 m	1454532
			10 m	1457209	3 m	1457296
			Variable	1697124	Variable	1697153
M12 socket, angled, with 3 LEDs 		1.5 m	1454367	0.3 m	1457306	
			3 m	1457212	0.6 m	1454464
			5 m	1454370	1.5 m	1454480
			10 m	1454396	3 m	1457319
			Variable	1697137	Variable	1697166

Ordering data for products with variable cables:

For a sensor/actuator cable, TPE-U 802, 4.5 m long, with a straight 5-pos. M12 plug and free cable end, the ordering data is as follows:

Cable description	Cable type	Color coding	Pin assignment
TPE-U highly flexible - gray Robots and drag chains	802	BN WH BK BU GNYE	1 2 4 3 5

Order No.	Cable type	Length [m] Max. 40 m
1697098	802	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

	Technical data	Technical data
	M12 5-pos.	M12 5-pos., with LED
Rated voltage [V]	60	24
Rated current [A]	4	4
Volume resistance	≤ 5 mΩ	≤ 5 mΩ
Contact material	CuSn	CuSn
Contact surface material	Ni/Au	Ni/Au
Material of grip body	TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
Material, knurls	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101
Degree of protection	IP65 / IP67 / IP68	IP65 / IP67 / IP68
Temperature data		
Plug / socket [°C]	-25 ... 90	-25 ... 90

M12 distributor with metal thread

Notes:
For accessories, see page 179
For master cable data, see page 205



With master cable

General data	
M12 circular plug-in connector according to:	IEC 61076-2-101
Degree of protection in acc. with IEC 60529/EN 60529	IP65/IP67/IP69K
Electrical data	
Rated voltage	24 V DC
Rated current for each I/O signal	2 A
Rated current per slot	4 A
Total rated current	12 A
Housing material	PBT
Dimensions	
Width x height x length	[mm] 58 x 26 x 153
Temperature data	
Distributor box	-30 °C ... 90 °C
Master cable, fixed installation	[°C] -40 ... 90
Master cable, flexible installation	[°C] -5 ... 80

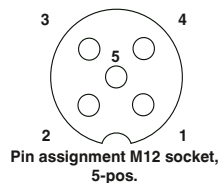
Technical data		
IEC 61076-2-101		
IP65/IP67/IP69K		
24 V DC		
2 A		
4 A		
12 A		
PBT		
58 x 26 x 153		
-30 °C ... 90 °C		
-40 ... 90		
-5 ... 80		

Description	Cable length
Sensor/actuator box , M12 SPEEDCON socket, 8 slots, 5-pos., double occupancy, status indicator: yes; master cable connection: 180° fixed connection, PUR, halogen-free, highly flexible, shielding: no	5 m
Master cable ring with PE conductor, PUR/PP, halogen-free, highly flexible, unshielded, length: 50 m	50 m
16 x 0.5 mm ² / 3 x 1.0 mm ²	

Ordering data		
Type	Order No.	Pcs. / Pkt.
SACB-8/16-L- 5,0 80MC SCO	1401199	1
SACB-16X0,5/ 3X1,0-50,0 80MC	1402304	1

Torque screwdriver	
With preset torque of 0.4 Nm and 4 mm hexagonal drive	
Nut	
For assembling sensor/actuator cables with M12 plug-in connectors and for M12 plug-in connectors with insulation displacement connection, for 4 mm hexagonal screwdriver	
For assembling SACC M12 plug-in connectors, excluding those with insulation displacement connection, for 4 mm hexagonal screwdriver	
M12 screw plug with SPEEDCON rapid interlock system	
For unoccupied M12 sockets of sensor/actuator cables, boxes, and flush-type plug-in connectors	

Accessories		
Type	Order No.	Pcs. / Pkt.
TSD 04 SAC	1208429	1
SAC BIT M12-D15	1208432	1
SACC BIT M12-D20	1208445	1
PROT-MS SCO	1553129	5



Cable rings for sensor cables

The special SAC cables are also available in 100 m cable rings for connecting the M8/M12 plug-in connectors that can be assembled.

Further information on the cable range for sensor/actuator cables can be found from page 184.



Cable sheath: black

Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
Cable ring, PUR, halogen-free, unshielded			
3 x 0.25 mm ² , conductor colors: BN/BU/BK	SAC-3P-100,0-PUR/0,25	1501689	1
3 x 0.34 mm ² , conductor colors: BN/BU/BK	SAC-3P-100,0-PUR/0,34	1501650	1
4 x 0.25 mm ² , conductor colors: BN/WH/BU/BK	SAC-4P-100,0-PUR/0,25	1501692	1
4 x 0.34 mm ² , conductor colors: BN/WH/BU/BK	SAC-4P-100,0-PUR/0,34	1501663	1
5 x 0.34 mm ² , conductor colors: BN/WH/BU/BK/GN/YE	SAC-5P-100,0-PUR/0,34	1501676	1
6 x 0.25 mm ² , conductor colors: BN/WH/BU/BK/GY/PK	SAC-6P-100,0-PUR/0,25	1550614	1
8 x 0.25 mm ² , conductor colors: WH/BN/GN/YE/GY/PK/BU/RD	SAC-8P-100,0-PUR/0,25	1550630	1
Cable ring, PUR, halogen-free, shielded			
3 x 0.25 mm ² , conductor colors: BN/BU/BK	SAC-3P-100,0-PUR/SH-0,25	1526525	1
3 x 0.34 mm ² , conductor colors: BN/BU/BK	SAC-3P-100,0-PUR/SH-0,34	1501702	1
4 x 0.25 mm ² , conductor colors: BN/WH/BU/BK	SAC-4P-100,0-PUR/SH-0,25	1535794	1
4 x 0.34 mm ² , conductor colors: BN/WH/BU/BK	SAC-4P-100,0-PUR/SH-0,34	1501715	1
5 x 0.34 mm ² , conductor colors: BN/WH/BU/BK/GY	SAC-5P-100,0-PUR/SH-0,34	1501728	1
6 x 0.14 mm ² , conductor colors: BN/WH/BU/BK/GY/PK	SAC-6P-100,0-PUR/SH-0,14	1550627	1
8 x 0.25 mm ² , conductor colors: WH/BN/GN/YE/GY/PK/BU/RD	SAC-8P-100,0-PUR/SH-0,25	1550643	1
Cable ring, PUR/PVC, unshielded			
4 x 0.75 mm ² , conductor colors: BN/WH/BU/BK	SAC-4P-100,0-186/0,75	1457461	1
5 x 0.75 mm ² , conductor colors: BN/WH/BU/BK/GY	SAC-5P-100,0-186/0,75	1535590	1
Cable ring, PUR/PVC, shielded, twisted pair			
12 x 0.14 mm ² , conductor colors: (BN/BU)/(WH/GN)/(PK/YE)/(BK/GY)/(RD/VT)/(GYPK/RDBU)	SAC-12P-100,0-35T/SH-0,14	1405789	1
Cable ring, PVC, unshielded			
3 x 0.25 mm ² , conductor colors: BN/BU/BK	SAC-3P-100,0-PVC/0,25	1501854	1
3 x 0.34 mm ² , conductor colors: BN/BU/BK	SAC-3P-100,0-PVC/0,34	1501825	1
4 x 0.25 mm ² , conductor colors: BN/WH/BU/BK	SAC-4P-100,0-PVC/0,25	1501867	1
4 x 0.34 mm ² , conductor colors: BN/WH/BU/BK	SAC-4P-100,0-PVC/0,34	1501838	1
5 x 0.34 mm ² , conductor colors: BN/WH/BU/BK/GN/YE	SAC-5P-100,0-PVC/0,34	1501841	1
8 x 0.25 mm ² , conductor colors: WH/BN/GN/YE/GY/PK/BU/RD	SAC-8P-100,0-PVC/0,25	1550698	1
12 x 0.14 mm ² , conductor colors: BN/BU/WH/GN/PK/YE/BK/GY/RD/VT/GYPK/RDBU	SAC-12P-100,0-PVC/0,14	1441532	1
17 x 0.14 mm ² , conductor colors: BN/BU/WH/GN/PK/YE/BK/GY/RD/VT/GYPK/RDBU/WHGN/BNGN/WHYE/YEBN/WHGY	SAC-17P-100,0-PVC/0,14	1441545	1
Cable ring, PVC, Shielded			
3 x 0.34 mm ² , conductor colors: BN/BU/BK	SAC-3P-100,0-PVC/SH-0,34	1550656	1
4 x 0.34 mm ² , conductor colors: BN/WH/BU/BK	SAC-4P-100,0-PVC/SH-0,34	1550669	1
5 x 0.34 mm ² , conductor colors: BN/WH/BU/BK/GY	SAC-5P-100,0-PVC/SH-0,34	1550672	1
8 x 0.25 mm ² , conductor colors: WH/BN/GN/YE/GY/PK/BU/RD	SAC-8P-100,0-PVC/SH-0,25	1550708	1

Cable rings for valve connector cables

The special SAC cables are also available in 100 m cable rings for connecting the valve plug-in connectors for assembly.

Further information on the cable range for sensor/actuator cables can be found from page 184.



Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
Cable ring, PUR, halogen-free 3 x 0.5 mm ² , conductor colors: BK 1/BK 2/GNYYE	SAC-3P-100,0-PUR/0,5	1457393	1
5 x 0.5 mm ² , conductor colors: BK 1/BK 2/BK 3/BK 4/GNYYE	SAC-5P-100,0-PUR/0,5	1457403	1
Cable ring, PUR/PVC, cable type: 116 3 x 0.75 mm ² , conductor colors: BK 1/BK 2/GNYYE	SAC-3P-100,0-116/0,75	1457416	1
5 x 0.75 mm ² , conductor colors: BK 1/BK 2/BK 3/BK 4/GNYYE	SAC-5P-100,0-116/0,75	1457429	1
Cable ring, PVC, cable type: 534 3 x 0.75 mm ² , conductor colors: BK 1/BK 2/GNYYE	SAC-3P-100,0-534/0,75	1457432	1
5 x 0.75 mm ² , conductor colors: BK 1/BK 2/BK 3/BK 4/GNYYE	SAC-5P-100,0-534/0,75	1457445	1

By the meter

Master cable rings for sensor/actuator boxes

Master cable rings are available for distributor boxes with spring-cage connection or plug-in screw connection. Similarly, master cables can also be connected to covers and M23 sockets for assembly.

For further information on the conductor range for sensor/actuator boxes, please refer to page 202.



Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
Master cable ring with PE conductor, PUR/PVC, unshielded, length: 50 m			
4 x 0.34 mm ² / 3 x 0.75 mm ²	SACB- 4X0,34/ 3X0,75-50,0 PUR	1503328	1
6 x 0.34 mm ² / 3 x 0.75 mm ²	SACB- 6X0,34/ 3X0,75-50,0 PUR	1503331	1
8 x 0.34 mm ² / 3 x 0.75 mm ²	SACB- 8X0,34/ 3X0,75-50,0 PUR	1503344	1
8 x 0.5 mm ² / 3 x 1.0 mm ²	SACB- 8X0,5/ 3X1,0-50,0 PUR	1503357	1
12 x 0.5 mm ² / 3 x 1.0 mm ²	SACB-12X0,5/ 3X1,0-50,0 PUR	1503360	1
16 x 0.5 mm ² / 3 x 1.0 mm ²	SACB-16X0,5/ 3X1,0-50,0 PUR	1503373	1
Master cable ring with PE conductor, PUR/PVC, unshielded, length: 200 m			
16 x 0.5 mm ² / 3 x 1.0 mm ²	SACB-16X0,5/ 3X1,0-200,0 PUR	1559893	1
Master cable ring with PE conductor, PUR/PVC, shielded, length: 50 m			
8 x 0.5 mm ² / 3 x 1.0 mm ²	SACB-8X0,5/3X1,0-50 PUR SH	1401240	1
12 x 0.5 mm ² / 3 x 1.0 mm ²	SACB-12X0,5/3X1,0-50 PUR SH	1401239	1
16 x 0.5 mm ² / 3 x 1.0 mm ²	SACB-16X0,5/3X1,0-50 PUR SH	1539156	1
Master cable ring with PE conductor, PUR/PP, halogen-free, unshielded, length: 50 m			
8 x 0.5 mm ² / 3 x 1.0 mm ²	SACB-8X0,5/3X1,0-50,0 HPUR	1401690	1
16 x 0.5 mm ² / 3 x 1.0 mm ²	SACB-16X0,5/ 3X1,0-50,0 VPUR	1430938	1
Master cable ring with PE conductor, PUR/PP, halogen-free, highly flexible, unshielded, length: 50 m			
16 x 0.5 mm ² / 3 x 1.0 mm ²	SACB-16X0,5/ 3X1,0-50,0 80MC	1402304	1
Master cable ring without PE conductor, PUR/PVC, unshielded, length: 50 m			
4 x 0.34 mm ² / 2 x 0.75 mm ²	SACB- 4X0,34/2X0,75-50 PUR	1517576	1
6 x 0.34 mm ² / 2 x 0.75 mm ²	SACB- 6X0,34/2X0,75-50 PUR	1517589	1
8 x 0.34 mm ² / 2 x 0.75 mm ²	SACB- 8X0,34/2X0,75-50 PUR	1517592	1
10 x 0.34 mm ² / 2 x 0.75 mm ²	SACB-10X0,34/2X0,75-50 PUR	1517602	1
16 x 0.34 mm ² / 2 x 0.75 mm ²	SACB-16X0,34/2X0,75-50 PUR	1539350	1

Accessories

Assembly tools for sensor/actuator cables

The screwdriver with preset torque is the ideal tool for screwing in all M12 and M8 circular plug-in connectors with longitudinal knurl. The advantage of this tool becomes particularly evident when connecting distributor boxes. The tight arrangement and the large number of slots rarely makes it possible to install them correctly by hand. Thanks to the open design of the top unit, tracking is especially easy when screwing in.



Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
Torque screwdriver ① With preset torque of 0.2 Nm and 4 mm hexagonal drive	TSD 02 SAC	1208487	1
Nut ② For assembling sensor/actuator cables with M8 plug-in connectors and for M8 plug-in connectors with insulation displacement connection, for 4 mm hexagonal screwdriver	SAC BIT M8-D10	1208461	1
Nut ③ For assembling SACC M8 plug-in connectors with longitudinal knurl, excluding those with insulation displacement connection, for 4 mm hexagonal screwdriver	SACC BIT M8-D12	1208474	1
Torque screwdriver ④ With preset torque of 0.4 Nm and 4 mm hexagonal drive	TSD 04 SAC	1208429	1
Nut ⑤ For assembling sensor/actuator cables with M12 plug-in connectors and for M12 plug-in connectors with insulation displacement connection, for 4 mm hexagonal screwdriver	SAC BIT M12-D15	1208432	1
Nut ⑥ For assembling SACC M12 plug-in connectors, excluding those with insulation displacement connection, for 4 mm hexagonal screwdriver	SACC BIT M12-D20	1208445	1

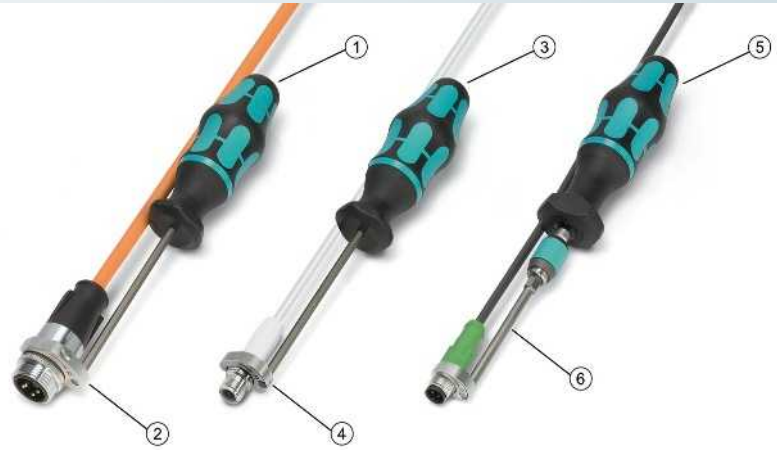
Assembly tools for sensor/actuator cables

To achieve tight plug-in connections, we recommend using assembly tools. M12 and 7/8" circular plug-in connectors can be assembled using a torque screwdriver and plug attachment.

The benefits of the plug attachment become particularly clear when connecting the connectors to the distributor boxes. Thanks to the open design, it enables quick adjustment and installation even when space is at a premium.

The version for M12 plug-in connectors with hexagonal stainless steel knurl is also made from stainless steel. This prevents the connector knurls from being contaminated by corrosive materials.

For greater flexibility, screwdrivers with adjustable torque are also available. When used in conjunction with the adapter insert, they can also be used to accommodate the available plug attachments.



		Ordering data		
Description		Type	Order No.	Pcs. / Pkt.
Torque screwdriver With preset torque of 0.8 Nm and 4 mm hexagonal drive	①	TSD 08 SAC	1212597	1
Nut For assembling 7/8" plug-in connectors, with 4 mm hexagonal drive	②	SAC BIT MIN-D25	1212512	1
Torque screwdriver With preset torque of 0.4 Nm and 4 mm hexagonal drive	③	TSD 04 SAC	1208429	1
Nut For mounting M12 plug-in connectors with hexagonal stainless steel knurl, wrench size 14, with 4 mm hexagonal drive	④	SAC BIT M12-W14	1212513	1
Torque screwdriver , accuracy according to standard EN ISO 6789 Adjustable from 0.3 - 1.2 Nm Adjustable from 1.2 - 3 Nm Adjustable from 3 - 6 Nm	⑤	TSD-M 1,2NM TSD-M 3NM TSD-M 6NM	1212224 1212225 1212226	1 1 1
Adapter insert For torque screwdrivers with adjustable torque, for accommodating plug attachments with 4 mm hexagonal drive	⑥	TSD-M SAC-BIT ADAPTER	1212600	1

Sealing elements

During transport or in the field, unoccupied plug-in connections must be protected or closed. The screw plugs, sealing caps and closing caps made of plastic or metal are suitable for this purpose. IP65/IP67 protection as well as IP69K protection is thereby achieved.



Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
M5 screw plug ① For unoccupied M5 sockets of sensor/actuator cables, boxes, and flush-type plug-in connectors	PROT-M5	1533288	10
M8 screw plug ② For unoccupied M8 sockets of sensor/actuator cables, boxes, and flush-type plug-in connectors	PROT-M8	1682540	5
M12 screw plug ③ For unoccupied M12 sockets of sensor/actuator cables, boxes, and flush-type plug-in connectors	PROT-M12	1680539	5
M12 screw plug with SPEEDCON rapid interlock system ④ For unoccupied M12 sockets of sensor/actuator cables, boxes, and flush-type plug-in connectors	PROT-MS SCO	1553129	5
M12 sealing cap ⑤ For unoccupied M12 plugs of sensor/actuator cables, flush-type plug-in connectors, and I/O devices in the field	PROT-M12 FS	1560251	5
Metal M12 screw plug ⑥ For unoccupied M12 sockets of shielded sensor/actuator cables, boxes, and flush-type plug-in connectors	PROT-M12 SH	1503302	5
Metal M12 sealing cap ⑦ For unoccupied M12 plugs of sensor/actuator cables, flush-type plug-in connectors, and I/O devices in the field	PROT-M12 FS-M	1430488	10
M12 screw plug made of stainless steel ⑧ For unused M12 sockets of the sensor/actuator cables, boxes, and flush-type plug-in connectors in the food and outdoor range	PROT-M12 FB	1555538	5
Closing cap ⑨ For Pg9/ Pg11, for closing unoccupied connections	Q-PROT 9/11	1670235	10
M16 locking screw ⑩ With flat nut for oval housing cutouts	SACC-M16-SEALING PLUG SET	1453368	10

Sealing elements with holding band or fixing chain

All IP67 interfaces can be closed tightly using the screw plugs and sealing caps in sizes M8, M12 and 7/8". The holding bands are fastened on the cable or the housing and are thus held captive.

The M12 metal protective cap with fixing chain is suitable for all pin versions. It is used in harsh industrial environments or for EMC applications.



Ordering data			
Description	Type	Order No.	Pcs. / Pkt.
Screw plug made from plastic with retaining strap, for sealing unused sockets ①			
M8 for SAC cables	PROT-M 8 MS-PA-CHAIN	1430860	10
M8 with 3 mm fastening eye	PROT-M 8 MS-PA-CHAIN-EYE-DM3	1441105	10
M8 with 12 mm fastening eye	PROT-M 8 MS-PA-CHAIN-EYE	1441095	10
M12 for SAC cables	PROT-M12 MS-PA-CHAIN	1430899	5
M12 with 15 mm fastening eye	PROT-M12 MS-PA-CHAIN-EYE-DM14	1456200	5
7/8" for SAC cables	PROT-MINMS-PA-CHAIN	1430925	10
Plastic sealing cap with holding band, for closing unoccupied connectors ②			
M8 for SAC cables	PROT-M 8 FS-PA-CHAIN	1430857	10
M8 with 8 mm fastening eye	PROT-M 8 FS-PA-CHAIN-EYE	1441082	10
M12 for SAC cables	PROT-M12 FS-PA-CHAIN	1430873	5
M12 with 12 mm fastening eye	PROT-M12 FS-PA-CHAIN-EYE-DM12	1456187	5
M12 with 15 mm fastening eye	PROT-M12 FS-PA-CHAIN-EYE-DM14	1456190	5
7/8" for SAC cables	PROT-MINFS-PA-CHAIN	1430912	10
Metal sealing cap with fixing chain, for closing unoccupied connectors ③			
M12 with 16 mm fastening eye	PROT-M12 FS-M-CHAIN	1430491	10

Accessories

Accessories for M8 distributor boxes with plug-in master cable connection

The torque screwdriver with an M8 nut is the ideal tool for screwing in all M8 plug-in connectors with longitudinal knurl.

For distributors with 4 to 10 slots, we offer a suitable hood as replacement, a corresponding screwdriver for fastening the hood as well as a torque screwdriver with a W24 nut for tightening the pressure nuts to a defined value.

The PROT M8 screw plug – for unoccupied slots – protects the distributors against foreign bodies and water. IP65/IP67 protection is achieved.

The slots can be marked using marking material. They can be labeled either by hand or using a plotter.



Notes:
Additional marking material and tools can be found in Catalog 5.

Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
Sensor/actuator connector hood , with marking label, for sensor/actuator box with: ①			
Four single-occupancy M8 slots	SACB-C-H180- 4/3-M8	1521229	1
Six single-occupancy M8 slots	SACB-C-H180- 6/3-M8	1521216	1
Eight single-occupancy M8 slots	SACB-C-H180- 8/3-M8	1516425	1
Ten single-occupancy M8 slots	SACB-C-H180-10/3-M8	1516412	1
M8 screw plug ②			
For unoccupied M8 sockets of sensor/actuator cables, boxes, and flush-type plug-in connectors	PROT-M8	1682540	5
Marking material , 10-section ③			
- Unprinted	ZBF10:UNBEDRUCKT	0809997	10
- Configurable	ZBF10 CUS	0825031	1
Torque screwdriver ④			
With preset torque of 0.2 Nm and 4 mm hexagonal drive	TSD 02 SAC	1208487	1
Nut ⑤			
For assembling sensor/actuator cables with M8 plug-in connectors and for M8 plug-in connectors with insulation displacement connection, for 4 mm hexagonal screwdriver	SAC BIT M8-D10	1208461	1
Nut ⑥			
For assembling SACC M8 plug-in connectors with longitudinal knurl, excluding those with insulation displacement connection, for 4 mm hexagonal screwdriver	SACC BIT M8-D12	1208474	1
Screwdriver ⑦			
Size: PZ2 x 100 mm, length: 205 mm	SZK PZ2 VDE	1206463	10
Torque screwdriver ⑧			
With preset torque of 2.5 Nm and 4 mm hexagonal drive	TSD 25 SAC	1212315	1
Nut ⑨			
For reliable tightening of the pressure nuts with a wrench size of 24 mm, for 4 mm hexagonal screwdriver	SAC BIT HOOD-W 24	1212486	1

Accessories for M8 distributor boxes with M12/M16 plug-in connection

Suitable sockets in an angled design with a 5 and 10 meter master cable are available for distributors with 4 to 10 slots. In order to use a master cable as per the specific requirements, sockets are available in straight and angled designs for free assembly.

The slots can be marked using marking material. They can be labeled either by hand or using a plotter.

The torque screwdriver with matching nuts is the ideal tool for screwing together all M8 plug-in connectors with longitudinal knurl.

The PROT M8 screw plug – for unoccupied slots – protects the distributors against foreign bodies and water. IP65/IP67 protection is achieved.



Notes:
Additional marking material and tools can be found in Catalog 5.

Description	
M16 socket, angled, with a master cable, for sensor/actuator box with:	①
4 slots, cable length: 5 m	
4 slots, cable length: 10 m	
6 slots, cable length: 5 m	
6 slots, cable length: 10 m	
8 slots, cable length: 5 m	
8 slots, cable length: 10 m	
10 slots, cable length: 5 m	
10 slots, cable length: 10 m	
M12 socket, angled, with connected master cable, for sensor/actuator box with:	②
4 slots, cable length: 5 m	
4 slots, cable length: 10 m	
4 slots, cable length: variable	
6 slots, cable length: 5 m	
6 slots, cable length: 10 m	
6 slots, cable length: variable	
M16 socket, 14-pos., straight, freely configurable, with solder connection, for an external cable diameter of 6.0 mm ... 8.0 mm	③
M16 socket, 14-pos., angled, freely configurable, with solder connection, for an external cable diameter of 6.0 mm ... 8.0 mm	④
M8 screw plug	⑤
For unoccupied M8 sockets of sensor/actuator cables, boxes, and flush-type plug-in connectors	
Marking material, 10-section	⑥
- Unprinted	
- Configurable	
Torque screwdriver	⑦
With preset torque of 0.2 Nm and 4 mm hexagonal drive	
Nut	⑧
For assembling sensor/actuator cables with M8 plug-in connectors and for M8 plug-in connectors with insulation displacement connection, for 4 mm hexagonal screwdriver	
Nut	⑨
For assembling SACC M8 plug-in connectors with longitudinal knurl, excluding those with insulation displacement connection, for 4 mm hexagonal screwdriver	

Ordering data		
Type	Order No.	Pcs. / Pkt.
SAC-8P- 5,0-PUR/M16FR	1693681	1
SAC-8P-10,0-PUR/M16FR	1693694	1
SAC-10P- 5,0-PUR/M16FR	1693704	1
SAC-10P-10,0-PUR/M16FR	1693717	1
SAC-12P- 5,0-PUR/M16FR	1693720	1
SAC-12P-10,0-PUR/M16FR	1693733	1
SAC-14P- 5,0-PUR/M16FR	1693746	1
SAC-14P-10,0-PUR/M16FR	1693759	1
SAC-6P- 5,0-PURMC/M12FR	1407820	1
SAC-6P-10,0-PURMC/M12FR	1407821	1
SAC-6P-M12FR-PURMC/	1520987	1
SAC-8P- 5,0-PURMC/M12FR	1407822	1
SAC-8P-10,0-PURMC/M12FR	1407823	1
SAC-8P-M12FR-PURMC/	1520990	1
SACC-M16FS-14CON-M	1500554	1
SACC-M16FR-14CON-M	1500253	1
PROT-M8	1682540	5
ZBF10:UNBEDRUCKT	0809997	10
ZBF10 CUS	0825031	1
TSD 02 SAC	1208487	1
SAC BIT M8-D10	1208461	1
SACC BIT M8-D12	1208474	1

Ordering example for socket with variable master cable:

For an M12 socket for 4 slots and a master cable length of 15 m, the ordering data is as follows:

Order No.	Length [m] Max. 40 m
1520987	15.0
	Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m

Accessories for M12 distributor boxes with metal thread and plug-in screw connection

The torque screwdriver with an M12 nut is the ideal tool for screwing in all M12 plug-in connectors with longitudinal knurl.

For the distributors, we offer a suitable hood as replacement, a matching screwdriver for fastening the hood as well as a torque screwdriver with a W24 nut for tightening the pressure nuts to a defined value.

The PROT-MS SCO screw plug – for unoccupied slots – protects the distributors against foreign bodies and water. IP65/IP67 protection is achieved.

The slots can be marked using marking material. They can be labeled either by hand or using a plotter.



Notes:

Additional marking material and tools can be found in Catalog 5.

Description

Connector hood with an integrated connector, for M12 sensor/actuator boxes with metal thread and plug-in screw connection, for 4, 6 or 8 slots ①

M12 screw plug with SPEEDCON rapid interlock system ②

For unoccupied M12 sockets of sensor/actuator cables, boxes, and flush-type plug-in connectors

Marking material, 5-section ③

- Unprinted, white
- Unprinted, yellow
- Configurable, white
- Configurable, yellow

Torque screwdriver ④
With preset torque of 0.4 Nm and 4 mm hexagonal drive

Nut ⑤
For assembling sensor/actuator cables with M12 plug-in connectors and for M12 plug-in connectors with insulation displacement connection, for 4 mm hexagonal screwdriver

Nut ⑥
For assembling SACC M12 plug-in connectors, excluding those with insulation displacement connection, for 4 mm hexagonal screwdriver

Screwdriver ⑦
Size: PZ1 x 80 mm, length: 178 mm

Torque screwdriver ⑧
With preset torque of 2.5 Nm and 4 mm hexagonal drive

Nut ⑨
For reliable tightening of the pressure nuts with a wrench size of 24 mm, for 4 mm hexagonal screwdriver

Ordering data

Type	Order No.	Pcs. / Pkt.
SACB-C-H180 8/16 SCO	1516713	10
PROT-MS SCO	1553129	5
SS-ZB 17,5 WH	0804963	50
SS-ZB 17,5 YE	0804976	50
SS-ZB 17,5 WH CUS	0824468	1
SS-ZB 17,5 YE CUS	0824469	1
TSD 04 SAC	1208429	1
SAC BIT M12-D15	1208432	1
SACC BIT M12-D20	1208445	1
SZK PZ1 VDE	1206450	10
TSD 25 SAC	1212315	1
SAC BIT HOOD-W 24	1212486	1

Accessories

Accessories for shielded M12 distributor boxes

For the distributors, suitable shielded sockets are available in angled design with a pre-assembled master cable. Further accessories include straight and angled M23 sockets for free assembly.

The PROT M12 SH screw plug – for unoccupied slots – protects the distributors against foreign bodies and water. IP65/IP67 protection is achieved.

The slots can be marked using marking material. They can be labeled either by hand or using a plotter.

The torque screwdriver with matching nuts is the ideal tool for screwing together all M12 plug-in connectors with longitudinal knurl.



Notes:
Additional marking material and tools can be found in Catalog 5.

Description	
M23 socket , 19-pos., angled, shielded, with connected master cable	①
Conductor length: 5 m Conductor length: 10 m	
M23 socket , 19-pos., angled, shielded, freely configurable, with solder connection, for cable Ø: 9.5 mm ... 14.5 mm	②
M23 socket , 19-pos., angled, shielded, freely configurable, with solder connection, for cable Ø: 9.5 mm ... 14.5 mm	③
Special pipe key	④
Auxiliary tool for mounting the M23 plug-in connector housing that can be assembled	
Metal M12 screw plug	⑤
For unoccupied M12 sockets of shielded sensor/actuator cables, boxes, and flush-type plug-in connectors	
Metal M23 sealing cap , for unoccupied M23 plugs	⑥
- without steel wire - with steel wire	
Plastic M23 sealing cap , for unoccupied M23 plugs	⑦
Marking material	⑧
- Unprinted, white - Unprinted, yellow - Configurable, white - Configurable, yellow	
Torque screwdriver	⑨
With preset torque of 0.4 Nm and 4 mm hexagonal drive	
Nut	⑩
For assembling sensor/actuator cables with M12 plug-in connectors and for M12 plug-in connectors with insulation displacement connection, for 4 mm hexagonal screwdriver	
Nut	⑪
For assembling SACC M12 plug-in connectors, excluding those with insulation displacement connection, for 4 mm hexagonal screwdriver	

Ordering data		
Type	Order No.	Pcs. / Pkt.
RCK-TWGM/BL16+3/ 5,0PUR SH	1519529	1
RCK-TWGM/BL16+3/10,0PUR SH	1511828	1
RC/TGGM/KVD/LBL 16+3	1685505	1
RC/TWGM/KVD/LBL 16+3	1685518	1
PLUSCON-RCS	1665062	1
PROT-M12 SH	1503302	5
MSK 1	1665897	1
MSK 2	1665907	1
KSK 1	1685013	10
ZBN 18:UNBEDRUCKT	2809128	10
UC-TMF 16 YE	0819259	10
ZBN 18 CUS	0825059	1
ZBN 18 YE CUS	0825058	1
TSD 04 SAC	1208429	1
SAC BIT M12-D15	1208432	1
SACC BIT M12-D20	1208445	1

Accessories for QUICKON distributor boxes with a connection cross section of 0.14 mm² ... 0.34 mm²

The Q-PROT 9/11 closing cap – for unoccupied slots – protects the distributors against foreign bodies and water. IP65/IP67 protection is achieved.

A torque screwdriver with a W13 nut, already familiar from M8 or M12 screw connections, is now also available for the fast connection pressure nuts. The handling of the tools is self-explanatory and easy.

For the distributors, we offer a replacement connector hood, a corresponding screwdriver for fastening the hood as well as a torque screwdriver with a W24 nut for tightening the pressure nuts to a defined value.

The slots can be marked using marking material. They can be labeled either by hand or using a plotter.

The QUICKON set consisting of splice ring, pressure nut, and cable seal can be used for replacement purposes if required.



Notes:

Additional marking material and tools can be found in Catalog 5.

Description	
Connector hood with an integrated connector, for sensor/actuator boxes with QUICKON fast connection technology and plug-in screw connection, for 4, 6 or 8 slots	①
Closing cap For Pg9/ Pg11, for closing unoccupied connections	②
Marking material , 5-section - Unprinted, white - Unprinted, yellow - Configurable, white - Configurable, yellow	③
QUICKON set for replacement purposes, consisting of splice ring, pressure nut, and cable seal	④
Screwdriver Size: PZ1 x 80 mm, length: 178 mm	⑤
Torque screwdriver With preset torque of 2.0 Nm and 4 mm hexagonal drive	⑥
Nut For the reliable tightening of the pressure nuts with a wrench size of 13 mm, for 4 mm hexagonal screwdriver	⑦
Torque screwdriver With preset torque of 2.5 Nm and 4 mm hexagonal drive	⑧
Nut For reliable tightening of the pressure nuts with a wrench size of 24 mm, for 4 mm hexagonal screwdriver	⑨

Ordering data		
Type	Order No.	Pcs. / Pkt.
SACB-C-H180 8/4 QO-0,34	1560235	1
Q-PROT 9/11	1670235	10
SS-ZB 17,5 WH	0804963	50
SS-ZB 17,5 YE	0804976	50
SS-ZB 17,5 WH CUS	0824468	1
SS-ZB 17,5 YE CUS	0824469	1
QO-SET	1548626	20
SZK PZ1 VDE	1206450	10
TSD 20 SAC	1212020	1
SAC BIT QUICKON-W13	1212033	1
TSD 25 SAC	1212315	1
SAC BIT HOOD-W 24	1212486	1

Accessories

Accessories for QUICKON distributor boxes with a connection cross section of 0.34 mm² ... 0.75 mm²

The scope of supply of the distributors includes a black rubber seal for an external cable diameter from 6.5 mm to 9.5 mm. Rubber seals are also available for master cables from 4.0 mm to 6.5 mm (yellow seal) or 9.0 mm to 13.0 mm (red seal). The torque screwdriver with a W24 nut is suitable for tightening the pressure nuts to a defined value.

The QUICKON set consisting of pressure nut, cap, cable seal, and splice ring can be used for replacement purposes if required.

The socket wrench facilitates comfortable loosening or tightening of the QUICKON pressure nuts.

The Q-PROT 9/11 closing cap – for unoccupied slots – protects the distributors against foreign bodies and water. IP65/IP67 protection is achieved.

The slots can be marked using marking material. They can be labeled either by hand or using a plotter.

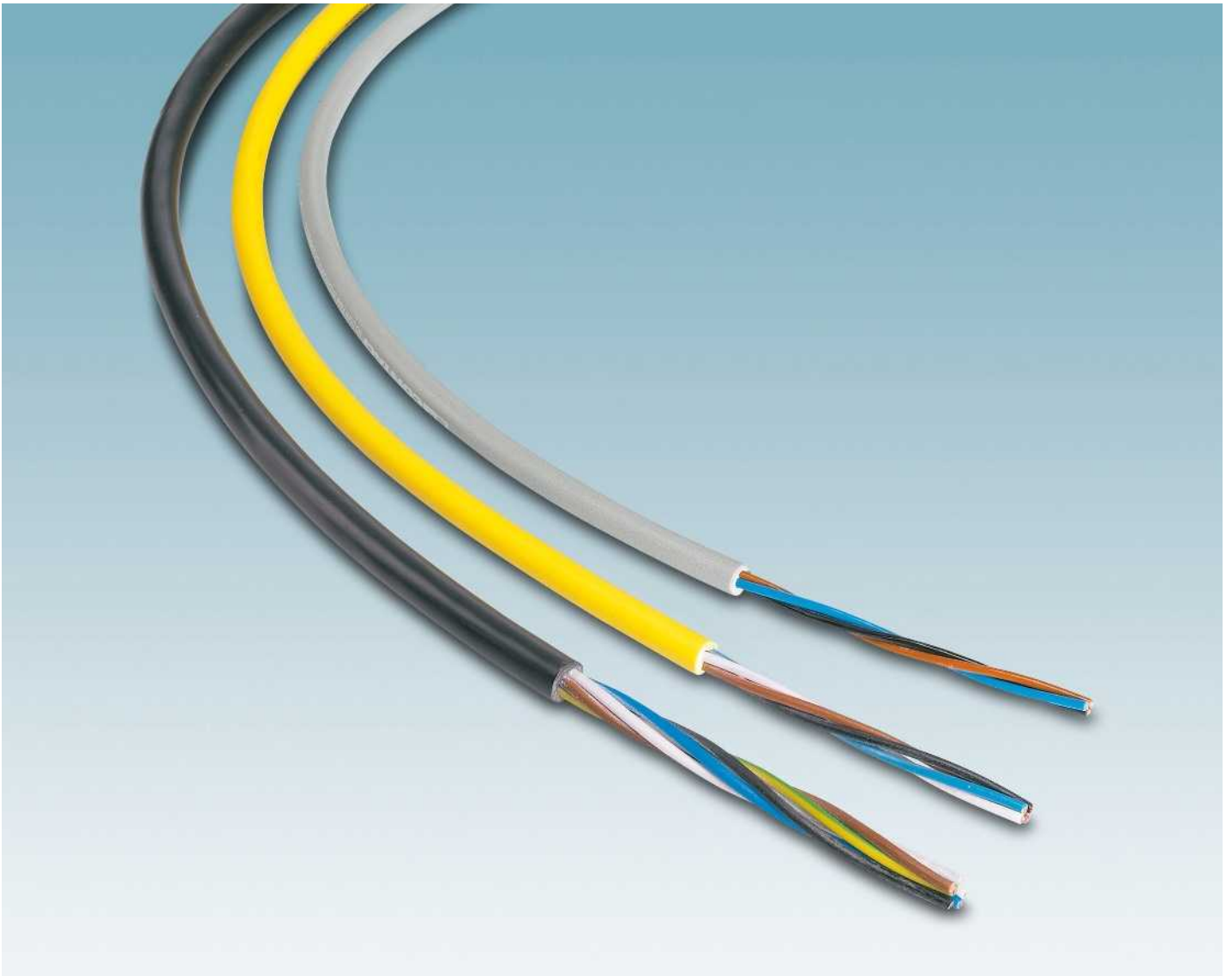
Notes:
Additional marking material and tools can be found in Catalog 5.



		Ordering data		
Description		Type	Order No.	Pcs. / Pkt.
Rubber seal for Pg screw connection 13.5	①			
For cable Ø: 4.0 mm ... 6.5 mm		SACB-D PG 13,5 (4,0-6,5) YE	1680377	10
Rubber seal for Pg screw connection 13.5	②			
For cable Ø: 6.5 mm ... 9.5 mm		SACB-D PG 13,5 (6,5-9,5) BK	1680380	10
Rubber seal for Pg screw connection 13.5	③			
For cable Ø: 9.0 mm ... 13.0 mm		SACB-D PG 13,5 (9,0-13,0) RD	1680393	10
Closing cap	④			
For Pg9/ Pg11, for closing unoccupied connections		Q-PROT 9/11	1670235	10
Marking material	⑤			
- Unprinted, white		ZBN 18:UNBEDRUCKT	2809128	10
- Unprinted, yellow		UC-TMF 16 YE	0819259	10
- Configurable, white		ZBN 18 CUS	0825059	1
- Configurable, yellow		ZBN 18 YE CUS	0825058	1
QUICKON set for replacement purposes, consisting of pressure nut, cap, cable seal, and splice ring	⑥			
		Q SET-11/4 COD1 SACB-Q	1670743	25
Screwdriver	⑦			
Size: PZ1 x 80 mm, length: 178 mm		SZK PZ1 VDE	1206450	10
Slotted socket wrench for QUICKON nuts and panel feed-throughs, for wrench size:	⑧			
22 mm		QSS 22	1670206	1
Torque screwdriver	⑨			
With preset torque of 2.5 Nm and 4 mm hexagonal drive		TSD 25 SAC	1212315	1
Nut	⑩			
For reliable tightening of the pressure nuts with a wrench size of 24 mm, for 4 mm hexagonal screwdriver		SAC BIT HOOD-W 24	1212486	1

Sensor/actuator cabling

Sensor/actuator cables - cable range





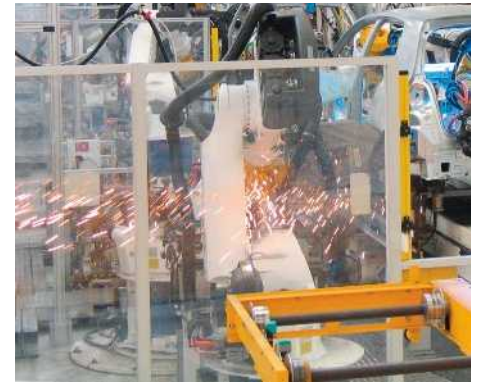
PUR, halogen-free - for extreme loads

Very good chemical resistance, very good resistance to oils and lubricants, very high resistance to abrasion, suitable for use with drag chain (> 4 million), halogen-free



TPE-U highly flexible

Very high level of temperature resistance, suitable for use with drag chain and robots (> 10 million), halogen-free, extremely flame-retardant, resistant to welding sparks, not irradiated, and therefore recyclable



PUR irradiated, resistant to welding sparks

High level of temperature resistance, suitable for use with robots (> 5 million), highly resistant to welding sparks, halogen-free, UV resistant



PUR/PVC - for increased loads

Very easy to strip, good chemical resistance, good resistance to oils and lubricants, low abrasion, suitable for use with drag chain to a limited extent



PVC - for average mechanical strain

Very easy to strip, good chemical resistance, resistant to oils and lubricants to a limited extent, low abrasion



PE-X - for outdoor applications

UV and weather resistant, extremely oil resistant, low smoke gas density, halogen-free



PP - for the food industry

Excellent resistance to cleaning agents and disinfectants, easy detection of dirt due to the light colored outer sheath, halogen-free, FDA-compliant outer sheath material















RADOX® - for railway applications

Flame-retardant according to railway standards, good resistance to oils and lubricants, low smoke gas density, low bending radii

Sensor/actuator cabling

Sensor/actuator cables - cable range

Symbol key

	With UL Style		Suitable for use with drag chain		Resistant to welding sparks
	UV resistant		Flame-retardant		High temperature resistance
	Good oil resistance		Good resistance to chemicals		Suitable for torsional stress
	Halogen-free		Suitable for the food industry		Suitable for railway applications

PUR, halogen-free – PHOENIX CONTACT standard




Permanently flexible control cables for use in drag chains, revolving/swivel tables, and as machine control cables for extreme operating conditions. Suitable for bending cycle loads with long-term durability. The special PUR outer sheath offers excellent resistance to oils according to DIN EN 60811-2-1, lubricants, cooling agents, and other aggressive substances.

Additional features: halogen and PVC-free, no silicone or substances that would hinder coating with paint or varnish, resis-

tant to hydrolysis and flame-retardant according to UL-FT2.

Outer sheath material PUR

Min. bending cycles	4 million
Minimum bending radius	10 x D
Traverse path	10 m
Acceleration	10 m/s²
Speed	3 m/s
Tested at	20 ... 25°C





Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
PUR Black	3-pos.	M8	3 x 0.25 mm ² (32 x 0.1 mm)		Brown, blue, black	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	36 38 42 102 104 168
		M8 Shielded	3 x 0.25 mm ² (32 x 0.1 mm) Shielding: copper braid		Brown, blue, black	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	43 168
		M12	3 x 0.34 mm ² (42 x 0.1 mm)		Brown, blue, black	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	36 38 104 168
		M12 Shielded	3 x 0.34 mm ² (42 x 0.1 mm) Shielding: copper braid		Brown, blue, black	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	42 43
		Valve connector	3 x 0.5 mm ² (28 x 0.15 mm)		Black 1, black 2, green-yellow	PP	Mobile: -15°C ... 80°C Fixed: -40°C ... 80°C	86 to 99 169

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
PUR Black	4-pos.	M8	4 x 0.25 mm ² (32 x 0.1 mm)		Brown, white, blue, black	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	36 44 46 168
		M8 Shielded	4 x 0.25 mm ² (32 x 0.1 mm) Shielding: copper braid		Brown, white, blue, black	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	50 168
		M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	44 46 103 168
		M12 Shielded	4 x 0.34 mm ² (42 x 0.1 mm) Shielding: copper braid		Brown, white, blue, black	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	48 50 168
		M12 power	4 x 1.5 mm ² (84 x 0.15 mm)		Brown, white, blue, black	PP	Mobile: -30°C ... 90°C Fixed: -40°C ... 90°C	70
		M12 power	4 x 1.5 mm ² (84 x 0.15 mm)		Black 1, black 2, black 3, green-yellow	PP	Mobile: -30°C ... 90°C Fixed: -40°C ... 90°C	68
		M12 power Shielded	4 x 1.5 mm ² (78 x 0.15 mm) Shielding: copper braid		Brown, white, blue, black	PP	Mobile: -30°C ... 90°C Fixed: -40°C ... 90°C	71
		Valve connector	4 x 0.5 mm ² (28 x 0.15 mm)		Black 1, black 2, black 3, green-yellow	PP	Mobile: -20°C ... 80°C Fixed: -40°C ... 80°C	86 to 99
	5-pos.	M12	5 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black, green-yellow	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	52 53 168
		M12 Shielded	5 x 0.34 mm ² (42 x 0.1 mm) Shielding: copper braid		Brown, white, blue, black, gray	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	54 55 168
		Valve connector	5 x 0.5 mm ² (28 x 0.15 mm)		Black 1, black 2, black 3, black 4, green-yellow	PP	Mobile: -15°C ... 80°C Fixed: -40°C ... 80°C	100 169
	6-pos.	M8	6 x 0.25 mm ² (32 x 0.1 mm)		Brown, white, blue, black, gray, pink	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	56 168

Sensor/actuator cabling

Sensor/actuator cables - cable range

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
PUR Black	6-pos.	M8 Shielded	6 x 0.14 mm ² (18 x 0.1 mm) Shielding: copper braid		Brown, white, blue, black, gray, pink	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	57 168
	8-pos.	M8	8 x 0.14 mm ² (18 x 0.1 mm)		According to DIN 47100	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	58
		M8 Shielded	8 x 0.14 mm ² (18 x 0.1 mm) Shielding: copper braid		According to DIN 47100	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	61
		M12	8 x 0.25 mm ² (32 x 0.1 mm)		According to DIN 47100	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	59 60 168
		M12 Shielded	8 x 0.25 mm ² (32 x 0.1 mm) Shielding: copper braid		According to DIN 47100	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	62 63 168
		12-pos.	M12	12 x 0.14 mm ² (18 x 0.1 mm)		According to DIN 47100	PP	Mobile: -20°C ... 80°C Fixed: -40°C ... 80°C
	17-pos.	M12	17 x 0.14 mm ² (18 x 0.1 mm)		According to DIN 47100	PP	Mobile: -20°C ... 80°C Fixed: -40°C ... 80°C	64
PUR Orange	4-pos.	M12 power Shielded	4 x 1.5 mm ² (78 x 0.15 mm) Shielding: copper braid		Black 1, black 2, black 3, green-yellow	PP	Mobile: -30°C ... 90°C Fixed: -40°C ... 90°C	69
115 Black	5-pos.	M8	5 x 0.25 mm ² (32 x 0.1 mm)		Brown, white, blue, black, gray	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	51
		M12	5 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black, gray	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	52 53
121 Black	3-pos.	Valve connector	3 x 1.0 mm ² (32 x 0.20 mm)		Black 1, black 2, green-yellow	PP	Mobile: -20°C ... 80°C Fixed: -40°C ... 80°C	86 87
240 Yellow	3-pos.	Valve connector	3 x 0.5 mm ² (28 x 0.15 mm)		Black 1, black 2, green-yellow	PP	Mobile: -15°C ... 80°C Fixed: -40°C ... 80°C	86 to 99

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
240 Yellow	4-pos.	M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	44 46
	5-pos.	Valve connector	5 x 0.5 mm ² (28 x 0.15 mm)		Black 1, black 2, black 3, black 4, green-yellow	PP	Mobile: -15°C ... 80°C Fixed: -40°C ... 80°C	86 to 99
280 Gray	3-pos.	M8	3 x 0.25 mm ² (32 x 0.1 mm)		Brown, blue, black	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	36 38 40 104
		M12	3 x 0.34 mm ² (42 x 0.1 mm)		Brown, blue, black	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	38 40 104
		Valve connector	3 x 0.5 mm ² (28 x 0.15 mm)		Black 1, black 2, green-yellow	PP	Mobile: -15°C ... 80°C Fixed: -40°C ... 80°C	86 to 99
	4-pos.	M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	44 46
	5-pos.	Valve connector	5 x 0.5 mm ² (28 x 0.15 mm)		Black 1, black 2, black 3, black 4, green-yellow	PP	Mobile: -15°C ... 80°C Fixed: -40°C ... 80°C	100
	8-pos.	M12 Shielded	8 x 0.25 mm ² (32 x 0.1 mm) Shielding: copper braid		According to DIN 47100	PP	Mobile: -25°C ... 80°C Fixed: -40°C ... 80°C	62 63

TPE-U highly flexible



Permanently flexible control cable that is ideal for use in drag chains and industrial robots. The cable can be used wherever extreme bending and torsional stress occur simultaneously and significantly longer durability is desired. It is resistant to welding sparks and is therefore designed exclusively for use in resistance welding processes. The use of new materials eliminates irradiation cross-linking, which makes the cable easier to recycle. The cables therefore meet the requirements of DIN EN ISO 14001. Additional features: halogen and PVC-free, flame-retardant according to UL-FT1, VW1 and 1581 §1061, very good resistance to oils according to

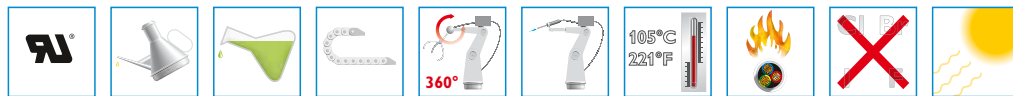
VDE 0250 Part 407, chemicals, lubricants, and coolants as well as other aggressive substances.

Due to the extremely robust outer sheath, this cable should only be stripped in 5 cm increments.

Outer sheath material	TPE-U
Min. bending cycles	10 million
Minimum bending radius	
Fixed	5 x D
Mobile	7.5 x D
Traversal path	5 m
Acceleration	20 m/s²
Speed	3.33 m/s
Torsion angle	±360°
Min. torsion cycles	13 million
Tested at	20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
800 Gray	3-pos.	M8	3 x 0.25 mm ² (32 x 0.1 mm)		Brown, blue, black	Polyester	Mobile: -30°C ... 90°C Fixed: -40°C ... 90°C 120°C ... 3000 h	36 38 104
		M12	3 x 0.34 mm ² (42 x 0.1 mm)		Brown, blue, black	Polyester	Mobile: -30°C ... 90°C Fixed: -40°C ... 90°C 120°C ... 3000 h	38 40 104 164
	4-pos.	M8	4 x 0.25 mm ² (32 x 0.1 mm)		Brown, white, blue, black	Polyester	Mobile: -30°C ... 90°C Fixed: -40°C ... 90°C 120°C ... 3000 h	36 44 46
		M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	Polyester	Mobile: -30°C ... 90°C Fixed: -40°C ... 90°C 120°C ... 3000 h	44 46 165
	5-pos.	M12	5 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black, gray	Polyester	Mobile: -30°C ... 90°C Fixed: -40°C ... 90°C 120°C ... 3000 h	52 53
	8-pos.	M12	8 x 0.25 mm ² (32 x 0.1 mm)		According to DIN 47100	Polyester	Mobile: -30°C ... 90°C Fixed: -40°C ... 90°C 120°C ... 3000 h	59 60
802 Gray	5-pos.	M12	5 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black, green-yellow	Polyester	Mobile: -30°C ... 90°C Fixed: -40°C ... 90°C 120°C ... 3000 h	166

PUR irradiated, resistant to welding sparks



Due to the irradiation of the PUR outer sheath, the properties typical of PUR, e.g., resistance to temperature, UV, and welding sparks, are greatly improved. The cables are suitable for robust use in robot technology, particularly in welding robots, and are characterized by very long durability. Flame-retardant according to DIN VDE 0472, Part 804, test type B.

Outer sheath material PUR irradiated

Min. bending cycles 5 million
Minimum bending radius 10 x D
Traverse path 10 m
Acceleration 10 m/s²
Speed 3 m/s
Torsion ±360°
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
150 Orange	3-pos.	M12	3 x 0.34 mm ² (42 x 0.1 mm)		Brown, blue, black	Halogen-free polyester-based plastic	Mobile: -40°C ... 105°C Fixed: -50°C ... 105°C	38 40 104
		Valve connector	3 x 0.5 mm ² (28 x 0.15 mm)		Black 1, black 2, green-yellow	Halogen-free polyester-based plastic	Mobile: -40°C ... 105°C Fixed: -50°C ... 105°C	86 to 99
	4-pos.	M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	Halogen-free polyester-based plastic	Mobile: -40°C ... 105°C Fixed: -50°C ... 105°C	44 46
	5-pos.	M12	4 x 0.34 mm ² + 1 x 0.5 mm ² (42 x 0.1 mm, 24 x 0.15 mm)		Brown, white, blue, black, green-yellow	Halogen-free polyester-based plastic	Mobile: -40°C ... 105°C Fixed: -50°C ... 105°C	52 53
		Valve connector	5 x 0.5 mm ² (28 x 0.15 mm)		Black 1, black 2, black 3, black 4, green-yellow	Halogen-free polyester-based plastic	Mobile: -40°C ... 105°C Fixed: -50°C ... 105°C	100
	160 Yellow	4-pos.	M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	Halogen-free polyester-based plastic	Mobile: -40°C ... 105°C Fixed: -50°C ... 105°C

Sensor/actuator cabling

Sensor/actuator cables - cable range

PUR/PVC (also applies to type PUR for M5 plug-in connectors)



The cables are designed for robust use in tooling machines, assembly/production lines, as well as production involving metal cutting. They are free from silicone and substances that would hinder coating with paint or varnish and have a high resistance to abrasion. The outer sheath also offers excellent resistance to oil and chemicals according to DIN EN 60811-2-1 and is flame-retardant according to DIN EN 50265. The outer sheath is manufactured using the coextrusion process.





Outer sheath material	PUR
Inner sheath material	PVC
Min. bending cycles	2 million
Minimum bending radius	10 x D
Traverse path	5 m
For type 35T	10 m
Acceleration	5 m/s²
For type 35T	10 m/s²
Speed	3 m/s
Tested at	20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
100 Gray	3-pos.	M8	3 x 0.25 mm ² (32 x 0.1 mm)		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	36 38 40 104
		M12	3 x 0.34 mm ² (42 x 0.1 mm)		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	38 40 104
		M12 Shielded	3 x 0.34 mm ² (42 x 0.1 mm) Shielding: copper braid		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	42 43
	4-pos.	M8	4 x 0.25 mm ² (32 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	36 44 46
		M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	44 46
		M12 Shielded	4 x 0.34 mm ² (42 x 0.1 mm) Shielding: copper braid		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	48 44
	5-pos.	M12	5 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	52 53
		M12 Shielded	5 x 0.34 mm ² (42 x 0.1 mm) Shielding: copper braid		Brown, white, blue, black, gray	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	54 55

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
100 Gray	8-pos.	M12	8 x 0.25 mm ² (32 x 0.1 mm)		According to DIN 47100	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	59 60
116 Black	3-pos.	Valve connector	3 x 0.75 mm ² (24 x 0.2 mm)		Black 1, black 2, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	86 to 99 169
	4-pos.	Valve connector	4 x 0.75 mm ² (24 x 0.2 mm)		Black 1, black 2, black 3, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	88 94 95 100 112 113
	5-pos.	Valve connector	5 x 0.75 mm ² (24 x 0.2 mm)		Black 1, black 2, black 3, black 4, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	100 169
117 Gray	3-pos.	Valve connector	3 x 0.75 mm ² (24 x 0.2 mm)		Black 1, black 2, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	86 to 99
140 Yellow	3-pos.	M8	3 x 0.25 mm ² (32 x 0.1 mm)		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	36 38 40 104
		M12	3 x 0.34 mm ² (42 x 0.1 mm)		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	38 40 104
	4-pos.	M8	4 x 0.25 mm ² (32 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	36 44 46
		M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	44 46
	5-pos.	M12	5 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	52 53
	186 Black	4-pos.	M12	4 x 0.75 mm ² (24 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C
5-pos.		M12	5 x 0.75 mm ² (24 x 0.1 mm)		Brown, white, blue, black, gray	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	52 53 168

Sensor/actuator cabling

Sensor/actuator cables - cable range

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
35T Black Twisted pair	12-pos.	M12 Shielded	6 x 2 x 0.14 mm ² (18 x 0.1 mm) Shielding: copper braid		According to DIN 47100	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	66
	17-pos.	M12 Shielded	7 x 2 x 0.14 mm ² 1 x 3 x 0.14 mm ² (18 x 0.1 mm) Shielding: copper braid		According to DIN 47100	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	67
PUR Black For M5	3-pos.	M5	3 x 0.14 mm ² (18 x 0.1 mm)		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -15°C ... 80°C	34
	4-pos.	M5	4 x 0.14 mm ² (18 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -15°C ... 80°C	34

PUR/PVC (for 7/8")



The cables are designed for robust use in tooling machines, assembly/production lines, as well as production involving metal cutting.



They are free from silicone and substances that would hinder coating with paint or varnish and have a high resistance to abrasion. The outer sheath also offers excellent resistance to oil and chemicals according to HD 22.10 and VDE 0282-10 and is flame-re-

tant according to EN 60332-1-2, UL VW1, and CSA FT1.

Outer sheath material PUR

Minimum bending radius

Fixed 7.5 x D
Mobile 15 x D

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
440 Gray	5-pos.	7/8"	5 x 1.5 mm ² (30 x 0.25 mm)		Black 1, black 2, black 3, black 4, green-yellow	PVC	Mobile: -5°C ... 90°C Fixed: -40°C ... 90°C	74
441 Gray	5-pos.	7/8"	5 x 2.5 mm ² (50 x 0.25 mm)		Black 1, black 2, black 3, black 4, green-yellow	PVC	Mobile: -5°C ... 90°C Fixed: -40°C ... 90°C	75

PVC - 80°C and 105°C



These very reasonably priced high-quality cables are suitable for use under dry conditions and average mechanical strain associated with tooling machines, packaging machines, and assembly/production lines. The cable offers a certain degree of resistance to oil and chemicals and is less susceptible to wear. Flame-retardant to VW-1 according to UL 758.

VW-1 is the toughest flame-resistance test for single cables.



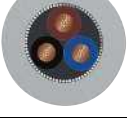
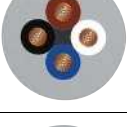
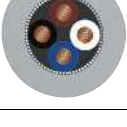
Outer sheath material PVC

Minimum bending radius 10 x D

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
PVC Black	3-pos.	M8	3 x 0.25 mm ² (32 x 0.1 mm)		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	38 40 104 168
		M12	3 x 0.34 mm ² (42 x 0.1 mm)		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	38 40 104 168
		M12 Shielded	3 x 0.34 mm ² (42 x 0.1 mm) Shielding: copper braid		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	42 43 168
		Valve connector	3 x 0.5 mm ² (16 x 0.2 mm)		Black 1, black 2, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	86 to 99
	4-pos.	M8	4 x 0.25 mm ² (32 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	44 46 168
		M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	44 46 168
		M12 Shielded	4 x 0.34 mm ² (42 x 0.1 mm) Shielding: copper braid		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	48 50 168
		Valve connector	4 x 0.5 mm ² (16 x 0.2 mm)		Black 1, black 2, black 3, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	100
	5-pos.	M12	5 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	52 53 168

Sensor/actuator cabling




Sensor/actuator cables - cable range

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
PVC Black	5-pos.	M12 Shielded	5 x 0.34 mm ² (42 x 0.1 mm) Shielding: copper braid		Brown, white, blue, black, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	54 55 168
		Valve connector	5 x 0.5 mm ² (28 x 0.15 mm)		Black 1, black 2, black 3, black 4, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	86 to 99
	8-pos.	M12	8 x 0.25 mm ² (32 x 0.1 mm)		White, brown, green, yellow, gray, pink, blue, red	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	59 60 168
		M12 Shielded	8 x 0.25 mm ² (32 x 0.1 mm) Shielding: copper braid and filler litz wire		White, brown, green, yellow, gray, pink, blue, red	PVC	Mobile: -5°C ... 105°C Fixed: -25°C ... 105°C	62 63 168
	12-pos.	M12	12 x 0.14 mm ² (18 x 0.1 mm)		According to DIN 47100	PVC	Mobile: -5°C ... 90°C Fixed: -40°C ... 90°C	65 168
	17-pos.	M12	17 x 0.14 mm ² (18 x 0.1 mm)		According to DIN 47100	PVC	Mobile: -5°C ... 90°C Fixed: -25°C ... 90°C	65 168
500 Gray	3-pos.	M8	3 x 0.25 mm ² (32 x 0.1 mm)		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	38 40 104
		M12	3 x 0.34 mm ² (42 x 0.1 mm)		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	38 40 104
		M12 Shielded	3 x 0.34 mm ² (42 x 0.1 mm) Shielding: copper braid		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	42 43
	4-pos.	M8	4 x 0.25 mm ² (32 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	44 46
		M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	44 46
		M12 Shielded	4 x 0.34 mm ² (42 x 0.1 mm) Shielding: copper braid		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	48 50
		M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	48 50

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
500 Gray	5-pos.	M12	5 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	52 53
		M12 Shielded	5 x 0.34 mm ² (42 x 0.1 mm) Shielding: copper braid		Brown, white, blue, black, gray	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	54 55
	8-pos.	M12	8 x 0.25 mm ² (32 x 0.1 mm)		White, brown, green, yellow, gray, pink, blue, red	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	59 60
515 Black	5-pos.	M12	5 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black, gray	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	52 53
534 Black	3-pos.	Valve connector	3 x 0.75 mm ² (24 x 0.2 mm)		Black 1, black 2, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	86 to 99 169
	4-pos.	Valve connector	4 x 0.75 mm ² (24 x 0.2 mm)		Black 1, black 2, black 3, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	100
	5-pos.	Valve connector	5 x 0.75 mm ² (24 x 0.2 mm)		Black 1, black 2, black 3, black 4, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 80°C	100 169
540 Yellow	3-pos.	M12	3 x 0.34 mm ² (42 x 0.1 mm)		Brown, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	38 40 104
	4-pos.	M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	44 46
	5-pos.	M12	5 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black, gray	PVC	Mobile: -5°C ... 80°C Fixed: -25°C ... 80°C	52 53

Sensor/actuator cabling

Sensor/actuator cables - cable range

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
542 Yellow	3-pos.	M12	3 x 0.34 mm ² (42 x 0.1 mm)		Brown, blue, black	PVC	Mobile: -5°C ... 105°C Fixed: -25°C ... 105°C	38 40 104
	4-pos.	M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	PVC	Mobile: -5°C ... 105°C Fixed: -25°C ... 105°C	44 46
	5-pos.	M12	5 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black, gray	PVC	Mobile: -5°C ... 105°C Fixed: -25°C ... 105°C	52 53

PVC (for 7/8")





These very reasonably priced high-quality cables are suitable for use under dry conditions and average mechanical strain associated with tooling machines, packaging machines, and assembly/production lines.

The cable offers a certain degree of resistance to oil and chemicals and is less susceptible to wear. Flame-retardant according to IEC 60332-1-2 and UL 1581 Cable Flame Test.

Outer sheath material PVC

Minimum bending radius
Fixed 4 x D
Mobile 12.5 x D

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
430 Gray	5-pos.	7/8"	5 x 1.5 mm ² (30 x 0.25 mm)		Black 1, black 2, black 3, black 4, green-yellow	PVC	Mobile: -5°C ... 90°C Fixed: -40°C ... 90°C	72
431 Gray	5-pos.	7/8"	5 x 2.5 mm ² (50 x 0.25 mm)		Black 1, black 2, black 3, black 4, green-yellow	PVC	Mobile: -5°C ... 90°C Fixed: -40°C ... 90°C	73

PE-X - for outdoor applications



The halogen-free control cable is suitable for outdoor installation in direct sunlight. The insulation and sheath materials offer excellent resistance to weather, UV, and wear. The outstanding resistance to oil, high degree of flexibility, and low smoke gas density also make it suitable for automation technology as well as machine building and systems manufacturing.

Additional features: halogen-free according to DIN VDE 0472 Part 815, flame-retar-

dant according to DIN EN 60332-1-2 and 50266-2-5, UV resistant according to DIN VDE 0276-605, oil resistant according to DIN EN 60811-2-1 (168 h at 100°C) and 50306.

Outer sheath material	PE copolymer irradiated
Min. bending cycles	2 million
Shielded	1 million
Minimum bending radius	10 x D
Traverse path	10 m
Acceleration	10 m/s²
Speed	3 m/s
Tested at	20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
28X Black	4-pos.	M12	4 x 0.5 mm ² (28 x 0.15 mm)		Brown, white, blue, black	PE copolymer	Mobile: -15°C ... 105°C Fixed: -40°C ... 105°C	153
		M12 Shielded	4 x 0.5 mm ² (28 x 0.15 mm)		Brown, white, blue, black	PE copolymer	Mobile: -15°C ... 105°C Fixed: -40°C ... 105°C	154
	5-pos.	M12	5 x 0.5 mm ² (28 x 0.15 mm)		Brown, white, blue, black, gray	PE copolymer	Mobile: -15°C ... 105°C Fixed: -40°C ... 105°C	155
		M12 Shielded	5 x 0.5 mm ² (28 x 0.15 mm) Shielding: Copper braid		Brown, white, blue, black, gray	PE copolymer	Mobile: -15°C ... 105°C Fixed: -40°C ... 105°C	156
	8-pos.	M12	8 x 0.25 mm ² (32 x 0.1 mm)		According to DIN 47100	PE copolymer	Mobile: -15°C ... 105°C Fixed: -40°C ... 105°C	157
		M12 Shielded	8 x 0.25 mm ² (32 x 0.1 mm) Shielding: Copper braid		According to DIN 47100	PE copolymer	Mobile: -15°C ... 105°C Fixed: -40°C ... 105°C	158

Sensor/actuator cabling

Sensor/actuator cables - cable range

PP-EPDM - for the food industry



This cable with PP-EPDM outer sheath is specifically designed for use in the food industry. Dirt can be easily detected on the light colored surface so that food is not contaminated by coming into contact with the cable. Furthermore, the cable is resistant to common cleaning agents and disinfectants.

Outer sheath material PP-EPDM

Minimum bending radius 10 x D

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
600 Light gray	3-pos.	M8	3 x 0.25 mm ² (32 x 0.1 mm)		Brown, blue, black	PP	Fixed: -40°C ... 105°C	140
	4-pos.	M8	4 x 0.25 mm ² (32 x 0.1 mm)		Brown, white, blue, black	PP	Fixed: -40°C ... 105°C	141
		M12	4 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black	PP	Fixed: -40°C ... 105°C	142 144
		M12 Shielded	4 x 0.34 mm ² (42 x 0.1 mm) Shielding: Copper braid		Brown, white, blue, black	PP	Fixed: -40°C ... 105°C	142
	5-pos.	M12	5 x 0.34 mm ² (42 x 0.1 mm)		Brown, white, blue, black, gray	PP	Fixed: -40°C ... 105°C	143 145




RADOX® - for railway applications



In railway applications, special demands are placed on the cables used. Special considerations must be made regarding fire protection, in that cables must meet the highest fire safety standards. In addition, the cables are very resistant to mineral oil and fuel.

Outer sheath material RADOX® GKW S

Minimum bending radius
Fixed 3 x D
Mobile 4 x D

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
28R Black	3-pos.	M12	3 x 0.5 mm ² (19 x 0.18 mm) Shielding: Copper braid		White 1, white 2, white 3	RADOX® TI303	Mobile: -25°C ... 90°C Fixed: -40°C ... 120°C	130
	4-pos.	M12	4 x 0.5 mm ² (19 x 0.18 mm) Shielding: Copper braid		White 1, white 2, white 3, white 4	RADOX® TI303	Mobile: -25°C ... 90°C Fixed: -40°C ... 120°C	131
	5-pos.	M12	5 x 0.5 mm ² (19 x 0.18 mm) Shielding: Copper braid		White 1, white 2, white 3, white 4, white 5	RADOX® TI303	Mobile: -25°C ... 90°C Fixed: -40°C ... 120°C	132

Sensor/actuator cabling

Sensor/actuator boxes - cable range

PUR/PVC (for sensor/actuator boxes)









The cables are designed for robust use in tooling machines, assembly/production lines, as well as production involving metal cutting. They are free from silicone and substances that would hinder coating with paint or varnish and have a high resistance to abrasion. The outer sheath also offers excellent resistance to oil and chemicals according to VDE 0472 Part 803, is flame-retardant according to DIN EN 50265, and is resistant to hydrolysis. The outer sheath is

manufactured using the coextrusion process.

Outer sheath material PUR
Inner sheath material PVC

Min. bending cycles 1.5 ... 2 million
Minimum bending radius 10 x D
Traverse path 2 m
Speed 2 m/s
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
PUR/PVC Black	3-pos., single- occupancy	M8 and QUICKON up to 0.34 mm ² 4 slots	4 x 0.34 mm ² 2 x 0.75 mm ²		White, green, yellow, gray, brown, blue	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	116 122 170
		M8 and QUICKON up to 0.34 mm ² 6 slots	6 x 0.34 mm ² 2 x 0.75 mm ²		White, green, yellow, gray, pink, red, brown, blue	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	116 122 170
		M8 and QUICKON up to 0.34 mm ² 8 slots	8 x 0.34 mm ² 2 x 0.75 mm ²		White, green, yellow, gray, pink, red, black, violet, brown, blue	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	116 122 170
		M8 10 slots	10 x 0.34 mm ² 2 x 0.75 mm ²		White, green, yellow, gray, pink, red, black, violet, white-pink, pink-brown, brown, blue	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	116 170
	4-pos., double- occupancy	QUICKON up to 0.34 mm ² 4 slots	8 x 0.34 mm ² 2 x 0.75 mm ²		White, green, yellow, gray, gray-pink, red-blue, white-green, brown-green, brown, blue	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	122
		QUICKON up to 0.34 mm ² 6 slots	12 x 0.34 mm ² 2 x 0.75 mm ²		White, green, yellow, gray, pink, red, gray-pink, red-blue, white-green, brown-green, white-yellow, yellow- brown, brown, blue	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	122
		M8 and QUICKON up to 0.34 mm ² 8 slots	16 x 0.34 mm ² 2 x 0.75 mm ²		White, green, yellow, gray, pink, red, black, violet, gray-pink, red-blue, white-green, brown-green, white-yellow, yellow- brown, white-gray, gray-brown, brown, blue	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	116 122 170

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
PUR/PVC Black	4-pos., single- occupancy	M12 and QUICKON up to 0.75 mm ² 4 slots	4 x 0.34 mm ² 3 x 0.75 mm ²		White, green, yellow, gray, brown, blue, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	118 120 123 170
		M12 and QUICKON up to 0.75 mm ² 6 slots	6 x 0.34 mm ² 3 x 0.75 mm ²		White, green, yellow, gray, pink, red, brown, blue, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	118 120 123 170
		M12 and QUICKON up to 0.75 mm ² 8 slots	8 x 0.34 mm ² 3 x 0.75 mm ²		White, green, yellow, gray, pink, red, black, violet, brown, blue, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	118 120 123 170
	5-pos., double- occupancy	M12 4 slots	8 x 0.50 mm ² 3 x 1.00 mm ²		White, green, yellow, gray, gray-pink, red-blue, white-green, brown-green, brown, blue, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	118 120 170
		M12 6 slots	12 x 0.50 mm ² 3 x 1.00 mm ²		White, green, yellow, gray, pink, red, gray-pink, red-blue, white-green, brown-green, white-yellow, yellow- brown, brown, blue, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	118 120 170
		M12 8 slots	16 x 0.50 mm ² 3 x 1.00 mm ²		White, green, yellow, gray, pink, red, black, violet, gray-pink, red-blue, white-green, brown-green, white-yellow, yellow- brown, white-gray, gray-brown, brown, blue, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	118 120 170

Sensor/actuator cabling

Sensor/actuator boxes - cable range

PUR/PVC shielded (for sensor/actuator boxes)



The cables are designed for robust use in tooling machines, assembly/production lines, as well as production involving metal cutting. Analog signals are reliably protected against electromagnetic influences by the tin-plated copper braid with 85% coverage. The cables are free from silicone and substances that would hinder coating with paint or varnish and have a high resistance

to abrasion. The outer sheath also offers excellent resistance to oil and chemicals according to VDE 0472 Part 803, is flame-retardant according to DIN EN 50265, and is resistant to hydrolysis.

Outer sheath material PUR
Inner sheath material PVC

Min. bending cycles 1.5 ... 2 million
Minimum bending radius 10 x D
Traverse path 2 m
Speed 2 m/s
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
PUR/PVC shielded Black	5-pos., double- occupancy	M12 4 slots	8 x 0.50 mm ² 3 x 1.00 mm ²		White, green, yellow, gray, gray-pink, red-blue, white-green, brown-green, brown, blue, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	124 170
		M12 6 slots	12 x 0.50 mm ² 3 x 1.00 mm ²		White, green, yellow, gray, pink, red, gray-pink, red-blue, white-green, brown-green, white-yellow, yellow-brown, brown, blue, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	124 170
		M12 8 slots	16 x 0.50 mm ² 3 x 1.00 mm ²		White, green, yellow, gray, pink, red, black, violet, gray-pink, red-blue, white-green, brown-green, white-yellow, yellow-brown, white-gray, gray-brown, brown, blue, green-yellow	PVC	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	124 170

PUR, halogen-free (for sensor/actuator boxes)



Permanently flexible control cables for use in drag chains and as machine control cables for extreme operating conditions. Suitable for bending cycle loads with long-term durability. The special PUR outer sheath offers excellent resistance to oils according to VDE 0472 Part 803, lubricants, cooling agents, and other aggressive substances. Additional features: halogen and

PVC-free, no silicone or substances that would hinder coating with paint or varnish, resistant to hydrolysis, and flame-retardant according to DIN EN 50265.

Outer sheath material PUR
Min. bending cycles 1.5 ... 2 million
Minimum bending radius 10 x D
Traverse path 2 m
Speed 2 m/s
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
PUR Black	5-pos., double- occupancy	M12 4 slots	8 x 0.50 mm ² 3 x 1.00 mm ²		White, green, yellow, gray, gray-pink, red-blue, white-green, brown-green, brown, blue, green-yellow	PP	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	120 170
		M12 6 slots	12 x 0.50 mm ² 3 x 1.00 mm ²		White, green, yellow, gray, pink, red, gray-pink, red-blue, white-green, brown-green, white-yellow, yellow-brown, brown, blue, green-yellow	PP	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	120 170
		M12 8 slots	16 x 0.50 mm ² 3 x 1.00 mm ²		White, green, yellow, gray, pink, red, black, violet, gray-pink, red-blue, white-green, brown-green, white-yellow, yellow-brown, white-gray, gray-brown, brown, blue, green-yellow	PP	Mobile: -5°C ... 80°C Fixed: -40°C ... 90°C	120 170

80 MC - highly flexible



Permanently flexible cables for use in drag chains, industrial robots or portal tables. Suitable for bending cycle loads and torsional stress with long-term durability. The special PUR outer sheath offers excellent resistance to oils according to DIN EN 60811-2-1, chemicals, and hydrolysis.

The cable is also flame-retardant according to DIN EN 50265-2-1 and is halogen-free.

Outer sheath material PUR
Min. bending cycles 5 million
Minimum bending radius 10 x D
Traverse path 5 m
Acceleration 5 m/s²
Speed 3 m/s
Torsion angle ±120°
Min. torsion cycles 3 million
Test length 1 m
Tested at 20 ... 25°C

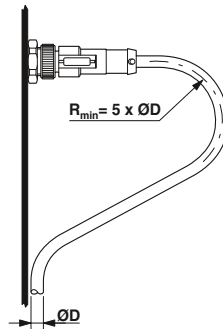
Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
80MC Black	5-pos., double- occupancy	M12 8 slots	16 x 0.50 mm ² 3 x 1.00 mm ²		White, green, yellow, gray, pink, red, black, violet, gray-pink, red-blue, white-green, brown-green, white-yellow, yellow-brown, white-gray, gray-brown, brown, blue, green-yellow	PP	Mobile: +5°C ... 70°C Fixed: -30°C ... 70°C	167 170



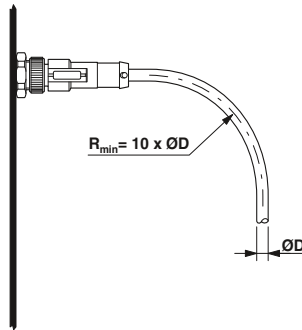
The following pages provide an overview of the appropriate installation of SAC cables in harsh industrial environments that will guarantee a long service life and reduce costs.

Bending radius

In the case of mobile installation, a generous bending radius can be advantageous, since the greater the bending radius, the lower the voltages occurring as a result of the movement. The result is an increased cable service life (the minimum cable-specific bending radii must be taken into consideration).



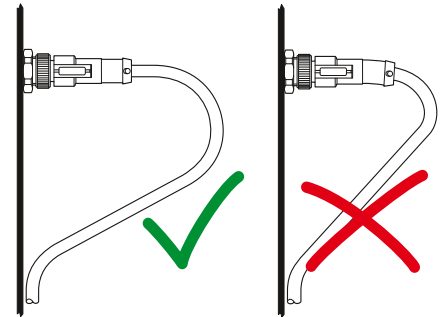
Fixed installation



Mobile installation

Load

A sufficient cable loop at the connection point can prevent the material from becoming prematurely worn and in the case of additional loads, there is sufficient clearance for voltages to be absorbed.



Mobile installation

In the case of mobile installation, the cable length should be sufficient to adequately absorb tensile loads. This can be implemented, for example, using cable loops and C drag chains.



Cables in power track chains

Where possible, cables should be laid individually and loosely next to each other within power track chains. Isolating segments or bridges should be placed between the various cables or these should be arranged in separate holes in the neutral zone of the drag chain.

Laying cables that have very different outside diameters next to or across each other is generally not recommended. If, however, this cannot be avoided for design reasons, isolating segments or bridges should be installed for a reasonable service life. If isolating segments cannot be installed between each cable, we recommend that our cables with an outside diameter < 10 mm should be laid loose, together with cables with similar cross sections in a guide tube in the drag chain.

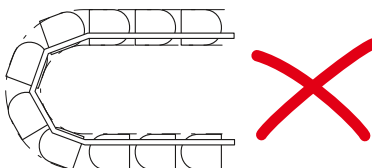
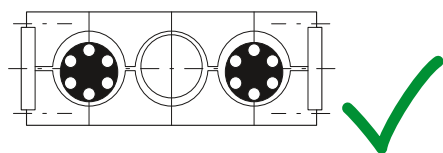
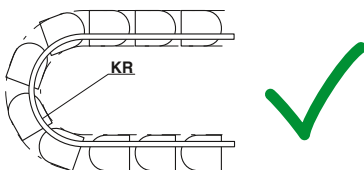
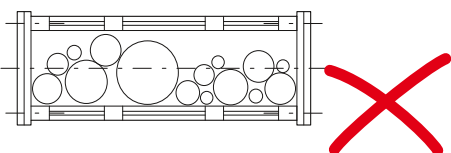
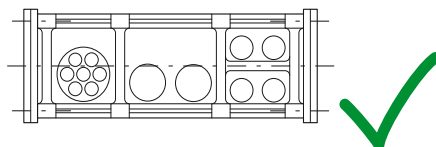
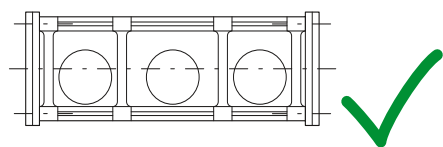
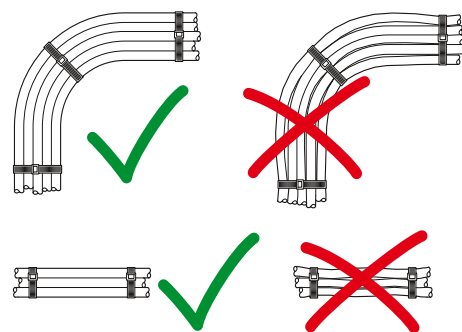
In terms of the arrangement of the cables, it is also important to ensure that heavy cables are routed outwards and light cables, such as our SAC cables, are routed inwards. Strain relief should be provided at both ends or at least at the moving end of the drag chain. A distance of 20 to 30 times the outside diameter of the cable is recommended between the point at which the bending motion ends and attachment.

The cables must be able to move completely freely within the radius of curvature in order to prevent forced guidance of the drag chain. Guide value: 10% of the outside diameter should be allocated as free space.

Note: when laying the cables, observe the information provided by the drag chain manufacturer.

Cable bundling

When bundling several individual cables, it is important to ensure that the cables can move freely within the bundle. The cables must not become deformed. Round cables with outside diameters that vary greatly should only be laid next to each other when bridges are used.



KR = radius of curvature



Data plug-in connectors and cables

Standardized data interfaces are increasingly being used in industrial applications as part of the decentralization of complex manufacturing systems and the increasing need for rapid information and data exchange. Industrial conditions place high demands on plug-in connectors, the connection technology, and cabling, which are completely different from office environments. Conventional fieldbuses include INTERBUS and PROFIBUS, Industrial Ethernet, PROFINET, and USB. Phoenix Contact offers components suitable for industrial applications with IP20 and IP65/IP67 protection for these communication interfaces.

Complete installation system

The product range consists of plug-in connectors, panel feed-throughs, assembled cables, patch panels, terminal outlets, plus corresponding accessories and thereby forms a complete installation system.

Easy field assembly

User-friendly fast connection technologies are available for plug-in connector assembly, even under the harshest industrial conditions. RJ45 and M12 plug-in connectors with QUICKON or Piercecon® connection are available for Ethernet and PROFINET cabling.

Copper and fiber optics in the same design

The SCRJ fiber optic plug-in connectors with IP20 and IP67 protection, which are particularly suitable for Industrial Ethernet and PROFINET, are available for all standard fiber types and are also equipped with established fast connection technologies. The assembly tool sets contain all the tools and materials needed for field assembly.

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System overview - fieldbuses	212
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Industrial Ethernet



	Ethernet	Ethernet	Ethernet	Ethernet
Area of application	Ethernet M8 (4-pos.) All industrial environments	Ethernet M12 (4-pos.) All industrial environments	Ethernet M12 (8-pos.) All industrial environments	Ethernet M12/10G (8-pos.) All industrial environments
Topology	Star, tree or line topology	Star, tree or line topology	Star, tree or line topology	Star, tree or line topology
Data transmission	Up to 100 Mbps	Up to 100 Mbps	Up to 1 Gbps	Up to 10 Gbps

Special plug-in connectors

M12 with shield crossover

Pin assignment	Plug-in connector			Plug-in connector			Plug-in connector			Plug-in connector		
	Signal des.	RJ45	M8	Signal des.	RJ45	M12	Signal des.	RJ45	M12	Signal des.	RJ45	M12
	TD+	1	1	TD+	1	1	D1+	1	6	D1+	1	1
	TD-	2	4	TD-	2	3	D1-	2	4	D1-	2	2
	RD+	3	2	RD+	3	2	D3-	5	1	D3-	5	7
	RD-	6	3	RD-	6	4	D3+	4	7	D3+	4	8
							D2+	3	5	D2+	3	3
							D2-	6	8	D2-	6	4
							D4+	7	2	D4+	7	5
							D4-	8	3	D4-	8	6

Signal designation, wire assignment

Wire color	Signal	Wire color	Signal	Wire color	Signal	Wire color	Signal
YE	TD+	WHOG	TD+	WHOG	D1+	WHOG	D1+
OG	TD-	OG	TD-	OG	D1-	OG	D1-
WH	RD+	WHGN	RD+	WHBU	D3-	WHBU	D3-
BU	RD-	GN	RD-	BU	D3+	BU	D3+
				WHGN	D2+	WHGN	D2+
				GN	D2-	GN	D2-
				WHBN	D4+	WHBN	D4+
				BN	D4-	BN	D4-

Segment length

Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device
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User organization

Standardization of cabling

ISO/IEC 24702	ISO/IEC 24702	ISO/IEC 24702	ISO/IEC 24702
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Plug-in connector pin assignments

Plug Socket	Plug Socket	Plug Socket	Plug Socket
M8, 4-pos.	M12, 4-pos., D-coded	M12, 8-pos., A-coded	M12, 8-pos., X-coded
Plug Socket	Plug Socket	Plug Socket	Plug Socket
RJ45, 8-pos.	RJ45, 8-pos.	RJ45, 8-pos.	RJ45, 8-pos.

Topology

See page 214	See page 214	See page 214	See page 216
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Ethernet

EtherNet/IP™



PROFINET



EtherCAT



sercos III



VARAN



Ethernet hybrid M12 (8-pos.)
All industrial environments

Automation applications in industrial control technology

Production, process automation in the automotive industry

Automation technology

Motion control applications

Automation technology

Star, tree or line topology

Usually active star topology

Star, line, tree, and ring structures. Hybrid forms also supported.

Line, tree, star, and combinations of these

Line, ring, and hierarchical, cascaded network structures

Tree, line, and star topology

Up to 100 Mbps

Up to 100 Mbps

100 Mbps to 1 Gbps

100 Mbps, upgrade to Gigabit Ethernet possible

Fast Ethernet with 100 Mbps

Up to Gigabit Ethernet

M12 with Y-shield

2+4 power/Ethernet connection technology (IP65 and IP67)

Signal des.	Plug-in connector		Signal des.	Plug-in connector		Signal des.	Plug-in connector		Signal des.	Plug-in connector		Signal des.	Plug-in connector		Signal des.	Plug-in connector	
	M12			RJ45	M12		RJ45	M12		RJ45	M12		RJ45	M12		RJ45	M12
TD+	1		TD+	1	1	TD+	1	1	TD+	1	1	TD+	2	3	TD+	2	3
TD-	2		TD-	2	3	TD-	2	3	TD-	2	3	TD-	1	2	TD-	1	2
RD+	3		RD+	3	2	RD+	3	2	RD+	3	2	RD+	3	5	RD+	3	5
RD-	4		RD-	6	4	RD-	6	4	RD-	6	4	RD-	6	8	RD-	6	8

Wire color	Signal	Wire color	Signal	Wire color	Signal	Wire color	Signal	Wire color	Signal	Wire color	Signal	Wire color	Signal
WHOG	TD+	WHOG	TD+	YE	TD+	YE	TD+	YE	TD+	n. c.		n. c.	
OG	TD-	OG	TD-	OG	TD-	OG	TD-	OG	TD-	OG	TD-	OG	TD-
WHGN	RD+	WHBU	RD+	WH	RD+	WH	RD+	WH	RD+	WHOG	TD+	WHGN	RD+
GN	RD-	BU	RD-	BU	RD-	BU	RD-	BU	RD-	n. c.		BU	RD+
BU		WHGN	RD+									BN	RD-
WH		GN	RD-									GN	RD-
BN		WHBN	RD-										
BK		BN	RD-										

Up to 100 m from hub/switch to termination device

Up to 100 m from hub/switch to termination device

Up to 100 m from hub/switch to termination device

Up to 100 m from hub/switch to termination device

Up to 100 m from hub/switch to termination device

Up to 100 m from hub/switch to termination device

www.odva.org

IEC 61784-5-2

www.profibus.com

IEC 61784-5-3

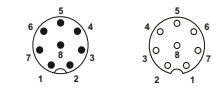
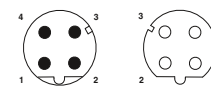
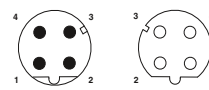
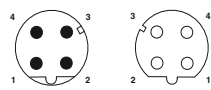
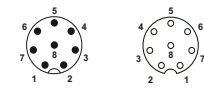
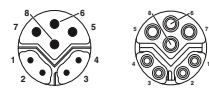
www.ethercat.org

IEC 61784-5-12

www.sercos.de

IEC 61784-5-16

www.varan-bus.net



Plug Socket
M12, hybrid, 8-pos., Y-coded

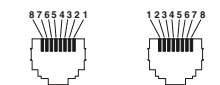
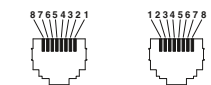
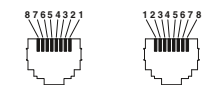
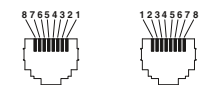
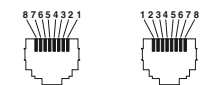
Plug Socket
M12, 8-pos., A-coded

Plug Socket
M12, 4-pos., D-coded

Plug Socket
M12, 4-pos., D-coded

Plug Socket
M12, 4-pos., D-coded

Plug Socket
M12, 8-pos., A-coded



Plug Socket
RJ45, 8-pos.

Plug Socket
RJ45, 8-pos.

Plug Socket
RJ45, 8-pos.

Plug Socket
RJ45, 8-pos.

Plug Socket
RJ45, 8-pos.

See page 214

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















































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Data plug-in connectors and cables

System overview - fieldbuses

	INTERBUS	PROFIBUS DP	PROFIBUS PA	DeviceNet™																																																																																			
																																																																																							
Area of application	Sensor/actuator level, process automation, monitoring PC	Distributed I/O devices for networking several controllers	Process automation for potentially explosive areas (Ex zone 0 and 1)	Automation technology																																																																																			
Topology	Active ring structure	Line, tree, ring or star depending on the physical network design	Line, tree or ring	Line																																																																																			
Data transmission	Between 500 kbps and 16 Mbps depending on the segment length	Up to 12 Mbps	Up to 31.25 kbps	Up to 500 kbaud																																																																																			
Special plug-in connectors																																																																																							
Pin assignment	<table border="1"> <thead> <tr> <th>Signal designation</th> <th colspan="2">Plug-in connector</th> </tr> <tr> <th></th> <th>D-SUB 9</th> <th>M12</th> </tr> </thead> <tbody> <tr> <td>DO</td> <td>1</td> <td>1</td> </tr> <tr> <td>DO</td> <td>6</td> <td>2</td> </tr> <tr> <td>DI</td> <td>2</td> <td>3</td> </tr> <tr> <td>DI</td> <td>7</td> <td>4</td> </tr> <tr> <td>COM</td> <td>3</td> <td>5</td> </tr> </tbody> </table>	Signal designation	Plug-in connector			D-SUB 9	M12	DO	1	1	DO	6	2	DI	2	3	DI	7	4	COM	3	5	<table border="1"> <thead> <tr> <th>Signal designation</th> <th colspan="2">Plug-in connector</th> </tr> <tr> <th></th> <th>D-SUB 9</th> <th>M12</th> </tr> </thead> <tbody> <tr> <td>A cable</td> <td>8</td> <td>2</td> </tr> <tr> <td>B cable</td> <td>3</td> <td>4</td> </tr> </tbody> </table>	Signal designation	Plug-in connector			D-SUB 9	M12	A cable	8	2	B cable	3	4	<table border="1"> <thead> <tr> <th>Signal designation</th> <th colspan="2">Plug-in connector</th> </tr> <tr> <th></th> <th>M12</th> <th></th> </tr> </thead> <tbody> <tr> <td>DATA+</td> <td>1</td> <td></td> </tr> <tr> <td>DATA-</td> <td>3</td> <td></td> </tr> <tr> <td>Shield</td> <td>4</td> <td></td> </tr> </tbody> </table>	Signal designation	Plug-in connector			M12		DATA+	1		DATA-	3		Shield	4		<table border="1"> <thead> <tr> <th>Signal designation</th> <th colspan="4">Plug-in connector</th> </tr> <tr> <th></th> <th>COMBICON</th> <th>M12</th> <th>7/8"</th> <th>M8</th> </tr> </thead> <tbody> <tr> <td>CAN_L</td> <td>2</td> <td>5</td> <td>5</td> <td>5</td> </tr> <tr> <td>CAN_H</td> <td>4</td> <td>4</td> <td>4</td> <td>3</td> </tr> <tr> <td>V+</td> <td>5</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>V-</td> <td>1</td> <td>3</td> <td>3</td> <td>4</td> </tr> <tr> <td>Drain</td> <td>3</td> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table>	Signal designation	Plug-in connector					COMBICON	M12	7/8"	M8	CAN_L	2	5	5	5	CAN_H	4	4	4	3	V+	5	2	2	2	V-	1	3	3	4	Drain	3	1	1	1
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Segment length	400 m segment length between two devices; max. 13 km total length	Up to 1200 m with copper installation, up to 15 km with fiber optic installation	Max. 1900 m	Up to 500 m																																																																																			
User organization	www.interbusclub.com	www.profibus.com	www.profibus.com	www.odva.org																																																																																			
Standardization of cabling	IEC 61158	IEC 61158/IEC 61784	IEC 61158/IEC 61784	IEC 61158 IEC 61784-1 CPF 2/3																																																																																			
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Topology	See page 320	See page 322	See page 323	See page 326																																																																																			

CANopen®	AS-Interface	FOUNDATION Fieldbus	USB	CC-Link																																																																																													
Automation technology and for networking within complex devices	Sensor/actuator level	Process automation	All industrial environments	Production level applications																																																																																													
Line or tree (when using repeaters)	Bus, star, ring, and tree structures	Point-to-point line (with branch lines), tree structure, combination of all topologies	Star topology, the connection is established at the star nodes via hubs	Bus, multi-drop, T-branching, star																																																																																													
10 kbaud to 1 Mbaud	167 kbps	H1: 31.25 kbps, IEC physical transmission channel, incl. Ex bus H2: 1.0 and 2.5 Mbps data rate, via two-wire cable or fiber optics	Up to 480 Mbps	Up to 10 Mbps																																																																																													
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BU	DA																																																																																																
Shield on pin		Shield on pin 3																																																																																															
Up to 1000 m depending on the transmission speed; can be increased by using repeaters	Max. 100 m cable length, 300 m with termination resistors, 500 m with repeaters	Max. 1900 m; max. 9500 m when using repeaters depending on the selected cable	5 m per segment	Max. 1200 m; max. 13.2 km with repeaters																																																																																													
www.can-cia.de	www.as-interface.net	www.fieldbus.org	www.usb.org	www.clpa-europe.com																																																																																													
EN 50325-4	EN 50295 and IEC 62026-2	IEC 1158, IEC 61158	Not specified	IEC 61784-1 CPF 8																																																																																													
Plug Socket	Plug Socket	Plug Socket	Plug, type A Socket, type B	Plug Socket																																																																																													
M12, 5-pos., A-coded	M12, 4-pos., A-coded	M12, 4-pos., A-coded	USB, 4-pos.	M12, 4-pos., A-coded																																																																																													
Plug Socket		Plug Socket	Plug Socket																																																																																														
7/8" 16UNF, 5-pos.		7/8" 16UNF, 4-pos.	M12 mini-USB, 5-pos.																																																																																														
Plug Socket																																																																																																	
D-SUB 9																																																																																																	

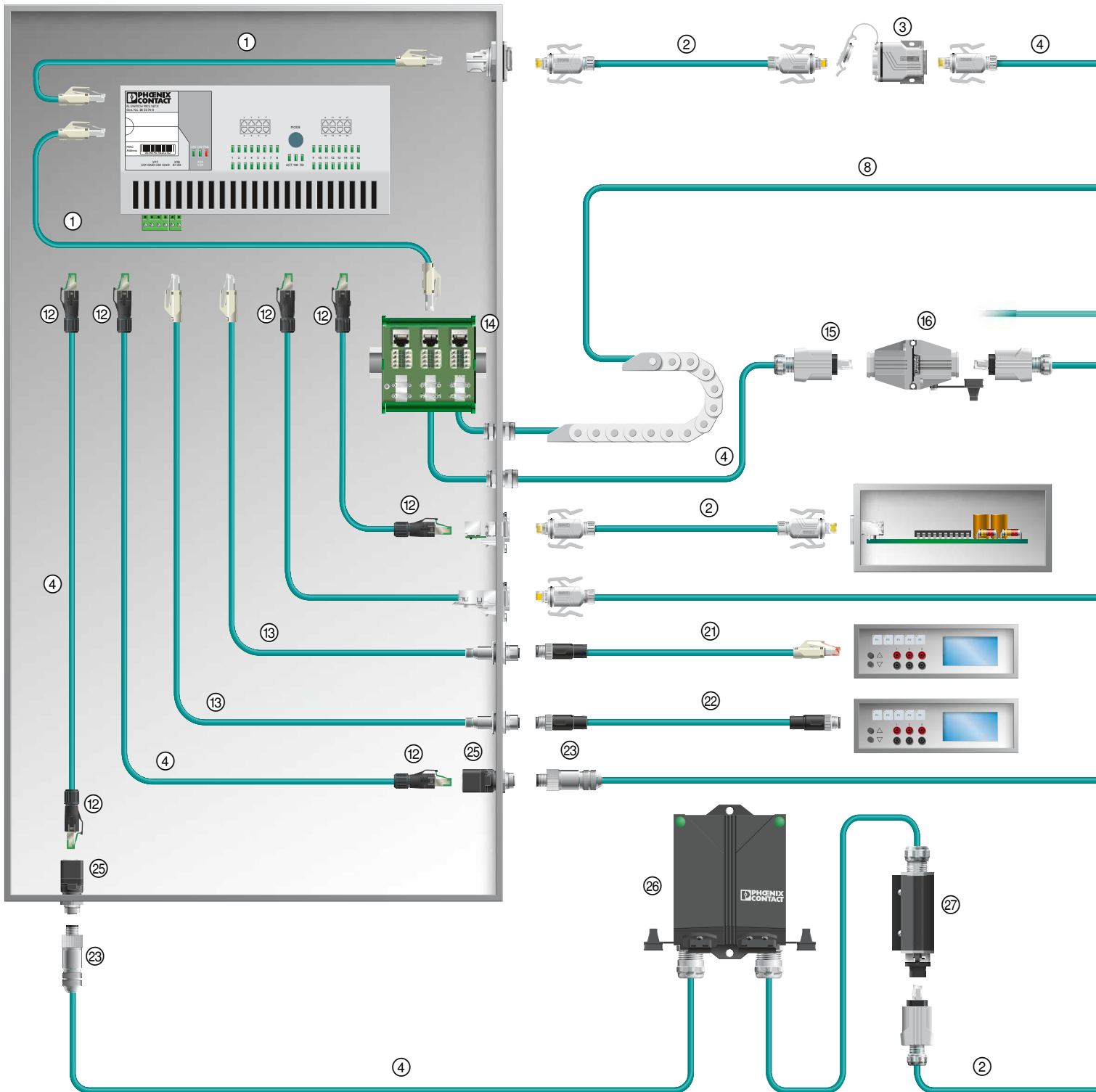
See page 324

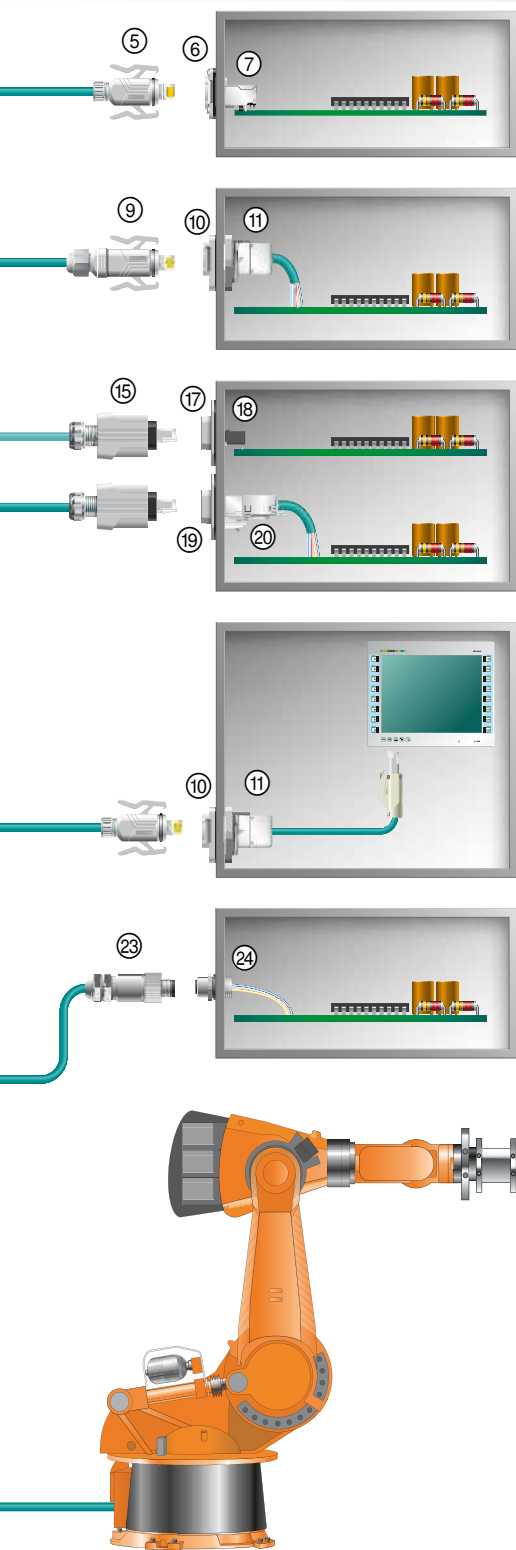
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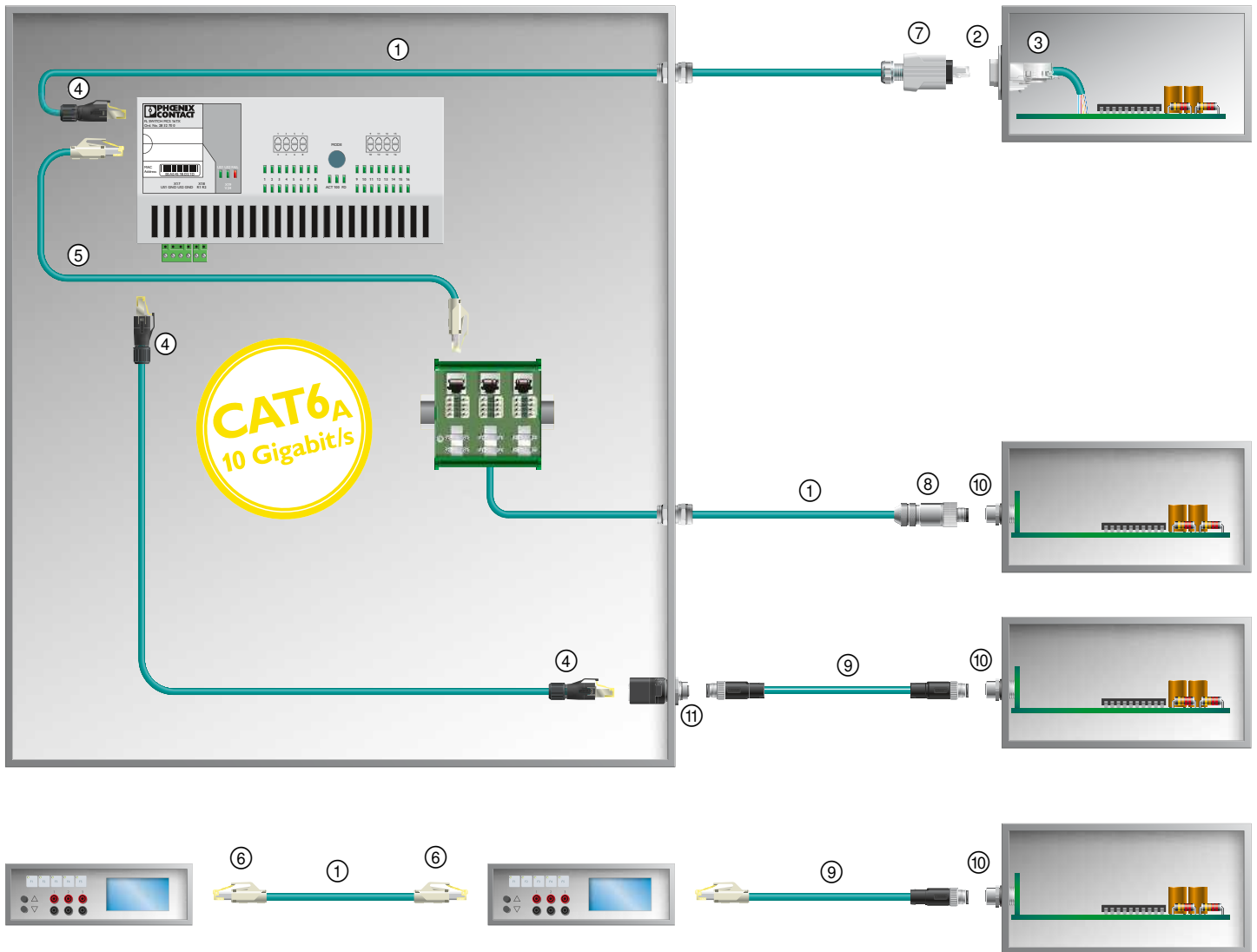
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See phoenixcontact.net/products

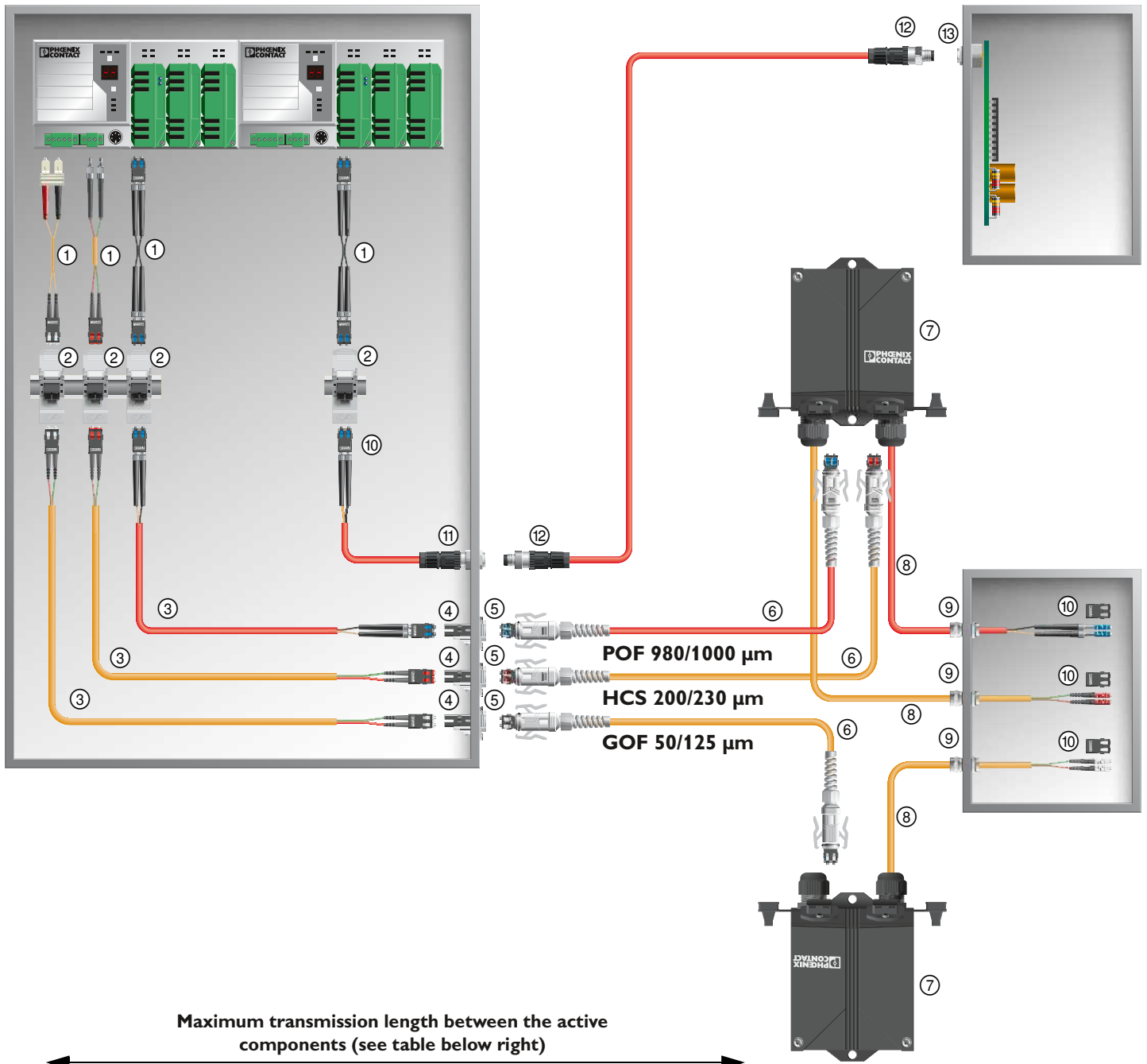




No.	Designation	Page
①	Assembled Ethernet cable with RJ45 plug-in connectors, IP20	246
②	Assembled Ethernet cable with RJ45 plug-in connectors, IP67	246
③	RJ45 coupling, IP67, version 6	265
④	Ethernet cable, by the meter	242
⑤	RJ45 plug-in connector, IP67, version 6, consisting of sleeve housing and pin insert	230
⑥	RJ45 panel mounting frame, IP67, version 6, for PCB socket inserts	231
⑦	RJ45 socket insert for PCB mounting	233
⑧	Ethernet cable, for drag chain, by the meter	242
⑨	RJ45 plug-in connector, IP67, for assembly without special tools	230
⑩	RJ45 panel mounting frame, IP67, for keystone, version 6	232
⑪	RJ45 keystone socket inserts	232
⑫	RJ45 plug-in connector, IP20, CAT5e, 8-pos., for assembly without special tools	226
⑬	Assembled Ethernet cable, RJ45 to M12	244
⑭	RJ45 patch panel for the DIN rail	266
⑮	RJ45 plug-in connector, IP67, push/pull, version 14, for assembly without special tools	228
⑯	RJ45 field couplings, IP67	265
⑰	RJ45 panel mounting frame, IP67, push/pull, for PCB socket inserts, version 14	233
⑱	RJ45 socket insert for PCB mounting, version 14	233
⑲	RJ45 panel mounting frame, IP67, for the Freenet system, version 14	231
⑳	RJ45 socket inserts for the Freenet system	231
㉑	Assembled Ethernet cable with RJ45 and M12 plug-in connectors	244
㉒	Assembled Ethernet cable with M12 plug-in connectors	244
㉓	M12 plug-in connector, shielded, for assembly without special tools	236
㉔	M12 flush-type plug-in connector	238
㉕	RJ45 to M12 bulkhead	240
㉖	Terminal outlets, IP65/IP67	264
㉗	RJ45 multi-port robot interface	263



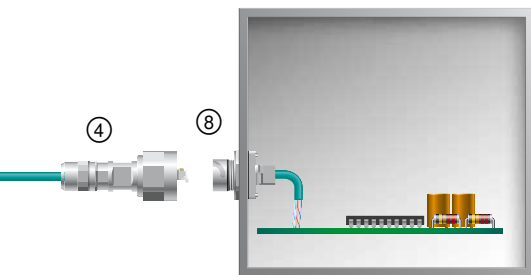
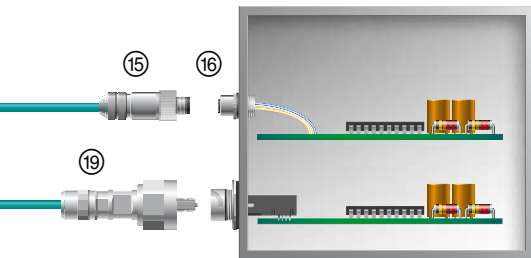
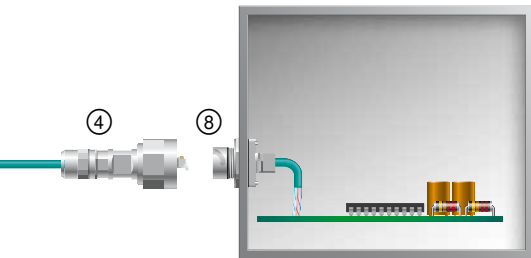
No.	Designation	Page
①	Ethernet cable, by the meter, for 10 Gbps	242
②	RJ45 panel mounting frame, IP67, for the Freenet system, version 14	231
③	RJ45 socket inserts for the Freenet system	231
④	RJ45 plug-in connector, IP20, for 10 Gbps, for assembly without special tools	226
⑤	Assembled Ethernet cable for 10 Gbps	248
⑥	RJ45 plug-in connector, IP20, consisting of sleeve housing and pin insert for 10 Gbps	226
⑦	RJ45 plug-in connector, IP67, version 14	228
⑧	M12 plug-in connector for 10 Gbps, for assembly without special tools	236
⑨	Assembled Ethernet cable for 10 Gbps	248
⑩	M12 flush-type plug-in connector for 10 Gbps, for PCB mounting	See Catalog 2
⑪	Control cabinet feed-through, CAT6 _A , M12, 8-pos., X-coded to RJ45 socket	240



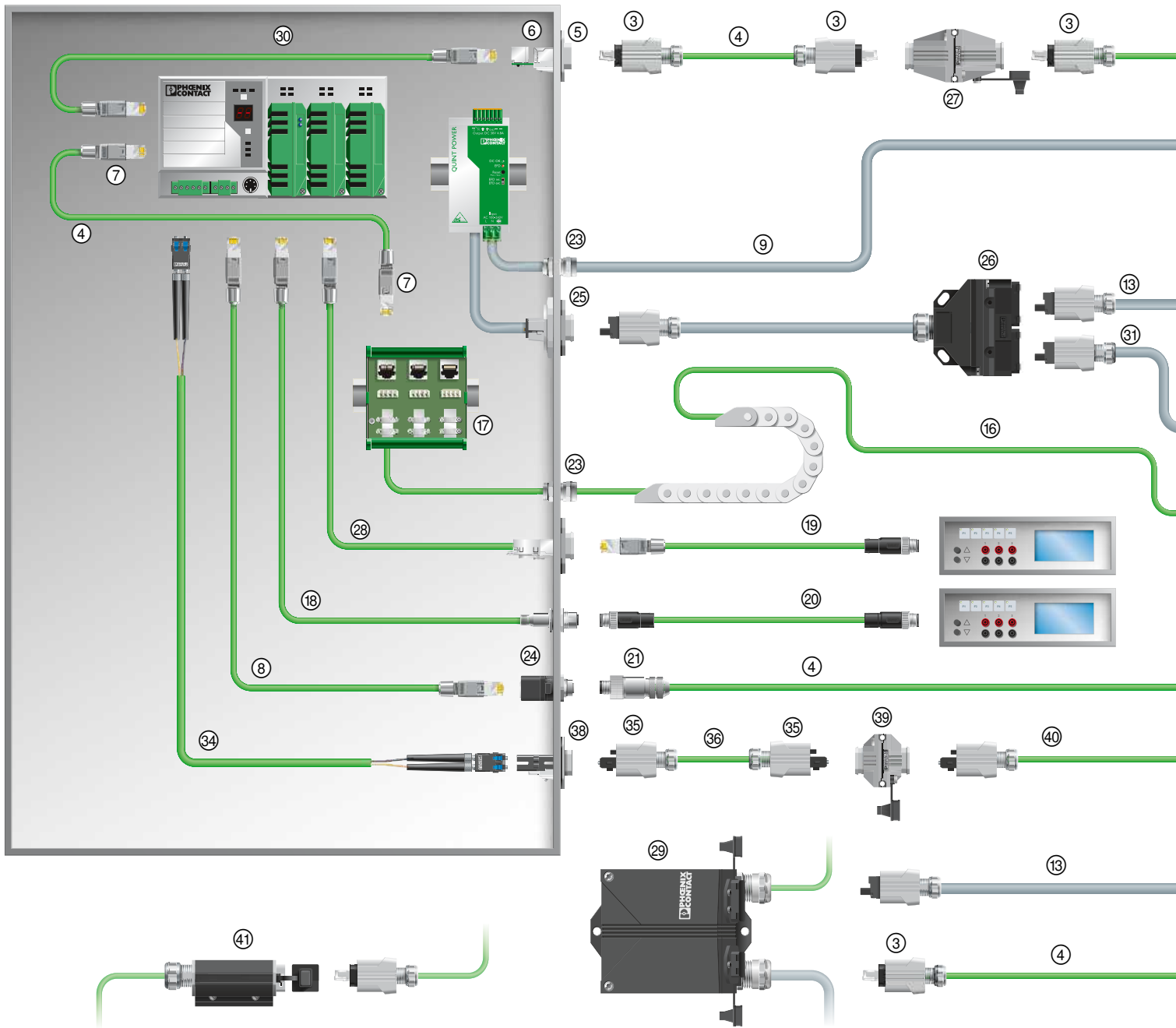
No.	Designation	Page		
		POF	HCS	GOF
①	Adapter cable, SCRJ/IP20 to FSMA (with POF/HCS) or SCRJ/IP20 to SC duplex (with GOF)			
②	Patch panel, SCRJ/IP20, for DIN rail mounting	282	282	282
③	Assembled industrial cable, assembled at both ends with SCRJ/IP20 plug-in connectors	286	300	304
④	SCRJ socket insert for panel mounting frames	From 275	From 278	From 280
⑤	SCRJ/IP67 panel mounting frames	From 275	From 278	From 280
⑥	Assembled fiber optic round cable with SCRJ plug-in connectors, IP67	From 286	From 296	From 304
⑦	IP67 terminal outlet with 2 SCRJ/IP67 slots and integrated SCRJ socket inserts	282	282	282
⑧	Industrial cable for fixed indoor installation	From 286	From 296	From 304
⑨	IP68 cable gland	From 552	From 552	From 552
⑩	SCRJ plug-in connector, IP20	275	278	280
⑪	Panel feed-through assembled with the cable	274		
⑫	M12 plug-in connector	274		
⑬	M12 transceiver	274		

Standard	Transmission speed	Fiber type	Wavelength	Length
–	10 Mbps	POF 980/1000 µm	660 nm	50 m*
–	10 Mbps	HCS 200/230 µm	660 nm	300 m
IEC 61784-5-3 (PROFINET)	100 Mbps	POF 980/1000 µm	660 nm	50 m*
IEC 61784-5-3 (PROFINET)	100 Mbps	HCS 200/230 µm	660 nm	100 m
100Base-SX	100 Mbps	GOF 50/125 µm	850 nm	3800 m
100Base-FX	100 Mbps	GOF 50/125 µm	1300 nm	10,000 m
1000Base-SX	1000 Mbps	GOF 50/125 µm	850 nm	550 m
1000Base-LX	1000 Mbps	GOF 50/125 µm	1300 nm	550 m

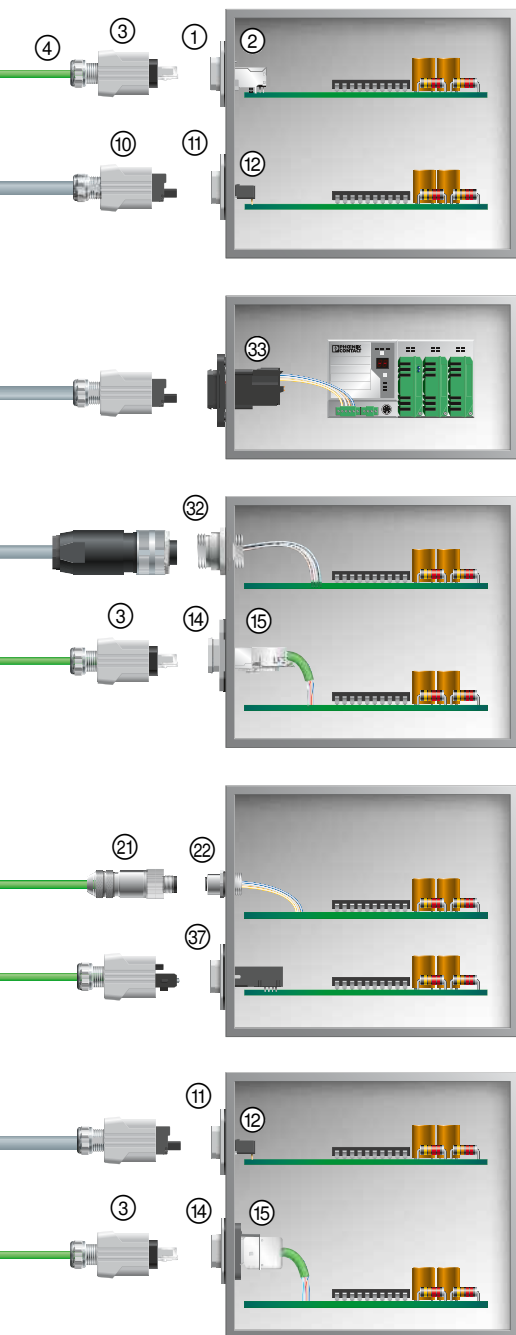
* minus 10 meters per passive coupling, e.g., patch panel, panel feed-through or terminal outlet



No.	Designation	Page
①	Cables for flexible installation, by the meter	246
②	RJ45 plug-in connector, IP20, for tool-free assembly	226
③	RJ45 panel feed-through, IP67, socket/socket	234
④	RJ45 plug-in connector, IP67, with bayonet locking	230
⑤	Assembled cables with RJ45 plug-in connectors, IP20	246
⑥	RJ45 patch panel, IP20, for DIN rail mounting	266
⑦	Cables for continuous motion applications, suitable for use with drag chain, by the meter	242
⑧	RJ45 panel feed-through, IP67, with cable connection	234
⑨	IP68 cable gland	552
⑩	M12 plug-in connector, with Ethernet cable and assembled RJ45 plug-in connector	244
⑪	Assembled cable with M12 plug-in connectors, IP65/IP67	244
⑫	Assembled cables with RJ45 plug-in connector and free cable end	244
⑬	Assembled cable with M12 flush-type socket to free cable end	244
⑭	Control cabinet feed-through, M12/RJ45, 180°	240
⑮	M12 plug-in connector, IP65/IP67, shielded, for tool-free assembly	237
⑯	M12 flush-type plug-in connector, with litz wires	238
⑰	Assembled fiber optic cable with SCRJ plug-in connector, IP20	292
⑱	SCRJ panel mounting frame, IP67, with bayonet locking, with SCRJ coupling	277
⑲	SCRJ plug-in connector, IP67, with bayonet locking	277
⑳	Fiber optic cable, for flexible installation, by the meter	285
㉑	Terminal outlets, IP65/IP67	264



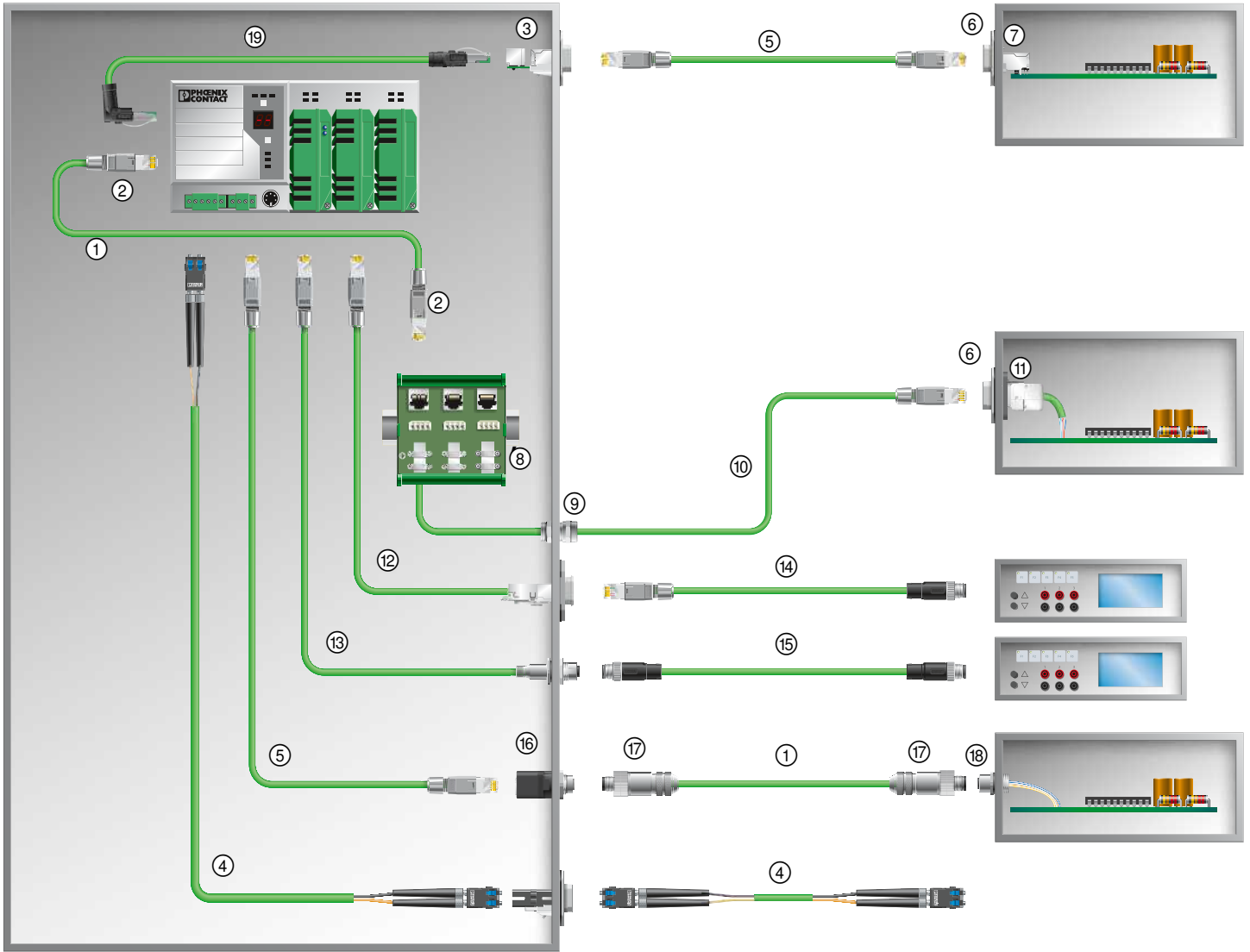
No.	Designation	Page	
		POF	HCS
34	Assembled fiber optic cable with SCRJ plug-in connector, IP20	292	296
35	SCRJ push/pull plug-in connector, IP67, with fast connection technology	276	279
36	PROFINET fiber optic cable, for flexible installation, by the meter	292	296
37	SCRJ panel mounting frame, IP67, for push/pull interlocking, for transceivers for PCB mounting	276	276
38	SCRJ panel mounting frame, IP67, for push/pull interlocking, with SCRJ coupling, Freenet system	276	276
39	SCRJ coupling, IP67, for push/pull interlocking	284	284
40	Assembled fiber optic cable with SCRJ plug-in connector, IP67	292	296



No.	Designation	Page
①	RJ45 panel mounting frame, IP67, for push/pull interlocking, for PCB mounting	231
②	RJ45 socket insert, for PCB mounting	231
③	RJ45 push/pull plug-in connector, IP67, for tool-free assembly	228
④	PROFINET cables, for flexible installation, by the meter	251
⑤	RJ45 panel mounting frame, IP67, for push/pull interlocking, for Freenet socket inserts	231
⑥	RJ45 socket insert, socket/socket, Freenet	231
⑦	RJ45 plug-in connector, IP20, for tool-free assembly	226
⑧	Assembled cables with RJ45 plug-in connectors, IP20	252
⑨	Power cables, for flexible installation, by the meter	272
⑩	MSTB push/pull plug-in connector, IP67, for 24 V, 5-pos., for free assembly	270
⑪	MSTB panel mounting frame, IP67, for 24 V, for push/pull interlocking	270
⑫	MSTB contact insert for 24 V, for PCB mounting	270
⑬	Assembled 24 V cable with MSTB push/pull plug-in connectors, IP67	272
⑭	RJ45 panel mounting frame, IP67, for push/pull interlocking	231
⑮	RJ45 socket insert, with cable connection, for tool-free assembly, Freenet	231
⑯	PROFINET cables, for continuous motion applications, suitable for use with drag chain, by the meter	251
⑰	RJ45 patch panel, IP20, for DIN rail mounting	266
⑱	M12 flush-type plug-in connector, with PROFINET cable and assembled RJ45 plug-in connector	252
⑲	M12 plug-in connector, with PROFINET cable and assembled RJ45 plug-in connector	252
⑳	Assembled cable with M12 plug-in connectors, IP65/IP67	252
㉑	M12 plug-in connector, IP65/IP67, shielded, for tool-free assembly	237
㉒	M12 flush-type plug-in connector, with litz wires	238
㉓	IP68 cable gland	552
㉔	Control cabinet feed-through, M12/RJ45, 180°	240
㉕	MSTB panel mounting frame, IP67, for 24 V, for push/pull interlocking, with contact insert for conductor connection	270
㉖	Power Y-distributor, IP67, with push/pull interlocking	271
㉗	Multi-port data coupling	265
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㉙	Terminal outlet with 1 x RJ45, 1 x power connection, IP67, for push/pull interlocking	264
㉚	PROFINET patch cable, RJ45 to RJ45, IP20	252
㉛	Assembled 24 V cable with MSTB push/pull plug-in connector, IP67, and 7/8" circular plug-in connector	272
㉜	Flush-type plug-in connector, 5-pos., 7/8"	See Catalog 2
㉝	Panel mounting frame, IP67, for 24 V or 400 V, for push/pull interlocking with MSTB contact insert for conductor connection, plastic	270
㉞	Multi-port robot interface	263

Data plug-in connectors and cables

Topology – EtherCAT



No.	Designation	Page
①	EtherCAT cable, by the meter	254
②	RJ45 plug-in connector, IP20, for tool-free assembly	226
③	RJ45 socket insert, socket/socket, Freetnet	231
④	Assembled fiber optic cable with SCRJ plug-in connector, IP20	292
⑤	Assembled cable with RJ45 plug-in connectors, IP20	254
⑥	RJ45 panel mounting frame, IP20	227
⑦	RJ45 socket insert, for PCB mounting	233
⑧	RJ45 patch panel, IP20, for DIN rail mounting	266
⑨	IP68 cable gland	552
⑩	Assembled cable with RJ45 plug-in connector to free cable end	254
⑪	RJ45 socket insert, with cable connection	231
⑫	Assembled cable with RJ45 plug-in connector to RJ45 socket	254
⑬	Assembled cable with M12 flush-type socket to free cable end	254
⑭	Assembled cable with RJ45 plug to M12 plug	254
⑮	Assembled cable with M12 plug-in connectors	254
⑯	Control cabinet panel feed-through, M12/RJ45, 180°	240
⑰	M12 plug-in connector, shielded, for tool-free assembly	237
⑱	M12 flush-type plug-in connector, with litz wires	238
⑲	EtherCAT patch cable, RJ45 to RJ45, IP20	254

RJ45 panel mounting frames with IP20 protection and socket insert



Ethernet

**RJ45 socket insert and
panel mounting frame, IP20,
modular system, keystone**

Technical data			
Electrical data	VS-08-BU-RJ45-6/KA/LSA VS-08-A-RJ45/MOD-1-IP20		
Rated current	2 A -		
Transmission characteristics (category)	CAT6 -		
Material data			
Housing material	Nickel-plated brass PA		
Contact material	Copper alloy -		
Inflammability class according to UL 94	V0 V0		
Mechanical data			
No. of pos.	8 -		
Connection method	LSA -		
Conductor cross section	0.13 mm ² ... 0.32 mm ² (solid) -		
Connection cross section AWG	26 ... 22 (solid) -		
Temperature data			
Ambient temperature (operation)	-20 °C ... 70 °C -40 °C ... 80 °C		
Ordering data			
Description	Type	Order No.	Pcs. / Pkt.
RJ45 socket insert , 8-pos., shielded, socket to socket			
CAT5	VS-08-BU-RJ45/BU	1689064	5
RJ45 socket insert , 8-pos., shielded, with cable connection			
CAT6	VS-08-BU-RJ45-6/KA/LSA	1653168	5
RJ45 panel mounting frame , single, for modular socket inserts (keystone), without mounting screws			
	VS-08-A-RJ45/MOD-1-IP20	1689433	5
Accessories			
Split-core tool , for connecting the copper wires to the LSA Plus strips	CT-WZ/A	2765505	1
Stripping tool , for multiple-stage repositioning of shielded conductors	VS-CABLE-STRIP-VARIO	1657407	1

RJ45 plug-in connector, version 4, IP65/IP67



RJ45 plug-in connector



RJ45 socket insert

	Technical data			Technical data		
Electrical data						
Transmission characteristics (category)	CAT6 _A					
Material data						
Housing material	Plastic					
Inflammability class according to UL 94	V0			V0		
Mechanical data						
No. of pos.	8			8		
Connection method	Crimp connection					
Connection cross section AWG	28 ... 24 (stranded)					
Temperature data						
Ambient temperature (operation)	-40 °C ... 70 °C			-40 °C ... 70 °C		
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
RJ45 plug-in connector , IP67, with push/pull interlocking (version 4), plastic housing, for 10 Gbps, for 24 ... 28 AWG stranded conductors	CUC-V04-RJ45-POBK-8	1407413	1			
RJ45 socket insert , 1-way, for PCB mounting, CAT5e, 8-pos., shielded				CUC-V04-BU-180	1407409	1
Straight solder pins				CUC-V04-BU-90	1407408	1
Angled solder pins						
Panel mounting frame				CUC-V04-F-POBK-180	1407410	1
For 180° socket insert				CUC-V04-F-POBK-90	1407411	1
For 90° socket insert						
Panel mounting frame set				CUC-V04-F-BU/BU-RJ45	1407412	1
Socket/socket						
	Accessories			Accessories		
Stripping tool , for multiple-stage repositioning of shielded conductors	VS-CABLE-STRIP-VARIO	1657407	1			
Electronic diagonal cutter , tapered head, without chamfer, with opening spring, non-reflective phosphate-treated surface, punched version	MICROFOX-SP-1	1212487	1			
Crimping pliers , for assembling the RJ45 connectors	FL CRIMPTOOL	2744869	1			

RJ45 plug-in connector, version 6 and version 1, IP65/IP67

Ethernet



RJ45 plug-in connector, version 6



RJ45 plug-in connector, version 1

	Technical data			Technical data		
	VS-08-RJ45-5-Q/IP67...			VS-V1-C-RJ45-MNNA-PG9-8-I-5-S		
Electrical data						
Rated voltage	50 V			50 V		
Rated current	1.75 A			1.75 A		
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)			CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)		
Surge voltage category	I			I		
Material data						
Housing material	PA			Zinc die-cast		
Contact material	Copper alloy			-		
Inflammability class according to UL 94	V0			V0		
Pollution degree	2			2		
Connection data						
Connection method	IDC fast connection			IDC connection		
Connection cross section AWG	26 ... 22 (solid)			27 ... 24 (stranded)		
Connection cross section AWG	26 ... 22 (stranded)			-		
External cable diameter	5 mm ... 8 mm			5 mm ... 10 mm		
Insertion/withdrawal cycles	≥ 1000			750		
Temperature data						
Ambient temperature (operation)	-20 °C ... 70 °C			-40 °C ... 70 °C		
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
RJ45 plug-in connector , 8-pos., with QUICKON fast connection technology, for AWG 26 ... 22						
Military gray RAL 7042	VS-08-RJ45-5-Q/IP67	1656990	1			
Deep black RAL 9005	VS-08-RJ45-5-Q/IP67-BK	1658493	1			
RJ45 pin insert , 8-pos., shielded, IDC connection technology, for 27 ... 26 AWG litz wires, with strain relief						
CAT5	VS-08-ST-H11-RJ45	1652716	5			
CAT6	VS-08-ST-H21-RJ45	1652729	5			
RJ45 pin insert , 8-pos., shielded, IDC pierce connection, for litz wires AWG 27 ... 24, with strain relief						
CAT6	VS-08-ST-H21P-RJ45	1404388	5			
RJ45 pin insert , CAT6 _A , 10 Gbps	VS-08-RJ45-10G/C	1418853	5			
RJ45 sleeve housing for pin insert VS-08-ST-H...-RJ45, with push/pull interlocking for panel mounting frames, for cable diameters 5.0 mm ... 8.5 mm						
Military gray RAL 7042	VS-08-T-H-RJ45/IP67	1652732	5			
Deep black RAL 9005	VS-08-T-H-RJ45/IP67-BK	1658671	5			
RJ45 plug-in connector , IP67, with bayonet locking, metal housing, CAT5e, 8-pos., IDC connection method, for 26 AWG 7-wire conductors, for cable diameter						
5.0 mm ... 8.0 mm				VS-V1-C-RJ45-MNNA-PG9-8-I-5-S	1419182	1
	Accessories			Accessories		
Stripping tool , for multiple-stage repositioning of shielded conductors	VS-CABLE-STRIP-VARIO	1657407	1	VS-CABLE-STRIP-VARIO	1657407	1
Protective cover , IP67, plastic, for covering the contact insert in the RJ45, LC, and SCRJ connector				VS-V1-C-PC-POBK	1419183	1
Crimp tool , pliers with die, for VS-08-ST-H...-RJ45	VS-CT-RJ45-H	1653265	1			

IP65/IP67 RJ45 panel mounting frame and Freenet socket inserts



Ethernet



**Push/pull, version 14,
Freenet system**

Ethernet



**Version 6,
Freenet system**

Technical data	
VS-08-BU-RJ45/10G-F	VS-PPC-F1-RJ45-MNNA-1R-F
Electrical data	
Nominal voltage U _N	50 V
Rated current	1 A
Housing material	Polycarbonate
Contact material	CuSn
Inflammability class according to UL 94	V0
No. of pos.	8
Connection method	IDC
Insertion/withdrawal cycles	≥ 750
Temperature data	
Ambient temperature (operation)	-10 °C ... 60 °C

Technical data	
VS-08-BU-RJ45-5-F/PK	VS-A-F-IP67
Electrical data	
Nominal voltage U _N	50 V
Rated current	1 A
Housing material	Polycarbonate
Contact material	CuSn
Inflammability class according to UL 94	V0
No. of pos.	8
Connection method	IDC
Insertion/withdrawal cycles	≥ 750
Temperature data	
Ambient temperature (operation)	-20 °C ... 70 °C

Ordering data			
Type	Order No.	Pcs. / Pkt.	
VS-08-BU-RJ45/10G-F	1424009	1	
VS-08-BU-RJ45-5-F/PK	1652936	1	
VS-08-BU/BU-RJ45-F	1405617	1	
VS-PPC-F1-RJ45-MNNA-1R-F	1405358	1	
VS-PPC-F1-RJ45-POBK-1R-F	1608197	1	
VS-PPC-F1-RJ45-MNNA-1C-F	1405222	1	

Ordering data			
Type	Order No.	Pcs. / Pkt.	
VS-08-BU-RJ45/10G-F	1424009	1	
VS-08-BU-RJ45-5-F/PK	1652936	1	
VS-08-BU/BU-RJ45-F	1405617	1	
VS-A-F-IP67	1653744	5	
VS-A-F-IP67-BK	1658668	5	

Accessories			
VS-PPC-C1-PC-ROBK-L	1405293	1	
VS-CABLE-STRIP-VARIO	1657407	1	

Accessories			
VS-08-SD-F	1652606	5	
VS-08-SD-F-BK	1658066	5	
VS-CABLE-STRIP-VARIO	1657407	1	

Electrical data	
Nominal voltage U _N	50 V
Rated current	1 A
Housing material	Polycarbonate
Contact material	CuSn
Inflammability class according to UL 94	V0
No. of pos.	8
Connection method	IDC
Insertion/withdrawal cycles	≥ 750
Temperature data	
Ambient temperature (operation)	-10 °C ... 60 °C

Description	
RJ45 Freenet socket insert , 8-pos., shielded, with cable connection 10 Gbps, CAT6 _A	
RJ45 Freenet socket insert , 8-pos., shielded, with cable connection 1 Gbps, CAT5	
RJ45 Freenet socket insert , 8-pos., shielded, socket to socket 1 Gbps, CAT5	
RJ45 Freenet panel mounting frame , version 14, IP65/IP67, for rectangular mounting cutout, with seal, without mounting screws	
Metal housing	
Plastic housing	
RJ45 Freenet panel mounting frame , version 14, IP65/IP67, for round mounting cutout, with seal and central nut	
Metal housing	
Freenet panel mounting frame , version 6, for round mounting cutout, with seal, without mounting screws	
Military gray RAL 7042	
Deep black RAL 9005	

Protective cover for version 6 panel mounting frame Military gray RAL 7042 Deep black RAL 9005	
Protective cover For data port	
Stripping tool , for multiple-stage repositioning of shielded conductors	

IP65/IP67 RJ45 panel mounting frame and socket inserts

Ethernet



Version 6,
keystone

Technical data

	VS-08-BU-RJ45-6/KA/LSA	VS-08-A-RJ45/MOD-1-IP67
Electrical data		
Rated voltage	250 V	-
Rated current	2 A	-
Transmission characteristics (category)	CAT6	-
Housing material	Nickel-plated brass	PA
Contact material	Copper alloy	-
Inflammability class according to UL 94	V0	V0
No. of pos.	8	-
Connection method	LSA	-
Connection cross section AWG	26 ... 22 (solid)	-
Insertion/withdrawal cycles	≥ 1000	≥ 1000
Temperature data		
Ambient temperature (operation)	-20 °C ... 70 °C	-40 °C ... 80 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
RJ45 socket insert , 8-pos., shielded, with cable connection			
CAT6	VS-08-BU-RJ45-6/KA/LSA	1653168	5
RJ45 socket insert , 8-pos., shielded, socket to socket			
CAT5	VS-08-BU-RJ45/BU	1689064	5
CAT6	VS-08-BU-RJ45-6-MOD/BU	1653155	5
RJ45 keystone panel mounting frame , version 6, for round mounting cutout, with seal and central nut			
Military gray RAL 7042	VS-08-A-RJ45/MOD-1-R-IP67	1689844	1
Deep black RAL 9005	VS-08-A-RJ45/MOD-1-R-IP67 BK	1658053	5
RJ45 keystone panel mounting frame , version 6, with rectangular mounting cutout, with seal, without mounting screws			
Military gray RAL 7042	VS-08-A-RJ45/MOD-1-IP67	1689080	5
Deep black RAL 9005	VS-08-A-RJ45/MOD-1-IP67-BK	1658642	5

Accessories

Description	Type	Order No.	Pcs. / Pkt.
Stripping tool , for multiple-stage repositioning of shielded conductors	VS-CABLE-STRIP-VARIO	1657407	1
Protective cover for version 6 panel mounting frame			
Military gray RAL 7042	VS-08-SD-F	1652606	5
Deep black RAL 9005	VS-08-SD-F-BK	1658066	5

IP65/IP67 RJ45 panel mounting frame and socket inserts



Push/pull, version 14, with PCB connection

Ethernet



Version 6, with PCB connection

Technical data	
VS-08-BU-RJ45-6/...	VS-PPC-F1-RJ45-MNNA-1R-PHA
Electrical data	
Rated voltage	125 V
Rated current	1 A
Housing material	Copper alloy
Contact material	Copper alloy
Inflammability class according to UL 94	V0
No. of pos.	8
Insertion/withdrawal cycles	≥ 750
Temperature data	
Ambient temperature (operation)	-25 °C ... 80 °C

Technical data	
VS-08-BU-RJ45/LP-1	VS-08-A-RJ45/LP-1-IP67...
Electrical data	
Rated voltage	150 V
Rated current	1.5 A
Housing material	-
Contact material	Copper alloy
Inflammability class according to UL 94	V0
No. of pos.	8
Insertion/withdrawal cycles	≥ 750
Temperature data	
Ambient temperature (operation)	-40 °C ... 85 °C

Ordering data			
Description	Type	Order No.	Pcs. / Pkt.
RJ45 socket insert , for PCB assembly, CAT6, 8-pos., shielded, with angled solder pins, 1x	VS-08-BU-RJ45-10G/LH-1	1420401	1
RJ45 socket insert , for PCB mounting, CAT5, 8-pos., shielded, with angled solder pins			
RJ45 socket insert , single, for PCB mounting, CAT6, 8-pos., shielded			
Straight solder pins	VS-08-BU-RJ45-6/LV-1	1653090	5
Angled solder pins	VS-08-BU-RJ45-6/LH-1	1653087	5
RJ45 panel mounting frame , version 14, IP65/IP67, for rectangular mounting cutout, with seal, without mounting screws			
Metal housing	VS-PPC-F1-RJ45-MNNA-1R-PHA	1608029	1
Plastic housing	VS-PPC-F1-RJ45-P0BK-1R-PHA	1657847	1
RJ45 panel mounting frame , version 6, for rectangular mounting cutout, with seal, without mounting screws			
Military gray RAL 7042			
Deep black RAL 9005			

Ordering data			
Description	Type	Order No.	Pcs. / Pkt.
	VS-08-BU-RJ45/LP-1	1688586	5
	VS-08-BU-RJ45-6/LV-1	1653090	5
	VS-08-BU-RJ45-6/LH-1	1653087	5
	VS-08-A-RJ45/LP-1-IP67	1689446	5
	VS-08-A-RJ45/LP-1-IP67-BK	1658655	5

Accessories			
Description	Type	Order No.	Pcs. / Pkt.
Stripping tool , for multiple-stage repositioning of shielded conductors	VS-CABLE-STRIP-VARIO	1657407	1
Protective cover For data port	VS-PPC-C1-PC-ROBK-L	1405293	1

Accessories			
Description	Type	Order No.	Pcs. / Pkt.
Stripping tool , for multiple-stage repositioning of shielded conductors	VS-CABLE-STRIP-VARIO	1657407	1
	VS-08-SD-F	1652606	5
	VS-08-SD-F-BK	1658066	5

IP65/IP67 RJ45 panel mounting frame including socket inserts



RJ45 panel mounting frame with socket insert, version 1



RJ45 panel mounting frame with socket insert, version 1

	Technical data			Technical data		
Electrical data						
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)			CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)		
Housing material	Zinc die-cast			Zinc die-cast		
Inflammability class according to UL 94	V0			V0		
No. of pos.	8			8		
Connection cross section AWG	-			26 ... 22 (stranded)		
Insertion/withdrawal cycles	750			750		
Temperature data						
Ambient temperature (operation)	-40 °C ... 70 °C			-40 °C ... 70 °C		
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
RJ45 panel mounting frame, IP67, for bayonet locking, metal, with socket/socket contact insert, for round mounting cutout, with seal, without mounting screws						
RJ45 panel mounting frame, IP67, for bayonet locking, metal, with contact insert for cable connection, for round mounting cutout, with seal, without mounting screws	VS-V1-F-RJ45-MNNA-1-C-S-JJ-S	1419184	1			
				VS-V1-F-RJ45-MNNA-1-C-S-JI-S	1419185	1
	Accessories			Accessories		
Protective cover, IP67, plastic, for covering the contact insert in the RJ45, LC, and SCRJ panel mounting frame	VS-V1-F-PC-POBK	1419186	1	VS-V1-F-PC-POBK	1419186	1

M12 plug-in connector, for assembly

Ethernet



M12 plug-in connector, 10 Gbps, Piercecon® connection

Ethernet



M12 plug-in connector, 100 Mbps, screw connection



Technical data

VS-08-M12...-10G-P-SCO

Electrical data

Nominal voltage U_N
Rated current
Transmission characteristics (category)
Material contact / contact surface
Material of grip body
Inflammability class according to UL 94
No. of pos.
Connection method
Connection cross section AWG
Insertion/withdrawal cycles

48 V
0.5 A
CAT6_A
CuSn / Ni/Au
Zinc die-cast, nickel-plated
V0
8
Piercecon®
26
≥ 100

Temperature data

Ambient temperature (operation)

-40 °C ... 85 °C

Ordering data

Description

Plug-in connector, CAT6_A, plug, 8-pos., shielded, X-coded, cable diameter: 4 mm ... 8 mm

straight

angled

Plug-in connector, Pg7 screw connection, 4-pos., D-coded, cable diameter: 4 mm ... 6 mm

Plug, straight

Plug-in connector, Pg9 screw connection, 4-pos., D-coded, cable diameter: 4 mm ... 8 mm

Plug, straight

Type	Order No.	Pcs. / Pkt.
VS-08-M12MS-10G-P SCO	1417430	1
VS-08-M12MR-10G-P SCO	1417443	1

Accessories

Stripping tool, for multiple-stage repositioning of shielded conductors

VS-CABLE-STRIP-VARIO	1657407	1
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Technical data

SACC-M12MSD-4CON-...-SH

60 V
4 A
CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
CuZn / Au
Zinc die-cast, nickel-plated
HB
4
Screw connection
24 ... 18
≥ 100

-40 °C ... 85 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
SACC-M12MSD-4CON-PG 7-SH	1521258	1
SACC-M12MSD-4CON-PG 9-SH	1521261	1

Accessories

VS-CABLE-STRIP-VARIO	1657407	1
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M12 plug-in connector, for assembly

Notes:
For description of connection method, see page 376



Ethernet



M12 plug-in connector, 100 Mbps and 1 Gbps, QUICKON connection



EtherCAT
Technology Group

SERCOS
the automation bus

PROFINET



M12 plug-in connector, 100 Mbps, QUICKON connection



Technical data	
SACC-M12...-4Q SH	SACC-M12...-8Q SH
Electrical data	
Nominal voltage U _N	60 V
Rated current	1.75 A
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuSn
Material of grip body	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0
No. of pos.	4
Connection method	Insulation displacement connection
Connection cross section AWG	26 ... 22
Insertion/withdrawal cycles	≥ 100
Temperature data	
Ambient temperature (operation)	-40 °C ... 85 °C



Technical data	
SACC-M12...-4Q SH PN	SACC-M12...-6Q SH VARAN
Electrical data	
Nominal voltage U _N	60 V
Rated current	1.75 A
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuSn
Material of grip body	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0
No. of pos.	4
Connection method	Insulation displacement connection
Connection cross section AWG	26 ... 22
Insertion/withdrawal cycles	≥ 100
Temperature data	
Ambient temperature (operation)	-40 °C ... 85 °C

Ordering data			
Type	Order No.	Pcs. / Pkt.	
Plug-in connector, 4-pos., shielded, D-coded, color-coded terminal blocks for Ethernet, max. cable diameter: 8 mm			
Plug, straight	SACC-M12MSD-4Q SH	1543223	1
Plug, angled	SACC-M12MRD-4Q SH	1553624	1
Socket, straight	SACC-M12FSD-4Q SH	1553611	1
Socket, angled	SACC-M12FRD-4Q SH	1553637	1
Plug-in connector, 8-pos., shielded, A-coded, color-coded terminal blocks for Ethernet, max. cable diameter: 8 mm			
Plug, straight	SACC-M12MS-8Q SH	1543236	1
Plug, angled	SACC-M12MR-8Q SH	1553653	1
Socket, straight	SACC-M12FS-8Q SH	1553640	1
Socket, angled	SACC-M12FR-8Q SH	1553666	1

Ordering data			
Type	Order No.	Pcs. / Pkt.	
Plug-in connector, 4-pos., shielded, D-coded, color-coded terminal blocks for PROFINET, max. cable diameter: 8 mm			
Plug, straight	SACC-M12MSD-4Q SH PN	1554513	1
Plug, angled	SACC-M12MRD-4Q SH PN	1554539	1
Socket, straight	SACC-M12FSD-4Q SH PN	1554526	1
Socket, angled	SACC-M12FRD-4Q SH PN	1554542	1
Plug-in connector, 6-pos., shielded, A-coded, color-coded terminal blocks for VARAN, max. cable diameter: 8 mm			
Plug, straight	SACC-M12MS-6Q SH VARAN	1429130	1
Plug, angled	SACC-M12MR-6Q SH VARAN	1429156	1
Socket, straight	SACC-M12FS-6Q SH VARAN	1429143	1
Socket, angled	SACC-M12FR-6Q SH VARAN	1429169	1

Accessories		
VS-CABLE-STRIP-VARIO	1657407	1

Accessories		
VS-CABLE-STRIP-VARIO	1657407	1

Stripping tool, for multiple-stage repositioning of shielded conductors

Network components - M12 plug-in connectors

M12 flush-type plug-in connector, with 0.5 m litz wires



Front mounting,
D-coded



Rear mounting,
D-coded

Electrical data	
Nominal voltage U_N	
Rated current	
Transmission characteristics (category)	
Contact material	
Material of grip body	
Inflammability class according to UL 94	
Connection method	
Insertion/withdrawal cycles	
Temperature data	
Plug / socket	[°C]



Technical data	
SACC-E-...-4CON-M16/0,5 SCO	
250 V	
4 A	
CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	
CuZn	
Zinc die-cast, nickel-plated	
V0	
Individual wires	
≥ 100	
-25 ... 85	



Technical data	
SACC-DSI-FSD-4CON...	
250 V	
4 A	
CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	
CuZn	
Zinc die-cast, nickel-plated	
V0	
Individual wires	
≥ 100	
-25 ... 85	

Description	
Bus system flush-type socket, PROFINET, 4-pos., M12 SPEEDCON, D-coded, front/screw mounting with M16 thread, with 0.5 m TPE litz wire, 4 x 0.34 mm²	
Socket	
Bus system flush-type socket, PROFINET, 4-pos., M12 SPEEDCON, D-coded, front/screw mounting with M16 thread, can be positioned, with 0.5 m TPE litz wire, 4 x 0.34 mm²	
Socket	
Bus system flush-type socket, PROFINET, 4-pos., M12 SPEEDCON, D-coded, rear/screw mounting with Pg9 thread, with 0.5 m TPE litz wire, 4 x 0.34 mm²	
Socket	

Ordering data		
Type	Order No.	Pcs. / Pkt.
SACC-E-FSD-4CON-M16/0,5 SCO	1535202	1
SACC-EC-FSD-4CON-M16/0,5 SCO	1535215	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
SACC-DSI-FSD-4CON-PG9/0,5 SCO	1551529	1

M12 flush-type plug-in connector with Ethernet cable



Ethernet, X-coded, cable type: 94F

Ethernet



Ethernet hybrid, Y-coded, cable type: 94I

Technical data	
VS-FSBPXS-OE-94F...	
Electrical data	
Nominal voltage U _N	48 V
Rated current	0.5 A
Transmission characteristics (category)	CAT6 _A
Contact material	CuZn
Material of grip body	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0
Insertion/withdrawal cycles	≥ 100
Temperature data	
Plug / socket	-40 ... 90 [°C]

Technical data	
VS-FSBPYS-OE-94I...	
Electrical data	
Nominal voltage U _N	30 V (Power and data)
Rated current	6 A (Power) / 0.5 A (Data)
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn
Material of grip body	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0
Insertion/withdrawal cycles	≥ 100
Temperature data	
Plug / socket	-40 ... 85

Ordering data				
Description	Cable length	Type	Order No.	Pcs. / Pkt.
Assembled Ethernet cable, CAT6_A, shielded, 4-pair, 26* AWG stranded (7-wire), RAL 5021 (water blue), M12 flush-type socket, rear/screw mounting with M16 fastening thread to free cable end	0.5 m	VS-FSBPXS-OE-94F/0,5	1424135	1
	1 m	VS-FSBPXS-OE-94F/1,0	1424148	1
	2 m	VS-FSBPXS-OE-94F/2,0	1424151	1
	5 m	VS-FSBPXS-OE-94F/5,0	1424164	1
	Assembled Ethernet cable, hybrid, shielded, 4 x 26 AWG (data) and 4 x 20 AWG (power), RAL 9005 (black), M12 flush-type socket, rear/screw mounting with M16 fastening thread to free cable end			
	0.5 m			
	1 m			
	2 m			
	5 m			

Ordering data				
Description	Cable length	Type	Order No.	Pcs. / Pkt.
		VS-FSBPYS-OE-94I/0,5 SCO	1407504	1
		VS-FSBPYS-OE-94I/1,0 SCO	1407505	1
		VS-FSBPYS-OE-94I/2,0 SCO	1407506	1
		VS-FSBPYS-OE-94I/5,0 SCO	1407507	1

Control cabinet feed-through/ bulkhead, M12/RJ45

EtherCAT
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Ethernet



Bulkhead,
10 Gbps

EtherCAT
ETHERCAT GROUP

SERCOS
the automation bus

PROFINET

Ethernet



Bulkhead,
100 Mbps and 1 Gbps



Technical data				Technical data			
Electrical data				VS-BH-M12FSX-10G-RJ45/...			
Nominal voltage U_N	60 V			50 V	VS-BH-M12FS-8CON-RJ45...		VS-BH-M12FSD-RJ45...
Rated current	0.5 A			1 A	1 A		
Transmission characteristics (category)	CAT6 _A			CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)		
Contact material	Copper alloy			Copper alloy	Copper alloy		
Material of grip body	PA			PA	-		
Inflammability class according to UL 94	V0			V0	V0		
Connection method	-			-	-		
Insertion/withdrawal cycles	≥ 100			≥ 100	-		
Temperature data							
Plug / socket	[°C]	-25 ... 85		-25 ... 85	-		
Ordering data				Ordering data			
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.	
Control cabinet feed-through, CAT6_A, M12, 8-pos., X-coded to RJ45 socket							
Socket exit 90°	VS-BH-M12FSX-10G-RJ45/90	1404548	1	VS-BH-M12FS-8CON-RJ45/ 90	1405057	1	
Socket exit 180°	VS-BH-M12FSX-10G-RJ45/180	1404549	1	VS-BH-M12FS-8CON-RJ45/180	1405060	1	
Control cabinet feed-through, M12, 8-pos., A-coded to RJ45 socket							
Socket exit 90°				VS-BH-M12FSD-RJ45/90	1657261	1	
Socket exit 180°				VS-BH-M12FSD-RJ45/180	1657494	1	
Control cabinet feed-through, M12, 4-pos., D-coded to RJ45 socket							
Socket exit 90°							
Socket exit 180°							

Data plug-in connectors and cables

Network components - assembled cables

Network cables, sold by the meter, Ethernet, shielded

Ethernet



2-pair, twisted pair

Ethernet



4-pair, twisted pair

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
PUR stranded - blue, 2 x 2 x 26 AWG, CAT5e, SF/UTP						
100 m cable ring	VS-OE-OE-93E-100,0	1416295	1			
Variable cable length	VS-OE-OE-93E/...	1417320	1			
PUR solid - blue, 4 x 2 x 24 AWG, CAT5e, SF/UTP						
100 m cable ring				VS-OE-OE-94A-100,0	1416305	1
Variable cable length				VS-94A/...	1416415	1
PUR stranded - blue, 4 x 2 x 26 AWG, CAT5e, SF/UTP						
100 m cable ring				VS-OE-OE-94B-100,0	1416567	1
Variable cable length				VS-OE-OE-94B/...	1417333	1
PUR suitable for use with drag chain - blue, 4 x 2 x 26 AWG, CAT5e, S/UTP						
100 m cable ring				VS-OE-OE-94C-100,0	1416318	1
Variable cable length				VS-OE-OE-94C/...	1417346	1
PVC stranded, outdoor - black, 4 x 2 x 26 AWG, CAT5e, SF/UTP						
100 m cable ring				VS-OE-OE-94D-100,0	1416334	1
Variable cable length				VS-94D/...	1416444	1
FRNC solid - blue, 4 x 2 x 23 AWG, CAT6 _A , S/FTP						
100 m cable ring				VS-OE-OE-94E-100,0	1416350	1
Variable cable length				VS-94E/...	1416460	1

Ordering example for cables with variable cable lengths:

For a network cable type **94A** with a cable length of 34.0 m, the ordering data is as follows:

Order No.	Length [m] Max. 100 m
1416415	34.0
	Increment: 1.0 m ... 100 m = 1.0 m

Assembled cables, Ethernet, 4-pos., shielded



Ethernet

Open cable end



OE

M8 plug



M8MS

RJ45 plug, IP20



R4AC

	M8 plug	M8 socket
	M8MS	M8FS
Ordering data	Ordering data	Ordering data
	Order No.	Order No.
Open cable end	1 m 1407344 2 m 1407345 5 m 1407346 10 m 1407347 Variable 1408719	Variable 1408716
M8 plug	1 m 1407348 2 m 1407349 5 m 1407350 10 m 1407351 Variable 1408718	Variable 1408715
RJ45 plug, IP20	1 m 1407352 2 m 1407353 5 m 1407354 10 m 1407355 Variable 1408717	Variable 1408714

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the 93B cable type and are available from stock.

Ordering data for cables with variable cable lengths:

For a network cable, type 93B, fitted with a straight M8 plug at one end and an RJ45 plug with IP20 protection at the other end, and 4.5 m in length, the ordering data is as follows:

Order No.	Cable type	Length [m]
1408717	93B	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Pin	Wire color	Signal
M8	RJ45	
1	YE	TD+
4	OG	TD-
2	WH	RD+
3	BU	RD-

Technical data

PROFINET [93B]

CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)

Transmission characteristics (category)

Cable structure
Conductor cross section
Conductor structure for signal
AWG signal line
Cable diameter
Conductor resistance
Type of shield

1x4xAWG22/7; SF/TQ
4x 0.34 mm²
7x 0.25 mm
22
6.5 mm
≤ 120 Ω/km
Aluminum-coated foil, tin-plated copper braided shield
Tin-plated Cu litz wires
PVC
Green RAL 6018
White, yellow, blue, orange

Conductor material
Outer sheath material
Color of outer sheath
Color, single wire

Ambient temperature

Fixed installation [°C] -40 ... 70
Flexible installation [°C] -40 ... 70

Assembled cables, Ethernet, 4-pos., shielded



Ethernet

Open cable end



OE

RJ45 plug, IP20



R4AC

RJ45 plug, version 6



R4MC

RJ45 plug, version 14, metal



R4RC

RJ45 plug, version 14, plastic



R4QC

M12 plug, SPEEDCON



MSD SCO

M12 plug, SPEEDCON



MRD SCO

RJ45 plug, IP20		RJ45 plug, version 6		RJ45 plug, version 14, metal		
R4AC		R4MC		R4RC		
Ordering data		Ordering data		Ordering data		
Order No.		Order No.		Order No.		
Open cable end	1 m	1405633	2 m	1405675	5 m	1405743
RJ45 plug, IP20	1 m	1408933	2 m	1405921	5 m	1405992
	2 m	1408934				
	5 m	1408935				
	10 m	1408936				
RJ45 plug, version 6			1 m	1408937		
			2 m	1408938		
			5 m	1408939		
			10 m	1408940		
RJ45 plug, version 14, metal					1 m	1408941
					2 m	1408942
					5 m	1408943
					10 m	1408945
RJ45 plug, version 14, plastic						
M12 plug, SPEEDCON						
M12 plug, SPEEDCON						

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the 93E cable type and are available from stock.

Ordering data for cables with variable cable lengths:

For a network cable, type 93E, fitted with a straight M12 plug at one end and an RJ45 plug with IP20 protection at the other end, and 4.5 m in length, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 100 m
1408712	93E	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	Cable type	Pin		Wire color	Signal
		M12	RJ45		
PUR stranded - blue, 2 x 2, CAT5e	93E	1	1	WHOG	TD+
		3	2	OG	TD-
		2	3	WHGN	RD+
		4	6	GN	RD-

RJ45 plug, version 14, plastic		M12 plug, SPEEDCON		M12 plug, SPEEDCON		M12 socket, SPEEDCON		M12 socket, SPEEDCON		M12 flush-type socket, rear mounting	
											
R4QC		MSD SCO		MRD SCO		FSD SCO		FRD SCO		FSDBP	
Ordering data		Ordering data		Ordering data		Ordering data		Ordering data		Ordering data	
Order No.		Order No.		Order No.		Order No.		Order No.		Order No.	
5 m	1405772	1 m	1407356	Variable	1408705	1 m	1407380	Variable	1408690	2 m	1405866
		2 m	1407357			2 m	1407381				
		5 m	1407358			5 m	1407382				
		10 m	1407359			10 m	1407383				
		Variable	1408713			Variable	1408697				
5 m	1406030	1 m	1407360	Variable	1408704	1 m	1407384	Variable	1408689	2 m	1406085
		2 m	1407361			2 m	1407385				
		5 m	1407362			5 m	1407386				
		10 m	1407363			10 m	1407387				
		Variable	1408712			Variable	1408696				
		1 m	1407364	Variable	1408703	1 m	1407388	Variable	1408688	2 m	1406247
		2 m	1407365			2 m	1407389				
		5 m	1407366			5 m	1407390				
		10 m	1407367			10 m	1407391				
		Variable	1408710			Variable	1408695				
		1 m	1407368	Variable	1408702	1 m	1407392	Variable	1408687	2 m	1406519
		2 m	1407369			2 m	1407393				
		5 m	1407370			5 m	1407394				
		10 m	1407371			10 m	1407395				
		Variable	1408709			Variable	1408694				
1 m	1408947	1 m	1407372	Variable	1408701	1 m	1407396	Variable	1408686	2 m	1406603
2 m	1408948	2 m	1407373			2 m	1407397				
5 m	1408946	5 m	1407374			5 m	1407398				
10 m	1408949	10 m	1407375			10 m	1407399				
Variable	1408707	Variable	1408700			Variable	1408693				
		1 m	1407376	Variable	1408700	1 m	1407400	Variable	1408684		
		2 m	1407377			2 m	1407401				
		5 m	1407378			5 m	1407402				
		10 m	1407379			10 m	1407403				
		Variable	1408706			Variable	1408692				
		Variable	1408699	Variable	1408691	Variable	1408683				

Technical data

Ethernet [93E]

Transmission characteristics (category)

CAT5 (IEC 11801:2002),
CAT5e (TIA 568B:2001)

Cable structure

2x2xAWG26/7; SF/UTP

Conductor cross section

2x 2x 0.14 mm²

Conductor structure for signal

7x 0.16 mm

AWG signal line

26

Cable diameter

6.4 mm

Conductor resistance

≤ 290 Ω/km (at 20 °C)

Type of shield

Aluminum-coated foil, tin-plated copper braided shield

Conductor material

Bare Cu litz wires

Outer sheath material

PUR

Color of outer sheath

water blue RAL 5021

Color, single wire

white/orange-orange,
white/green-green

Ambient temperature

Fixed installation

[°C]

-20 ... 80

Flexible installation

[°C]

-20 ... 80






RJ45 plug, version 14, plastic		M12 plug, SPEEDCON		M12 plug, SPEEDCON		M12 socket, SPEEDCON		M12 socket, SPEEDCON		M12 flush-type socket, rear mounting	
											
R4QC		MS SCO		MR SCO		FS SCO		FR SCO		FSBP	
Ordering data		Ordering data		Ordering data		Ordering data		Ordering data		Ordering data	
Order No.		Order No.		Order No.		Order No.		Order No.		Order No.	
5 m	1407819	1 m	1407404	Variable	1408675	1 m	1407439	Variable	1408657	5 m	1407877
		2 m	1407405			2 m	1407440				
		5 m	1407406			5 m	1407441				
		10 m	1407407			10 m	1407442				
		Variable	1408682			Variable	1408665				
5 m	1412024	1 m	1407414	Variable	1408674	1 m	1407443	Variable	1408655	5 m	1412082
		2 m	1407415			2 m	1407444				
		5 m	1407416			5 m	1407445				
		10 m	1407417			10 m	1407446				
		Variable	1408681			Variable	1408664				
		1 m	1407422	Variable	1408671	1 m	1407451	Variable	1408653	5 m	1412231
		2 m	1407423			2 m	1407452				
		5 m	1407424			5 m	1407453				
		10 m	1407425			10 m	1407454				
		Variable	1408679			Variable	1408662				
		1 m	1407426	Variable	1408670	1 m	1407455	Variable	1408652	5 m	1412503
		2 m	1407427			2 m	1407456				
		5 m	1407428			5 m	1407457				
		10 m	1407429			10 m	1407458				
		Variable	1408678			Variable	1408661				
1 m	1408965	1 m	1407430	Variable	1408668	1 m	1407459	Variable	1408651	5 m	1412590
2 m	1408966	2 m	1407431			2 m	1407460				
5 m	1408964	5 m	1407432			5 m	1407461				
10 m	1408967	10 m	1407433			10 m	1407462				
Variable	1408677	Variable	1408667			Variable	1408660				
		1 m	1407434	Variable	1408667	1 m	1407463	Variable	1408650		
		2 m	1407435			2 m	1407464				
		5 m	1407436			5 m	1407465				
		10 m	1407438			10 m	1407466				
		Variable	1408676			Variable	1408659				
		Variable	1408666			Variable	1408658			Variable	1408649

	Technical data	Technical data
Transmission characteristics (category)	Ethernet [94B] CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	Ethernet [94C] CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Cable structure	4x2xAWG26/7; SF/UTP	4x2xAWG26/19; S-UTP
Conductor cross section	4x 2x 0.14 mm ²	4x 2x 0.14 mm ²
Conductor structure for signal	7x 0.16 mm	19x 0.10 mm
AWG signal line	26	26
Cable diameter	6.4 mm	6.9 mm
Conductor resistance	≤ 290 Ω/km (at 20 °C)	≤ 290 Ω/km (at 20 °C)
Type of shield	Aluminum-coated foil, tin-plated copper braided shield	Tin-plated copper braided shield
Conductor material	Bare Cu litz wires	Bare Cu litz wires
Outer sheath material	PUR	PUR
Color of outer sheath	water blue RAL 5021	water blue RAL 5021
Color, single wire	white/blue-blue, white/orange-orange, white/green-green, white/brown-brown	white/blue-blue, white/orange-orange, white/green-green, white/brown-brown
Ambient temperature		
Fixed installation	[°C] -40 ... 80	-20 ... 80
Flexible installation	[°C] -40 ... 80	-20 ... 80

Assembled cables, Ethernet, 8-pos., shielded, CAT6_A



Ethernet

	RJ45 plug, IP20		M12 plug, SPEEDCON	
	R4AC		MSX SCO	
	Ordering data		Ordering data	
	Order No.		Order No.	
Open cable end				
			1 m	1407467
			2 m	1407468
			5 m	1407469
			10 m	1407470
			Variable	1408648
RJ45 plug, IP20				
	1 m	1418866	1 m	1407471
	2 m	1408360	2 m	1407472
	5 m	1418879	5 m	1407473
	10 m	1408367	10 m	1407474
			Variable	1408647
RJ45 plug, version 14, metal				
			1 m	1407475
			2 m	1407476
			5 m	1407477
			10 m	1407478
			Variable	1408646
RJ45 plug, version 14, plastic				
			1 m	1407479
			2 m	1407480
			5 m	1407481
			10 m	1407482
			Variable	1408645
M12 plug, SPEEDCON				
			1 m	1407483
			2 m	1407484
			5 m	1407485
			10 m	1407486
			Variable	1408644

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the 94F cable type and are available from stock.

Ordering data for cables with variable cable lengths:

For a network cable, type 94F, fitted with a straight M12 plug at one end and an RJ45 plug with IP20 protection at the other end, and 4.5 m in length, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 100 m
1408647	94F	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Cable description	Cable type	Pin		Wire color	Signal
		M12	RJ45		
PUR stranded - blue, 4 x 2, CAT6 _A	94F	1	1	WHOG	D1+
		2	2	OG	D1-
		7	5	WHBU	D3+
		8	4	BU	D3-
		3	3	WHGN	D2+
		4	6	GN	D2-
5	7	WHBN	D4+		
6	8	BN	D4-		

		Technical data
		Ethernet [94F]
Transmission characteristics (category)		CAT6 _A
Cable structure		4x2xAWG26/7; S/FTP
Conductor cross section		4x 2x 0.14 mm ²
Conductor structure for signal		7x 0.16 mm
AWG signal line		26
Cable diameter		6.4 mm
Conductor resistance		≤ 290 Ω/km (at 20 °C)
Type of shield		Tin-plated copper braided shield
Type of pair shielding		Aluminum-lined foil
Conductor material		Bare Cu litz wires
Outer sheath material		PUR
Color of outer sheath		water blue RAL 5021
Color, single wire		white/blue-blue, white/orange-orange, white/green-green, white/brown-brown
Ambient temperature		
Fixed installation	[°C]	-20 ... 80
Flexible installation	[°C]	-20 ... 80

Data plug-in connectors and cables

Network components - assembled cables

Assembled cables, Ethernet hybrid, 4+4-pos., shielded



Ethernet



M12 plug, SPEEDCON



MSY SCO

Ordering data

Open cable end	Order No.	
	1 m	1407487
	2 m	1407488
	5 m	1407489
	10 m	1407490
	Variable	1408642
M12 plug, SPEEDCON	Order No.	
	1 m	1407491
	2 m	1407492
	5 m	1407493
	10 m	1407494
	Variable	1408641

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the **94H** cable type and are available from stock.

Ordering data for cables with variable cable lengths:

For a network cable, type **94H**, fitted with a **straight M12 plug** at one end and an **RJ45 plug with IP20 protection** at the other end, and **4.5 m in length**, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 100 m
1408717	94H	4.5
Minimum order amount = 25 Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

Pin M12	Wire color	Signal
1	WHOG	TD+
2	OG	TD-
3	WHGN	RD+
4	GN	RD-
5	BU	
6	WH	
7	BN	
8	BK	

Transmission characteristics (category)

Cable structure	
Conductor cross section for signal	[mm ²]
Conductor structure for signal	
AWG signal line	
Conductor cross section for power	[mm ²]
Conductor structure for power	
AWG power supply	
Cable diameter	
Type of shield	
Conductor material	
Outer sheath material	
Color of outer sheath	
Color, single wire	

Ambient temperature

Fixed installation	[°C]	-40 ... 90
Flexible installation	[°C]	-30 ... 70

Technical data

Ethernet hybrid [94H]

CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
1x4xAWG26+1x4xAWG20
0.15
19x 0.10 mm
26
0.6
19x 0.20 mm
20
7.6 mm
Tin-plated copper braided shield
Bare Cu litz wires
PUR
Black RAL 9005
White/orange-orange, white/green-green, white, blue, brown, black

Network cables, sold by the meter,
PROFINET, shielded



4-wire, star quad

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
PVC solid - green , 1 x 4 x 22 AWG, CAT5e, SF/TQ, type A			
100 m cable ring	VS-OE-OE-93A-100,0	1416392	1
Variable cable length	VS-93A/...	1416486	1
PVC stranded - green , 1 x 4 x 22 AWG, CAT5e, SF/TQ, type B			
100 m cable ring	VS-OE-OE-93B-100,0	1416389	1
Variable cable length	VS-OE-OE-93B/...	1417362	1
PUR suitable for use with drag chain - green, 1 x 4 x 22 AWG, CAT5e, SF/TQ, type C			
100 m cable ring	VS-OE-OE-93C-100,0	1416376	1
Variable cable length	VS-OE-OE-93C/...	1417491	1
PUR suitable for use with robots - green, 1 x 4 x 22 AWG, CAT5e, S/TQ			
100 m cable ring	VS-OE-OE-93R-100,0	1416363	1
Variable cable length	VS-OE-OE-93R/...	1417388	1
RADOX® for railway applications - black, 1 x 4 x 22 AWG, CAT5e, SF/TQ			
Variable cable length	VS-OE-OE-937/...	1402687	1

Ordering example for cables
with variable cable lengths:

For a network cable type **93A** with a cable length of 34.0 m, the ordering data is as follows:

Order No.	Length [m] Max. 100 m
1416486	34.0
	Increment: 1.0 m ... 100 m = 1.0 m

Data plug-in connectors and cables

Network components - assembled cables

Assembled cables, PROFINET, 4-pos., shielded



Open cable end



OE

RJ45 plug, IP20



R4AC

RJ45 plug, IP20



R4ACR

RJ45 plug, version 14, metal



R4RC

RJ45 plug, version 14, plastic



R4QC

M12 plug, SPEEDCON



MSD SCO

M12 plug, SPEEDCON



MRD SCO

RJ45 plug, IP20		RJ45 plug, IP20		RJ45 plug, version 14, metal	
R4AC		R4ACR		R4RC	
Ordering data		Ordering data		Ordering data	
Order No.		Order No.		Order No.	
Open cable end				5 m	1416162
RJ45 plug, IP20		1 m	1408968	1 m	1418248
		2 m	1408969	2 m	1418277
		5 m	1408970		
		10 m	1408971	5 m	1416138
RJ45 plug, IP20					
				1 m	1409002
				2 m	1409003
				5 m	1409004
				10 m	1409005
RJ45 plug, version 14, metal					
				1 m	1408974
				2 m	1408975
				5 m	1408972
				10 m	1408976
RJ45 plug, version 14, plastic					
M12 plug, SPEEDCON					
M12 plug, SPEEDCON					
M12 plug, SPEEDCON					

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the 93B cable type and are available from stock.

Ordering data for cables with variable cable lengths:

For a network cable, type 93C, fitted with a straight M12 plug at one end and an RJ45 plug with IP20 protection at the other end, and 4.5 m in length, the ordering data is as follows:

Cable description	Cable type	Pin		Wire color	Signal
		M12	RJ45		
PVC stranded - green, 1 x 4, CAT5e	93B	1	1	YE	TD+
		3	2	OG	TD-
PUR suitable for use with drag chain - green, 1 x 4, CAT5e	93C	2	3	WH	RD+
		4	6	BU	RD-
PUR for robot applications - green, 1 x 4, CAT5e	93R				
RADOX® for railway applications - black, 1 x 4, CAT5e	937				
PUR stranded - green, 1 x 4, CAT5e	93M				

Order No.	Cable type	Length [m]
1408639	93C	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

RJ45 plug, version 14, plastic		M12 plug, SPEEDCON		M12 plug, SPEEDCON		M12 socket, SPEEDCON		M12 socket, SPEEDCON		M12 flush-type socket, rear mounting	
											
R4QC		MSD SCO		MRD SCO		FSD SCO		FRD SCO		FSDBP	
Ordering data		Ordering data		Ordering data		Ordering data		Ordering data		Ordering data	
Order No.		Order No.		Order No.		Order No.		Order No.		Order No.	
5 m	1416168	1 m	1407495			1 m	1407528			1 m	1437779
		2 m	1407496			2 m	1407529			2 m	1437782
		5 m	1407497			5 m	1407530			5 m	1437795
		10 m	1407498			10 m	1407531				
		Variable	1408640	Variable	1408633	Variable	1408623	Variable	1408615		
5 m	1416141	1 m	1407499			1 m	1407532				
		2 m	1407500			2 m	1407533				
		5 m	1407501			5 m	1407534				
		10 m	1407502			10 m	1407535				
		Variable	1408639	Variable	1408632	Variable	1408622	Variable	1408613		
		1 m	1407508			1 m	1407536				
		2 m	1407509			2 m	1407537				
		5 m	1407510			5 m	1407538				
		10 m	1407511			10 m	1407539				
		Variable	1408638	Variable	1408631	Variable	1408621	Variable	1408612		
		1 m	1407516			1 m	1407544				
		2 m	1407517			2 m	1407545				
		5 m	1407518			5 m	1407546				
		10 m	1407519			10 m	1407547				
		Variable	1408636	Variable	1408628	Variable	1408619	Variable	1408610		
1 m	1408978	1 m	1407520			1 m	1407548				
2 m	1408979	2 m	1407521			2 m	1407549				
5 m	1408977	5 m	1407522			5 m	1407551				
10 m	1408980	10 m	1407523			10 m	1407552				
		Variable	1408635	Variable	1408626	Variable	1408618	Variable	1408609		
		1 m	1407524			1 m	1407553				
		2 m	1407525			2 m	1407554				
		5 m	1407526			5 m	1407555				
		10 m	1407527			10 m	1407556				
		Variable	1408634	Variable	1408625	Variable	1408617	Variable	1408608		
				Variable	1408624	Variable	1408616	Variable	1408607		

	Technical data		Technical data		Technical data		Technical data	
	PROFINET [93B]		PROFINET [93C]		PROFINET [93R]		PROFINET [937]	
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	
Cable structure	1x4xAWG22/7; SF/TQ		1x4xAWG22/7; SF/TQ		1x4xAWG22/19; S/TQ		1x4xAWG22/7; SF/TQ	
Conductor cross section	4x 0.34 mm ²		4x 0.34 mm ²		4x 0.38 mm ²		4x 0.34 mm ²	
Conductor structure for signal	7x 0.25 mm		7x 0.25 mm		19x 0.16 mm		7x 0.25 mm	
AWG signal line	22		22		22		22	
Cable diameter	6.5 mm		6.5 mm		6.5 mm		6.6 mm	
Conductor resistance	≤ 120 Ω/km		≤ 120 Ω/km		≤ 120 Ω/km		≤ 54 Ω/km	
Type of shield	Aluminum-coated foil, tin-plated copper braided shield		Aluminum-coated foil, tin-plated copper braided shield		Tin-plated copper braided shield		Plastic-coated aluminum foil, tin-plated copper braided shield	
Conductor material	Tin-plated Cu litz wires		Tin-plated Cu litz wires		Tin-plated Cu litz wires		silver-plated Cu litz wires	
Outer sheath material	PVC		PUR		PUR		RADOX® GKW S	
Color of outer sheath	Green RAL 6018		Green RAL 6018		Green RAL 6018		Black RAL 9005	
Color, single wire	White, yellow, blue, orange		White, yellow, blue, orange		White, yellow, blue, orange		White, yellow, blue, orange	
Ambient temperature								
Fixed installation	[°C]	-40 ... 70	-40 ... 70	-40 ... 70	-40 ... 80	-40 ... 80	-40 ... 90	
Flexible installation	[°C]	-40 ... 70	-40 ... 70	-40 ... 70	-40 ... 80	-40 ... 80	-25 ... 90	

Data plug-in connectors and cables

Network components - assembled cables

Assembled cables, EtherCAT, 4-pos., shielded



Open cable end



OE

RJ45 plug, IP20



R4AC

RJ45 plug, IP20



R4ACR

M12 plug, SPEEDCON



MSD SCO

M12 plug, SPEEDCON



MRD SCO

RJ45 socket, Freenet



F4AC

	RJ45 plug, IP20	RJ45 plug, IP20	M12 plug, SPEEDCON
	R4AC	R4ACR	MSD SCO
Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order No.
			1 m 1407557
			2 m 1407558
			5 m 1407559
			10 m 1407560
			Variable 1408600
	1 m 1408981	1 m 1402505	1 m 1407561
	2 m 1408982	2 m 1402508	2 m 1407562
	5 m 1408983		5 m 1407563
	10 m 1408984		10 m 1407564
			Variable 1408599
		1 m 1409006	1 m 1407565
		2 m 1409007	2 m 1407566
		5 m 1409014	5 m 1407567
		10 m 1409015	10 m 1407568
			Variable 1408598
			1 m 1407569
			2 m 1407570
			5 m 1407571
			10 m 1407572
			Variable 1408597
	2 m 1419142		

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the 93G cable type and are available from stock.

Cable description	Cable type	Pin		Wire color	Signal
		M12	RJ45		
PVC stranded - green, 1 x 4, CAT5e	93G	1	1	YE	TD+
		3	2	OG	TD-
PUR suitable for use with drag chain - green, 1 x 4, CAT5e	93H	2	3	WH	RD+
		4	6	BU	RD-

Ordering data for cables with variable cable lengths:

For a network cable, type 93H, fitted with a straight M12 plug at one end and an RJ45 plug with IP20 protection at the other end, and 4.5 m in length, the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 100 m
1408599	93H	4.5
Minimum order amount = 25		
Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m		

M12 plug, SPEEDCON	M12 socket, SPEEDCON	M12 socket, SPEEDCON	M12 flush-type socket, rear mounting
			
MRD SCO	FSD SCO	FRD SCO	FSDBP
Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order No.
Variable 1408596	Variable 1408590	Variable 1408584	1 m 1419135 2 m 1419136 5 m 1419137
Variable 1408595	Variable 1408589	Variable 1408583	2 m 1419146
Variable 1408594	Variable 1408587	Variable 1408582	
Variable 1408593	Variable 1408586	Variable 1408581	
Variable 1408592	Variable 1408585	Variable 1408580	

	Technical data	Technical data
	EtherCAT [93G]	EtherCAT [93H]
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Cable structure	1x4xAWG22/7; SF/TQ	1x4xAWG22/7; SF/TQ
Conductor cross section	4x 0.34 mm ²	4x 0.34 mm ²
Conductor structure for signal	7x 0.25 mm	7x 0.25 mm
AWG signal line	22	22
Cable diameter	6.5 mm	6.5 mm
Conductor resistance	≤ 120 Ω/km	≤ 120 Ω/km
Type of shield	Aluminum-coated foil, tin-plated copper braided shield	Aluminum-coated foil, tin-plated copper braided shield
Conductor material	Tin-plated Cu litz wires	Tin-plated Cu litz wires
Outer sheath material	PVC	PUR
Color of outer sheath	Green RAL 6018	Green RAL 6018
Color, single wire	White, yellow, blue, orange	White, yellow, blue, orange
Ambient temperature		
Fixed installation	[-40 ... 70 °C]	-40 ... 70
Flexible installation	[-40 ... 70 °C]	-40 ... 70

Ethernet RJ45, patch cables



Ethernet

RJ45 plug, IP20, straight



RJ45 plug, IP20, angled



RJ45 plug, IP20, straight



RJ45 plug, IP20, angled



Ordering data

Order No.

0.3 m	1417993
0.5 m	1418028
1 m	1418057
2 m	1418109
5 m	1418141

Ordering data

Order No.

0.3 m	1418002
0.5 m	1418031
1 m	1418070
2 m	1418125
5 m	1418154

0.3 m	1418015
0.5 m	1418044
1 m	1418099
2 m	1418138
5 m	1418167

Notes:

For information about the cable qualities, see page 366

Pin	RJ45 ^{*)}	RJ45 ^{*)}	Wire color	Signal
1	1	1	WHOG	D1+
2	2	2	OG	D1-
5	5	5	WHBU	D3+
4	4	4	BU	D3-
3	3	3	WHGN	D2+
6	6	6	GN	D2-
7	7	7	WHBN	D4+
8	8	8	BN	D4-

*) RJ45 assignment according to TIA568B

Transmission characteristics (category)

Cable structure
Conductor cross section
Conductor structure for signal
AWG signal line
Cable diameter
Conductor resistance

Type of shield

Conductor material
Outer sheath material
Color of outer sheath
Color, single wire

Ambient temperature

Fixed installation	[°C]	-40 ... 70
Flexible installation	[°C]	-10 ... 50

Technical data

Ethernet cable

CAT6_A
4x2xAWG26/7; S/FTP
4x 2x 0.14 mm²
7x 0.16 mm
26
6.4 mm
≤ 290 Ω/km (at 20 °C)

Tin-plated copper braided shield

Bare Cu litz wires
PUR
water blue RAL 5021
white/blue-blue,
white/orange-orange,
white/green-green,
white/brown-brown

RJ45 patch cables

Ethernet



RJ45 patch cables for IP20 applications

		Technical data		
		FL CAT5 PATCH 0,3	FL CAT6 PATCH 0,3	
Cable, properties				
External diameter		5.5 mm	5.5 mm	
Single wire, material		Cu litz wire	Cu litz wire	
Individual wires per module		8	8	
Single wire, cross section		0.14 mm ²	0.14 mm ²	
Outer sheath, material		LSFROH	LSFROH	
Smallest bending radius, fixed installation		30 mm	30 mm	
Shielding		SF/UTP	S/FTP	
Connector				
Volume resistance		≤ 0.003 Ω (IEC 60603-7)	≤ 0.003 Ω (IEC 60603-7)	
General data				
Ambient temperature (operation)		-10 °C ... 60 °C	-10 °C ... 60 °C	
		Ordering data		
Description	Length of cable	Type	Order No.	Pcs. / Pkt.
Patch cable, CAT5, pre-assembled				
	0.3 m	FL CAT5 PATCH 0,3	2832250	10
	0.5 m	FL CAT5 PATCH 0,5	2832263	10
	1 m	FL CAT5 PATCH 1,0	2832276	10
	1.5 m	FL CAT5 PATCH 1,5	2832221	10
	2 m	FL CAT5 PATCH 2,0	2832289	10
	3 m	FL CAT5 PATCH 3,0	2832292	10
	5 m	FL CAT5 PATCH 5,0	2832580	10
	7.5 m	FL CAT5 PATCH 7,5	2832616	10
	10 m	FL CAT5 PATCH 10,0	2832629	10
Patch cable, CAT6, pre-assembled				
	0.3 m	FL CAT6 PATCH 0,3	2891181	10
	0.5 m	FL CAT6 PATCH 0,5	2891288	10
	1 m	FL CAT6 PATCH 1,0	2891385	10
	1.5 m	FL CAT6 PATCH 1,5	2891482	10
	2 m	FL CAT6 PATCH 2,0	2891589	10
	3 m	FL CAT6 PATCH 3,0	2891686	10
	5 m	FL CAT6 PATCH 5,0	2891783	10
	7.5 m	FL CAT6 PATCH 7,5	2891880	10
	10 m	FL CAT6 PATCH 10	2891877	10
	12.5 m	FL CAT6 PATCH 12,5	2891369	5
	15 m	FL CAT6 PATCH 15,0	2891372	5
	20 m	FL CAT6 PATCH 20,0	2891576	5



Dust protection for SFN switches and patch fields



Security lock for SFN switches and patch fields

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Dust protection with color coding , for SFN switch and angled patch connector - Black - Blue - Brown - Yellow - Gray - Green - Red - Violet - White	FL DUST CVR BK FL DUST CVR BU FL DUST CVR BN FL DUST CVR YE FL DUST CVR GY FL DUST CVR GN FL DUST CVR RD FL DUST CVR VT FL DUST CVR WH	2891107 2891204 2891301 2891408 2891505 2891602 2891709 2891806 2891903	10 10 10 10 10 10 10 10 10			
Security frame for SFN switch and patch fields - Green - Red - White				FL PLUG GUARD GN FL PLUG GUARD RD FL PLUG GUARD WH	2891615 2891712 2891819	20 20 20
Locking element for security frame FL PLUG GUARD... - Locking element - Key				FL PORT GUARD FL PLUG GUARD KEY	2891220 2891327	20 1
Color coding for FL CAT ...PATCH... - Black - Blue - Brown - Yellow - Gray - Green - Red - Violet						
Security element for FL CAT ...PATCH... - Security element						
Lockable security element for FL PATCH... - Security element, lockable - Key						





Color coding for RJ45 FL patch cables



Security element for RJ45 FL patch cables



Lockable security element for RJ45 FL patch cables

Ordering data			Ordering data			Ordering data		
Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
FL PATCH CCODE BK	2891194	20						
FL PATCH CCODE BU	2891291	20						
FL PATCH CCODE BN	2891495	20						
FL PATCH CCODE YE	2891592	20						
FL PATCH CCODE GY	2891699	20						
FL PATCH CCODE GN	2891796	20						
FL PATCH CCODE RD	2891893	20						
FL PATCH CCODE VT	2891990	20						
			FL PATCH SAFE CLIP	2891246	20			
						FL PATCH GUARD	2891424	20
						FL PATCH GUARD KEY	2891521	1



Ethernet M12 switch

The **FL SWITCH 1605** was developed for use in harsh environments. Thanks to its degree of protection and compact design, it is ideal for use directly in the machine.

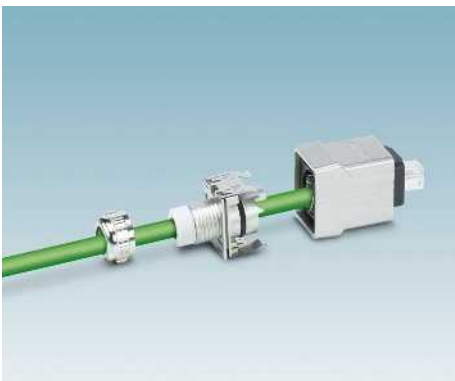
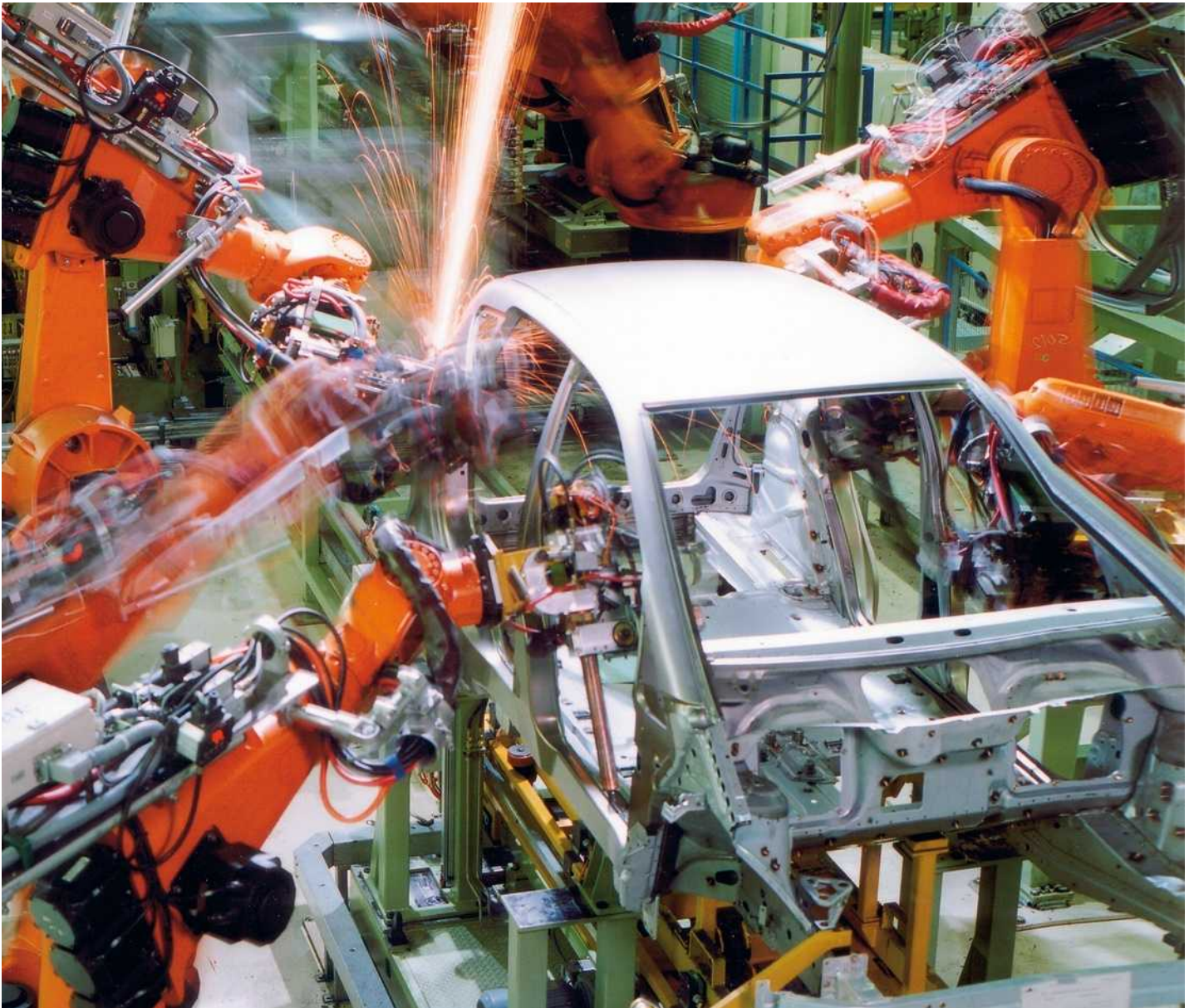
Ethernet



**Standard switch,
IP67 protection**



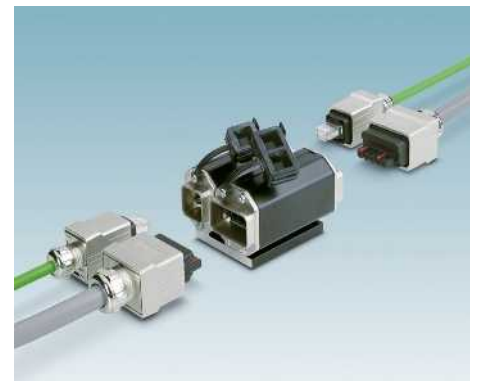
Technical data								
Ethernet interface								
Number of ports	5 (M12 socket)							
Transmission speed	10/100 Mbps							
Connection method	M12							
Function								
Basic functions	Unmanaged switch / autonegotiation, complies with IEEE 802.3, store and forward switching mode							
Status and diagnostic indicators	LEDs: U _S (voltage supply), link and activity per port							
Network expansion parameters								
Cascading depth	Network, linear, and star structure: any							
Maximum conductor length (twisted pair)	100 m							
Power supply								
Supply voltage	24 V DC (M12 plug-in connector)							
Residual ripple	3.6 V _{PP}							
Supply voltage range	18 V DC ... 32 V DC							
Typical current consumption	40 mA (24 V DC)							
General data								
Weight	220 g							
Width	30 mm							
Height	200 mm							
Depth	41 mm							
Degree of protection	IP65/IP66/IP67							
Ambient temperature (operation)	-40 °C ... 70 °C							
Permissible humidity (operation)	10% ... 95%							
Ordering data								
Description	<table border="1"> <thead> <tr> <th>Type</th> <th>Order No.</th> <th>Pcs. / Pkt.</th> </tr> </thead> <tbody> <tr> <td>Ethernet switch - 5 Ethernet ports in M12 format</td> <td>FL SWITCH 1605 M12</td> <td>2700200</td> <td>1</td> </tr> </tbody> </table>	Type	Order No.	Pcs. / Pkt.	Ethernet switch - 5 Ethernet ports in M12 format	FL SWITCH 1605 M12	2700200	1
Type	Order No.	Pcs. / Pkt.						
Ethernet switch - 5 Ethernet ports in M12 format	FL SWITCH 1605 M12	2700200	1					



The EMC-protected installation concept facilitates easy and EMC-safe cabling with hose packs from the control cabinet to the robot head based on the cabling guidelines for PROFINET.



The integrated installation system significantly reduces assembly effort and consists of cascadable individual components that are coordinated with one another for flexible connection of the hose packs.



Particularly in the field of welding robots or conveyor systems, it is important to use a consistent shielding concept for installation in order to prevent interference on the data cables.

Copper-based,
EMC-safe installation systems



Push/pull robot interface,
with RJ45 and power inserts



Push/pull robot interface,
with RJ45 inserts

	Technical data			Technical data		
Electrical data	VS-MP-PPC/CG-PO/10G			VS-MP-PPC/CG-10G		
Transmission characteristics (category)	CAT6 _A			CAT6 _A		
Material data	Aluminum alloy			Aluminum alloy		
Connection data	-			-		
Connection method	-			-		
Connection cross section AWG	5 mm ... 8 mm (Data cable gland)			5 mm ... 8 mm (Data cable gland)		
Cable cross section	> 1000 (Data)			> 1000 (Data)		
Insertion/withdrawal cycles	-			-		
Temperature data	-40 °C ... 70 °C			-40 °C ... 70 °C		
Ambient temperature (operation)	-			-		
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Multi-port connection , for passive PROFINET cabling to robots, including mounting foot, for cable diameter :						
5 mm ... 8 mm	VS-MP-PPC/CG-PO/10G	1403682	1	VS-MP-PPC/CG-10G	1403678	1
7 mm ... 10.5 mm	VS-MP-PPC/CG-XL-PO/10G	1403688	1	VS-MP-PPC/CG-XL-10G	1403686	1
Multi-port power connection : push/pull power, for passive PROFINET cabling to robots, including mounting foot						
	VS-MP-PPC/CG-PO	1403681	1			
Multi-port power coupling : for passive PROFINET cabling to robots, including mounting foot						
	VS-MP-PPC/PPC-PO	1403684	1			
Multi-port data coupling : for passive PROFINET cabling to robots, including mounting foot						
Metal housing				VS-MP-PPC/PPC-1G	1403685	1
	Accessories			Accessories		
Protective cover						
For data port	VS-PPC-C1-PC-ROBK-L	1405293	1	VS-PPC-C1-PC-ROBK-L	1405293	1
For power port	VS-PPC-C2-PC-ROBK-L	1405303	1	VS-PPC-C2-PC-ROBK-L	1405303	1
Stripping tool , for multiple-stage repositioning of shielded conductors	VS-CABLE-STRIP-VARIO	1657407	1	VS-CABLE-STRIP-VARIO	1657407	1

RJ45 terminal outlets, IP65/IP67

Ethernet

**PROFI
NET**

sercos
the automation bus



Terminal outlet with RJ45 slots

Ethernet

**PROFI
NET**

sercos
the automation bus



Terminal outlet with M12 slots

Technical data

VS-TO-RO-MCBK-F141...

CAT6

Aluminum cast alloy, powder-coated

black

IP65/67

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-TO-RO-MCBK-F1411/1411	1404281	1
VS-TO-RO-MCBK-F1418/1418	1404278	1
VS-TO-RO-MCBK-F1411/1413	1404333	1

Technical data

VS-TO-RO-MCBK-F142...

CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)

Aluminum cast alloy, powder-coated

black

IP65/67

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-TO-RO-MCBK-F1422/1422	1404304	1
VS-TO-RO-MCBK-F1421/1421	1404294	1

Electrical data	
Transmission characteristics (category)	
Material data	
Housing material	
Mechanical data	
Color	
Degree of protection	

Description
Terminal outlet, IP65/IP67, 2 slots, version 14, with protective plugs, 2 cable entries Push/pull with 2 x RJ45
Terminal outlet, RJ45, IP65/67, 2 slots, version 6, with protective plugs, 2 cable entries 2 x RJ45
Terminal outlet, IP65/IP67, 2 slots, version 14, with protective plugs, 2 cable entries Push/pull with 1 x power and 1 x RJ45
Terminal outlet, M12, IP65/67, 2 slots, with protective plugs, 2 cable entries M12 with 2 x sockets, 8-pos., A-coded M12 with 2 x socket, 4-pos., D-coded

RJ45 couplings, IP65/IP67

Ethernet



RJ45 coupling, version 6, with protective cover



RJ45 push/pull coupling, version 14, with protective cover

	Technical data			Technical data		
	VS-08-KU-IP67			VS-PPC-J-1-RJ45-MNBK		
Electrical data						
Rated voltage	50 V			-		
Rated current	1 A			-		
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)			CAT5		
Material data						
Housing material	PBT			Aluminum alloy		
Contact material	Copper alloy			-		
Inflammability class according to UL 94	V0			-		
Mechanical data						
No. of pos.	8			-		
Degree of protection	IP67			IP65		
Temperature data						
Ambient temperature (operation)	-10 °C ... 60 °C			-		
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
RJ45 coupling, IP67, CAT5e, with protective cover						
Military gray RAL 7042	VS-08-KU-IP67	1689268	1			
Deep black RAL 9005	VS-08-KU-IP67-BK	1658684	1			
Multi-port data coupling: for passive PROFINET cabling to robots, including mounting foot						
Metal housing				VS-MP-PPC/PPC-1G	1403685	1

RJ45 patch panel, IP20

Ethernet



Patch panel, 1 port,
with various connection types

Ethernet



Patch panel with IDC fast connection

Technical data		Technical data	
Electrical data	FL-PP-RJ45-...	Technical data	VS-PP-F-RJ45-CAT6
Rated voltage	-	50 V	
Rated current	-	1 A	
Transmission characteristics (category)	-	CAT6	
Material data			
Housing material	PVC/PA	PC-GF	
Contact material	-	Copper alloy	
Inflammability class according to UL 94	-	V0	
Mechanical data			
No. of pos.	-	8	
Color	green	gray	
Degree of protection	IP20	IP20	
Connection method	-	IDC fast connection	
Conductor cross section	-	0.2 mm ² ... 0.32 mm ²	
Connection cross section AWG	-	24 ... 22	
Temperature data			
Ambient temperature (operation)	-25 °C ... 70 °C	-10 °C ... 60 °C	
Ordering data		Ordering data	
Description	Type	Order No.	Pcs. / Pkt.
Patch panel, one RJ45 socket to 8 IDC connection terminal blocks (1:1 assignment), CAT5e, 10/100/1000 Mbps, DIN rail mounting, IP20, option of shield contacting on DIN rail via jumpers	FL-PP-RJ45-LSA	2901645	1
Patch panel, one RJ45 socket to 8 screw connection terminal blocks (1:1 assignment), CAT5e, 10/100/1000 Mbps, DIN rail mounting, IP20, option of shield contacting on DIN rail via jumpers	FL-PP-RJ45-SC	2901643	1
Patch panel, two RJ45 sockets (1:1 assignment), CAT5e, 10/100/1000 Mbps, DIN rail mounting, IP20, option of shield contacting on DIN rail via jumpers	FL-PP-RJ45/RJ45	2901646	1
Patch panel, one RJ45 socket to 8 spring-cage connection terminal blocks (1:1 assignment), CAT5e, 10/100/1000 Mbps, DIN rail mounting, IP20, option of shield contacting on DIN rail via jumpers	FL-PP-RJ45-SCC	2901642	1
RJ45 patch panel , DIN rail mounting, IP20, CAT6 for 1 Gbps			
		VS-PP-F-RJ45-CAT6	1658118
			1

Patch fields

Ethernet



Patch fields with Freetnet RJ45 sockets

Ethernet interface
Interface
Number of ports
Weight
Width
Height
Depth
Degree of protection
Ambient temperature (operation)
Housing material

Technical data		
FL PF 2TX CAT5E		FL PF 8TX CAT5E
Ethernet (RJ45)		
2		8
125 g		260 g
38 mm		124 mm
112 mm		135 mm
88 mm		140 mm
IP20		
0 °C ... 55 °C (no condensation)		
Metal		

Description
Patch field, 2 RJ45 network connections
- CAT5e
- CAT6
Patch field, 8 RJ45 network connections
- CAT5e
- CAT6

Ordering data		
Type	Order No.	Pcs. / Pkt.
FL PF 2TX CAT5E	2891165	1
FL PF 2TX CAT 6	2891068	1
FL PF 8TX CAT5E	2891178	1
FL PF 8TX CAT 6	2891071	1

RJ45 patch panel and terminal outlet, IP20



RJ45 patch panel for 19" rack and matching socket inserts



IP20 terminal outlets for surface and flush-type mounting, plus corresponding RJ45 socket inserts

Technical data	
Electrical data	VS-PP-19-1HE-16-F
Rated voltage	-
Rated current	-
Transmission characteristics (category)	-
Material data	
Housing material	PC-GF
Contact material	-
Inflammability class according to UL 94	V0
Mechanical data	
No. of pos.	-
Color	gray
Degree of protection	IP20
Connection method	-
Conductor cross section	-
Connection cross section AWG	-
Temperature data	
Ambient temperature (operation)	5 °C ... 55 °C

Technical data	
VS-08-BU-RJ45-5-F/PK	
Rated voltage	50 V
Rated current	1 A
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Material data	
Housing material	-
Contact material	Copper alloy
Inflammability class according to UL 94	V0
Mechanical data	
No. of pos.	8
Color	-
Degree of protection	IP20
Connection method	IDC
Conductor cross section	0.2 mm ² ... 0.32 mm ² (solid)
Connection cross section AWG	24 ... 22 (solid)
Temperature data	
Ambient temperature (operation)	-20 °C ... 70 °C

Technical data	
VS-TO-OW-2-F-9010	VS-08-BU-RJ45-6-F/PK
Rated voltage	50 V
Rated current	1 A
Transmission characteristics (category)	CAT6
Material data	
Housing material	PC+ABS
Contact material	-
Inflammability class according to UL 94	HB
Mechanical data	
No. of pos.	8
Color	Pure white RAL 9010
Degree of protection	IP20
Connection method	IDC
Conductor cross section	0.14 mm ² ... 0.35 mm ²
Connection cross section AWG	26 ... 22 (7-wire)
Temperature data	
Ambient temperature (operation)	5 °C ... 55 °C

Ordering data	
Description	Type
Patch panel, 19" mounting, IP20, 16 slots for Freenet contact inserts	VS-PP-19-1HE-16-F
Terminal outlet, IP20, with slots for Freenet contact inserts	
Flush-type socket, two slots	
Surface-mounted socket, two slots	
RJ45 Freenet socket insert, 8-pos., shielded, socket to socket	
1 Gbps, CAT5	VS-08-BU/BU-RJ45-F
RJ45 Freenet socket insert, 8-pos., shielded, with cable connection	
1 Gbps, CAT5	VS-08-BU-RJ45-5-F/PK
10 Gbps, CAT6 _A	VS-08-BU-RJ45/10G-F

Ordering data		
Type	Order No.	Pcs. / Pkt.
VS-PP-19-1HE-16-F	1652994	1
VS-08-BU/BU-RJ45-F	1405617	1
VS-08-BU-RJ45-5-F/PK	1652936	1
VS-08-BU-RJ45/10G-F	1424009	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
VS-TO-IW-2-F-9010	1653016	1
VS-TO-OW-2-F-9010	1653003	1
VS-08-BU-RJ45-5-F/PK	1652936	1
VS-08-BU-RJ45/10G-F	1424009	1

POWER distributor, IP67



Push/pull Y-distributor



Power H-distributor

		Technical data			Technical data		
Electrical data		VS-PPC-J-1220-1227-1020-0,2			VS-PPC-J-4X-1227		
Rated voltage		24 V			24 V		
Rated current		16 A			16 A		
Material data		Aluminum, die-cast			Zinc die-cast		
Housing material							
Mechanical data		5			5		
No. of pos.		IP65/67			IP65/67		
Degree of protection							
Temperature data		-40 °C ... 70 °C (cable, fixed installation)			-40 °C ... 70 °C		
Ambient temperature (operation)							
		Ordering data			Ordering data		
Description		Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
PROFINET Y-distributor with assembled power cable, 5-pos., IP65/IP67, MSTB connector with metal housing to 2 x sockets in metal housing, conductor length:							
0.2 m		VS-PPC-J-1220-1227-1020-0,2	1404799	1			
Variable		VS-PPC-J-1220-1227-1020-...	1405484	1			
PROFINET Y-distributor with assembled power cable, 5-pos., IP65/IP67, 7/8" connector with metal housing to 2 x sockets in metal housing, conductor length:							
0.2 m		VS-PPC-J-1226-1227-1021-0,2	1404812	1			
Variable		VS-PPC-J-1226-1227-1021-...	1405497	1			
Power H-distributor , 4 x MSTB contact inserts, metal housing, without mounting screws					VS-PPC-J-4X-1227	1405387	1
Mounting foot for power distributors, plastic		VS-PPC-J-M	1405390	1	VS-PPC-J-M	1405390	1
		Accessories			Accessories		

Ordering example for products with variable cable:

For a distributor with a cable length of 34.5 m, the order data is as follows:

Order No.	Length [m]
1405484	34.5
	Increment: 0.5 m; Maximum length: 50 m

Data plug-in connectors and cables

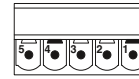
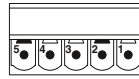
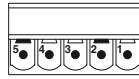
Network components - power plug-in connectors and cables

Assembled POWER cables 2.5 mm²

Power, metal, 24 V

Power, plastic, 24 V

Power, plastic, 400 V



Ordering data

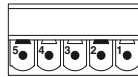
Ordering data

Ordering data

Ordering data

Ordering data

Power, metal, 24 V



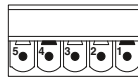
Order No.	Order No.	Order No.	Order No.	Order No.
1 m	1609170			
2 m	1609183			
5 m	1609196			
Variable	1609206			

Power, plastic, 24 V



1 m	1609251
2 m	1609264
5 m	1609277
Variable	1609280

Power, plastic, 400 V



1 m	1609374
2 m	1609387
5 m	1609390
Variable	1609400

Ordering example for cable with variable cable length:

Assembled PROFINET power cable for 24 V, with two push/pull plug-in connectors in metal design and a cable length of 34.5 m.

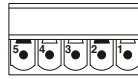
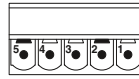
Order No.	Length [m] Max. 100 m
1609206	34.5
1609280 1609400	Increments: 1.0 m ... 3.0 m = 0.1 m > 3.0 m = 0.5 m

Technical data	Technical data		
	Power, metal, 24 V	Power, plastic, 24 V	Power, plastic, 400 V
Housing material	Zinc die-cast	PA-GF	PA-GF
Outer sheath, material	PVC	PVC	PVC
Conductor cross section [mm ²]	2.5	2.5	2.5
External cable diameter [mm]	11.8	11.8	11.8
Degree of protection	IP65/67	IP65/67	IP65/67
Ambient temperature			
Fixed installation [°C]	-40 ... 70	-40 ... 70	-40 ... 70
Flexible installation [°C]	-5 ... 70	-5 ... 70	-5 ... 70
Plug / socket [°C]	-40 ... 70	-40 ... 70	-40 ... 70

**Assembled POWER cables
1.5 mm²**

Power, metal, 24 V

Power, plastic, 24 V



Ordering data Ordering data Ordering data

Power, 7/8"		Ordering data	Ordering data	Ordering data
		Order No.	Order No.	Order No.
	1 m	1609219	1 m	1609293
	2 m	1609222	2 m	1609303
	5 m	1609235	5 m	1609316
	Variable	1609248	Variable	1609329

Ordering example for cable with variable cable length:

Assembled PROFINET power cable for 24 V, with one push/pull plug-in connector in metal design and a 7/8" plug and a cable length of 34.5 m.

Order No.	Length [m] Max. 100 m
1609248	34.5
1609329	Increments: 1.0 ... 3.0 m = 0.1 m > 3.0 m = 0.5 m

Technical data	Technical data	
	Power, plastic, 24 V	Power, metal, 24 V
Housing material	Zinc die-cast/PBT	PA-GF/PBT
Outer sheath, material	PVC	PVC
Conductor cross section [mm ²]	1.5	1.5
External cable diameter [mm]	10	10
Degree of protection	IP65/67	IP65/67
Ambient temperature		
Fixed installation [°C]	-40 ... 70	-40 ... 70
Flexible installation [°C]	-5 ... 70	-5 ... 70
Plug / socket [°C]	-40 ... 70	-40 ... 70

Fiber optic plug-in connectors, cables, and panel feed-throughs for POF, HCS, and GOF, IP65/IP67

Ethernet



M12 optic plug-in connectors



M12 transceiver

	Technical data			Technical data		
Material data						
Ferrule material	Copper alloy			-		
Inflammability class according to UL 94	V0			V0		
Degree of protection	IP65/67			IP65/67		
External cable diameter	-			-		
Temperature data						
Ambient temperature (operation)	-20 °C ... 70 °C			-20 °C ... 70 °C		
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Assembled fiber optic cable , round cable, M12 FO to M12 FO, for installation inside buildings, length: 5 m						
For 980/1000 µm POF fiber	FOC-PN-B-1000/M12-C/M12-C/5	1416680	1			
For 200/230 µm HCS fiber	FOC-HCS-GI-1005/M12-C/M12-C/5	1416693	1			
Assembled fiber optic cable , round cable, M12 FO to SCRJ/IP20, for installation inside housing, length: 5 m						
For 980/1000 µm POF fiber	FOC-PN-B-1000/M12-C/SCRJ/5	1416648	1			
For 200/230 µm HCS fiber	FOC-HCS-GI-1005/M12-C/SCRJ/5	1416651	1			
M12 fiber optic transceiver , duplex, for POF fiber, for PCB mounting, M16 fastening thread, with sealing cap						
Wavelength: 650 nm				FOC-M12-MNNA-TC-650	1416716	1
M12 fiber optic coupling , duplex, suitable for all fibers, with wall bracket, IP65 protection				FOC-M12-BU/BU	1416677	1
Repair set , 10 replacement ferrules for M12 fiber optic plug-in connectors in plastic box						
For 980/1000 µm POF fiber	FOC-M12-RS-POF	1406421	1			
For 200/230 µm HCS fiber	FOC-M12-RS-HCS	1406422	1			

Fiber optic plug-in connectors, panel mounting frames, and couplings for POF, IP20 and IP65/IP67

Ethernet



SCRJ plug-in connector, version 6, for 980/1000 µm polymer fibers

Ethernet



SCRJ panel mounting side, version 6, for 980/1000 µm polymer fibers

	Technical data			Technical data		
	VS-SCRJ-...-IP20	VS-SCRJ-...-IP67		VS-SCRJ-GOF-BU/BU		
Material data						
Housing material	PBT	PA		PBT		
Ferrule material	Copper alloy	Copper alloy		Zirconia ceramics		
Inflammability class according to UL 94	V0	V0		V0		
Color	black	gray		-		
Degree of protection	IP20	IP67		IP20		
Insertion/withdrawal cycles	≥ 1000	≥ 1000		≥ 500		
Temperature data						
Ambient temperature (operation)	-20 °C ... 70 °C	-20 °C ... 70 °C		-25 °C ... 70 °C		
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector , duplex, with fast connection						
IP20	VS-SCRJ-POF-FA-IP20	1654879	1			
IP67	VS-SCRJ-POF-FA-IP67	1657009	1			
Connector set for polymer fibers (diameter of the individual elements: 2.2 mm), for self-assembly, with bend protection						
- F-SMA set, 4 connectors	PSM-SET-FSMA/4-KT	2799720	1			
- SCRJ set, 2 duplex connectors	PSM-SET-SCRJ-DUP/2-POF	2708656	1			
SCRJ socket insert , duplex, for panel mounting frame VARIOSUB IP67, can be used for glass, multi-mode, HCS and polymer						
- 1 x SCRJ/SCRJ (duplex)				VS-SCRJ-GOF-BU/BU	1652978	1
VS-SCRJ panel mounting frame , for use with an AVAGO transceiver, type: AFBR5978Z				VS-SCRJ-A-TC-IP67	1658545	1
Freenet panel mounting frame , version 6, for round mounting cutout, with seal, without mounting screws						
				VS-A-F-IP67	1653744	5
Military gray RAL 7042				VS-A-F-IP67-BK	1658668	5
Deep black RAL 9005						
	Accessories			Accessories		
Protective cover for version 6 panel mounting frame				VS-08-SD-F	1652606	5
Military gray RAL 7042				VS-08-SD-F-BK	1658066	5
Deep black RAL 9005						
SCRJ cutting tool set , for polymer fiber, for field assembly of SCRJ/IP20 and SCRJ/IP67 push/pull plug-in connectors with fast connection technology, consisting of stripping tool, aramid scissors, SCRJ cutting tool, microscope	TF-SCRJ-POF KONF SET	1405246	1			
Protective cover SCRJ/IP67 , for covering the SCRJ pin insert on the SCRJ/IP67 sleeve housing	VS-SCRJ-PC	1653757	5			

Fiber optic plug-in connectors, panel mounting frames and couplings for POF, push/pull

Ethernet



SCRJ plug-in connector, version 14, for 980/1000 µm polymer fibers

Ethernet



SCRJ panel mounting side, version 14, for 980/1000 µm polymer fibers

Technical data	
Metal housing	Plastic housing
Zinc die-cast	PA-GF
Copper alloy	Copper alloy
V0	V0
silver	black
IP65/67	IP65/67
≥ 500	≥ 500
-40 °C ... 70 °C	

Technical data	
Metal housing	Plastic housing
Zinc die-cast	PA-GF
-	-
V0	V0
silver	black
IP65/67	IP65/67
≥ 500	≥ 500
-40 °C ... 80 °C	

Technical data	
Metal housing	Plastic housing
Zinc die-cast	PA-GF
-	-
V0	V0
silver	black
IP65/67	IP65/67
≥ 500	≥ 500
-40 °C ... 80 °C	

Ordering data

Ordering data

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector, IP67, with push/pull interlocking, duplex, with fast connection technology			
Metal housing	VS-PPC-C1-SCRJ-MNNA-PG9-A4D-C	1608032	1
Plastic housing	VS-PPC-C1-SCRJ-POBK-PG9-A4D-C	1657850	1
SCRJ panel mounting frame, IP67, for push/pull interlocking, for rectangular mounting cutout, for AVAGO transceiver (type: AFBR5978Z) on PCB, with seal, without mounting screws			
Metal housing			
Plastic housing			
SCRJ panel mounting frame, IP67, for push/pull interlocking, with Freenet system, for rectangular mounting cutout, with seal, without mounting screws			
Metal housing			
Plastic housing			
SCRJ panel mounting frame, IP67, for push/pull interlocking, metal, with Freenet system, for round mounting cutout, with seal			

Type	Order No.	Pcs. / Pkt.
VS-PPC-C1-SCRJ-MNNA-PG9-A4D-C	1608032	1
VS-PPC-C1-SCRJ-POBK-PG9-A4D-C	1657850	1
VS-PPC-F1-SCRJ-MNNA-1RP	1608061	1
VS-PPC-F1-SCRJ-POBK-1RP	1657889	1
VS-PPC-F1-SCRJ-MNNA-1RF	1405374	1
VS-PPC-F1-SCRJ-POBK-1RF	1608210	1
VS-PPC-F1-SCRJ-MNNA-1C-F	1405235	1

Type	Order No.	Pcs. / Pkt.
VS-PPC-F1-SCRJ-MNNA-1RP	1608061	1
VS-PPC-F1-SCRJ-POBK-1RP	1657889	1
VS-PPC-F1-SCRJ-MNNA-1RF	1405374	1
VS-PPC-F1-SCRJ-POBK-1RF	1608210	1
VS-PPC-F1-SCRJ-MNNA-1C-F	1405235	1

Accessories

Accessories

Accessories

Description	Type	Order No.	Pcs. / Pkt.
Protective cover For data port SCRJ cutting tool set, for polymer fiber, for field assembly of SCRJ/IP20 and SCRJ/IP67 push/pull plug-in connectors with fast connection technology, consisting of stripping tool, aramid scissors, SCRJ cutting tool, microscope	TF-SCRJ-POF KONF SET	1405246	1
SCRJ polishing tool set, for polymer fiber, for field assembly of SCRJ/IP20 and SCRJ/IP67 plug-in connectors with fast connection system	VS-SCRJ-POF-KONFTOOL-POLISH	1658820	1
Protective cover, IP65, with push/pull interlocking, for covering the contact insert in the push/pull connector for RJ45 and SCRJ, plastic	VS-PPC-F1-PC-POBK	1405316	1

Type	Order No.	Pcs. / Pkt.
TF-SCRJ-POF KONF SET	1405246	1
VS-SCRJ-POF-KONFTOOL-POLISH	1658820	1
VS-PPC-F1-PC-POBK	1405316	1

Type	Order No.	Pcs. / Pkt.
VS-PPC-C1-PC-ROBK-L	1405293	1

Fiber optic plug-in connectors and panel feed-throughs, version 1, for POF, IP65/IP67



SCRJ plug-in connector, version 1



Fiber optic panel mounting frame, version 1

	Technical data			Technical data		
	VS-V1-C-...A4A-G			VS-V1-F-...C-S-A1		
Material data	Zinc die-cast			Zinc die-cast		
Housing material	silver			-		
Color	IP67			IP67		
Degree of protection	500			500		
Insertion/withdrawal cycles	-40 °C ... 70 °C			-40 °C ... 70 °C		
Temperature data						
Ambient temperature (operation)						
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector , IP67, with bayonet locking, metal housing, duplex, with adhesive connection technology, for 5.0 mm ... 8.0 mm cable diameter						
For POF fiber	VS-V1-C-SCRJ-MNNA-PG9-A4A-G	1419189	1			
SCRJ panel mounting frame , IP67, for bayonet locking, metal, SCRJ to 2 x SC, for round mounting cutout, with seal, without mounting screws, with coupling for:						
Multi-mode, PCF, and POF				VS-V1-F-SCRJ-MNNA-PG9-C-S-A1	1420197	1
	Accessories			Accessories		
Protective cover , IP67, plastic, for covering the contact insert in the RJ45, LC, and SCRJ connector	VS-V1-C-PC-POBK	1419183	1			
Protective cover , IP67, plastic, for covering the contact insert in the RJ45, LC, and SCRJ panel mounting frame				VS-V1-F-PC-POBK	1419186	1

Network components - fiber optic plug-in connectors

Fiber optic plug-in connectors, panel mounting frames, and couplings for HCS, IP20 and IP65/IP67

Ethernet



SCRJ plug-in connector, version 6, for 200/230 μm HCS fibers

Ethernet



SCRJ panel mounting side, version 6, for 200/230 μm HCS fibers

Material data
Housing material
Ferrule material
Inflammability class according to UL 94
Color
Degree of protection
Insertion/withdrawal cycles
Temperature data
Ambient temperature (operation)

Technical data	
VS-SCRJ-...-IP20	VS-SCRJ-...-IP67
PBT	PA
Copper alloy	Copper alloy
V0	V0
black	gray
IP20	IP67
≥ 1000	≥ 1000
-20 °C ... 70 °C	-20 °C ... 70 °C

Technical data	
VS-SCRJ-GOF-BU/BU	
PBT	
Zirconia ceramics	
V0	
-	
IP20	
≥ 500	
-25 °C ... 70 °C	

Ordering data

Ordering data		
Type	Order No.	Pcs. / Pkt.

Ordering data		
Type	Order No.	Pcs. / Pkt.

SCRJ fiber optic plug-in connector, IP20 , duplex, with fast connection technology, for 200/230 μm HCS fiber
For single wire diameter: 2.9 mm
Connector set for HCS fibers (diameter of the individual elements: 2.9 mm), for self-assembly, with bend protection
- F-SMA set, 4 connectors
- B-FOC (ST®) set, 4 connectors
- SCRJ set, 2 duplex connectors
SCRJ fiber optic plug-in connector, IP67 , duplex, with fast connection technology, for HCS fiber 200/230 μm, for individual wire diameter 2.9 mm, for cable cross section 5.0 mm ... 8.5 mm
SCRJ socket insert , duplex, for panel mounting frame VARIOSUB IP67, can be used for glass, multi-mode, HCS and polymer
- 1 x SCRJ/SCRJ (duplex)
VS-SCRJ panel mounting frame , for use with an AVAGO transceiver, type: AFBR5978Z
Freetnet panel mounting frame , version 6, for round mounting cutout, with seal, without mounting screws
Military gray RAL 7042
Deep black RAL 9005

VS-SCRJ-HCS-FA-IP20	1654866	1
PSM-SET-FSMA/4-HCS	2799487	1
PSM-SET-B-FOC/4-HCS	2708481	1
PSM-SET-SCRJ-DUP/2-HCS	2313070	1
VS-SCRJ-HCS-FA-IP67	1657012	1

VS-SCRJ-GOF-BU/BU	1652978	1
VS-SCRJ-A-TC-IP67	1658545	1
VS-A-F-IP67	1653744	5
VS-A-F-IP67-BK	1658668	5

Accessories

Accessories		
Type	Order No.	Pcs. / Pkt.

Accessories		
Type	Order No.	Pcs. / Pkt.

Protective cover for version 6 panel mounting frame
Military gray RAL 7042
Deep black RAL 9005
Protective cover SCRJ/IP67 , for covering the SCRJ pin insert on the SCRJ/IP67 sleeve housing
HCS (GI) DIY case for SCRJ and SC duplex quick mounting connectors, stripping blade, stripping pliers, aramid yarn scissors, fiber stripper, fiber cleaving tool, and microscope

VS-SCRJ-PC	1653757	5
PSM-HCS-KONFTOOL/SC-RJ	2708876	1

VS-08-SD-F	1652606	5
VS-08-SD-F-BK	1658066	5
PSM-HCS-KONFTOOL/SC-RJ	2708876	1

Fiber optic plug-in connectors, panel mounting frames, and couplings for HCS, IP20 and IP65/IP67

Ethernet



SCRJ plug-in connector, version 14, for 200/230 µm HCS fibers

Ethernet



SCRJ plug-in connector, version 14, for 200/230 µm HCS fibers

	Technical data			Technical data		
	Metal housing	Plastic housing		Metal housing	Plastic housing	
Material data						
Housing material	Zinc die-cast	PA-GF		Zinc die-cast	PA-GF	
Ferrule material	Copper alloy	Copper alloy		-	-	
Inflammability class according to UL 94	V0	V0		V0	V0	
Color	silver	black		silver	black	
Degree of protection	IP65/67	IP65/67		IP65/67	IP65/67	
Insertion/withdrawal cycles	≥ 500	≥ 500		≥ 500	≥ 500	
Temperature data						
Ambient temperature (operation)	-40 °C ... 70 °C	-20 °C ... 70 °C		-40 °C ... 80 °C	-40 °C ... 80 °C	
Ordering data						
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector, IP67, with push/pull interlocking, duplex, with fast connection technology						
Metal housing	VS-PPC-C1-SCRJ-MNNA-PG9-A3C-C	1608045	1			
Plastic housing	VS-PPC-C1-SCRJ-POBK-PG9-A3C-C	1657863	1			
SCRJ fiber optic plug-in connector, IP20, duplex, with fast connection technology, for 200/230 µm HCS fiber						
For single wire diameter: 2.2 mm	VS-SCRJ-HCS-FA-IP20-PN	1404087	1			
Connector set for PROFINET HCS fibers (diameter of the individual elements: 2.2 mm), for self-assembly, with bend protection						
- SC duplex set, 2 duplex connectors	PSM-SET-SC-DUPLEX/2-HCS/PN	2313779	1			
- B-FOC (ST®) set, 4 connectors	PSM-SET-B-FOC/4-HCS/PN	2313782	1			
- SCRJ set, 2 duplex connectors	PSM-SET-SCRJ-DUP/2-HCS/PN	2313546	1			
SCRJ panel mounting frame, IP67, for push/pull interlocking, for rectangular mounting cutout, for AVAGO transceiver (type: AFBR5978Z) on PCB, with seal, without mounting screws						
Metal housing				VS-PPC-F1-SCRJ-MNNA-1RP	1608061	1
Plastic housing				VS-PPC-F1-SCRJ-POBK-1RP	1657889	1
SCRJ panel mounting frame, IP67, for push/pull interlocking, with Freenet system, for rectangular mounting cutout, with seal, without mounting screws						
Metal housing				VS-PPC-F1-SCRJ-MNNA-1RF	1405374	1
Plastic housing				VS-PPC-F1-SCRJ-POBK-1RF	1608210	1
SCRJ panel mounting frame, IP67, for push/pull interlocking, metal, with Freenet system, for round mounting cutout, with seal						
				VS-PPC-F1-SCRJ-MNNA-1C-F	1405235	1
Accessories						
Protective cover	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
For data port						
Protective cover, IP65, with push/pull interlocking, for covering the contact insert in the push/pull connector for RJ45 and SCRJ, plastic	VS-PPC-F1-PC-POBK	1405316	1	VS-PPC-C1-PC-ROBK-L	1405293	1
HCS (GI) DIY case for SCRJ and SC duplex quick mounting connectors, stripping blade, stripping pliers, aramid yarn scissors, fiber stripper, fiber cleaving tool, and microscope	PSM-HCS-KONFTOOL/SC-RJ	2708876	1			

Fiber optic plug-in connectors and panel mounting frames, version 1 for GOF, IP65/IP67



Fiber optic plug-in connector, version 1



Fiber optic panel mounting frame, version 1

Material data
Housing material
Inflammability class according to UL 94
Color
Degree of protection
Insertion/withdrawal cycles
Temperature data
Ambient temperature (operation)

Technical data	
VS-V1-C-SCRJ-MNNA-PG9...	
Zinc die-cast	
V0	
silver	
IP67	
500	
-40 °C ... 70 °C	

Technical data	
VS-V1-F-SCRJ-MNNA-PG9-C-S...	
Zinc die-cast	
V0	
-	
IP67	
500	
-40 °C ... 70 °C	

Description
SCRJ fiber optic plug-in connector , IP67, with bayonet locking, metal housing, duplex, with adhesive connection technology, for 5.0 mm ... 8.0 mm cable diameter
For multi-mode fiber For single mode fiber
LC fiber optic connector , IP67, with bayonet locking, metal housing, duplex, with adhesive connection technology, for 5.0 mm ... 8.0 mm cable diameter
For multi-mode fiber For single mode fiber
SCRJ panel mounting frame , IP67, for bayonet locking, metal, SCRJ to 2 x SC, for round mounting cutout, with seal, without mounting screws, with coupling for:
Multi-mode, PCF, and POF Single mode
LC panel mounting frame , IP67, for bayonet locking, metal, for round mounting cutout, with seal, without mounting screws, with coupling for:
Multi-mode Single mode

Ordering data		
Type	Order No.	Pcs. / Pkt.
VS-V1-C-SCRJ-MNNA-PG9-A1-G	1419187	1
VS-V1-C-SCRJ-MNNA-PG9-B1-G	1419188	1
VS-V1-C-LC-MNNA-PG9-A1-G	1419190	1
VS-V1-C-LC-MNNA-PG9-B1-G	1419191	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
VS-V1-F-SCRJ-MNNA-PG9-C-S-A1	1420197	1
VS-V1-F-SCRJ-MNNA-PG9-C-S-B1	1420207	1
VS-V1-F-LC-MNNA-PG9-C-S-A1	1420210	1
VS-V1-F-LC-MNNA-PG9-C-S-B1	1420223	1

Accessories	
Protective cover , IP67, plastic, for covering the contact insert in the RJ45, LC, and SCRJ connector	
Protective cover , IP67, plastic, for covering the contact insert in the RJ45, LC, and SCRJ panel mounting frame	

Accessories		
VS-V1-C-PC-POBK	1419183	1

Accessories		
VS-V1-F-PC-POBK	1419186	1

Fiber optic patch panel



Patch panel, SCRJ, socket/socket, for polymer fibers, HCS fibers, and multi-mode fiberglass



Patch panel for 19" rack and matching socket inserts

Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
SCRJ patch panel, DIN rail mounting, IP20, 1 slot	VS-PP-F-SCRJ	1658121	1
Patch panel, 19" mounting, IP20, 16 slots for Freenet contact inserts			

Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
	VS-PP-19-1HE-16-F	1652994	1

Fiber optic terminal outlet



IP20 outlet boxes



IP65/IP67 terminal outlet, with SCRJ and power slots

Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
Terminal outlet, IP20, with slots for Freenet contact inserts			
Surface-mounted socket, two slots	VS-TO-OW-2-F-9010	1653003	1
Flush-type socket, two slots	VS-TO-IW-2-F-9010	1653016	1
Surface-mounted socket, six slots	VS-TO-OW-6-F-9010	1653029	1
Terminal outlet, SCRJ/power, IP65/67, push/pull, 2 slots version 14, with protective plugs, 2 cable entries			
Terminal outlet, SCRJ, IP65/67, push/pull, 2 slots version 14, with protective plugs, 2 cable entries			

Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
	VS-TO-RO-MCBK-F1417/1413	1404346	1
	VS-TO-RO-MCBK-F1417/1417	1404320	1

Installation system for fiber optics,
IP56/IP67



Push/pull robot interface,
with SCRJ and power inserts



Push/pull robot interface,
with SCRJ inserts

Material data
Housing material
Connection data
Connection profile
Insertion/withdrawal cycles
Temperature data
Ambient temperature (operation)

Technical data	
VS-MP-PPC/CG-PO/FO	VS-MP-PPC/CG-PO
Aluminum alloy	Aluminum alloy
Data/power: SCRJ/5-pos. ≥ 500 (Data) // ≤ 100 (Power)	Power: 5-pos. ≤ 100 (Power)
-40 °C ... 70 °C	-40 °C ... 70 °C

Technical data	
VS-MP-PPC/CG-FO	
Aluminum alloy	
Data: SCRJ ≥ 500 (Data)	
-40 °C ... 70 °C	

Description
Multi-port connection , for passive PROFINET cabling to robots, including mounting foot, for cable diameter :
5 mm ... 8 mm 7 mm ... 10.5 mm
Multi-port power connection : push/pull power, for passive PROFINET cabling to robots, including mounting foot
Multi-port power coupling : for passive PROFINET cabling to robots, including mounting foot

Ordering data		
Type	Order No.	Pcs. / Pkt.
VS-MP-PPC/CG-PO/FO	1404321	1
VS-MP-PPC/CG-XL-PO/FO	1404325	1
VS-MP-PPC/CG-PO	1403681	1
VS-MP-PPC/PPC-PO	1403684	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
VS-MP-PPC/CG-FO	1404319	1
VS-MP-PPC/CG-XL-FO	1404324	1

Protective cover
For data port
For power port
Stripping tool , for multiple-stage repositioning of shielded conductors

Accessories		
VS-PPC-C1-PC-ROBK-L	1405293	1
VS-PPC-C2-PC-ROBK-L	1405303	1
VS-CABLE-STRIP-VARIO	1657407	1

Accessories		
VS-CABLE-STRIP-VARIO	1657407	1

Fiber optic couplings

Ethernet



SCRJ coupling



Couplings for connecting FO cables

Description	Ordering data			Type	Ordering data		
	Type	Order No.	Pcs. / Pkt.		Order No.	Pcs. / Pkt.	
<p>SCRJ coupling, for terminal outlets VS-TO-... and 19" patch panels VS-PP-19-1HE-16-F and front plate VS-SI-FP-2F</p> <p>Coupling; set, consisting of:</p> <ul style="list-style-type: none"> - 2 x F-SMA/F-SMA - 2 x B-FOC (ST®)/B-FOC (ST®) - 1 x SCRJ/SCRJ (duplex) - 1 x LC/LC (duplex, multi-mode fiber) - 1 x LC/LC (duplex, single mode fiber) - 1 x SC duplex/SC duplex 	VS-SCRJ-GOF-KU	1654358	1				
				PSM-SET-FSMA-LINK/2	2799416	1	
				PSM-SET-BFOC-LINK/2	2799429	1	
				VS-SCRJ-GOF-BU/BU	1652978	1	
				FL MM PATCH COUPLER LC-LC	2700312	1	
				FL SM PATCH COUPLER LC-LC	2700313	1	
				FL COUPLER SC-DUPLEX	2901788	1	

Coupling, version 14, IP65/IP67

Ethernet

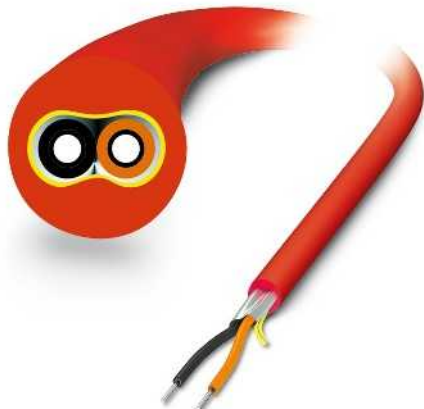


Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
<p>SCRJ push/pull coupling, IP67, metal, with protective cover, color: nickel-plated</p>	VS-PPC-J-1-SCRJ-MNBK	1405206	1

Data plug-in connectors and cables

Network components - assembled fiber optic cables

Universal POF cable for assembly, type KDHEAVY-1011



- Universal installation cable for fixed installation indoors
- 2.2 mm individual wires made from extremely hard-wearing polyamide chloride (PA)
- Halogen-free, ozone and UV resistant
- Robust polyurethane (PUR) outer cable sheath

	Free end	FSMA plug, IP20	SCRJ plug, IP20
	OE	FSMA	SCRJ
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Free end			
	OE		
FSMA plug, IP20			
	FSMA		
SCRJ plug, IP20			
	SCRJ		
B-FOC (ST®) plug, IP20			
	BFOC		
SCRJ plug, IP67			
	IP67		
Push/pull SCRJ, plastic			
	PPCPL		
Push/pull SCRJ, metal			
	PPCME		
	By the meter	2744319	
	Variable	2901553	Variable
	Variable	2901553	Variable
	Variable	2901553	Variable
	Variable	2901553	Variable
	Variable	2901553	Variable
	Variable	2901553	Variable
	Variable	2901553	Variable
	Variable	1402188	Variable
	Variable	1402188	Variable
	Variable	1402188	Variable
	Variable	1402188	Variable

Ordering example for configured cable:

For a POF cable, fitted with an SCRJ plug at one end and a plastic SCRJ push/pull plug-in connector at the other end, and 15 m in length, the ordering data is as follows:

Order No.	Plug 1	Plug 2	Length [m]
1402188	SCRJ	PPCPL	15





Length:	Min. 0.5 m	
	Max. 100 m	
Increment:	0.25 m	1 m ... 5 m
	1 m	5 m ... 100 m

Ordering example for cable sold by the meter:

For a POF cable 70 m in length, the ordering data is as follows:

Order No.	Length [m]
2744319	70

Length:	Min. 0.5 m	
	Max. 500 m/cable drum	
Increment:	0.25 m	1 m ... 5 m
	1 m	5 m ... 500 m

B-FOC (ST®) plug, IP20	SCRJ plug, IP67	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
			
BFOC	IP67	PPCPL	PPCME
Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order No.

Variable 2901553	Variable 1402188	Variable 1402188	Variable 1402188
Variable 2901553	Variable 1402188	Variable 1402188	Variable 1402188

Variable 2901553	Variable 1402188	Variable 1402188	Variable 1402188
Variable 2901553	Variable 1402188	Variable 1402188	Variable 1402188

Variable 1402188	Variable 1402188	Variable 1402188	
Variable 1402188		Variable 1402188	

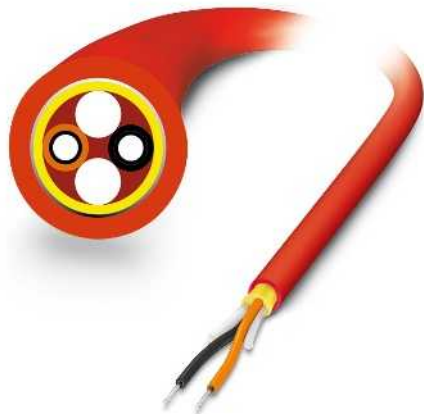
Variable 1402188			Variable 1402188
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Cable data	Technical data
Cable abbreviation in accordance with IEC 61977:2010	J-V11Y 4Y2P 980/1000 160A
Fibers	10 Polymer fiber, 980/1000 µm
Attenuation, typical	230 dB/km (at 660 nm)
Outer sheath	
Material	PUR
Color	red
Diameter	5.5 - 6.5 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PA
Color	black/orange
Diameter	2.2 mm ±0.07 mm
General data	
Weight	33 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Data plug-in connectors and cables

Network components - assembled fiber optic cables

Robust POF cable for free assembly, type RUGGED-1012



- Robust installation cable for fixed installation indoors
- Dimensioned for higher requirements in respect of tensile load and lateral pressure
- 2.2 mm individual wires made from extremely hard-wearing polyamide chloride (PA)
- Halogen-free, ozone and UV resistant
- Reinforced polyurethane (PUR) outer cable sheath

	Free end	FSMA plug, IP20	SCRJ plug, IP20
	OE	FSMA	SCRJ
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Free end			
	OE		
FSMA plug, IP20			
	FSMA		
SCRJ plug, IP20			
	SCRJ		
B-FOC (ST®) plug, IP20			
	BFOC		
SCRJ plug, IP67			
	IP67		
Push/pull SCRJ, plastic			
	PPCPL		
Push/pull SCRJ, metal			
	PPCME		
	By the meter	2744322	
	Variable	2901548	Variable
	Variable	2901548	Variable
	Variable	2901548	Variable
	Variable	2901548	Variable
	Variable	2901548	Variable
	Variable	2901548	Variable
	Variable	2901548	Variable
	Variable	1402185	Variable
	Variable	1402185	Variable
	Variable	1402185	Variable
	Variable	1402185	Variable
	Variable	1402185	Variable
	Variable	1402185	Variable

Ordering example for configured cable:

For a POF cable, fitted with an SCRJ plug at one end and a plastic SCRJ push/pull plug-in connector at the other end, and 15 m in length, the ordering data is as follows:

Order No.	Plug 1	Plug 2	Length [m]
1402185	SCRJ	PPCPL	15





Length:	Min. 0.5 m	
	Max. 100 m	
Increment:	0.25 m	1 m ... 5 m
	1 m	5 m ... 100 m

Ordering example for cable sold by the meter:

For a POF cable 70 m in length, the ordering data is as follows:

Order No.	Length [m]
2744322	70

Length:	Min. 0.5 m	
	Max. 500 m/cable drum	
Increment:	0.25 m	1 m ... 5 m
	1 m	5 m ... 500 m

B-FOC (ST®) plug, IP20	SCRJ plug, IP67	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
			
BFOC	IP67	PPCPL	PPCME
Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order No.





Variable 2901548	Variable 1402185	Variable 1402185	Variable 1402185
Variable 2901548	Variable 1402185	Variable 1402185	Variable 1402185

Variable 2901548	Variable 1402185	Variable 1402185	Variable 1402185
Variable 2901548	Variable 1402185	Variable 1402185	Variable 1402185

Variable 1402185	Variable 1402185	Variable 1402185	
Variable 1402185		Variable 1402185	

Variable 1402185			Variable 1402185
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	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	J-V11Y 4Y2P 980/1000 160A 10
Fibers	Polymer fiber, 980/1000 µm
Attenuation, typical	230 dB/km (at 660 nm)
Outer sheath	
Material	PUR
Color	red
Diameter	7.5 - 8.5 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PA
Color	black/orange
Diameter	2.2 mm ±0.07 mm
General data	
Weight	54 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

B-FOC (ST®) plug, IP20	SCRJ plug, IP67	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
			
BFOC	IP67	PPCPL	PPCME
Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order No.
Variable 2901549	Variable 1402187	Variable 1402187	Variable 1402187
Variable 2901549	Variable 1402187	Variable 1402187	Variable 1402187
Variable 2901549	Variable 1402187	Variable 1402187	Variable 1402187
Variable 1402187	Variable 1402187	Variable 1402187	Variable 1402187
Variable 1402187		Variable 1402187	Variable 1402187
Variable 1402187			Variable 1402187

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	J-V11Y 4Y2P 980/1000 180A 10
Fibers	Polymer fiber, 980/1000 µm
Attenuation, typical	275 dB/km (at 660 nm)
Outer sheath	
Material	PUR
Color	red
Diameter	7.5 - 8.5 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PA
Color	black/orange
Diameter	2.2 mm ±0.07 mm
General data	
Weight	54 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

B-FOC (ST®) plug, IP20	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
		
BFOC	PPCPL	PPCME
Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.

Variable 2901551	Variable 1402172	Variable 1402172
Variable 2901551	Variable 1402172	Variable 1402172

Variable 2901551	Variable 1402172	Variable 1402172
Variable 2901551	Variable 1402172	Variable 1402172

Variable 1402172	Variable 1402172	Variable 1402172
Variable 1402172	Variable 1402172	Variable 1402172

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	J-V11Y 4Y2P 980/1000 160A 10
Fibers	Polymer fiber, 980/1000 µm
Attenuation, typical	230 dB/km (at 660 nm)
Outer sheath	
Material	PUR
Color	Green
Diameter	7.5 - 8.5 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PA
Color	Black and orange with arrow labeling
Diameter	2.2 mm ±0.07 mm
General data	
Weight	49 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Ambient temperature (installation)	5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Highly flexible PROFINET C POF cable for free assembly, type PN-C-1003



- Highly flexible round cable for use in trailing cables or drag chains
- Dimensioned for an alternating bending frequency of up to 5,000,000 cycles
- 2.2 mm individual wires made from extremely hard-wearing polyamide chloride (PA)
- Halogen-free, ozone and UV resistant
- Robust polyurethane (PUR) outer cable sheath
- PROFINET type C

Ethernet



Free end



OE

FSMA plug, IP20



FSMA

SCRJ plug, IP20



SCRJ

B-FOC (ST®) plug, IP20



BFOC

Push/pull SCRJ, plastic



PPCPL

Push/pull SCRJ, metal



PPCME

	Free end	FSMA plug, IP20	SCRJ plug, IP20
	OE	FSMA	SCRJ
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
By the meter	2313407	Variable	Variable
		2901552	2901552
Variable	2901552	Variable	2901552
		2901552	2901552
Variable	2901552	Variable	2901552
		2901552	2901552
Variable	2901552	Variable	2901552
		2901552	2901552
Variable	1402175	Variable	1402175
		1402175	1402175
Variable	1402175	Variable	1402175
		1402175	1402175

Ordering example for configured cable:

For a POF cable, fitted with an SCRJ plug at one end and a plastic SCRJ push/pull plug-in connector at the other end, and 15 m in length, the ordering data is as follows:

Order No.	Plug 1	Plug 2	Length [m]
1402175	SCRJ	PPCPL	15

Length:	Min. 0.5 m	
	Max. 100 m	
Increment:	0.25 m	1 m ... 5 m
	1 m	5 m ... 100 m

Ordering example for cable sold by the meter:

For a POF cable 70 m in length, the ordering data is as follows:

Order No.	Length [m]
2313407	70

Length:	Min. 0.5 m	
	Max. 500 m/cable drum	
Increment:	0.25 m	1 m ... 5 m
	1 m	5 m ... 500 m

B-FOC (ST®) plug, IP20	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
		
BFOC	PPCPL	PPCME
Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.

Variable 2901552	Variable 1402175	Variable 1402175
Variable 2901552	Variable 1402175	Variable 1402175

Variable 2901552	Variable 1402175	Variable 1402175
Variable 2901552	Variable 1402175	Variable 1402175

Variable 1402175	Variable 1402175	Variable 1402175
Variable 1402175		Variable 1402175

Cable data	Technical data
Cable abbreviation in accordance with IEC 61977:2010	J-V11Y 4Y2P 980/1000 180A 10
Fibers	Polymer fiber, 980/1000 µm
Attenuation, typical	275 dB/km (at 660 nm)
Outer sheath	
Material	PUR
Color	Green
Diameter	7.5 - 8.5 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PA
Color	Black and orange with arrow labeling
Diameter	2.2 mm ±0.07 mm
General data	
Weight	51 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Ambient temperature (installation)	5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Data plug-in connectors and cables

Network components - assembled fiber optic cables

Universal PROFINET B HCS cables for assembly



- Universal installation cable for fixed installation indoors
- 2.2 mm individual wires made from extremely hard-wearing polyvinyl chloride (PVC)
- Halogen-free, ozone and UV resistant
- PVC outer cable sheath
- PROFINET type B




	Free end	SCRJ plug, IP20	SC duplex plug, IP20
	OE	SCRJ	SCDUP
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Free end			
	OE	Variable	Variable
	1408459	1408458	1408460
SCRJ plug, IP20			
	SCRJ	Variable	Variable
	1408466	1408467	
SC duplex plug, IP20			
	SCDUP		Variable
			1408471
B-FOC (ST®) plug, IP20			
	BFOC		
Push/pull SCRJ, plastic			
	PPCPL		
Push/pull SCRJ, metal			
	PPCME		

Ordering example:

For an HCS cable with two SCRJ plugs with IP20 protection and 70 m in length, the ordering data is as follows:

Order No.	Length [m]
1408466	70

Length:	Min. 1 m Max. 2000 m/cable drum
Increment:	0.25 m 1 m ... 5 m 1 m 5 m ... 2000 m

B-FOC (ST®) plug, IP20	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
		
BFOC	PPCPL	PPCME
Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.

Variable 1408462	Variable 1408463	Variable 1408464
Variable 1408468	Variable 1408469	Variable 1408470

Variable 1408472	Variable 1408473	Variable 1408474
Variable 1408475	Variable 1408476	Variable 1408480

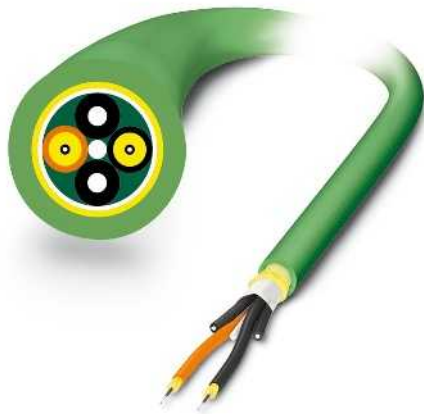
Variable 1408477	Variable 1408479
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Cable data	Technical data
Cable abbreviation in accordance with IEC 61977:2010	AT-V(ZN)YY 2K200/230 HCS
Fibers	HCS, 200/230 µm
Attenuation, typical	10 dB/km (at 660 nm), 8 dB/km (at 850 nm)
Outer sheath	
Material	PVC
Color	Green
Diameter	6.7 - 7.7 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PVC
Color	Black and orange with arrow labeling
Diameter	2.2 mm ±0.1 mm
Strain relief elements	Non-metallic, aramid fibers
General data	
Weight	45 kg/km
Ambient temperature (operation)	-40 °C ... 90 °C
Ambient temperature (storage/transport)	-40 °C ... 90 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	-

Data plug-in connectors and cables

Network components - assembled fiber optic cables

PROFINET C HCS broadband cable (GI) for free assembly, type PN-C-HCS-GI-1005



- Highly flexible round cable for use in trailing cables or drag chains
- Robust installation cable for indoor use
- Gradient index fiber for maximum power requirements in respect of transmission bandwidth
- Can be used in 10/100/1000 Mbps Ethernet systems
- 2.2 mm individual wires made from polyvinyl chloride (PVC)
- Halogen-free, ozone and UV resistant
- Robust polyurethane (PUR) outer cable sheath
- Highly tear-resistant aramid strain relief elements
- PROFINET type C

Ethernet



	Free end	FSMA plug, IP20	SCRJ plug, IP20
	OE	FSMA	SCRJ
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Free end	By the meter 2313410	Variable 2901554	Variable 2901554
FSMA plug, IP20	Variable 2901554	Variable 2901554	Variable 2901554
SCRJ plug, IP20	Variable 2901554	Variable 2901554	Variable 2901554
SC duplex plug, IP20	Variable 2901554	Variable 2901554	Variable 2901554
B-FOC (ST®) plug, IP20	Variable 2901554	Variable 2901554	Variable 2901554
LC connector	Variable 2901554	Variable 2901554	Variable 2901554
Push/pull SCRJ, plastic	Variable 1402189	Variable 1402189	Variable 1402189
Push/pull SCRJ, metal	Variable 1402189	Variable 1402189	Variable 1402189

Ordering example for configured cable:

For an HCS cable fitted with an SCRJ plug at one end and an SCRJ push/pull plastic plug-in connector at the other end, and 15 m in length, the ordering data is as follows:

Order No.	Plug 1	Plug 2	Length [m]
1402189	SCRJ	PPCPL	15

Length:	Min. 1 m Max. 2000 m		
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 2000 m	






Ordering example for cable sold by the meter:

For an HCS cable 70 m in length, the ordering data is as follows:

Order No.	Length [m]
2313410	70

Length:	Min. 1 m Max. 2000 m/cable drum		
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 2000 m	

Network components - assembled fiber optic cables

SC duplex plug, IP20	B-FOC (ST®) plug, IP20	LC plug	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
				
SCDUP	BFOC	LC	PPCPL	PPCME
Ordering data	Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order No.	Order No.

Variable 2901554	Variable 2901554	Variable 2901554	Variable 1402189	Variable 1402189
Variable 2901554	Variable 2901554	Variable 2901554	Variable 1402189	Variable 1402189

Variable 2901554	Variable 2901554	Variable 2901554	Variable 1402189	Variable 1402189
Variable 2901554	Variable 2901554	Variable 2901554	Variable 1402189	Variable 1402189

Variable 2901554	Variable 2901554	Variable 2901554	Variable 1402189	Variable 1402189
Variable 2901554	Variable 2901554	Variable 2901554	Variable 1402189	Variable 1402189

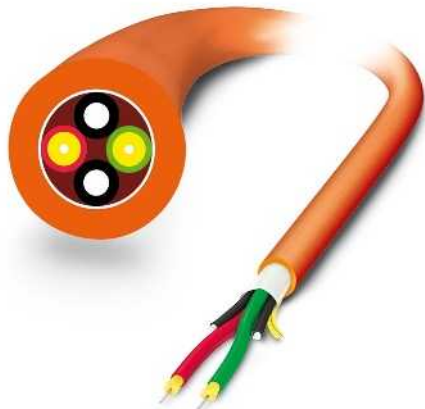
Variable 1402189	Variable 1402189	Variable 1402189	Variable 1402189	Variable 1402189
Variable 1402189	Variable 1402189	Variable 1402189	Variable 1402189	Variable 1402189

Technical data	
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	J-V(ZN)12Y(ZN)11Y 2GK200/230 GI-HCS
Fibers	HCS gradient index, 200/230 µm
Attenuation, typical	18 dB/km (at 660 nm), 12 dB/km (at 850 nm)
Outer sheath	
Material	PUR
Color	Green
Diameter	7.5 - 8.5 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PVC
Color	Black and orange with arrow labeling
Diameter	2.2 mm ±0.1 mm
Strain relief elements	Non-metallic, aramid fibers
General data	
Weight	52 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Data plug-in connectors and cables

Network components - assembled fiber optic cables

Robust HCS cable for free assembly, type HCS-RUGGED-1014



- Robust installation cable for indoor use
- Highly tear-resistant aramid strain relief elements
- 2.9 mm individual wires made from highly flexible FRNC material
- Halogen-free, ozone and UV resistant
- Robust polyurethane (PUR) outer cable sheath

	Free end	FSMA plug, IP20	SCRJ plug, IP20
	OE	FSMA	SCRJ
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Free end	By the meter 2799885	Variable 2901555	Variable 2901555
FSMA plug, IP20	Variable 2901555	Variable 2901555	Variable 2901555
SCRJ plug, IP20	Variable 2901555	Variable 2901555	Variable 2901555
SC duplex plug, IP20	Variable 2901555	Variable 2901555	Variable 2901555
B-FOC (ST*) plug, IP20	Variable 2901555	Variable 2901555	Variable 2901555
LC plug	Variable 2901555	Variable 2901555	Variable 2901555
Push/pull SCRJ, plastic	Variable 1402191	Variable 1402191	Variable 1402191
Push/pull SCRJ, metal	Variable 1402191	Variable 1402191	Variable 1402191
SCRJ plug, IP67	Variable 1402191	Variable 1402191	Variable 1402191

Ordering example for configured cable:

For an HCS cable fitted with an SCRJ plug at one end and an SCRJ push/pull plastic plug-in connector at the other end, and 15 m in length, the ordering data is as follows:

Order No.	Plug 1	Plug 2	Length [m]
1402191	SCRJ	PPCPL	15

Length:	Min. 1 m Max. 2000 m
Increment:	0.25 m 1 m ... 5 m 1 m 5 m ... 2000 m







Ordering example for cable sold by the meter:

For an HCS cable 70 m in length, the ordering data is as follows:

Order No.	Length [m]
2799885	70

Length:	Min. 1 m Max. 2000 m/cable drum
Increment:	0.25 m 1 m ... 5 m 1 m 5 m ... 2000 m

Network components - assembled fiber optic cables

SC duplex plug, IP20	B-FOC (ST®) plug, IP20	LC plug	Push/pull SCRJ, plastic	Push/pull SCRJ, metal	SCRJ plug, IP67
					
SCDUP	BFOC	LC	PPCPL	PPCME	IP67
Ordering data	Ordering data	Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order No.	Order No.	Order No.

Variable 2901555	Variable 2901555	Variable 2901555	Variable 1402191	Variable 1402191	Variable 1402191
Variable 2901555	Variable 2901555	Variable 2901555	Variable 1402191	Variable 1402191	Variable 1402191

Variable 2901555	Variable 2901555	Variable 2901555	Variable 1402191	Variable 1402191	Variable 1402191
Variable 2901555	Variable 2901555	Variable 2901555	Variable 1402191	Variable 1402191	Variable 1402191

Variable 2901555	Variable 2901555	Variable 2901555	Variable 1402191	Variable 1402191	Variable 1402191
Variable 2901555	Variable 2901555	Variable 2901555	Variable 1402191	Variable 1402191	Variable 1402191

Variable 1402191	Variable 1402191	Variable 1402191	Variable 1402191	Variable 1402191	Variable 1402191
Variable 1402191	Variable 1402191	Variable 1402191	Variable 1402191	Variable 1402191	Variable 1402191

Variable 1402191	Variable 1402191	Variable 1402191	Variable 1402191	Variable 1402191	Variable 1402191
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	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	I-VH11Y 2K200/230 HCS
Fibers	HCS, 200/230 µm
Attenuation, typical	10 dB/km (at 660 nm), 8 dB/km (at 850 nm)
Outer sheath	
Material	PUR
Color	Orange
Diameter	7.5 - 8.5 mm
Individual wire	
Material	FRNC material
Color	Red/green
Diameter	2.9 mm ±0.1 mm
Strain relief elements	Non-metallic, aramid fibers
General data	
Weight	54 kg/km
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Ambient temperature (installation)	-20 °C ... 60 °C

Data plug-in connectors and cables

Network components - assembled fiber optic cables

Outdoor cables for free assembly, type HCSO-1015



- Robust round cable for outdoor installation
- Longitudinally water-tight
- Integrated vapor barrier and rodent-proof scrim
- 2.9 mm individual wires made from highly flexible FRNC material
- Ozone and UV resistant
- Extremely robust polyethylene outer cable sheath

	Free end	FSMA plug, IP20	SCRJ plug, IP20
	OE	FSMA	SCRJ
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Free end			
	OE		
FSMA plug, IP20			
	FSMA		
SCRJ plug, IP20			
	SCRJ		
SC duplex plug, IP20			
	SCDUP		
B-FOC (ST®) plug, IP20			
	BFOC		
LC plug			
	LC		
	By the meter	2799445	
	Variable	2901557	Variable 2901557
	Variable	2901557	Variable 2901557
	Variable	2901557	Variable 2901557
	Variable	2901557	Variable 2901557
	Variable	2901557	Variable 2901557
	Variable	2901557	Variable 2901557
	Variable	2901557	Variable 2901557

Ordering example for configured cable:

For an HCS cable fitted with an SCRJ plug at one end and an IP20 B-FOC(ST®) plug at the other end, and 15 m in length, the ordering data is as follows:

Order No.	Plug 1	Plug 2	Length [m]
2901557	SCRJ	BFOC	15




Length:	Min. 1 m		
	Max. 1000 m		
Increment:	0.25 m	1 m ... 5 m	
	1 m	5 m ... 1000 m	

Ordering example for cable sold by the meter:

For an HCS cable 70 m in length, the ordering data is as follows:

Order No.	Length [m]
2799445	70

Length:	Min. 1 m		
	Max. 1000 m/cable drum		
Increment:	0.25 m	1 m ... 5 m	
	1 m	5 m ... 1000 m	

SC duplex plug, IP20	B-FOC (ST®) plug, IP20	LC plug
		
SCDUP	BFOC	LC
Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.







Variable	2901557	Variable	2901557	Variable	2901557
Variable	2901557	Variable	2901557	Variable	2901557

Variable	2901557	Variable	2901557	Variable	2901557
Variable	2901557	Variable	2901557	Variable	2901557

Variable	2901557	Variable	2901557	Variable	2901557
Variable	2901557	Variable	2901557	Variable	2901557

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	AT-VQHB2Y 2K200/230 10A17+8B20
Fibers	HCS, 200/230 µm
Attenuation, typical	10 dB/km (at 660 nm), 8 dB/km (at 850 nm)
Outer sheath	
Material	PE
Color	Black
Diameter	10 - 11 mm
Strain relief elements	Non-metallic, aramid fiber
Rodent protection	Glass fibers
Lengthwise waterproofing	IEC 60794-1-2
Individual wire	
Material	FRNC material
Color	Red/green
Diameter	2.9 mm ±0.1 mm
Strain relief elements	Non-metallic, aramid fibers
General data	
Weight	97 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Network components - assembled fiber optic cables

SC duplex plug, IP20	B-FOC (ST®) plug, IP20	LC plug	Push/pull SCRJ, plastic	Push/pull SCRJ, metal	SCRJ plug, IP67
					
SCDUP	BFOC	LC	PPCPL	PPCME	IP67
Ordering data	Ordering data	Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order No.	Order No.	Order No.

Variable 2901558	Variable 2901558	Variable 2901558	Variable 1402193	Variable 1402193	Variable 1402193
Variable 2901558	Variable 2901558	Variable 2901558	Variable 1402193	Variable 1402193	Variable 1402193

Variable 2901558	Variable 2901558	Variable 2901558	Variable 1402193	Variable 1402193	Variable 1402193
Variable 2901558	Variable 2901558	Variable 2901558	Variable 1402193	Variable 1402193	Variable 1402193

Variable 2901558	Variable 2901558	Variable 2901558	Variable 1402193	Variable 1402193	Variable 1402193
Variable 2901558	Variable 2901558	Variable 2901558	Variable 1402193	Variable 1402193	Variable 1402193

Variable 1402193	Variable 1402193	Variable 1402193	Variable 1402193	Variable 1402193	Variable 1402193
Variable 1402193	Variable 1402193	Variable 1402193	Variable 1402193	Variable 1402193	Variable 1402193

Variable 1402193	Variable 1402193	Variable 1402193	Variable 1402193	Variable 1402193	Variable 1402193
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	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	I-V(ZN)H11Y 2G50/125 2,5B600+0,7F1200
Fibers	Fiberglass, 50/125 µm
Attenuation, typical	2.5 dB/km (at 850 nm), 0.7 dB/km (at 1300 nm)
Outer sheath	
Material	PUR
Color	Orange
Diameter	7.5 - 8.5 mm
Individual wire	
Material	FRNC material
Color	Red/green
Diameter	2.9 mm ±0.1 mm
General data	
Weight	50 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Data plug-in connectors and cables

Network components - assembled fiber optic cables

Outdoor multi-mode fiberglass cables for free assembly, type GDO-1017



- Robust round cable for outdoor installation
- Longitudinally water-tight
- Integrated vapor barrier and rodent-proof scrim
- 2.9 mm individual wires made from highly flexible FRNC material
- Ozone and UV resistant
- Extremely robust polyethylene outer cable sheath

Free end	FSMA plug, IP20	SCRJ plug, IP20
OE	FSMA	SCRJ
Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.
By the meter 2799432	Variable 2901559	Variable 2901559
Free end	FSMA plug, IP20	SCRJ plug, IP20
OE	FSMA	SCRJ
Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.
Variable 2901559	Variable 2901559	Variable 2901559
Free end	SC duplex plug, IP20	SCRJ plug, IP20
OE	SCDUP	SCRJ
Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.
Variable 2901559	Variable 2901559	Variable 2901559
Free end	B-FOC (ST®) plug, IP20	SCRJ plug, IP20
OE	BFOC	SCRJ
Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.
Variable 2901559	Variable 2901559	Variable 2901559
Free end	LC plug	SCRJ plug, IP20
OE	LC	SCRJ
Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.
Variable 2901559	Variable 2901559	Variable 2901559

Ordering example for configured cable:

For a fiberglass cable fitted with an SCRJ plug at one end and an IP20 B-FOC(ST®) plug at the other end, and 15 m in length, the ordering data is as follows:

Order No.	Plug 1	Plug 2	Length [m]
2901559	SCRJ	BFOC	15
Length:		Min. 1 m Max. 1000 m	
Increment:		1 m 1 m ... 1000 m	

Ordering example for cable sold by the meter:

For a fiberglass cable 70 m in length, the ordering data is as follows:

Order No.	Length [m]		
2799432	70		
Length:		Min. 1 m Max. 1000 m/cable drum	
Increment:		1 m 1 m ... 1000 m	

SC duplex plug, IP20	B-FOC (ST®) plug, IP20	LC plug
		
SCDUP	BFOC	LC
Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.

Variable 2901559	Variable 2901559	Variable 2901559
Variable 2901559	Variable 2901559	Variable 2901559

Variable 2901559	Variable 2901559	Variable 2901559
Variable 2901559	Variable 2901559	Variable 2901559

Variable 2901559	Variable 2901559	Variable 2901559
Variable 2901559	Variable 2901559	Variable 2901559








	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	AT-VQH(BN)2Y 2G50/125 2,5B600+0,7F1200
Fibers	Fiberglass, 50/125 µm
Attenuation, typical	2.5 dB/km (at 850 nm), 0.7 dB/km (at 1300 nm)
Outer sheath	
Material	PE
Color	Black
Diameter	10 - 11 mm
Strain relief elements	Non-metallic, aramid fiber
Rodent protection	Glass fibers
Lengthwise waterproofing	IEC 60794-1-2
Individual wire	
Material	FRNC material
Color	Red/green
Diameter	2.9 mm ±0.1 mm
Strain relief elements	Non-metallic, aramid fibers
General data	
Weight	97 kg/km
Ambient temperature (operation)	-25 °C ... 70 °C
Ambient temperature (storage/transport)	-30 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Data plug-in connectors and cables

Network components - assembled fiber optic cables

Zip cord fiberglass cable for assembly, OM2

- Fiber optic cable for indoor installation
- Ideal for use in distributor systems and for connecting termination devices
- 2.8 mm single elements made from halogen-free and flame-retardant material
- UL approval type OFNR (riser) for USA and Canada

	SCRJ plug, IP20	SC duplex plug, IP20	B-FOC (ST®) plug, IP20
			
	SCRJ	SCDUP	BFOC
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
	2 m 1400697	2 m 1400690	2 m 1400706
SCRJ plug, IP20			
	SCRJ		
SC duplex plug, IP20			
	SCDUP		
B-FOC (ST®) plug, IP20			
	BFOC		
LC plug			
	LC		
	Variable 1405703	Variable 1405700	Variable 1405710
		2 m 1400685	2 m 1400703
		Variable 1405697	Variable 1405708
			2 m 1404768
			Variable 1405712
		2 m 1400639	2 m 1400701
		Variable 1405691	Variable 1405706

Ordering example for configured cable:

For a zip cord fiberglass cable, fitted with an IP20 SC duplex plug at one end and an SCRJ plug at the other end, and 15 m in length, the ordering data is as follows:

Order No.	Length [m]
1405700	15

Length:	Min. 1 m Max. 1000 m
Increment:	1 m 1 m ... 1000 m

LC plug



LC

Ordering data

Order No.

2 m 1400682

Variable 1405694

2 m 1400604

Variable 1405688

Technical data

Cable data

Cable abbreviation in accordance with IEC 61977:2010

Fibers I-V(ZN)H

Attenuation, typical 50/125 µm OM2

2.7 dB/km (at 850 nm);

0.8 dB/km (at 1300 nm)

Outer sheath

Material -

Color orange

Diameter 2.8 - 5.7 mm

Strain relief elements -

Individual wire

Material -

Color -

Diameter 900 µm

General data

Weight 15.80 kg/km

Ambient temperature (operation) -10 °C ... 70 °C

Ambient temperature (storage/transport) -25 °C ... 70 °C

Ambient temperature (installation) -5 °C ... 50 °C







Halogen-free as per: According to IEC 60754-1/2

Data plug-in connectors and cables

Network components - assembled fiber optic cables

Zip cord fiberglass cable for assembly, OM3

- Fiber optic cable for indoor installation
- Ideal for use in distributor systems and for connecting termination devices
- 2.8 mm single elements made from halogen-free and flame-retardant material
- UL approval type OFNR (riser) for USA and Canada
- Low-bend fiber
- Data rate: up to 10 Gbps up to 300 m

	SCRJ plug, IP20	SC duplex plug, IP20	B-FOC (ST®) plug, IP20
			
	SCRJ	SCDUP	BFOC
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
	2 m 1400699	2 m 1400691	2 m 1400711
SCRJ plug, IP20			
			
SCRJ	Variable 1405704	Variable 1405701	Variable 1405711
SC duplex plug, IP20			
		2 m 1400688	2 m 1400705
SCDUP		Variable 1405698	Variable 1405709
SC duplex plug, IP20			
		2 m 1400673	2 m 1400702
LC		Variable 1405692	Variable 1405707

Ordering example for configured cable:

For a zip cord fiberglass cable, fitted with an IP20 SC duplex plug at one end and an SCRJ plug at the other end, and 15 m in length, the ordering data is as follows:

Order No.	Length [m]
1405701	15

Length:	Min. 1 m Max. 1000 m
Increment:	1 m 1 m ... 1000 m

LC plug



LC

Ordering data

Order No.

2 m 1400683

Variable 1405695

2 m 1400621

Variable 1405695

Technical data

Cable data

Cable abbreviation in accordance with IEC 61977:2010

Fibers

Attenuation, typical

I-V(ZN)H

Fiberglass, 50/125 μm

2.5 dB/km (at 850 nm),
0.7 dB/km (at 1300 nm)

Outer sheath

Material

Color

Diameter

Strain relief elements

Individual wire

Material

Color

Diameter

General data

Weight

Ambient temperature (operation)

Ambient temperature (storage/transport)

Ambient temperature (installation)

Halogen-free as per:

-

Aqua

2.8 - 5.7 mm

-

-

-

900 μm

15.80 kg/km

-10 °C ... 70 °C

-25 °C ... 70 °C

-5 °C ... 50 °C




According to IEC 60754-1/2

Data plug-in connectors and cables

Network components - assembled fiber optic cables

Zip cord fiberglass cable for assembly, OM4

- Fiber optic cable for indoor installation
- Ideal for use in distributor systems and for connecting termination devices
- 2.8 mm single elements made from halogen-free and flame-retardant material
- UL approval type OFNR (riser) for USA and Canada
- Low-bend fiber
- Data rate: up to 10 Gbps up to 550 m

	SCRJ plug, IP20	SC duplex plug, IP20	LC plug
			
	SCRJ	SCDUP	LC
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
	2 m 1400700	2 m 1400695	2 m 1400684
SCRJ plug, IP20	Variable 1405705	Variable 1405702	Variable 1405696
SC duplex plug, IP20		2 m 1400689	
		Variable 1405699	
LC plug		2 m 1400681	2 m 1400622
		Variable 1405693	Variable 1405690

Ordering example for configured cable:

For a zip cord fiberglass cable, fitted with an IP20 SC duplex plug at one end and an SCRJ plug at the other end, and 15 m in length, the ordering data is as follows:




Order No.	Length [m]
1405702	15

Length:	Min. 1 m	Max. 1000 m
Increment:	1 m	1 m ... 1000 m

Cable data	Technical data
Cable abbreviation in accordance with IEC 61977:2010	I-V(ZN)H
Fibers	Fiberglass, 50/125 µm
Attenuation, typical	2.5 dB/km (at 850 nm), 0.7 dB/km (at 1300 nm)
Outer sheath	
Material	-
Color	Violet
Diameter	2.8 - 5.7 mm
Strain relief elements	-
Individual wire	
Material	-
Color	-
Diameter	900 µm
General data	
Weight	15.80 kg/km
Ambient temperature (operation)	-10 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-1/2

Zip cord fiberglass cable for assembly, OM1

- Fiber optic cable for indoor installation
- Ideal for use in distributor systems and for connecting termination devices
- 2.8 mm single elements made from halogen-free and flame-retardant material
- UL approval type OFNR (riser) for USA and Canada

 <p>FSMA plug, IP20</p>		<p>Variable</p> <p>Order No. 1406532</p>
 <p>SC duplex plug, IP20</p>		<p>Variable</p> <p>Order No. 1406536</p>
 <p>B-FOC (ST®) plug, IP20</p>		<p>Variable</p> <p>Order No. 1406535</p>

Ordering example for configured cable:

For a zip cord fiberglass cable, fitted with an IP20 FSMA plug at one end and an IP20 SC duplex plug at the other end, and 15 m in length, the ordering data is as follows:

Order No.	Length [m]
1406536	15

Length:	Min. 1 m	Max. 1000 m
Increment:	1 m	1 m ... 1000 m

Cable data		Technical data
Cable abbreviation in accordance with IEC 61977:2010	I-V(ZN)H	
Fibers	62.5/125 µm	
Attenuation, typical	3.2 dB/km (at 850 nm); 0.9 dB/km (at 1300 nm)	
Outer sheath		
Material	-	
Color	orange	
Diameter	2.8 - 5.7 mm	
Strain relief elements	-	
Individual wire		
Material	-	
Color	-	
Diameter	900 µm	
General data		
Weight	15.80 kg/km	
Ambient temperature (operation)	-10 °C ... 70 °C	
Ambient temperature (storage/transport)	-25 °C ... 70 °C	
Ambient temperature (installation)	-5 °C ... 50 °C	
Halogen-free as per:	According to IEC 60754-1/2	



SC duplex plug



B-FOC plug



SCRJ plug

Technical data
2.8 mm
FRNC
Non-metallic, aramid fiber
60 N/cm
600 N
According to IEC 60754-2
-25 °C ... 70 °C
-5 °C ... 50 °C
-5 °C ... 70 °C

Technical data
2.8 mm
FRNC
Non-metallic, aramid fiber
60 N/cm
600 N
According to IEC 60754-2
-25 °C ... 70 °C
-5 °C ... 50 °C
-5 °C ... 70 °C

Technical data
2.8 mm
FRNC
Non-metallic, aramid fiber
60 N/cm
600 N
According to IEC 60754-2
-25 °C ... 70 °C
-5 °C ... 50 °C
-5 °C ... 70 °C

Ordering data		
Type	Order No.	Pcs. / Pkt.
FL MM PATCH 1,0 LC-SC	2989161	1
FL MM PATCH 2,0 LC-SC	2989268	1
FL MM PATCH 5,0 LC-SC	2901800	1
FL MM PATCH 1,0 SC-SC	2901805	1
FL MM PATCH 2,0 SC-SC	2901807	1
FL MM PATCH 5,0 SC-SC	2901808	1
FL SM PATCH 1,0 LC-SC	2989190	1
FL SM PATCH 2,0 LC-SC	2989297	1
FL SM PATCH 5,0 LC-SC	2901827	1
FL SM PATCH 1,0 SC-SC	2901829	1
FL SM PATCH 2,0 SC-SC	2901830	1
FL SM PATCH 5,0 SC-SC	2901831	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
FL MM PATCH 1,0 LC-ST	2989174	1
FL MM PATCH 2,0 LC-ST	2989271	1
FL MM PATCH 5,0 LC-ST	2901801	1
FL MM PATCH 1,0 SC-ST	2901809	1
FL MM PATCH 2,0 SC-ST	2901810	1
FL MM PATCH 5,0 SC-ST	2901811	1
FL MM PATCH 1,0 ST-ST	2901815	1
FL MM PATCH 2,0 ST-ST	2901816	1
FL MM PATCH 5,0 ST-ST	2901817	1
FL SM PATCH 1,0 LC-ST	2989242	1
FL SM PATCH 2,0 LC-ST	2989349	1
FL SM PATCH 5,0 LC-ST	2901828	1
FL SM PATCH 1,0 SC-ST	2901832	1
FL SM PATCH 2,0 SC-ST	2901833	1
FL SM PATCH 5,0 SC-ST	2901834	1
FL SM PATCH 1,0 ST-ST	2901836	1
FL SM PATCH 2,0 ST-ST	2901837	1
FL SM PATCH 5,0 ST-ST	2901838	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
FL MM PATCH 1,0 LC-SCRJ	2901802	1
FL MM PATCH 2,0 LC-SCRJ	2901803	1
FL MM PATCH 5,0 LC-SCRJ	2901804	1
FL MM PATCH 1,0 SC-SCRJ	2901812	1
FL MM PATCH 2,0 SC-SCRJ	2901813	1
FL MM PATCH 5,0 SC-SCRJ	2901814	1
FL MM PATCH 1,0 ST-SCRJ	2901820	1
FL MM PATCH 2,0 ST-SCRJ	2901821	1
FL MM PATCH 5,0 ST-SCRJ	2901822	1
FL MM PATCH 1,0 SCRJ-SCRJ	2901823	1
FL MM PATCH 2,0 SCRJ-SCRJ	2901824	1
FL MM PATCH 5,0 SCRJ-SCRJ	2901825	1

Data plug-in connectors and cables

Network components - accessories

Accessories for processing fiber optics



Ordering data

Description
Ceramic blade
Solvent dispenser, 100 ml, lockable pump dispenser

Type	Order No.	Pcs. / Pkt.
FOC-TOOL-CERAMIC-BLADE	1407019	1

Ordering data

Type	Order No.	Pcs. / Pkt.
FOC-TOOL-DISPENSER	1406995	1

Polishing fiber optic plug-in connectors



Ordering data

Description
Polishing film, silicon carbide 15 µm
Polishing film, AlO₂ 1 µm 3 µm
Polishing film, diamond 0.1 µm 1 µm 9 µm
Polishing disc 1.25 mm, for LC 2.50 mm, for ST, SC, FC

Type	Order No.	Pcs. / Pkt.
FOC-POLISHINGFILM-SK-15.0	1407034	1
FOC-POLISHINGFILM-AO-01.0	1407037	1
FOC-POLISHINGFILM-AO-03.0	1407039	1
FOC-POLISHINGFILM-D-00.1	1407046	1
FOC-POLISHINGFILM-D-01.0	1407042	1
FOC-POLISHINGFILM-D-09.0	1407044	1

Ordering data

Type	Order No.	Pcs. / Pkt.
FOC-POLISHINGDISC-1.25	1407024	1
FOC-POLISHINGDISC-2.50	1407021	1

**Cleaning tools
for fiber optic connection technology**



Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Ferrule cleaner , approx. 500 cleaning cycles						
1.25 mm, for LC	FOC-TOOL-FERRULECLEANER-1.25	1407032	1			
2.50 mm, for ST, SC, FC	FOC-TOOL-FERRULECLEANER-2.50	1407029	1			
Stick cleaner for couplings and plug end faces						
1.25 mm, for LC				FOC-TOOL-STICKCLEANER-1.25	1407000	1
2.50 mm, for ST, SC, FC				FOC-TOOL-STICKCLEANER-2.50	1407002	1

Data plug-in connectors and cables

Network components - accessories

Tool for processing fiber optics



Description
Fiber stripper , for stripping the coating from 250 µm to 125 µm
For 1 fiber For 2 fibers
T-stripper
18 ... 10 AWG/1.0 mm ... 2.6 mm 30 ... 22 AWG/0.25 mm ... 0.64 mm
Electrician's scissors , high cutting performance thanks to micro-serrated cutting area, suitable for copper, aluminum, Kevlar fibers, and plastic, two-component non-slip soft-grip handles, ergonomic design, adjustable screw joint

Ordering data		
Type	Order No.	Pcs. / Pkt.
FOC-TOOL-STRIPPING-1HOLE-250	1407004	1
FOC-TOOL-STRIPPING-2HOLE-250	1407008	1
Accessories		
CUTFOX-ES	1212621	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
FOC-TOOL-STRIPPING-T-1	1407016	1
FOC-TOOL-STRIPPING-T-2	1407014	1
Accessories		
CUTFOX-ES	1212621	1

Tools for FO cabling, POF

Ethernet



Ethernet



Description
SCRJ polishing tool set, for polymer fiber , for field assembly of SCRJ/IP20 and SCRJ/IP67 plug-in connectors with fast connection system
Refill set for VS-SCRJ-POF-KONFTOOL-POLISH , consisting of two polishers and a polishing disc
- For SCRJ connectors
SCRJ cutting tool set , for polymer fiber, for field assembly of SCRJ/IP20 and SCRJ/IP67 push/pull plug-in connectors with fast connection technology, consisting of stripping tool, aramid scissors, SCRJ cutting tool, microscope
Cutting tool, SCRJ , for polymer fiber
Sheath stripping tool , for polymer fiber

Ordering data		
Type	Order No.	Pcs. / Pkt.
VS-SCRJ-POF-KONFTOOL-POLISH	1658820	1
VS-SCRJ-POF-POLISH	1656673	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
TF-SCRJ-POF KONF SET	1405246	1
CUTFOX-SCRJ-POF	1405247	1
WIREFOX-PN POF	1405249	1

Tools for FO cabling, HCS



Assembly tool for fiber optics

Description
<p>HCS (GI) DIY case for SCRJ and SC duplex quick mounting connectors, stripping blade, stripping pliers, aramid yarn scissors, fiber stripper, fiber cleaving tool, and microscope</p> <p>- For SCRJ/SC duplex connectors</p> <p>HCS (GI) DIY case for B-FOC (ST®) quick mounting connectors, stripping blade, stripping pliers, aramid yarn scissors, fiber stripper, fiber cleaving tool, and microscope</p> <p>- For B-FOC (ST®) connectors</p> <p>HCS DIY case for F-SMA quick mounting connectors, comprising stripping blade, stripping pliers, aramid yarn scissors, fiber stripper, fiber cleaving tool, and microscope</p> <p>- For F-SMA connectors</p>

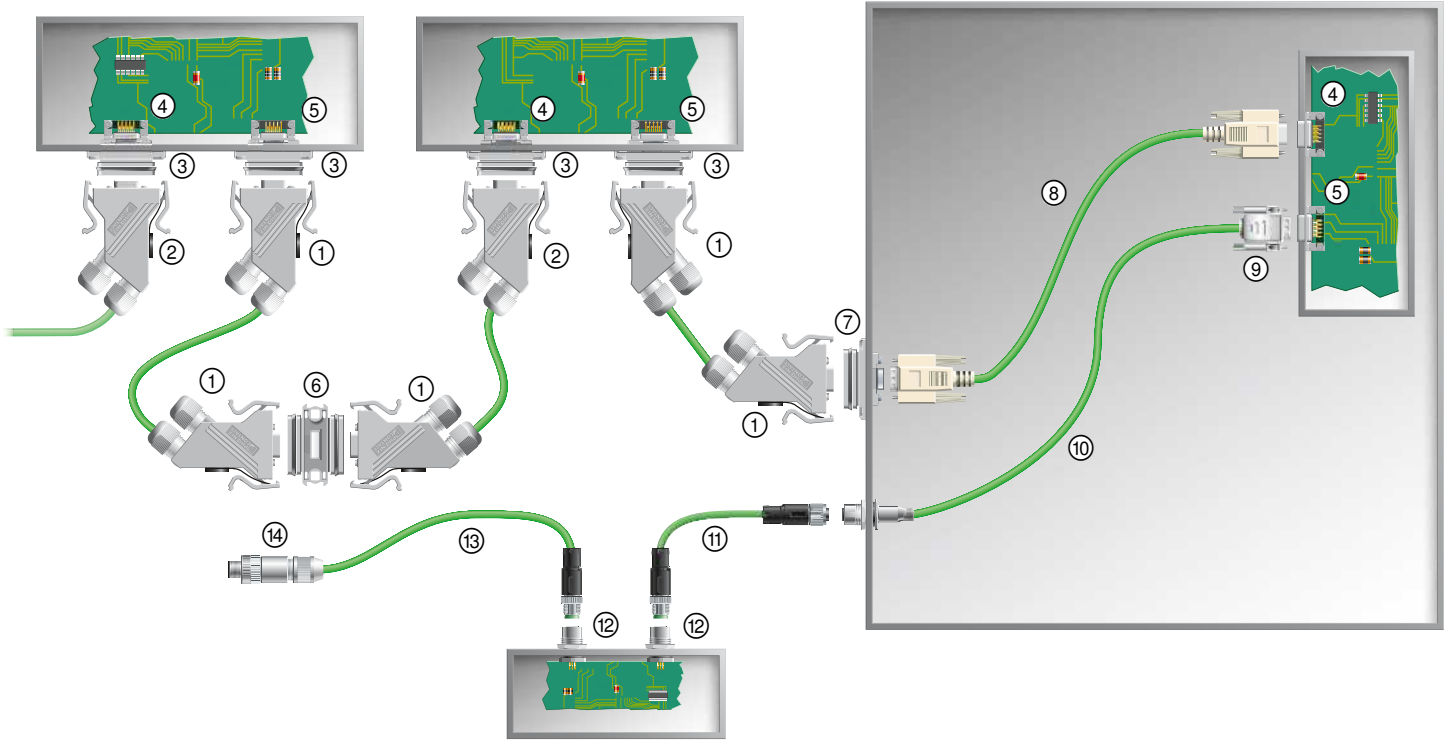
Ordering data		
Type	Order No.	Pcs. / Pkt.
PSM-HCS-KONFTOOL/SC-RJ	2708876	1
PSM-HCS-KONFTOOL/B-FOC	2708465	1
PSM-HCS-KONFTOOL	2799526	1

Tools for FO cabling, GOF



Description
<p>Assembly tool set for fiberglass, for field assembly of SCRJ and SC duplex plug-in connectors, with fast connection technology</p> <p>EU version</p> <p>US version</p> <p>Consumables for VS-GOF-FA-KONFTOOL-...</p> <p>Glue cartridge</p>

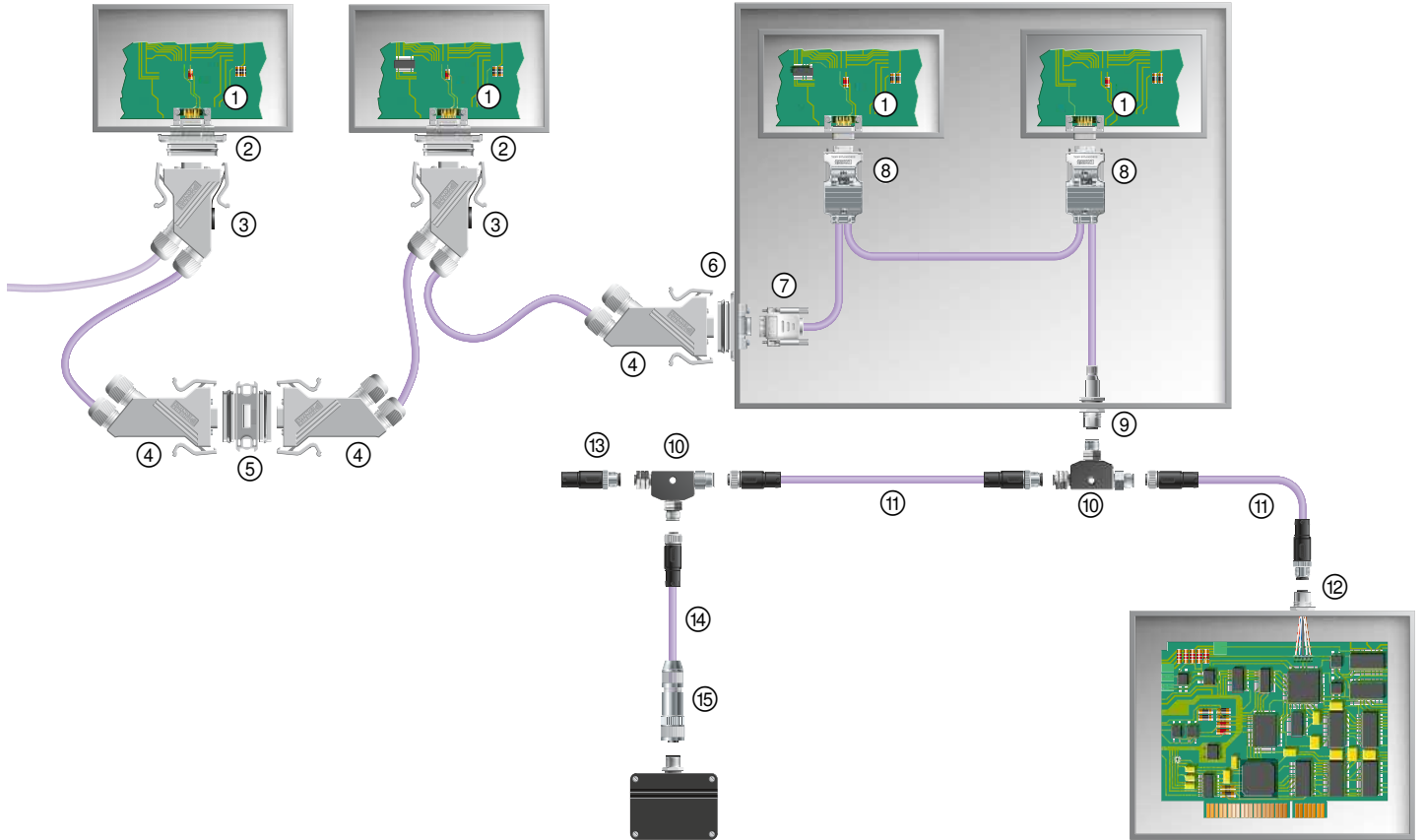
Ordering data		
Type	Order No.	Pcs. / Pkt.
VS-GOF-FA-KONFTOOL-EU	1658228	1
VS-GOF-FA-KONFTOOL-US	1658231	1
VS-GOF-FA-KONFTOOL-ADHESIVE	1658244	1



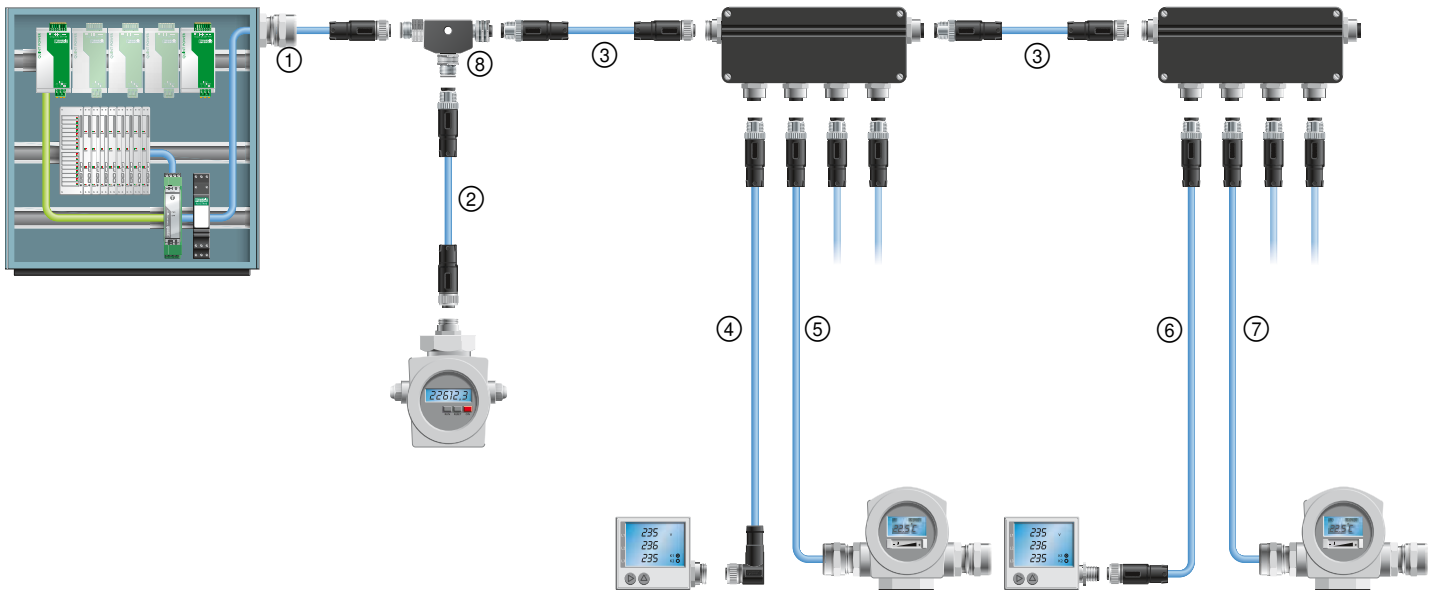
No.	Designation	Page
①	IP67 D-SUB complete plug-in connectors, pin	332
②	IP67 D-SUB complete plug-in connectors, socket	332
③	IP67 D-SUB panel mounting frames for D-SUB contact inserts	See Catalog 2
④	D-SUB contact inserts, pin	See Catalog 2
⑤	D-SUB contact inserts, socket	See Catalog 2
⑥	IP67 D-SUB coupling, socket/socket	333
⑦	IP67 D-SUB panel mounting frames with integrated D-SUB gender changer, socket/socket	333
⑧	Assembled D-SUB cable with D-SUB plug-in connectors, IP20	See Catalog 2
⑨	IP20 D-SUB sleeve housing and D-SUB contact insert, pin	See Catalog 2
⑩	M12 panel feed-through with INTERBUS cable and free cable end	336
⑪	Assembled INTERBUS cable with M12 plug-in connectors	340
⑫	M12 panel feed-through with solder connection	See Catalog 2
⑬	Assembled INTERBUS cable with M12 plug-in connector and free cable end	340
⑭	M12 plug-in connector for free assembly	334

Data plug-in connectors and cables

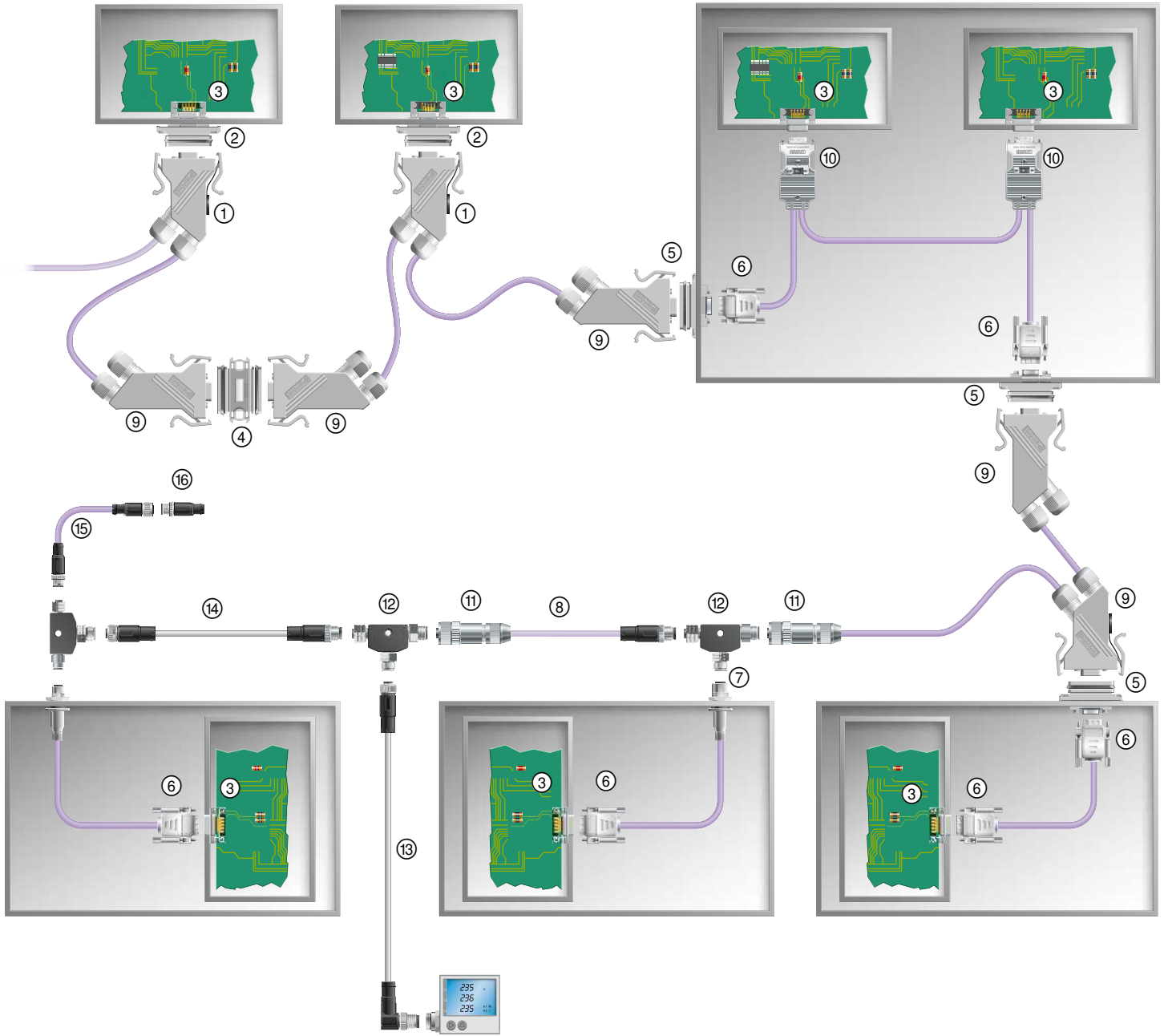
Topology – PROFIBUS DP



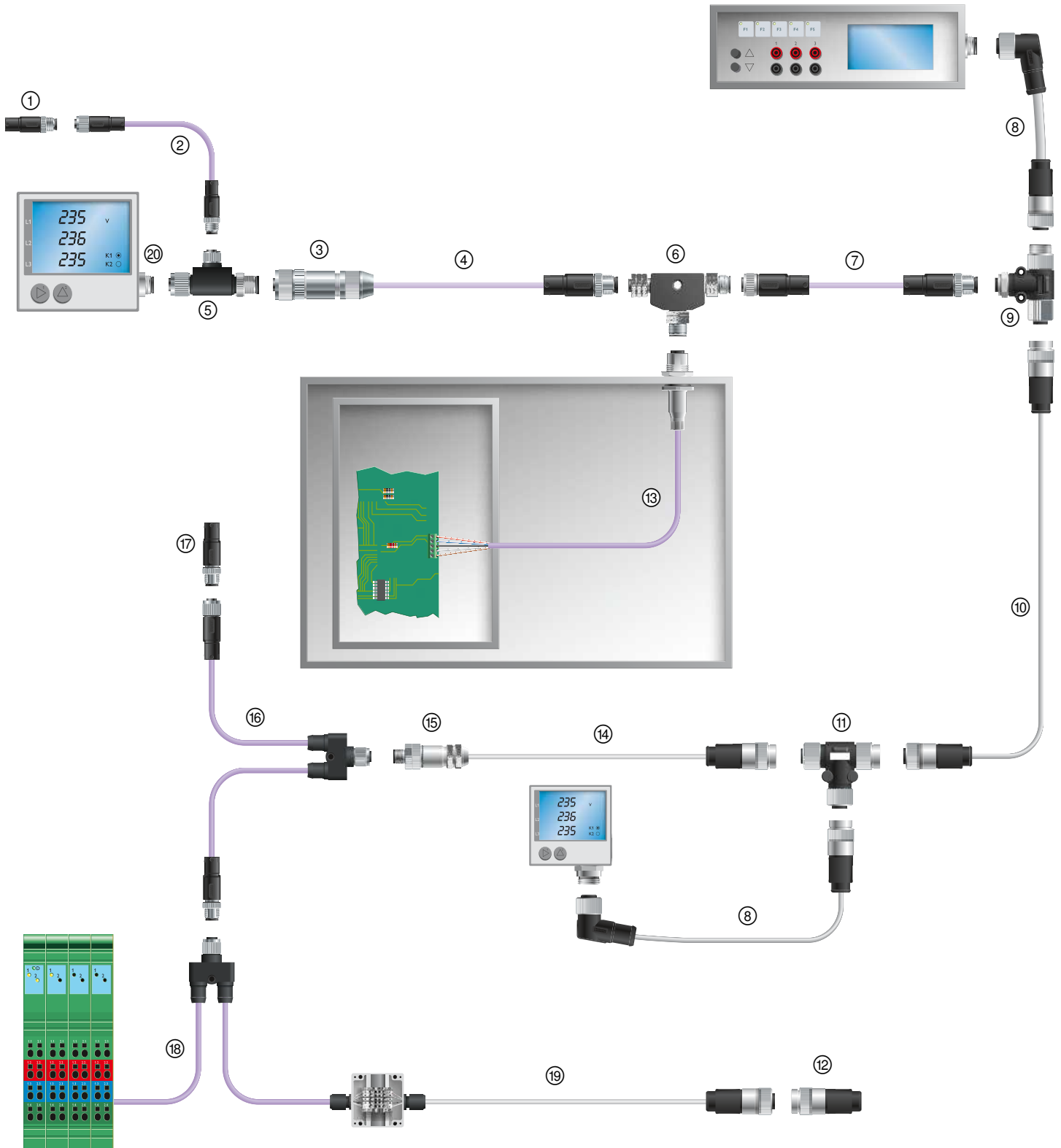
No.	Designation	Page
①	D-SUB contact inserts	See Catalog 2
②	IP67 D-SUB panel mounting frames for D-SUB contact inserts	See Catalog 2
③	IP67 D-SUB complete plug-in connectors	332
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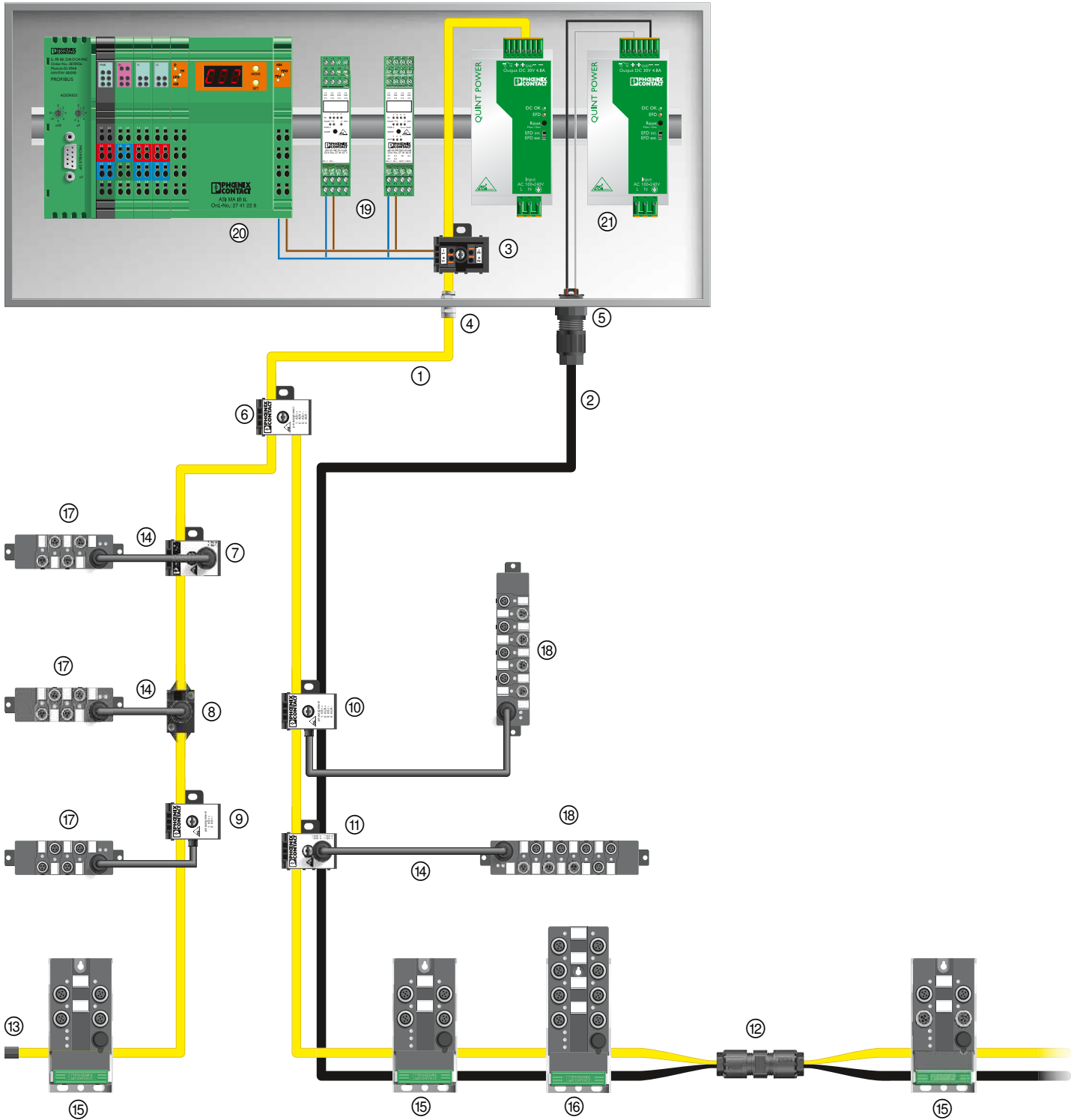
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No.	Designation	Page
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③	D-SUB contact inserts	See Catalog 2
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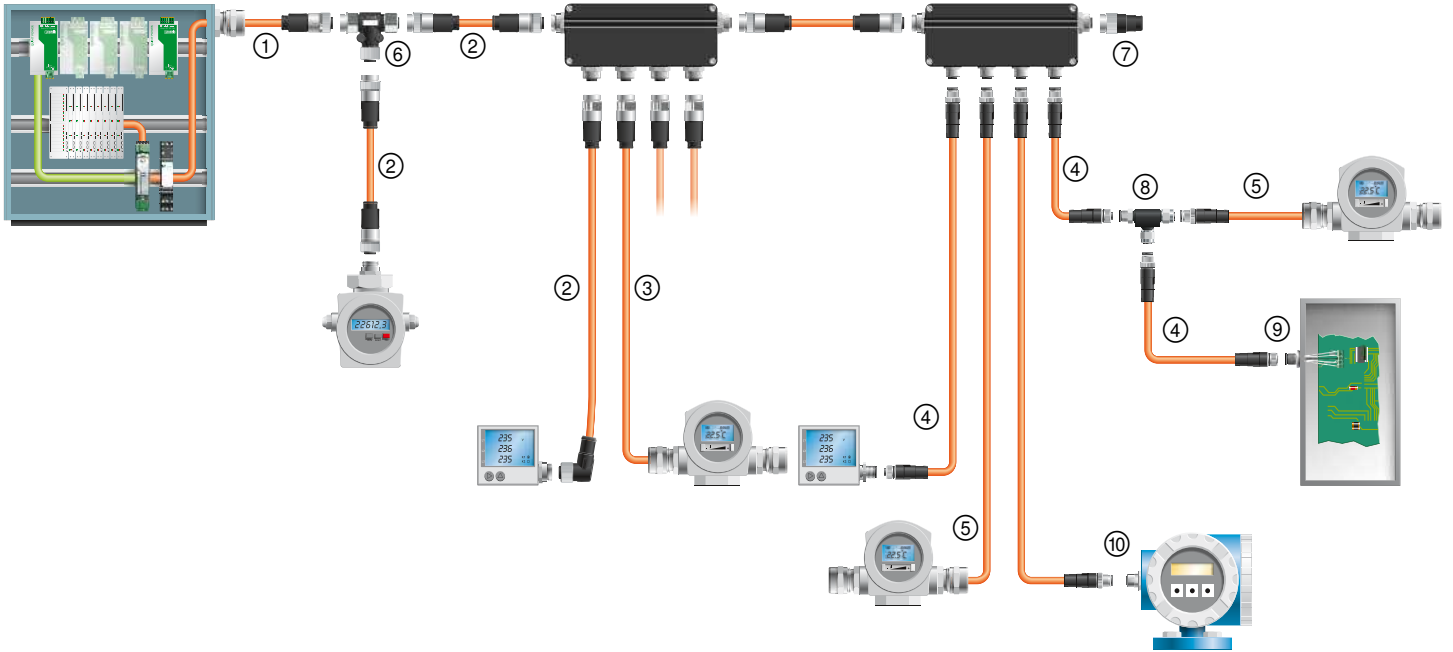


No.	Designation	Page
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⑫	Termination resistor, 7/8" plug	353
⑬	M12 flush-type plug-in connector	See Catalog 2
⑭	Assembled trunk cable with straight 7/8" plug and free cable end	347
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⑳	AS-Interface gateway for Inline Modular, IP20	*
㉑	Power supply unit, primary-switched	*

*) Further AS-Interface components for the control cabinet can be found in Catalog 8.



No.	Designation	Page
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D-SUB plug-in connectors, IP67



D-SUB complete plug-in connector for INTERBUS with IP67 protection



D-SUB plug-in connector set, IP67, consisting of: sleeve housing, panel mounting frame, and accessories, shielded design

	Technical data	Technical data
Electrical data		
Rated voltage	63 V	-
Rated current	1 A	-
Surge voltage category	II	-
Material data		
Housing material	PA	PA
Contact material	Copper alloy	-
Contact surface material	Gold over nickel	-
Contact carrier material	PBTP	-
Inflammability class according to UL 94	V0	V0
Mechanical data		
No. of pos.	9	9
Color	gray	gray
Pollution degree	2	2
Degree of protection	IP67	IP67
Connection method	Screw connection	-
Conductor cross section	0.14 mm ² ... 0.5 mm ²	-
Connection cross section AWG	26 ... 20	-
Insertion/withdrawal cycles	≥ 200	≥ 1000
Temperature data		
Ambient temperature (operation)	-20 °C ... 70 °C	-40 °C ... 80 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
D-SUB complete plug-in connector , for INTERBUS, shell size 1, screw connection, shielded						
Plug	VS-09-IBS-ST	1689271	1			
Socket	VS-09-IBS-BU	1689284	1			
D-SUB complete plug-in connector , for PROFIBUS, shell size 1, plug, shielded						
Screw connection	VS-09-PROFIBUS-SC	1654549	1			
Spring-cage connection	VS-09-PROFIBUS-SP	1654345	1			
D-SUB complete plug-in connector , for CANopen®, shell size 1, socket, screw connection, shielded						
Socket	VS-09-CAN	1689307	1			
D-SUB panel mounting frame , for accommodating D-SUB contact inserts						
D-SUB 09				VS-09-A	1688366	5
D-SUB EMC shroud , for the IP67 panel mounting frame, for shield contacting to the housing panel						
D-SUB 09				VS-09-A-EMV-S	1688463	5
D-SUB plug-in connector set						
D-SUB 09				VS-09-SET-EMV	1689158	1



Screw connection
Fixing: 2.5 mm hole



D-SUB panel mounting frame, IP67,
with integrated gender changer

	Technical data		Technical data			
Electrical data						
Rated voltage	60 V		125 V	125 V		
Rated current	5 A		5 A	5 A		
Surge voltage category	III		III	III		
Material data						
Housing material	-		PA	PA		
Contact material	Copper alloy		Copper alloy	Copper alloy		
Contact surface material	Gold over nickel		Hard gold-plated over nickel	Hard gold-plated over nickel		
Contact carrier material	PBTP		Polyester GF	Polyester GF		
Inflammability class according to UL 94	V0		V0	V0		
Mechanical data						
No. of pos.	9		9	9		
Color	-		gray	gray		
Pollution degree	2		2	2		
Degree of protection	IP20		IP67	IP67		
Connection method	Screw connection		-	-		
Conductor cross section	0.14 mm ² ... 0.5 mm ²		-	-		
Connection cross section AWG	26 ... 20		-	-		
Insertion/withdrawal cycles	≥ 200		≥ 200	≥ 200		
Temperature data						
Ambient temperature (operation)	-20 °C ... 80 °C		-40 °C ... 80 °C	-40 °C ... 80 °C		
	Ordering data		Ordering data			
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
D-SUB contact insert						
Plug	VS-09-ST-DSUB/10-MPT-0,5	1688379	10			
Socket	VS-09-BU-DSUB/9-MPT-0,5	1688395	10			
D-SUB panel mounting frame, with integrated gender changer, shielded						
D-SUB 09, pin/pin				VS-09-A-GC-ST/ST	1689705	5
D-SUB 09, socket/socket				VS-09-A-GC-BU/BU	1689695	5
D-SUB coupling, with integrated gender changer, shielded						
D-SUB 09, pin/pin				VS-09-KU-ST/ST	1689640	5
D-SUB 09, socket/socket				VS-09-KU-BU/BU	1689637	5

M12 plug-in connector, shielded



M12 plug-in connectors that can be assembled for INTERBUS



M12 plug-in connectors that can be assembled for PROFIBUS



M12 circular plug-in connector according to:

Pollution degree
Degree of protection
Connection method

Electrical data

Rated voltage
Rated current
Volume resistance
Insulation resistance

Material data

Contact material
Contact surface material
Contact carrier material
Inflammability class according to UL 94

Encoding
No. of pos.

Temperature data

Plug / socket [°C]

Technical data

Spring-cage connection

IEC 61076-2-101
3
IP67
Spring-cage conn.

Screw connection

IEC 61076-2-101
3
IP67
Screw connection

Technical data

Spring-cage connection

IEC 61076-2-101
3
IP67
Spring-cage conn.

Screw connection

IEC 61076-2-101
3
IP67
Screw connection

Rated voltage
Rated current
Volume resistance
Insulation resistance

Contact material
Contact surface material
Contact carrier material
Inflammability class according to UL 94

Encoding
No. of pos.

Temperature data

Plug / socket [°C]

Ordering data

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Spring-cage connection		Screw connection	

Ordering data

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Spring-cage connection		Screw connection	

Plug-in connectors

Socket, straight
Plug, straight
Socket, angled
Plug, angled

1432826	1	1507777	1
1432800	1	1507764	1
1432839	1		
1432813	1		

1432868	1	1507777	1
1432842	1	1507764	1
1432871	1		
1432855	1		

M12 plug-in connector, shielded



M12 plug-in connectors that can be assembled for DeviceNet™



M12 plug-in connectors that can be assembled for CC-Link



	Technical data	
	Spring-cage connection	Screw connection
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3
Degree of protection	IP67	IP67
Connection method	Spring-cage conn.	Screw connection
Electrical data		
Rated voltage	60 V	60 V
Rated current	4 A	4 A
Volume resistance	≤ 8 mΩ	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ	≥ 100 MΩ
Material data		
Contact material	CuSn	CuSn
Contact surface material	Ni/Au	Au
Contact carrier material	TPU	PA 66
Inflammability class according to UL 94	V0	HB
Encoding	A - standard	A - standard
Temperature data		
Plug / socket [°C]	-40 ... 85	-40 ... 85



	Technical data	
	Spring-cage connection	
M12 circular plug-in connector according to:	IEC 61076-2-101	-
Pollution degree	3	-
Degree of protection	IP67	-
Connection method	Spring-cage conn.	-
Electrical data		
Rated voltage	60 V	-
Rated current	4 A	-
Volume resistance	≤ 8 mΩ	-
Insulation resistance	≥ 100 MΩ	-
Material data		
Contact material	CuSn	-
Contact surface material	Ni/Au	-
Contact carrier material	PA 66	-
Inflammability class according to UL 94	V0	-
Encoding	A - standard	-
Temperature data		
Plug / socket [°C]	-40 ... 85	-

Description	Ordering data			
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	Spring-cage connection		Screw connection	
Plug-in connectors				
Socket, straight	1432787	1	1508365	1
Plug, straight	1432761	1	1508352	1
Socket, angled	1432790	1		
Plug, angled	1432774	1		

Description	Ordering data			
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	Spring-cage connection			
Plug-in connectors				
Socket, straight	1559770	1		
Plug, straight	1559767	1		

Fieldbus components - M12 flush-type plug-in connectors

Flush-type plug-in connector, with pre-assembled cable, type 900



Rear mounting



Front mounting, can be positioned



Technical data

M12 circular plug-in connector according to:

Pollution degree	3
Degree of protection	IP67
Rated voltage	60 V
Rated current	4 A
Volume resistance	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ
Material contact / contact surface	CuZn / Ni/Au
Contact carrier material	PA 66
Inflammability class according to UL 94	V0
Temperature data	
Plug / socket	[°C]

M16 fastening thread	Pg9 fastening thread
IEC 61076-2-101	IEC 61076-2-101
3	3
IP67	IP67
60 V	60 V
4 A	4 A
≤ 3 mΩ	≤ 3 mΩ
≥ 100 MΩ	≥ 100 MΩ
CuZn / Ni/Au	CuZn / Ni/Au
PA 66	PA 66
V0	V0
-25 ... 85	-25 ... 85



Technical data

M16 fastening thread	
IEC 61076-2-101	-
3	-
IP67	-
60 V	-
4 A	-
≤ 3 mΩ	-
≥ 100 MΩ	-
CuZn / Ni/Au	- / -
PA 66	-
V0	-
-25 ... 85	-

Ordering data

Description	Cable length
-------------	--------------

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
M16 fastening thread		Pg9 fastening thread	

Ordering data

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
M16 fastening thread			

Flush-type plug-in connector, B-coded, with bus system cable, 6-wire, shielded, PUR, halogen-free, green outer cable sheath, 3 x 2 x 0.25 mm²

Socket	0.5 m
Plug	0.5 m
Socket	1 m
Plug	1 m
Socket	2 m
Plug	2 m
Socket	5 m
Plug	5 m

1534546	1	1437601	1
1534504	1	1437643	1
1534559	1	1437614	1
1534517	1	1437656	1
1534562	1	1437627	1
1534520	1	1437669	1
1534575	1	1437630	1
1534533	1	1437672	1

1529742	1
1529629	1
1529755	1
1530223	1
1529768	1
1529726	1
1529771	1
1529739	1

EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with:

M16 fastening thread	1440164	10
Pg9 fastening thread	1440177	10

1440164	10	1440177	10
---------	----	---------	----

Flush-type plug-in connector, with pre-assembled cable, type 910



Rear mounting



Front mounting, can be positioned



Technical data

Technical data

M12 circular plug-in connector according to:

	M16 fastening thread	Pg9 fastening thread	M16 fastening thread	
Pollution degree	3	3	3	-
Degree of protection	IP67	IP67	IP67	-
Electrical data				
Rated voltage	60 V	60 V	60 V	-
Rated current	4 A	4 A	4 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Insulation resistance	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	-
Material data				
Material contact / contact surface	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	-
Temperature data				
Plug / socket	-25 ... 85	-25 ... 85	-25 ... 85	-

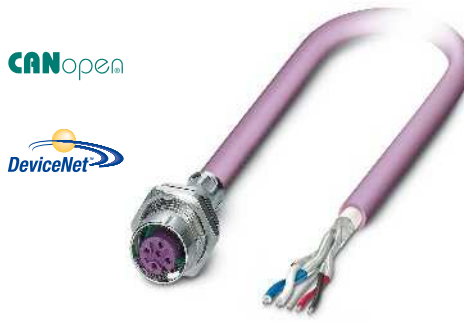
Ordering data

Ordering data

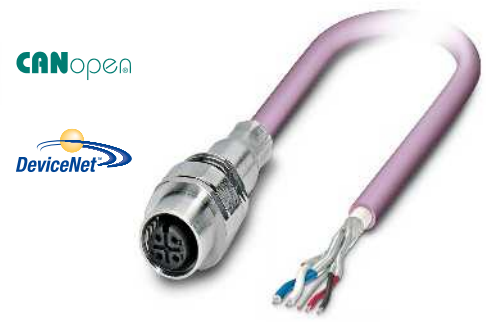
Description	Cable length	M16 fastening thread		Pg9 fastening thread		M16 fastening thread		M16 fastening thread	
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Flush-type plug-in connector , B-coded, with bus system cable, 2-wire, shielded, PUR, halogen-free, violet outer cable sheath, 1 x 2 x 0.25 mm ²									
Socket	0.5 m	1534384	1	1437449	1	1525597	1		
Plug	0.5 m	1534342	1	1437481	1	1525555	1		
Socket	1 m	1534397	1	1437452	1	1525607	1		
Plug	1 m	1534355	1	1437494	1	1525568	1		
Socket	2 m	1534407	1	1437465	1	1519574	1		
Plug	2 m	1534368	1	1437504	1	1519561	1		
Socket	5 m	1534410	1	1437478	1	1525610	1		
Plug	5 m	1534371	1	1437517	1	1525571	1		
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with:									
M16 fastening thread		1440164	10						
Pg9 fastening thread				1440177	10				

Fieldbus components - M12 flush-type plug-in connectors

Flush-type plug-in connector, with pre-assembled cable, type 920



Rear mounting



Front mounting, can be positioned

M12 circular plug-in connector according to:	
Pollution degree	3
Degree of protection	IP67
Electrical data	
Rated voltage	60 V
Rated current	4 A
Volume resistance	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ
Material data	
Material contact / contact surface	CuZn / Ni/Au
Contact carrier material	PA 66
Inflammability class according to UL 94	V0
Temperature data	
Plug / socket	-25 ... 85 [°C]

Technical data	
M16 fastening thread	Pg9 fastening thread
IEC 61076-2-101	IEC 61076-2-101
3	3
IP67	IP67
60 V	60 V
4 A	4 A
≤ 3 mΩ	≤ 3 mΩ
≥ 100 MΩ	≥ 100 MΩ
CuZn / Ni/Au	CuZn / Ni/Au
PA 66	PA 66
V0	V0
-25 ... 85	-25 ... 85

Technical data	
M16 fastening thread	
IEC 61076-2-101	-
3	-
IP67	-
60 V	-
4 A	-
≤ 3 mΩ	-
≥ 100 MΩ	-
CuZn / Ni/Au	- / -
PA 66	-
V0	-
-25 ... 85	-

Ordering data	
Description	Cable length

Ordering data	
Order No.	Pcs. / Pkt.
M16 fastening thread	

Ordering data	
Order No.	Pcs. / Pkt.
M16 fastening thread	

Flush-type plug-in connector, A-coded, with bus system cable, 4-wire, shielded, PUR, halogen-free, violet outer cable sheath, 2 x 0.34 mm²; 2 x 0.25 mm²

Socket	0.5 m	1534465	1	1437520	1	1525678	1
Plug	0.5 m	1534423	1	1437562	1	1525623	1
Socket	1 m	1534478	1	1437533	1	1525681	1
Plug	1 m	1534436	1	1437575	1	1525636	1
Socket	2 m	1534481	1	1437546	1	1525694	1
Plug	2 m	1534449	1	1437588	1	1525649	1
Socket	5 m	1534494	1	1437559	1	1525704	1
Plug	5 m	1534452	1	1437591	1	1525652	1

EMC hexagonal nuts with fine tothing, for all flush-type plug-in connectors with:							
M16 fastening thread		1440164	10				
Pg9 fastening thread				1440177	10		

**M12 flush-type plug-in connector,
shielded**

With 0.5 m long litz wires,
front mounting

Technical data

M12 circular plug-in connector according to:	IEC 61076-2-101
Pollution degree	3
Degree of protection	IP67
Connection method	Individual wires
Electrical data	
Rated voltage	250 V
Rated current	4 A
Volume resistance	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ
Material data	
Material contact / contact surface	CuZn / Ni/Au
Contact carrier material	PA66 GF
Inflammability class according to UL 94	V0
Temperature data	
Plug / socket	[°C] -25 ... 85

Ordering data

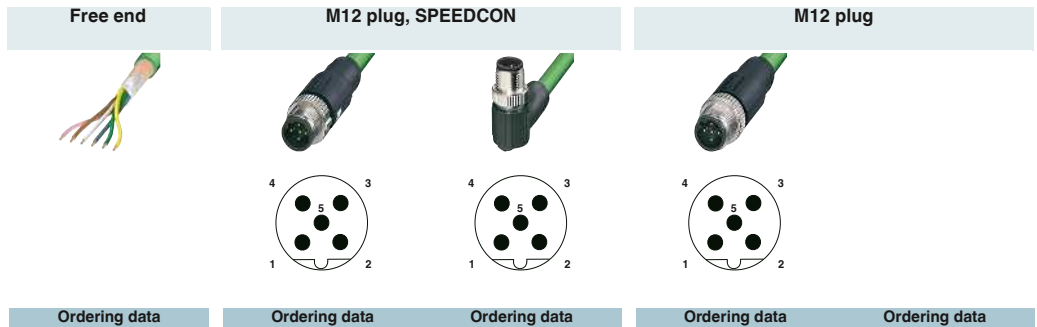
Description	Coding	Type	Order No.	Pcs. / Pkt.
Device plug-in connectors				
Socket	A - standard	SACC-E-M12FS-4CON-PG9/0,5 FFVA	1431429	1
Plug	A - standard	SACC-E-M12MS-4CON-PG9/0,5 FFVA	1431432	1

Data plug-in connectors and cables

Fieldbus components - assembled cables

Assembled cables, INTERBUS, M12-SPEEDCON and M12

Notes:
For information about the cable qualities, see page 360



Free end	Order No.	Order No.	Order No.	Order No.	Order No.
	2 m	1517877	2 m	1507065	
	5 m	1517880	5 m	1507078	
	10 m	1517893	10 m	1507081	
	15 m	1517903	15 m	1507094	
Variable	2723123	Variable	1537996	Variable	1433184
			Variable	1537983	
M12 socket, SPEEDCON, straight					
	0.3 m	1517958	0.3 m	1507162	
	0.5 m	1517961	0.5 m	1507175	
	1 m	1517974	1 m	1507188	
	2 m	1517987	2 m	1507191	
	5 m	1517929	5 m	1507201	
	10 m	1517932	10 m	1507214	
	15 m	1517945	15 m	1507227	
Variable	1538018	Variable	1538034	Variable	1433210
			Variable	1538021	
M12 socket, SPEEDCON, angled					
	Variable	1433197	Variable	1433207	Variable
				1433223	
M12 socket, straight					
	2 m	1507117			
	5 m	1507120			
	10 m	1507133			
	15 m	1507146			
Variable	1538005				

Ordering example for cable with plug-in connector assembly:

For an INTERBUS bus cable, straight M12 socket to straight M12 pin, and a cable length of 34.5 m, the ordering data is as follows:

Order No.	Length [m]
1538021	34.5
	Increments:
	0.2 ... 3.0 m = 0.1 m
	> 3.0 m = 0.5 m

Ordering example for cable without plug-in connector assembly:

For an INTERBUS bus cable with a cable length of 34.5 m, the ordering data is as follows:

Order No.	Length [m]
2723123	34.5
	Increments:
	0.5 ... 400.0 m = 0.5 m

Technical data

		M12
Rated voltage	[V]	60
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Conductor cross section for signal	[mm²]	0.25
Conductor structure for signal		32x 0.10 mm
Inflammability class in acc. with UL 94		V0
Cable diameter	[mm]	8
Material contact / contact surface		CuSn // Ni/Au
Contact carrier material		PA 66
Degree of protection		IP65/IP67/IP69K
Temperature data		
Cable, fixed installation	[°C]	-40 ... 80
Cable, flexible installation	[°C]	-30 ... 70
Plug / socket	[°C]	-25 ... 90

Assembled cables, PROFIBUS DP, M12-SPEEDCON and M12

Notes:

For information about the cable qualities, see page 360



	Ordering data		Ordering data		Ordering data		Ordering data		Ordering data	
Free end	Order No.	Length [m]	Order No.	Length [m]	Order No.	Length [m]	Order No.	Length [m]	Order No.	Length [m]
		2 m	1518025	2 m	1507243	2 m	1507243	2 m	1507243	2 m
		5 m	1518038	5 m	1507256	5 m	1507256	5 m	1507256	5 m
		10 m	1518041	10 m	1507269	10 m	1507269	10 m	1507269	10 m
		15 m	1518054	15 m	1507272	15 m	1507272	15 m	1507272	15 m
	Variable	1511491	Variable	1538050	Variable	1433236	Variable	1538047	Variable	1538047
M12 socket, SPEEDCON, straight 		0.3 m	1518106	0.3 m	1507340	0.3 m	1507340	0.3 m	1507340	0.3 m
		0.5 m	1518119	0.5 m	1507353	0.5 m	1507353	0.5 m	1507353	0.5 m
		1 m	1518122	1 m	1507366	1 m	1507366	1 m	1507366	1 m
		2 m	1518067	2 m	1518135	2 m	1507379	2 m	1507379	2 m
		5 m	1518070	5 m	1518148	5 m	1507382	5 m	1507382	5 m
		10 m	1518083	10 m	1518151	10 m	1507395	10 m	1507395	10 m
	15 m	1518096	15 m	1518164	15 m	1507405	15 m	1507405	15 m	
	Variable	1538076	Variable	1538092	Variable	1433265	Variable	1538063	Variable	1538089
M12 socket, SPEEDCON, angled 		0.3 m	1518106	0.3 m	1507340	0.3 m	1507340	0.3 m	1507340	0.3 m
		0.5 m	1518119	0.5 m	1507353	0.5 m	1507353	0.5 m	1507353	0.5 m
		1 m	1518122	1 m	1507366	1 m	1507366	1 m	1507366	1 m
	Variable	1433249	Variable	1433252	Variable	1433278	Variable	1538063	Variable	1538089
M12 socket, straight 		0.3 m	1507340	0.3 m	1507340	0.3 m	1507340	0.3 m	1507340	0.3 m
		0.5 m	1507353	0.5 m	1507353	0.5 m	1507353	0.5 m	1507353	0.5 m
		1 m	1507366	1 m	1507366	1 m	1507366	1 m	1507366	1 m
		2 m	1507379	2 m	1507379	2 m	1507379	2 m	1507379	2 m
		5 m	1507382	5 m	1507382	5 m	1507382	5 m	1507382	5 m
		10 m	1507395	10 m	1507395	10 m	1507395	10 m	1507395	10 m
	15 m	1507405	15 m	1507405	15 m	1507405	15 m	1507405	15 m	
	Variable	1538063	Variable	1538089	Variable	1538089	Variable	1538089	Variable	1538089

Ordering example for cable with

plug-in connector assembly:

For a PROFIBUS bus cable, straight M12 socket to straight M12 pin, and a cable length of 34.5 m, the ordering data is as follows:

Order No.	Length [m]
1538089	34.5
Increments:	
0.2 ... 3.0 m = 0.1 m	
> 3.0 m = 0.5 m	

Ordering example for cable without

plug-in connector assembly:

For a PROFIBUS bus cable with a cable length of 34.5 m, the ordering data is as follows:

Order No.	Length [m]
1511491	34.5
Increments:	
0.5 ... 400.0 m = 0.5 m	

Technical data

		M12
Rated voltage	[V]	250
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Conductor cross section for signal	[mm ²]	0.25
Conductor structure for signal		19x 0.13 mm
Inflammability class in acc. with UL 94		V0
Cable diameter	[mm]	7.8
Material contact / contact surface		CuSn // Ni/Au
Contact carrier material		PA 66
Degree of protection		IP65/IP67/IP69K
Temperature data		
Cable, fixed installation	[°C]	-40 ... 80
Cable, flexible installation	[°C]	-20 ... 80
Plug / socket	[°C]	-25 ... 90

Data plug-in connectors and cables

Fieldbus components - assembled cables

Assembled cables, PROFIBUS PA, M12 stainless steel

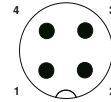
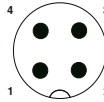
Notes:
For information about the cable qualities, see page 362



Free end



M12 plug



Ordering data

Ordering data

Ordering data

Free end



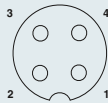
Order No.

Order No.

Order No.

2 m	1419092	2 m	1419097
5 m	1419093	5 m	1419098
10 m	1419094	10 m	1419099
15 m	1419095	15 m	1419100
20 m	1419096	20 m	1419101

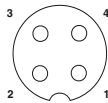
M12 socket, straight



2 m	1419082
5 m	1419083
10 m	1419084
15 m	1419085
20 m	1419086

0.3 m	1419102	0.3 m	1419110
0.5 m	1419103	0.5 m	1419111
1 m	1419104	1 m	1419112
2 m	1419105	2 m	1419113
5 m	1419106	5 m	1419114
10 m	1419107	10 m	1419115
15 m	1419108	15 m	1419116
20 m	1419109	20 m	1419117

M12 socket, angled



2 m	1419087
5 m	1419088
10 m	1419089
15 m	1419090
20 m	1419091

0.3 m	1419118	0.3 m	1419126
0.5 m	1419119	0.5 m	1419127
1 m	1419120	1 m	1419128
2 m	1419121	2 m	1419129
5 m	1419122	5 m	1419130
10 m	1419123	10 m	1419131
15 m	1419124	15 m	1419132
20 m	1419125	20 m	1419133

Color coding	Pin assignment M12
OG	1
n.c.	2
BU	3
Shield	4

Technical data

Rated voltage	[V]	60
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		TPU, hardly inflammable, self-extinguishing
Degree of protection		IP65/IP67/IP69K
Temperature data		
Plug / socket	[°C]	-25 ... 90

Assembled cables, DeviceNet™/CANopen®, M12-SPEEDCON

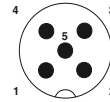
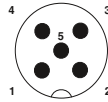
Notes:

For information about the cable qualities, see page 361

Free end



M12 plug



Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.
	2 m	1419039	2 m 1419044
	5 m	1419040	5 m 1419045
	10 m	1419041	10 m 1419046
	15 m	1419042	15 m 1419047
	20 m	1419043	20 m 1419048

M12 socket, straight	Order No.	Order No.	Order No.
	0.3 m	1419049	0.3 m 1419057
	0.5 m	1419050	0.5 m 1419058
	1 m	1419051	1 m 1419059
	2 m	1419052	2 m 1419060
	5 m	1419053	5 m 1419061
	10 m	1419054	10 m 1419062
	15 m	1419055	15 m 1419063
	20 m	1419056	20 m 1419064

M12 socket, angled	Order No.	Order No.	Order No.
	0.3 m	1419065	0.3 m 1419073
	0.5 m	1419066	0.5 m 1419074
	1 m	1419067	1 m 1419075
	2 m	1419068	2 m 1419076
	5 m	1419069	5 m 1419077
	10 m	1419070	10 m 1419078
	15 m	1419071	15 m 1419079
	20 m	1419072	20 m 1419080

Color coding	Pin assignment
	M12
Shield	1
RD	2
BK	3
WH	4
BU	5

Technical data

Rated voltage	[V]	60
Rated current	[A]	4
Volume resistance		< 5 mΩ
Contact material		CuSn
Contact surface material		Ni/Au
Material of grip body		TPU
Degree of protection		IP65/IP67/IP69K
Temperature data		
Plug / socket	[°C]	-25 ... 90

Data plug-in connectors and cables

Fieldbus components - assembled cables

Assembled cables, DeviceNet™/CANopen®, M8

Notes:
For information about the cable qualities, see page 361

Free end



M8 plug



Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.		
		2 m	1575712		
		5 m	1575725		
		10 m	1575738		
		15 m	1575754		
		Variable	1575767		
M8 socket, straight 		0.3 m	1575822		
		0.5 m	1575835		
		1 m	1575848		
		2 m	1575851		
		5 m	1575864		
		10 m	1575877		
M8 socket, angled 		15 m	1575806		
		Variable	1575819		
		Variable	1575893		
		Variable	1575932		
	Variable	1575916		Variable	1575945

Ordering example for cables with variable cable length:

For a DeviceNet™ bus cable, straight M8 socket to straight M8 pin and a cable length of 34.5 m, the ordering data is as follows:

Order No.	Length [m] Max. 40 m
1575893	34.5
Increments: 0.2 ... 3.0 m = 0.1 m > 3.0 m = 0.5 m	

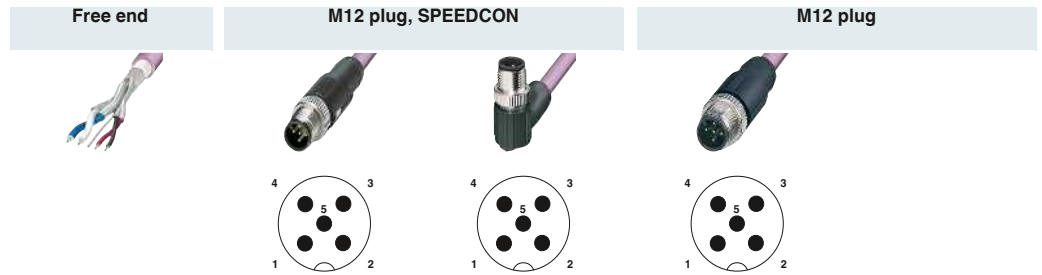
Technical data

		M8
Rated voltage	[V]	30
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Conductor cross section for signal	[mm²]	0.2
Conductor cross section for power	[mm²]	0.32
Inflammability class in acc. with UL 94		HB
Cable diameter		6.70 mm
Material contact / contact surface		CuSn // Ni/Au
Contact carrier material		TPU GF
Degree of protection		IP65/IP67/IP69K
Temperature data		
Cable, fixed installation	[°C]	-40 ... 80
Cable, flexible installation	[°C]	-20 ... 75
Plug / socket	[°C]	-25 ... 90

Assembled cables, DeviceNet™/CANopen®, M12-SPEEDCON and M12

Notes:

For information about the cable qualities, see page 361



	Ordering data		Ordering data		Ordering data		Ordering data		Ordering data	
Free end	Order No.	Length [m]	Order No.	Length [m]	Order No.	Length [m]	Order No.	Length [m]	Order No.	Length [m]
	Variable	1511504	2 m	1518177	2 m	1507421	Variable	1538115	2 m	1507434
		1518180	5 m	1507434						
		1518193	10 m	1507447						
		1518203	15 m	1507450						
M12 socket, SPEEDCON, straight 	Variable	1518216	0.3 m	1518258	Variable	1433281	0.3 m	1507528		
		1518229	0.5 m	1518261		0.5 m	1507531			
		1518232	1 m	1518274		1 m	1507544			
		1518245	2 m	1518287		2 m	1507557			
		1538131	5 m	1518290		5 m	1507560			
M12 socket, SPEEDCON, angled 	Variable	1433294	10 m	1518300	Variable	1433317	10 m	1507573		
		1433304	15 m	1518313		15 m	1507586			
		1433320	Variable	1538128		Variable	1538144			
M12 socket, straight 	Variable	1507476	0.3 m	1507528	Variable	1538144	0.3 m	1507528		
		1507489	0.5 m	1507531		0.5 m	1507531			
		1507492	1 m	1507544		1 m	1507544			
		1507502	2 m	1507557		2 m	1507557			
		1538128	5 m	1507560		5 m	1507560			

Ordering example for cable with plug-in connector assembly:

For a DeviceNet™ bus cable, straight M12 socket to straight M12 pin and a cable length of 34.5 m, the ordering data is as follows:

Order No.	Length [m]
1538144	34.5
Increments:	
0.2 ... 3.0 m = 0.1 m	
> 3.0 m = 0.5 m	

Ordering example for cable without plug-in connector assembly:

For a DeviceNet™ bus cable with a cable length of 34.5 m, the ordering data is as follows:

Order No.	Length [m]
1511504	34.5
Increments:	
0.5 ... 400.0 m = 0.5 m	

Technical data

		M12
Rated voltage	[V]	60
Rated current	[A]	4
Volume resistance		≤ 5 mΩ
Conductor cross section for signal	[mm²]	0.2
Conductor cross section for power	[mm²]	0.32
Inflammability class in acc. with UL 94		HB
Cable diameter		6.70 mm
Material contact / contact surface		CuSn // Ni/Au
Contact carrier material		TPU GF
Degree of protection		IP65/IP67/IP69K
Temperature data		
Cable, fixed installation	[°C]	-40 ... 80
Cable, flexible installation	[°C]	-20 ... 75
Plug / socket	[°C]	-25 ... 90

Data plug-in connectors and cables

Fieldbus components - assembled cables

Assembled drop cable, DeviceNet™, 7/8", type 923

Notes:

For information about the cable qualities, see page 361

Free end



7/8" plug



Ordering data

Ordering data

Ordering data

Free end



Order No.

Order No.

Order No.

2 m	1418523	2 m	1418578
5 m	1418536	5 m	1418581
10 m	1418549	10 m	1418594
15 m	1418552	15 m	1418604
20 m	1418565	20 m	1418617

7/8" socket, straight



2 m	1418426
5 m	1418439
10 m	1418442
15 m	1418455
20 m	1418468

0.3 m	1418620
0.5 m	1418633
1 m	1418646
2 m	1418659
5 m	1418662
10 m	1418675
15 m	1418688
20 m	1418691

0.3 m	1418701
0.5 m	1418714
1 m	1418727
2 m	1418730
5 m	1418743
10 m	1418756
15 m	1418769
20 m	1418772

7/8" socket, angled



2 m	1418471
5 m	1418484
10 m	1418497
15 m	1418507
20 m	1418510

0.3 m	1418785
0.5 m	1418798
1 m	1418808
2 m	1418811
5 m	1418824
10 m	1418837
15 m	1420029
20 m	1420032

0.3 m	1420045
0.5 m	1420058
1 m	1420061
2 m	1420074
5 m	1420087
10 m	1420090
15 m	1420100
20 m	1420113

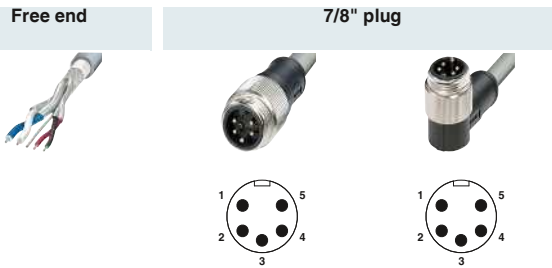
Color coding	Pin assignment 7/8"
Shield	1
RD	2
BK	3
WH	4
BU	5

Technical data

Rated voltage	[V]	30
Rated current	[A]	5.2
Volume resistance		< 5 mΩ
Contact material		CuZn
Contact surface material		Au
Material of grip body		TPU
Degree of protection		IP65/IP67/IP69K
Temperature data		
Plug / socket	[°C]	-25 ... 80

**Assembled trunk cable,
DeviceNet™, 7/8", type 928**

Notes:
For information about the cable qualities, see page 361



Ordering data

Free end	Order No.	Order No.	Order No.	Order No.		
		2 m	1417553	2 m	1417605	
			5 m	1417566	5 m	1417618
			10 m	1417579	10 m	1417621
			15 m	1417582	15 m	1417634
			20 m	1417595	20 m	1417647
7/8" socket, straight 		0.3 m	1417650	0.3 m	1417731	
			0.5 m	1417663	0.5 m	1417744
			1 m	1417676	1 m	1417757
	2 m	1417456	2 m	1417689	2 m	1417760
	5 m	1417469	5 m	1417692	5 m	1417773
	10 m	1417472	10 m	1417702	10 m	1417786
15 m	1417485	15 m	1417715	15 m	1417799	
20 m	1417498	20 m	1417728	20 m	1417809	
7/8" socket, angled 		0.3 m	1417812	0.3 m	1417896	
			0.5 m	1417825	0.5 m	1417906
			1 m	1417838	1 m	1417919
	2 m	1417508	2 m	1417841	2 m	1417922
	5 m	1417511	5 m	1417854	5 m	1417935
	10 m	1417524	10 m	1417867	10 m	1417948
	15 m	1417537	15 m	1417870	15 m	1417951
	20 m	1417540	20 m	1417883	20 m	1417964

Color coding	Pin assignment 7/8"
Shield	1
RD	2
BK	3
WH	4
BU	5

Technical data

Rated voltage	[V]	30
Rated current	[A]	5.2
Volume resistance		< 5 mΩ
Contact material		CuZn
Contact surface material		Au
Material of grip body		TPU
Degree of protection		IP65/IP67/IP69K
Temperature data		
Plug / socket	[°C]	-25 ... 80

M12 Y-distributor

Notes:
For information about the cable qualities, see page 361



Bus system cable



Bus system cable



Electrical data	
Rated voltage	60 V
Rated current	4 A
Volume resistance	≤ 5 mΩ
Material data	
Contact material	CuSn
Contact surface material	Ni/Au
Contact carrier material	TPU GF
Inflammability class according to UL 94	HB
Mechanical data	
No. of pos.	5
Pollution degree	3
Degree of protection	IP65/IP67/IP69K
External cable diameter	6.70 mm
Conductor cross section for signal	0.2 mm ²
Conductor structure signal line	19 x 0.12 mm
Conductor cross section for power	0.32 mm ²
Conductor structure, voltage supply	19 x 0.15 mm
Temperature data	
Plug / socket	[°C] -25 ... 90
Cable, fixed installation	[°C] -40 ... 80
Cable, flexible installation	[°C] -20 ... 75

Technical data		
Rated voltage	60 V	
Rated current	4 A	
Volume resistance	≤ 5 mΩ	
Material data		
Contact material	CuSn	
Contact surface material	Ni/Au	
Contact carrier material	-	
Inflammability class according to UL 94	HB	
Mechanical data		
No. of pos.	5	
Pollution degree	3	
Degree of protection	IP65/IP67/IP69K	
External cable diameter	6.70 mm	
Conductor cross section for signal	0.2 mm ²	
Conductor structure signal line	19 x 0.12 mm	
Conductor cross section for power	0.32 mm ²	
Conductor structure, voltage supply	19 x 0.15 mm	
Temperature data		
Plug / socket	[°C] -25 ... 90	
Cable, fixed installation	[°C] -40 ... 80	
Cable, flexible installation	[°C] -20 ... 75	

Technical data		
Rated voltage	60 V	
Rated current	4 A	
Volume resistance	≤ 5 mΩ	
Material data		
Contact material	CuSn	
Contact surface material	Ni/Au	
Contact carrier material	-	
Inflammability class according to UL 94	HB	
Mechanical data		
No. of pos.	5	
Pollution degree	3	
Degree of protection	IP65/IP67/IP69K	
External cable diameter	6.70 mm	
Conductor cross section for signal	0.2 mm ²	
Conductor structure signal line	19 x 0.12 mm	
Conductor cross section for power	0.32 mm ²	
Conductor structure, voltage supply	19 x 0.15 mm	
Temperature data		
Plug / socket	[°C] -25 ... 90	
Cable, fixed installation	[°C] -40 ... 80	
Cable, flexible installation	[°C] -20 ... 75	

Ordering data	
Description	Type
Bus system Y-cable, 5-pos., PUR, halogen-free, violet, shielded, straight M12 Y-socket to straight M12 socket and straight M12 plug	
- Conductor length 0.3 m	SAC-5PY-F/2X 0,3-920-MS-FS
- Conductor length 0.5 m	SAC-5PY-F/2X 0,5-920-MS-FS
- Conductor length 1.0 m	SAC-5PY-F/2X 1,0-920-MS-FS
- Conductor length 2.0 m	SAC-5PY-F/2X 2,0-920-MS-FS
- Conductor length 5.0 m	SAC-5PY-F/2X 5,0-920-MS-FS
- Conductor length 10.0 m	SAC-5PY-F/2X10,0-920-MS-FS
- Conductor length 15.0 m	SAC-5PY-F/2X15,0-920-MS-FS
Bus system Y-cable, 5-pos., PUR, halogen-free, violet, shielded, straight M12 Y-plug to free cable ends	
- Conductor length 2.0 m	SAC-5PY-M/2X 2,0-920
- Conductor length 5.0 m	SAC-5PY-M/2X 5,0-920
- Conductor length 10.0 m	SAC-5PY-M/2X10,0-920
- Conductor length 15.0 m	SAC-5PY-M/2X15,0-920
Bus system Y-cable, 5-pos., PUR, halogen-free, violet, shielded, straight M12 Y-socket to free cable ends	
- Conductor length 2.0 m	SAC-5PY-F/2X 2,0-920
- Conductor length 5.0 m	SAC-5PY-F/2X 5,0-920
- Conductor length 10.0 m	SAC-5PY-F/2X10,0-920
- Conductor length 15.0 m	SAC-5PY-F/2X15,0-920

Ordering data		
Type	Order No.	Pcs. / Pkt.
SAC-5PY-F/2X 0,3-920-MS-FS	1436013	1
SAC-5PY-F/2X 0,5-920-MS-FS	1436026	1
SAC-5PY-F/2X 1,0-920-MS-FS	1436039	1
SAC-5PY-F/2X 2,0-920-MS-FS	1436042	1
SAC-5PY-F/2X 5,0-920-MS-FS	1436055	1
SAC-5PY-F/2X10,0-920-MS-FS	1436068	1
SAC-5PY-F/2X15,0-920-MS-FS	1436071	1

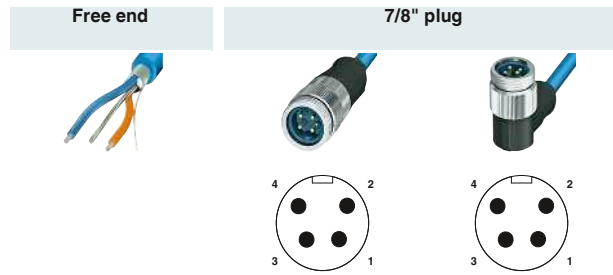
Ordering data		
Type	Order No.	Pcs. / Pkt.
SAC-5PY-M/2X 2,0-920	1436084	1
SAC-5PY-M/2X 5,0-920	1436097	1
SAC-5PY-M/2X10,0-920	1436107	1
SAC-5PY-M/2X15,0-920	1436110	1
SAC-5PY-F/2X 2,0-920	1436123	1
SAC-5PY-F/2X 5,0-920	1436136	1
SAC-5PY-F/2X10,0-920	1436149	1
SAC-5PY-F/2X15,0-920	1436152	1

**Assembled cables,
FOUNDATION Fieldbus,
7/8"**

Notes:

For applications in circuits with intrinsic safety protection type "i".

For information about the cable qualities, see page 362



Ordering data

Free end	Order No.	Order No.	Order No.
	Variable 1434620	2 m 1433964	2 m 1434057
		5 m 1433977	5 m 1434060
		10 m 1433980	10 m 1434073
7/8" socket, straight 		0.3 m 1434141	0.3 m 1434264
		0.5 m 1434154	0.5 m 1434277
		1 m 1434167	1 m 1434280
		2 m 1433786	2 m 1434293
		5 m 1433799	5 m 1434303
		10 m 1433809	10 m 1434316
7/8" socket, angled 		0.3 m 1434387	0.3 m 1434507
		0.5 m 1434390	0.5 m 1434510
		1 m 1434400	1 m 1434523
		2 m 1433870	2 m 1434536
		5 m 1433883	5 m 1434549
		10 m 1433896	10 m 1434552

Ordering example for products with variable cable:

For a FOUNDATION Fieldbus cable that is 34.5 m in length, the ordering data is as follows:

Order No.	Length [m] max. 50 m
1434620	34.5 Increment: 0.5 m



Color coding	Pin assignment	
	7/8"	M12
BU	1	1
BN	2	2
Shield	3	3
n.c.	4	4

Technical data

		7/8"
Rated voltage	[V]	-
Rated current	[A]	5.2
Volume resistance		≤ 5 mΩ
Conductor cross section	AWG	18
Contact material		CuZn
Contact surface material		AU
Contact carrier material		PA 66
Material of grip body		TPU
Material, knurls		Stainless steel
Degree of protection		IP67
Temperature data		
Cable, fixed installation	[°C]	-30 ... 105
Plug / socket	[°C]	-40 ... 105

Data plug-in connectors and cables

Fieldbus components - assembled cables

Assembled cables, FOUNDATION Fieldbus, 7/8" and M12 stainless steel

Notes:
For information about the cable qualities, see page 362



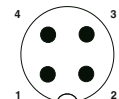
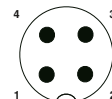
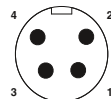
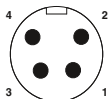
Free end



7/8" plug



M12 plug



Ordering data

Ordering data

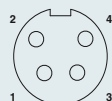
Ordering data

Ordering data

Ordering data

Free end	Order No.	Order No.	Order No.	Order No.	Order No.		
	2 m	1429350	2 m	1429444	2 m	1431173	
	5 m	1429363	5 m	1429457	5 m	1431186	
	10 m	1429376	10 m	1429460	10 m	1431199	
	15 m	1429389	15 m	1429473	15 m	1431209	
	20 m	1429392	20 m	1429486			
	25 m	1429402	25 m	1429499			
	30 m	1429415	30 m	1429509			
	40 m	1429428	40 m	1429512			
	50 m	1429431	50 m	1429525			
	Variable	1432389			Variable	1431322	Variable

7/8" socket, straight



Variable

1432389

Variable

1431322

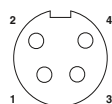
Variable

1431335

0.3 m	1429538
0.5 m	1429554
1 m	1429567
2 m	1429570
5 m	1429583
10 m	1429596
15 m	1429606
20 m	1429619
25 m	1429622
30 m	1429635
40 m	1429648
50 m	1429651

0.3 m	1429664
0.5 m	1429677
1 m	1429680
2 m	1429693
5 m	1429703
10 m	1429716
15 m	1429729
20 m	1429732
25 m	1429745
30 m	1429758
40 m	1429761
50 m	1429774

7/8" socket, angled

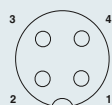


2 m	1429266
5 m	1429279
10 m	1429282
15 m	1429295
20 m	1429305
25 m	1429318
30 m	1429321
40 m	1429334
50 m	1429347

0.3 m	1429787
0.5 m	1429790
1 m	1429800
2 m	1429813
5 m	1429826
10 m	1429839
15 m	1429842
20 m	1429855
25 m	1429868
30 m	1429871
40 m	1429884
50 m	1429897

0.3 m	1429907
0.5 m	1429910
1 m	1429923
2 m	1429936
5 m	1429949
10 m	1429952
15 m	1429965
20 m	1429978
25 m	1429981
30 m	1429994
40 m	1430006
50 m	1430019

M12 socket, straight



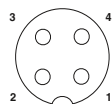
2 m	1431212
5 m	1431225
10 m	1431238
15 m	1431241
Variable	1431348

0.3 m	1431254
0.5 m	1431267
1 m	1431270
2 m	1431283
5 m	1431296
10 m	1431306
15 m	1431319
Variable	1431364

Variable

1431377

M12 socket, angled



Variable

1431351

Variable

1431380

Variable

1431393

Ordering example for products with variable cable:

For a FOUNDATION Fieldbus cable, fitted with a straight M12 plug at one end and an M12 socket at the other end, and 34.5 m in length, the ordering data is as follows:

Order No.	Length [m] max. 50 m
1431364	34.5 Increment: 0.5 m

Color coding	Pin assignment	
	7/8"	M12
BU	1	1
BN	2	2
Shield	3	3
n.c.	4	4

		Technical data	Technical data
		7/8"	Plug-in connector M12
Rated voltage	[V]	300	250
Rated current	[A]	5.2	4
Volume resistance		≤ 5 mΩ	≤ 5 mΩ
Conductor cross section	AWG	18	18
Contact material		CuZn	CuSn
Contact surface material		AU	Ni/Au
Contact carrier material		PA 66	TPU GF
Material of grip body		TPU	TPU, hardly inflammable, self-extinguishing
Material, knurls		Stainless steel	Stainless steel
Degree of protection		IP67	IP65/IP67/IP69K
Temperature data			
Cable, fixed installation	[°C]	-30 ... 105	-30 ... 105
Plug / socket	[°C]	-40 ... 105	-25 ... 90

H and T-distributors

CANopen

DeviceNet



H-distributor

CC-Link

DeviceNet

CANopen

PROFIBUS

FOUNDATION



T-distributor



Technical data

SAC-5PH-M-F/2XF SH1 SCO

Electrical data	
Nominal voltage U_N	60 V
Volume resistance	$\leq 3 \text{ m}\Omega$
Insulation resistance	$> 100 \text{ M}\Omega$
Surge voltage category / pollution degree	II / 3
Material data	
Contact material	CuZn
Contact surface material	Ni/Au
Contact carrier material	TPU GF
Material of grip body	TPU, hardly inflammable, self-extinguishing
Degree of protection	IP65/67
Temperature data	
Ambient temperature (operation)	-25 °C ... 90 °C (Plug / socket)

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Bus system H-distributor , for DeviceNet™ M12 plug to 3 x M12 sockets	SAC-5PH-M-F/2XF SH1 SCO	1417414	1
Bus system T-distributor , for DeviceNet™ , with stainless steel knurl M12 socket to 7/8" plug and 7/8" socket			
7/8" socket to 7/8" plug and 7/8" socket			
Bus system T-distributor , for CANopen® M12 socket to M12 socket and M12 plug			
Bus system T-distributor , for CC-Link M12 socket to M12 socket and M12 plug			
Bus system T-distributor , for FOUNDATION Fieldbus , with stainless steel knurl M12 socket to M12 socket and M12 plug			
7/8" socket to 7/8" plug and 7/8" socket			
Bus system T-distributor , for PROFIBUS M12 plug to M12 plug and socket			



Technical data

SAC-5P-M12T/2XM12 VP

Electrical data	
Nominal voltage U_N	60 V
Volume resistance	$\leq 5 \text{ m}\Omega$
Insulation resistance	$\geq 10 \text{ G}\Omega$
Surge voltage category / pollution degree	II / 3

Material data	
Contact material	CuZn
Contact surface material	Ni/Au
Contact carrier material	TPU GF
Material of grip body	TPU, hardly inflammable, self-extinguishing
Degree of protection	IP65/67

-25 °C ... 90 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Bus system T-distributor , for CC-Link M12 socket to M12 socket and M12 plug	SAC-5P-M12T/2XM12 DN	1401028	1
Bus system T-distributor , for CC-Link M12 socket to M12 socket and M12 plug	SAC-5P-MINT/2XM12 DN	1401029	1
Bus system T-distributor , for CC-Link M12 socket to M12 socket and M12 plug	SAC-5P-M12T/2XM12 VP	1541186	1
Bus system T-distributor , for CC-Link M12 socket to M12 socket and M12 plug	SAC-4P-M12T/2XM12 CCL	1559783	5
Bus system T-distributor , for CC-Link M12 socket to M12 socket and M12 plug	SAC-4P-M12T/2XM12 FF VA	1431416	5
Bus system T-distributor , for CC-Link M12 socket to M12 socket and M12 plug	SAC-4P-MIN-T/2XM12 FF VA	1430035	1
Bus system T-distributor , for CC-Link M12 socket to M12 socket and M12 plug	SAC-M12T/2XM12 PBDP	1458884	1

Termination resistors



M8/M12 termination resistors



7/8" termination resistors



Technical data	
SAC-5P-M12MS PB TR	SAC-4P-M12MS FF TR VA
60 V	24 V
≤ 5 mΩ	≤ 5 mΩ
≥ 100 MΩ	≥ 100 MΩ
II / 3	II / 3
CuSn	CuZn
Ni/Au	Ni/Au
TPU GF	TPU GF
TPU, hardly inflammable, self-extinguishing	TPU, hardly inflammable, self-extinguishing
IP65/IP67/IP69K	IP65/IP68/IP69K
-25 °C ... 90 °C (connector)	-25 °C ... 90 °C (Plug / socket)



Technical data	
SAC-4P-MINMS FF-TR VA	
50 V	
≤ 5 mΩ	
≥ 10 MΩ	
II / 2	
CuZn	
AU	
PA 66	
TPU	
IP67	
-40 °C ... 80 °C (Plug / socket)	

Ordering data		
Type	Order No.	Pcs. / Pkt.
SAC-5P-M 8MS DN TR	1435988	5
SAC-5P-M12MS PB TR	1507803	5
SAC-5P-M12MS CAN TR	1507816	5
SAC-4P-M12MS CCL TR	1558470	1
SAC-4P-M12MS FF TR VA	1431403	5

Ordering data		
Type	Order No.	Pcs. / Pkt.
SAC-4P-MINMS FF-TR VA	1430023	1
SAC-5P-MINMS TR-DN	1434701	1

Electrical data
Nominal voltage U _N
Volume resistance
Insulation resistance
Surge voltage category / pollution degree
Material data
Contact material
Contact surface material
Contact carrier material
Material of grip body
Degree of protection
Temperature data
Ambient temperature (operation)

Description
Termination resistor, M8 plug - DeviceNet™
Termination resistor, M12 plug - PROFIBUS - DeviceNet™/CANopen® - CC-Link
Termination resistor, M12 plug, stainless steel knurl - FOUNDATION Fieldbus
Termination resistor, 7/8" plug, stainless steel knurl - FOUNDATION Fieldbus
Termination resistor, 7/8" plug - DeviceNet™

AS-Interface

Flat-ribbon conductors, flat-ribbon conductor connectors and panel feed-throughs



Flat-ribbon conductors and accessories



Flat-ribbon conductors and panel feed-throughs with QUICKON fast connection technology



		Technical data			Technical data		
		VS-ASI-FC-PVC...	VS-ASI-FC-PUR...	Q 1,5/4IDC	Q 1,5/4M20		
Mechanical data							
No. of pos.		2	2	4	4		
Degree of protection		-	-	IP65/67	IP65/67		
Cable data							
Outer sheath material		PVC	PUR	-	-		
Conductor cross section		1.5 mm ²	1.5 mm ²	-	-		
Connector data QUICKON connection							
Conductor cross section [mm ²]		- ... -	- ... -	0.75 mm ² ... 1.5 mm ²	0.75 mm ² ... 1.5 mm ²		
Conductor cross section [AWG]		- ... -	- ... -	18 ... 16	18 ... 16		
Temperature data							
Plug / socket		[°C]	-	-25 ... 80	-25 ... 80		
Cable, fixed installation		[°C]	-30 ... 90	-	-		
Cable, flexible installation		[°C]	-20 ... 90	-	-		
		Ordering data			Ordering data		
Description	Cable length	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
AS-Interface EPDM flat-ribbon conductor, 2 x 1.5 mm²							
Yellow	100 m	VS-ASI-FC-EPDM-YE 100M	1432402	1			
Yellow	1000 m	VS-ASI-FC-EPDM-YE 1000M	1434646	1			
Black	100 m	VS-ASI-FC-EPDM-BK 100M	1432415	1			
Black	1000 m	VS-ASI-FC-EPDM-BK 1000M	1434659	1			
AS-Interface PVC flat-ribbon conductor acc. to UL, 2 x 1.5 mm²							
Yellow	100 m	VS-ASI-FC-PVC-UL-YE 100M	1404906	1			
Yellow	1000 m	VS-ASI-FC-PVC-UL-YE/1000	1404867	1			
Black	100 m	VS-ASI-FC-PVC-UL-BK 100M	1404919	1			
Black	1000 m	VS-ASI-FC-PVC-UL-BK/1000	1404870	1			
AS-Interface TPE flat-ribbon conductor acc. to UL, 2 x 1.5 mm²							
Yellow	100 m	VS-ASI-FC-TPE-UL-YE 100M	1404922	1			
Yellow	1000 m	VS-ASI-FC-TPE-UL-YE 1000M	1434662	1			
Black	100 m	VS-ASI-FC-TPE-UL-BK 100M	1404935	1			
Black	1000 m	VS-ASI-FC-TPE-UL-BK 1000M	1434675	1			
AS-Interface PUR flat-ribbon conductor, 2 x 1.5 mm²							
Yellow	100 m	VS-ASI-FC-PUR-YE 100M	1404883	1			
Yellow	1000 m	VS-ASI-FC-PUR-YE/1000	1404841	1			
Black	100 m	VS-ASI-FC-PUR-BK 100M	1404896	1			
Black	1000 m	VS-ASI-FC-PUR-BK/1000	1404854	1			
Flat-ribbon conductor connector, 4-pos., for connecting one or two AS-i flat-ribbon conductors							
Panel feed-through, for accommodating one or two AS-i flat-ribbon conductors, on the rear side with manual solder/spade connection 4.8 x 0.8 mm					Q 1,5/4IDC/24-24KU-KU-ASI-BK	1585058	1
Panel feed-through, for accommodating one or two AS-Interface flat-ribbon conductors, on the rear side with four individual 1.5 mm² wires					Q 1,5/4FL/24-M20KU-ESA-ASI BK	1437261	1
Metal gland, for AS-Interface flat-ribbon conductor					Q 1,5/4A50/24-M20KU-ESA-ASI BK	1437274	1
Thread type: M20					HC-M-KV-M20(1ASI)	1584017	10
Thread type: M25					HC-M-KV-M25(1ASI)	1584020	10

Distributor with spring-cage connection and with round cables



Flat-ribbon conductor distributors and distributors with spring-cage connection



Distributor with round cable and molded M12 plug-in connector with SPEEDCON

	Technical data		Technical data	
	SAC-ASI-J-Y-B-FFKDS	SAC-ASI-J-Y-Y-N	SAC-ASI-J-Y-N...	SAC-ASI-J-Y-B...
Electrical data				
Rated voltage	≤ 35 V	≤ 32 V	≤ 32 V	≤ 32 V
Rated current	≤ 6 A	≤ 8 A	≤ 4 A	≤ 4 A
Material specifications for exit				
Material of grip body	-	-	-	-
Material specifications for distributor				
Housing material	PBT	PBT	PBT	PBT
Mechanical data				
No. of pos.	4	4	2	4
Degree of protection	IP20	IP65/IP67/IP69K	IP67	IP67
Connection data for spring-cage terminal blocks				
Conductor cross section	0.2 mm ² ... 1.5 mm ²	-	-	-
Connection cross section AWG	24 ... 16	-	-	-
Cable data				
Outer sheath material	-	-	PUR	PUR
External cable diameter	-	-	-	-
Conductor cross section	-	-	4 x 0.34 mm ² (signal line)	4 x 0.34 mm ² (signal line)
Temperature data				
Plug / socket	[°C]	-25 ... 75	-25 ... 75	-25 ... 75
Cable, fixed installation	[°C]	-	-40 ... 80	-40 ... 80
Cable, flexible installation	[°C]	-	-25 ... 80	-25 ... 80

Description	Cable length	Ordering data			Ordering data		
		Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
AS-Interface distributor with IP20 protection for two flat-ribbon conductors , 4-pos., with spring-cage terminal blocks		SAC-ASI-J-Y-B-FFKDS	1407579	1			
AS-Interface H-distributor with high degree of protection, parallel wired , for distribution from one to two flat-ribbon conductors		SAC-ASI-J-Y-Y-N	1405622	1			
AS-Interface distributor for 1 flat-ribbon conductor , with PUR round cable and molded, straight , A-coded, 2-pos. M12 socket with SPEEDCON	1 m				SAC-ASI-J-Y-N-PUR-1,0-FS SCO	1407573	1
					SAC-ASI-J-Y-N-PUR-2,0-FS SCO	1407574	1
AS-Interface distributor for 2 flat-ribbon conductors , with PUR round cable and molded, straight , A-coded, 4-pos. M12 socket with SPEEDCON	1 m				SAC-ASI-J-Y-B-PUR-1,0-FS SCO	1407575	1
					SAC-ASI-J-Y-B-PUR-2,0-FS SCO	1407576	1
AS-Interface distributor for 2 flat-ribbon conductors , with PUR round cable and molded, angled , A-coded, 4-pos. M12 socket with SPEEDCON					SAC-ASI-J-Y-B-PUR-1,0-FR SCO	1407577	1
					SAC-ASI-J-Y-B-PUR-2,0-FR SCO	1407578	1
AS-Interface distributor for 1 flat-ribbon conductor , with 2.0 m PUR round cable and open cable end					SAC-ASI-J-Y-N-PUR-2,0-OE	1407580	1
AS-Interface distributor for 2 flat-ribbon conductors , with 2.0 m PUR round cable and open cable end					SAC-ASI-J-Y-B-PUR-2,0-OE	1407581	1

AS-Interface

Distributors with M12 socket, with screw connection, pre-assembled round cable



Distributors with M12 slot and with screw connection



PUR round cables with molded M12-SPEEDCON plug-in connectors



	Technical data		Technical data	
Material data	SAC-ASI-J-Y-N-M12FS	VS-ASI-J-Y-N-SWA-LC	-	
Housing material	PBT	PA	-	
Material of grip body	-	-	TPU, hardly inflammable, self-extinguishing	
No. of pos.	2	2	4	
Degree of protection	IP67	IP67	IP65/IP68/IP69K	
Connection data for screw connection				
Conductor cross section	-	0.14 mm ² ... 1 mm ² (solid)	-	
Connection cross section AWG	-	26 ... 17 (solid)	-	
Conductor cross section	-	0.14 mm ² ... 0.75 mm ² (With ferrules)	-	
Connection cross section AWG	-	26 ... 18 (With ferrules)	-	
Cable data				
Conductor cross section	-	-	0.75 mm ²	
Temperature data				
Plug / socket	[°C]	-25 ... 75	-25 ... 70	-25 ... 90
Cable, fixed installation	[°C]	-	-	-25 ... 80
Cable, flexible installation	[°C]	-	-	-5 ... 80

		Ordering data			Ordering data		
Description	Cable length	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
AS-Interface distributor for flat-ribbon conductors, with straight, A-coded M12 socket							
One flat-ribbon conductor, 2-pos.		SAC-ASI-J-Y-N-M12FS	1405619	1			
Two flat-ribbon conductors, 4-pos.		SAC-ASI-J-Y-B-M12FS	1405621	1			
AS-Interface distributor , with straight, A-coded M12 socket							
One flat-ribbon conductor, 2-pos.		VS-ASI-J-Y-N-M12FS-LC	1433155	1			
AS-Interface distributor , with screw connection, angled							
One flat-ribbon conductor, 2-pos.		VS-ASI-J-Y-N-SWA-LC	1433168	1			
Pre-assembled round cable							
M12 pin, straight, free cable end	2 m				SAC-4P-MS/ 2,0-186 SCO	1555606	1
	5 m				SAC-4P-MS/ 5,0-186 SCO	1555619	1
	10 m				SAC-4P-MS/10,0-186 SCO	1555622	1
	15 m				SAC-4P-MS/15,0-186 SCO	1555635	1
Pre-assembled round cable							
M12 socket, straight, free cable end	2 m				SAC-4P- 2,0-186/FS SCO	1555648	1
	5 m				SAC-4P- 5,0-186/FS SCO	1555651	1
	10 m				SAC-4P-10,0-186/FS SCO	1555664	1
	15 m				SAC-4P-15,0-186/FS SCO	1555677	1
Pre-assembled round cable							
M12 pin, straight, M12 socket, straight	0.3 m				SAC-4P-MS/ 0,3-186/FS SCO	1555680	1
	0.5 m				SAC-4P-MS/ 0,5-186/FS SCO	1555693	1
	1 m				SAC-4P-MS/ 1,0-186/FS SCO	1555703	1
	2 m				SAC-4P-MS/ 2,0-186/FS SCO	1555716	1
	5 m				SAC-4P-MS/ 5,0-186/FS SCO	1555729	1
	10 m				SAC-4P-MS/10,0-186/FS SCO	1555732	1
	15 m				SAC-4P-MS/15,0-186/FS SCO	1555745	1

Digital I/O devices with M8 connection method

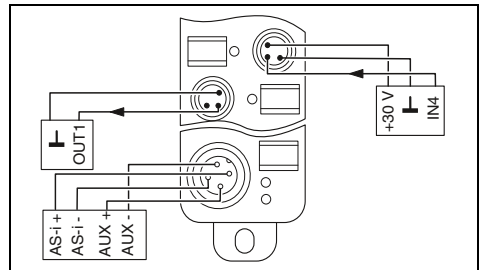
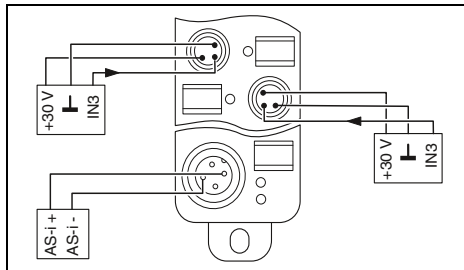
Notes:
1) EMC: Class A product, see page 636



Fieldline Extension
AS-i digital input device, M8,
inputs: 24 V DC



Fieldline Extension
AS-i digital I/O device, M8,
inputs: 24 V DC, outputs: 24 V DC, 1 A



Interface	
Fieldbus system	AS-i
Connection method	M12 plug-in connector (A-coded)
AS-Interface	
Slave type	Single slave
AS-i specification	2.0
Required master specification	>= 2.0
AS-i profile	S-0.0
IO code	0
ID code (hex) / ID1 code / ID2 code	0 / - / -
Digital inputs	
Connection method	M8 plug-in connector
Connection method	2, 3-wire
Number of inputs	-
Input characteristic curve	IEC 61131-2 type 2
Digital outputs	
Connection method	-
Connection method	-
Number of outputs	-
Maximum output current per channel	-
Maximum output current per module/terminal block	-
General data	
Weight	85 g
Width	30 mm
Height	26 mm
Depth	103 mm
Degree of protection	IP65/67
Ambient temperature (operation)	-25 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 85 °C

Technical data

Interface	
Fieldbus system	AS-i
Connection method	M12 plug-in connector (A-coded)
AS-Interface	
Slave type	Single slave
AS-i specification	2.0
Required master specification	>= 2.0
AS-i profile	S-0.0
IO code	0
ID code (hex) / ID1 code / ID2 code	0 / - / -
Digital inputs	
Connection method	M8 plug-in connector
Connection method	2, 3-wire
Number of inputs	-
Input characteristic curve	IEC 61131-2 type 2
Digital outputs	
Connection method	-
Connection method	-
Number of outputs	-
Maximum output current per channel	-
Maximum output current per module/terminal block	-
General data	
Weight	125 g
Width	30 mm
Height	26 mm
Depth	143 mm
Degree of protection	IP65/67
Ambient temperature (operation)	-25 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 85 °C

Technical data

Interface	
Fieldbus system	AS-i
Connection method	M12 plug-in connector (A-coded)
AS-Interface	
Slave type	Single slave
AS-i specification	2.0
Required master specification	>= 2.0
AS-i profile	S-7.0
IO code	7
ID code (hex) / ID1 code / ID2 code	0 / - / -
Digital inputs	
Connection method	M8 plug-in connector
Connection method	2, 3-wire
Number of inputs	-
Input characteristic curve	IEC 61131-2 type 2
Digital outputs	
Connection method	M8 plug-in connector
Connection method	2-wire
Number of outputs	-
Maximum output current per channel	1 A
Maximum output current per module/terminal block	4 A
General data	
Weight	125 g
Width	30 mm
Height	26 mm
Depth	143 mm
Degree of protection	IP65/67
Ambient temperature (operation)	-25 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 85 °C

Description	
Fieldline Extension AS-i digital input device	
- 4 inputs	
Fieldline Extension AS-i digital I/O device	
- 4 inputs, 4 outputs, 1 A	

Ordering data

Type	Order No.	Pcs. / Pkt.
FLX ASI DI 4 M8 ¹⁾	2773403	1

Ordering data

Type	Order No.	Pcs. / Pkt.
FLX ASI DIO 4/4 M8-1A ¹⁾	2773416	1

M8 screw plug	
Zack marker strip, flat, 10-section, without color print	
Manual addressing device, for AS-Interface devices	

Accessories

	Order No.	Pcs.
PROT-M8	1682540	5
ZBF 8:UNBEDRUCKT	0808781	10
ASI CC ADR	2741338	1

Accessories

	Order No.	Pcs.
PROT-M8	1682540	5
ZBF 8:UNBEDRUCKT	0808781	10
ASI CC ADR	2741338	1

AS-Interface

Digital I/O devices with M12 connection method

Notes:

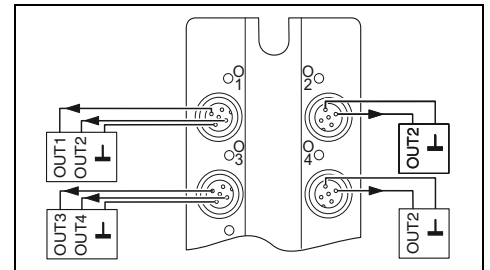
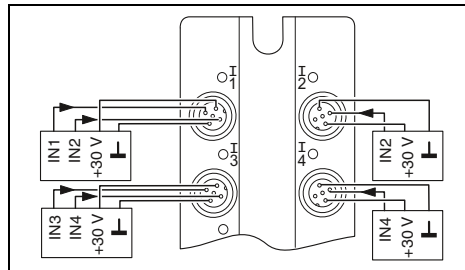
1) EMC: Class A product, see page 636



4 digital inputs



4 digital outputs



Technical data

Technical data

Interface	
Fieldbus system	AS-i
Connection method	Flat-ribbon cable penetration technique
AS-Interface	
AS-i specification	2.1
Required master specification	>= 2.0
AS-i profile	S-0.A.2
Digital inputs	
Connection method	M12 plug-in connector
Connection method	2, 3-wire
Maximum number of inputs	4
Input characteristic curve	IEC 61131-2 type 2
Digital outputs	
Connection method	-
Connection method	-
Maximum number of outputs	-
Maximum output current per channel	-
Maximum output current per module/terminal block	-
General data	
Weight	195 g
Drill hole spacing	108 mm
Width	58 mm
Height	118 mm
Depth	35 mm
Degree of protection	IP65/67
Ambient temperature (operation)	-25 °C ... 70 °C

Interface	
Fieldbus system	AS-i
Connection method	Flat-ribbon cable penetration technique
AS-Interface	
AS-i specification	2.0
Required master specification	>= 2.0
AS-i profile	S-8.1
Digital inputs	
Connection method	-
Connection method	-
Maximum number of inputs	-
Input characteristic curve	-
Digital outputs	
Connection method	M12 plug-in connector
Connection method	2-wire
Maximum number of outputs	4
Maximum output current per channel	2 A
Maximum output current per module/terminal block	4 A
General data	
Weight	195 g
Drill hole spacing	108 mm
Width	58 mm
Height	118 mm
Depth	35 mm
Degree of protection	IP65/67
Ambient temperature (operation)	-25 °C ... 70 °C

Ordering data

Ordering data

Description			
Fieldline Extension AS-i digital input device			
- 4 inputs			
Fieldline Extension AS-i digital output device			
- Four outputs, 2 A			
Fieldline Extension AS-i digital I/O device			
- 2 inputs, 2 outputs, 2 A			
- Four inputs, three outputs, 2 A			
- 4 inputs, 4 outputs, 2 A			

Type	Order No.	Pcs. / Pkt.
FLX ASI DI 4 M12 ¹⁾	2773429	1

Type	Order No.	Pcs. / Pkt.
FLX ASI DO 4 M12-2A ¹⁾	2773458	1

Accessories

Accessories

M12 screw plug	PROT-M12	1680539	5
Label sheet for laser printers, 64 x 16 mm, color: white	BMKL 64X16 WH	0821807	2
Label sheet for laser printers, 108 x 16 mm, color: white			
Manual addressing device , for AS-Interface devices	ASI CC ADR	2741338	1
Programming cable , for addressing the AS-i devices	ASI CC ADR CAB CINCH	2741341	1

M12 screw plug	PROT-M12	1680539	5
Label sheet for laser printers, 64 x 16 mm, color: white	BMKL 64X16 WH	0821807	2
Label sheet for laser printers, 108 x 16 mm, color: white			
Manual addressing device , for AS-Interface devices	ASI CC ADR	2741338	1
Programming cable , for addressing the AS-i devices	ASI CC ADR CAB CINCH	2741341	1

M12 screw plug	PROT-M12	1680539	5
Label sheet for laser printers, 64 x 16 mm, color: white	BMKL 64X16 WH	0821807	2
Label sheet for laser printers, 108 x 16 mm, color: white			
Manual addressing device , for AS-Interface devices	ASI CC ADR	2741338	1
Programming cable , for addressing the AS-i devices	ASI CC ADR CAB CINCH	2741341	1



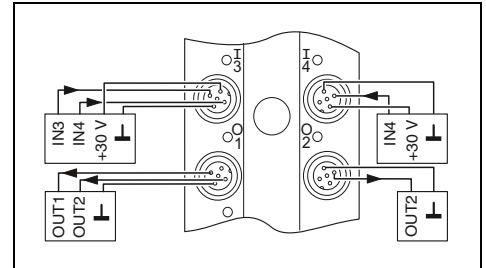
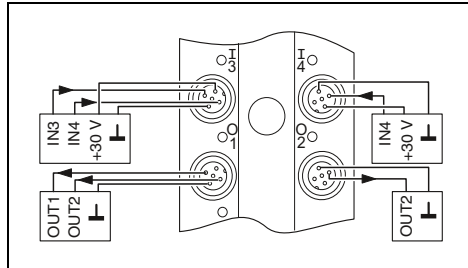
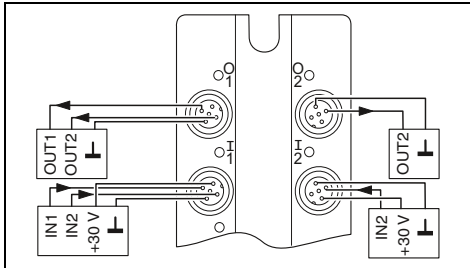
2 digital inputs and 2 digital outputs



4 digital inputs and 3 digital outputs



4 digital inputs and 4 digital outputs



Technical data

AS-i
Flat-ribbon cable penetration technique
2.1
≥ 2.0
S-B.A.2

M12 plug-in connector
2, 3-wire
2
IEC 61131-2 type 2

M12 plug-in connector
2-wire
2
2 A
4 A

195 g
108 mm
58 mm
118 mm
35 mm
IP65/67
-25 °C ... 70 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
FLX ASI DIO 2/2 M12-2A ¹⁾	2773432	1

Technical data

AS-i
Flat-ribbon cable penetration technique
2.1
≥ 2.0
S-7.A.2

M12 plug-in connector
2, 3-wire
4
IEC 61131-2 type 2

M12 plug-in connector
2-wire
3
2 A
4 A

245 g
108 mm
58 mm
150 mm
35 mm
IP65/67
-25 °C ... 70 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
FLX ASI DIO 4/3 M12-2A ¹⁾	2773445	1

Technical data

AS-i
Flat-ribbon cable penetration technique
3.0
≥ 3.0
S-7.A.7

M12 plug-in connector
2, 3-wire
4
IEC 61131-2 type 2

M12 plug-in connector
2-wire
4
2 A

245 g
108 mm
58 mm
150 mm
35 mm
IP65/67
-25 °C ... 70 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
FLX ASI 3.0 DIO 4/4 M12-2A ¹⁾	2773474	1

Accessories

Accessories	Order No.	Pcs.
PROT-M12	1680539	5
BMKL 64X16 WH	0821807	2
ASI CC ADR	2741338	1
ASI CC ADR CAB CINCH	2741341	1

Accessories

Accessories	Order No.	Pcs.
PROT-M12	1680539	5
BMKL 11,5 (108X16) WH	0821797	2
ASI CC ADR	2741338	1
ASI CC ADR CAB CINCH	2741341	1

Accessories

Accessories	Order No.	Pcs.
PROT-M12	1680539	5
BMKL 11,5 (108X16) WH	0821797	2
ASI CC ADR	2741338	1
ASI CC ADR CAB CINCH	2741341	1

Data plug-in connectors and cables

Cable range

Symbol key



With UL Style



Suitable for use with drag chain



Resistant to welding sparks



UV resistant



Extremely flame-retardant



High temperature resistance



Good oil resistance



Good resistance to chemicals



Suitable for torsional stress



Halogen-free



Transmission properties

INTERBUS cable – type 900



INTERBUS cable for highly flexible use in dry and humid rooms and harsh industrial environments. The remote bus cable is certified in accordance with the requirements of the INTERBUS Club under No. 117.

The cable is halogen-free and flame-retardant according to VDE 0482, Part 265-2-1/ IEC 332-1. The wire insulation of the inner conductor is made from polyethylene.

Outer sheath material PVC

Minimum bending radius 7.5 x D
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
900 PVC Green	6-pos.	M12	3 x 2 x 0.25 mm ² 32 x 0.1 mm		Yellow, green, white, brown, pink, gray	PE	-30°C ... 70°C	336 340

PROFIBUS cable – type 910



PROFIBUS cable, suitable for use in drag chains in harsh industrial environments. The cable is also oil resistant.

Outer sheath material PUR

Number of bending cycles 5 million
Minimum bending radius 10 x D
Traverse path 10 m
Acceleration 7 m/s²
Speed 180 m/min.
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
910 PUR Violet	2-pos.	M12	1 x 2 x 24 AWG 19 x 0.15 mm		Green, red	PE	-40°C ... 80°C	337 341

DeviceNet™/CANopen® cable – type 920



DeviceNet™/CANopen® cable for flexible installation. The cable is suitable for use with drag chain and in harsh industrial environments. The cable is also oil resistant.

Outer sheath material PUR

Number of bending cycles 5 million
Minimum bending radius 10 x D
Traverse path 10 m
Acceleration 7 m/s²
Speed 180 m/min.
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
920 PUR Violet	4-pos.	M12, M8	1 x 2 x 22 AWG 19 x 0.15 mm + 1 x 2 x 24 AWG 19 x 0.15 mm		Red, black, blue, white	PO, PE	-40°C ... 80°C	338 344 345 348

DeviceNet™/CANopen® cable - type 923



DeviceNet™/CANopen® cable for flexible installation. The cable is suitable for use with drag chain and in harsh industrial environments. The cable is also oil resistant.

Outer sheath material PUR

Number of bending cycles 5 million
Minimum bending radius 10 x D
Traverse path 10 m
Acceleration 7 m/s²
Speed 180 m/min.
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
923 PUR Gray	4-pos.	M12, 7/8"	1 x 2 x 22 AWG 19 x 0.15 mm + 1 x 2 x 24 AWG 19 x 0.15 mm		Red, black, blue, white	PO, PE	-40°C ... 80°C	343 346

DeviceNet™ cable - type 928



DeviceNet™/CANopen® cable for fixed installation. The cable is suitable for use in harsh industrial environments. The cable is also oil resistant.

Outer sheath material PVC

Minimum bending radius 10 x D

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
928 PVC Gray	4-pos.	7/8"	1 x 2 x 18 AWG 19 x 0.26 mm + 1 x 2 x 15 AWG 19 x 0.34 mm		Red, black, blue, white	PVC	Fixed: -40°C ... 80°C	347

Data plug-in connectors and cables

Cable range

FOUNDATION Fieldbus cable – type 960

FOUNDATION Fieldbus/PROFIBUS PA cable – type 961



FOUNDATION Fieldbus cable for fixed installation. The cable is UV resistant and flame-retardant according to UL 1685. This makes it suitable for use both outdoors and indoors.

Cable type 961 is available in a blue version designed specifically for use in the Ex area.

Outer sheath material PVC

Minimum bending radius 10 x D

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
960 PVC Orange	2-pos.	7/8", M12	2 x 20 AWG 7 x 0.3 mm		Blue, orange	PO	-30°C ... 105°C	350
961 PVC Blue	2-pos.	7/8", M12	2 x 20 AWG 7 x 0.3 mm		Blue, orange	PO	-30°C ... 105°C	342 349

CC-Link cable – type 990



CC-Link cable for fixed indoor installation. The cable is flame-retardant according to UL 1685.

Outer sheath material PVC

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
990 PVC Red	3-pos.	M12	3 x 22 AWG 7 x 0.28 mm		White, blue, yellow	Foam PE	-30°C ... 60°C	See: phoenix contact.net/ products

PROFINET cable – type 93A



PROFINET cable for fixed installation. The cable is flame-retardant and its transmission properties meet CAT5e.

Outer sheath material PVC

Minimum bending radius 7.5 x D

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93A PVC Green	4-pos.	M12, RJ45	4 x 22 AWG single-strand		White, yellow, blue, orange	PE	-25°C ... 80°C	251

PROFINET cable – type 93B



PROFINET cable for flexible installation. The cable is oil resistant. It is UV resistant according to UL 1581 Sec. 1200 and therefore also suitable for outdoor use.

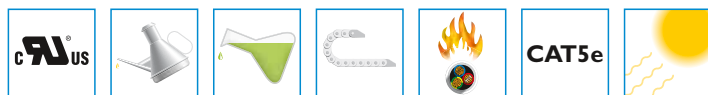
The cable's transmission properties meet CAT5e.

Outer sheath material PVC

Minimum bending radius 7 x D
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93B PVC Green	4-pos.	M12, RJ45	4 x 22 AWG 7 x 0.25 mm		White, yellow, blue, orange	PE	-40°C ... 70°C	243 251 252

PROFINET cable – type 93C



PROFINET cable for use in drag chains. The cable is halogen-free and oil resistant. It is UV resistant and therefore also suitable for outdoor use. The cable's transmission properties meet CAT5e.

Outer sheath material PUR

Number of bending cycles 3 million
Minimum bending radius 7.5 x D
Traverse path 10 m
Acceleration 4 m/s²
Speed 4 m/s
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93C PUR Green	4-pos.	M12, RJ45	4 x 22 AWG 7 x 0.25 mm		White, yellow, blue, orange	PE	-40°C ... 70°C	251 252

PROFINET cable – type 93R



PROFINET cable for robot applications. The cable is oil resistant. It is UV resistant according to UL 1581 Sec. 1200 and therefore also suitable for outdoor use.

The cable's transmission properties meet CAT5e.

Outer sheath material PUR

Torsion angle ±180°
Torsion cycles 1 million

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93R PUR Green	4-pos.	M12, RJ45	4 x 22 AWG 19 x 0.15 mm		White, yellow, blue, orange	PE	-40°C ... 80°C	251 252

Data plug-in connectors and cables

Cable range

PROFINET cable – type 937



PROFINET cable for railway applications. The cable is oil resistant. It meets fire safety standard BS6853.

The cable's transmission properties meet CAT5e.

Outer sheath material RADOX® GKW S

Minimum bending radius 6 x D

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
937 RADOX® Black	4-pos.	M12, RJ45	4 x 22 AWG 7 x 0.25 mm		White, yellow, blue, orange	RADOX®	-40°C ... 90°C	251 252

EtherCAT cable - type 93G



EtherCAT cable for flexible installation. The cable is oil resistant. It is UV resistant according to UL 1581 Sec. 1200 and is therefore also suitable for use in harsh industrial environments. The cable's transmission properties meet CAT5e.

Outer sheath material PVC

Minimum bending radius 7 x D
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93G PVC Green	4-pos.	M12, PP, RJ45	4 x 22 AWG 7 x 0.25 mm		White, yellow, blue, orange	PE	-40°C ... 70°C	254

sercos III cable - type 93K



sercos III cable for flexible installation. The cable is oil resistant. It is UV resistant according to UL 1581 Sec. 1200 and is therefore also suitable for use in harsh industrial environments. The cable's transmission properties meet CAT5e.

Outer sheath material PVC

Minimum bending radius 7 x D
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93K PVC Red	4-pos.	M12, PP, RJ45	4 x 22 AWG 7 x 0.25 mm		White, yellow, blue, orange	PE	-40°C ... 70°C	See: phoenix contact.net/ products


Ethernet cable – type 93E



Ethernet cable for flexible use. The cable is halogen-free and oil resistant. Its transmission properties meet CAT5e.

Outer sheath material PUR

Minimum bending radius 5 x D

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93E PUR Blue	4-pos.	M12, RJ45	2 x 2 x 26 AWG 7 x 0.25 mm		White/orange-orange, white/green-green	PE	-20°C ... 80°C	242 244

Ethernet cable – type 94A




Ethernet cable for fixed installation. The cable's transmission properties meet CAT5e.

Outer sheath material PUR

Minimum bending radius 7 x D

Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94A PUR Blue	8-pos.	M12, PP, RJ45	4 x 2 x 24 AWG single-strand Twisted pair		White/blue-blue, white/orange-orange, white/green-green, white/brown-brown	PE	-20°C ... 70°C	242


Ethernet cable – type 94B



Ethernet cable for flexible installation. The cable is resistant to oil and chemicals and is flame-retardant. The cable's transmission properties meet CAT5e.

Outer sheath material PUR

Minimum bending radius 5 x D

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94B PUR Blue	8-pos.	M12, RJ45	4 x 2 x 26 AWG 7 x 0.25 mm		White/blue-blue, white/orange-orange, white/green-green, white/brown-brown	PE	-40°C ... 80°C	242 246

Data plug-in connectors and cables

Cable range


Ethernet cable – type 94P



Ethernet cable for flexible installation. The cable is flame-retardant and halogen-free. The cable's transmission properties meet CAT5e.

Outer sheath material PUR

Minimum bending radius 90 mm (mobile)
50 mm (fixed installation)

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94P PUR Blue	8-pos.	M12, RJ45	4 x 2 x 26 AWG 7 x 0.16 mm		White-blue, blue, white-orange, orange, white-green, green, white-brown, brown	PE	-20°C ... 70°C	256


Ethernet cable – type 94C



Ethernet cable for universal use in drag chains. The cable is resistant to oil and chemicals and is flame-retardant. The cable's transmission properties meet CAT5e.

Outer sheath material PUR

Minimum bending radius 5 x D


Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94C PUR Blue	8-pos.	M12, RJ45	4 x 2 x 26 AWG 19 x 0.10 mm		White-blue, blue, white-orange, orange, white-green, green, white-brown, brown	PP	-20°C ... 80°C	242 246

Ethernet cable – type 94D



Ethernet cable for flexible installation. The cable is oil resistant. It is UV resistant according to UL 1581 Sec. 1200 and therefore also suitable for outdoor use. The cable's transmission properties meet CAT5e.

Outer sheath material PVC

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94D PVC Black	8-pos.	M12, PP, RJ45	4 x 2 x 26 AWG 7 x 0.16 mm Twisted pair		White-blue, blue, white-orange, orange, white-green, green, white-brown, brown	PP	-40°C ... 80°C	242

Ethernet cable – type 94E



Ethernet cable for fixed installation. The cable is resistant to oil and chemicals and is flame-retardant. It is also halogen-free and its transmission properties meet CAT6_A.

Outer sheath material PUR

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94E PUR Blue	8-pos.	M12, PP, RJ45	4 x 2 x 23 AWG single-strand Twisted pair		White-blue, blue, white-orange, orange, white-green, green, white-brown, brown	PE	-20°C ... 80°C	242

Ethernet cable – type 94F



Ethernet cable for flexible installation. The cable is resistant to oil and chemicals and is flame-retardant. It is also halogen-free and its transmission properties meet CAT6_A.

Outer sheath material PUR

Minimum bending radius 10 x D

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94F PUR Blue	8-pos.	M12, PP, RJ45	4 x 2 x 26 AWG 7 x 0.16 mm Twisted pair		White-blue, blue, white-orange, orange, white-green, green, white-brown, brown	PE	-20°C ... 80°C	248

Ethernet hybrid cable – type 94H



Ethernet hybrid cable for use in drag chains. The cable has four wires for data transmission and four wires for power supply. It is oil resistant and flame-retardant. It is also halogen-free and its transmission properties meet CAT5e.

Outer sheath material PUR

Number of bending cycles 2 million

Minimum bending radius 10 x D

Traverse path 4.5 m

Acceleration 3 m/s²

Speed 3 m/s

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94H PUR Black	8-pos.	M12	1 x 4 x 26 AWG 19 x 0.15 mm 1 x 4 x 20 AWG 19 x 0.6 mm		White-orange, orange, white-green, green, white, blue, brown, black	PP	-40°C ... 90°C	250

Data plug-in connectors and cables

Cable range


VARAN cable – type 970

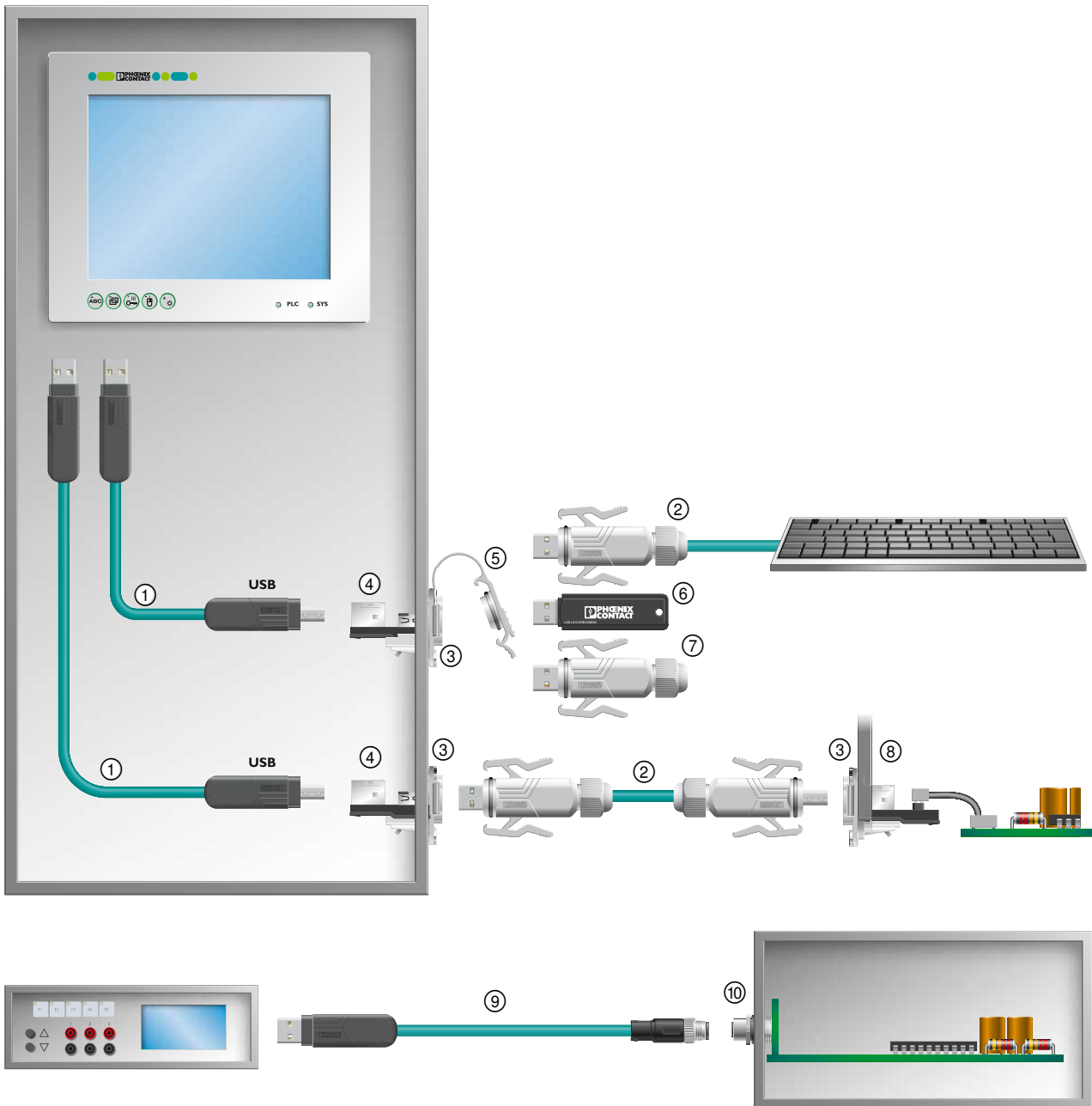


VARAN cable for flexible installation. The cable is resistant to oil and chemicals and is flame-retardant. The cable's transmission properties meet CAT5e.

Outer sheath material Santoprene

Minimum bending radius 7.5 x D
Tested at 20 ... 25°C

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
970 Santoprene Black	6-pos.	M12, PP, RJ45	1 x 2 x 22 AWG 19 x 0.1 mm + 2 x 2 x 26 AWG 19 x 0.1 mm		Brown, blue White-orange, orange, white-green, green	PE	-40°C ... 80°C	See: phoenix contact.net/ products



No.	Designation	Page
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Assembled cables, IP20/IP67

USB type A plug, IP20



USB type A plug, IP67



Ordering data Ordering data Ordering data

Free end		Order No.	Order No.	Order No.
	1 m	1655771	1 m	1655742
	2 m	1655784	2 m	1655755
	5 m	1655797	5 m	1655768

USB type B plug, IP20



1 m	1654853	2 m	1653896
2 m	1653935	5 m	1653906
5 m	1653948		

USB type B plug, IP67

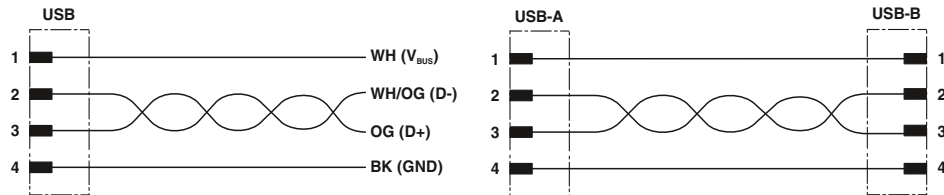


2 m	1653919	2 m	1653870
5 m	1653922	5 m	1653883

M12 mini-USB, SPEEDCON



1 m	1420168
2 m	1420171
5 m	1420184



USB cable with a free end

USB connector pin assignment

	Technical data	
	IP20	IP67
Transmission characteristics (category)	USB 2.0	USB 2.0
Cable diameter [mm]	6.7	6.7
Housing material	PA	PA
Handle color	black	gray
No. of pos.	4	4
Degree of protection	IP20	IP67
Temperature data		
Cable, fixed installation [°C]	-20 ... 60	-20 ... 60
Cable, flexible installation [°C]	0 ... 50	0 ... 50

USB

Panel feed-throughs, memory sticks, protective cover

Panel feed-throughs can be implemented with the IP67 panel mounting frame and USB socket inserts. The USB memory sticks with IP67 protection enable wireless data transmission in rough industrial environments.



USB socket inserts and panel mounting frames, IP67, Freetnet system

		Technical data		
		VS-04-BUA-BUB-F/IP67	VS-04-MS-IP20	
Electrical data				
Rated voltage		30 V	-	
Transmission speed		480 Mbps	480 Mbps	
Material data				
Housing material		PC	-	
Inflammability class according to UL 94		V0	-	
Mechanical data				
No. of pos.		4	4	
Degree of protection		IP20	IP20	
Insertion/withdrawal cycles		≥ 1000	-	
Temperature data				
Ambient temperature (operation)		-15 °C ... 65 °C	-15 °C ... 60 °C	
		Ordering data		
Description	Cable length	Type	Order No.	Pcs. / Pkt.
USB socket insert , 4-pos., USB socket type A to USB socket type B, can be plugged in both directions		VS-04-BUA-BUB-F/IP67	1653838	1
USB socket insert , 4-pos., socket to flat-ribbon cable terminal strip, 2.54 pitch				
Socket, type A		VS-04-BUA-FK-F/IP67	1653854	1
Socket, type B		VS-04-BUB-FK-F/IP67	1653867	1
USB cable , assembled on one side with USB connectors				
Connector type: A, length: 0.3 m	0.3 m	VS-04-C-SDA/PH/0,3	1405552	1
Connector type: B, length: 0.3 m	0.3 m	VS-04-C-SDB/PH/0,3	1405565	1
Connector type: A to B, length: 1.8 m	1.8 m	VS-04-C-SDA/SDB/1,8	1405578	1
Freetnet panel mounting frame , version 6, for round mounting cutout, with seal, without mounting screws				
Military gray RAL 7042		VS-A-F-IP67	1653744	5
USB memory stick , USB 2.0				
IP20		VS-04-MS-IP20	1402490	1
IP67		VS-04-MS-IP67	1402489	1
Protective cover for version 6 panel mounting frame				
Military gray RAL 7042		VS-08-SD-F	1652606	5



Installation system

QPD installation system

Industrial power distribution does not have to be time-consuming or complicated. The robust IP68/IP69K installation system for capacities up to 690 V/20 A from Phoenix Contact is proof of this.

Thanks to the proven QUICKON IDC fast connection, cables of up to 5 x 2.5 mm² can be connected quickly and easily, without the need for stripping or special tools.

The system, which consists of H-distributors, panel feed-throughs, plug-in connectors, and cable connectors, offers a wide range of options for power distribution in industrial environments and building installation.

Product range overview	378
<hr/>	
Installation system	
Installation distributors	380
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Panel feed-throughs	384
Plug-in connectors	390
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T-distributor	392

QUICKON - proven fast connection technology

The secret behind QUICKON at Phoenix Contact is the tried-and-tested IDC connection technology. The term "IDC" stands for Insulation Displacement Connection - a form of insulation displacement contacting.

The key advantage is the lack of conductor preparation, which can save 60 - 80% of the usual connection time compared to spring-cage or screw connections.

In the field of automotive engineering, telecommunications, and household appliances, this type of fast contacting has been established for many years, but now Phoenix Contact has made it suitable for industrial applications. This includes contacts which can accommodate both solid and stranded conductors, which cover a large range of cross sections, which penetrate various wire insulations, and which function reliably and permanently under harsh industrial conditions.

Advantages of QUICKON

- Time-saving connection
- High degree of reliability thanks to defined contact force
- Can be connected multiple times using standard tools

Individual conductors are simply inserted into the wiring space without preparation and pushed into the IDC terminal block by a screw or lever mechanism. Here the wire insulation is displaced without damaging or weakening the copper litz wires in any impermissible way, and a force-defined and thereby user-independent and gas-tight contact is established. The contact resistance values lie between the values for spring-cage or screw connections.

Notes on IDC fast connection technology

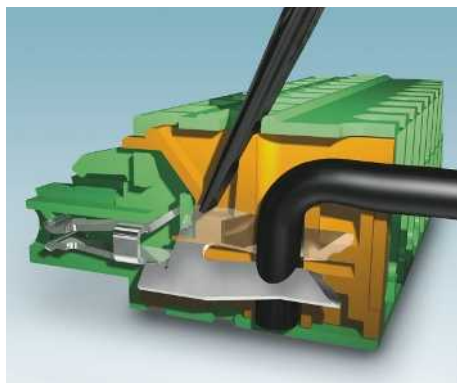
The specified cross section range must be observed.

If the conductors are too thin, the insulation will not be correctly displaced since the contact gap is too large, and if the conductors are too thick, it will either not be possible to connect them at all, or the system may be damaged as a result of excessive wiring forces.

QUICKON connections should not be installed at extremely low or high ambient temperatures.

Furthermore, the specified wire insulation must be observed or approved by Phoenix Contact on request. Extremely hard insulation materials, such as Teflon, or very viscoplastic insulation, such as silicone, can only be wired with IDC contacts specifically designed for this purpose. Solid and stranded conductors make very good contact. In the case of highly stranded Category 6 conductors, the minimum litz wire diameter must be observed.

For geometric reasons, two different types of contact have emerged:

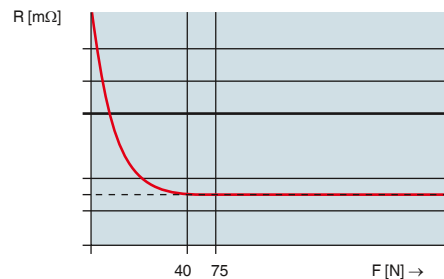


1. Flat contacts are characterized by their space-saving and cost-effective design.

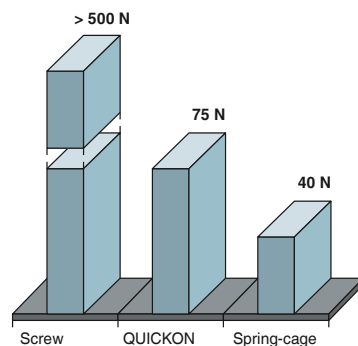


2. Tube contacts cover an even greater cross section range.

Contact resistance



Contact force



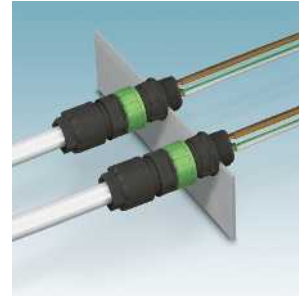
The positive properties and strong market acceptance of QUICKON have encouraged Phoenix Contact to develop a whole range of different products. This range covers numerous modular terminal blocks, PCB plugs, industrial plug-in connectors, and various customer-specific integrations within a cross section range from 0.14 mm² to 6.0 mm².



Heavy-duty plug-in connectors



Sensor/actuator boxes



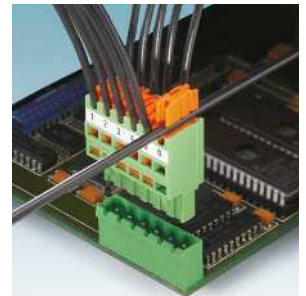
Installation system



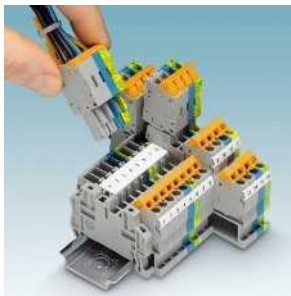
M8 and M12 plug-in connectors



Time savings with
QUICKON fast connection



PCB plug-in connectors



Modular terminal blocks



A series plug-in connectors



Special solutions



T-distributors



RJ45 plug-in connectors



QUICKON is an insulation displacement connection technology for insulation materials such as PVC, PE, TPE, and rubber that can be cut. This fast connection technology from Phoenix Contact has established and proven itself in various applications in the last few years.

Advantages:

- Considerable time savings during on-site connection since cable wires no longer have to be stripped
- Easy assembly without special tools
- High level of reliability thanks to tried-and-tested connection contacts and robust housing with up to IP68/IP69K protection
- Convenient on-site installation
- Devices no longer need to be opened for connection purposes
- Preparatory installation work can be carried out anywhere within the cable's swiveling range



1. Strip the cable and insert into the nut



2. Cut the ends of the litz wires flush



3. Push on union nut and tighten to the indicated point



Lagging PE contact

With the QUICKON connection, lagging PE is implemented by routing the PE conductor in a half circle round the live wires.



Reconnection

The QUICKON connection can be rewired up to 10 times with the same cable cross section. In this case, the connection must be completely re-established.



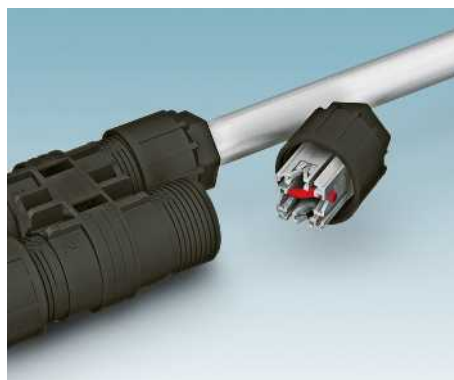
Screwing on correctly

The correct setting for the QUICKON nut is marked on the connection. In the case of thin cables, the cable clamp type cage must close more for the conductor strain relief to take effect.



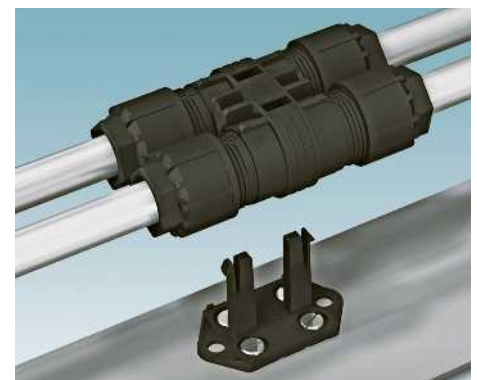
Fast check

The H-distributor has four cable connections. If only three connections are assigned, a cable outlet is available for test purposes.



Additional bridging

A cable outlet can also be used for bridging functions by simply cross-wiring a conductor.



Easy assembly

The QPD CLIP 2,5 BK assembly clip is available for simplifying the assembly of the H-distributor.

H-distributor, 2.5 mm²

- Can be used as an H-distributor with continuous master cable
- Can be used as a star distributor
- Can be used as a Y-distributor with a test connection
- Touch-proof in accordance with DIN EN 50274
- Also available as gray color versions



With QUICKON nut



Without QUICKON nut



Technical data

	3+PE-pos.	4+PE-pos.
General data		
Degree of protection	IP68/IP69K	
Electrical data		
Rated voltage (III/3)	690 V	
Rated surge voltage	6 kV	
Rated current	20 A (see also derating diagram)	
Surge voltage category / pollution degree	III / 3	
Material data		
Housing material	PA	
Contact material	Cu	
Inflammability class according to UL 94	V0	
Mechanical data		
Impact category	IK07	
Color	black	
Connector data QUICKON connection		
Core insulation	PVC/PE/TPE/rubber	
Litz wire structure / smallest wire diameter	VDE 0295 class 1 to 6 / min. 0.15 mm	
Connection frequency	max. 10	
Conductor cross section [mm ²] solid / stranded	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²	
Conductor cross section [AWG]	16 ... 14	
Temperature data		
Ambient temperature (operation)	-40 °C ... 80 °C (see also derating diagram)	
Temperature when conductor connected	-5 °C ... 50 °C	

Technical data

	3+PE-pos.	4+PE-pos.
General data		
Degree of protection	IP68/IP69K	
Electrical data		
Rated voltage (III/3)	690 V	
Rated surge voltage	6 kV	
Rated current	20 A (see also derating diagram)	
Surge voltage category / pollution degree	III / 3	
Material data		
Housing material	PA	
Contact material	Cu	
Inflammability class according to UL 94	V0	
Mechanical data		
Impact category	IK07	
Color	black	
Connector data QUICKON connection		
Core insulation	PVC/PE/TPE/rubber	
Litz wire structure / smallest wire diameter	VDE 0295 class 1 to 6 / min. 0.15 mm	
Connection frequency	max. 10	
Conductor cross section [mm ²] solid / stranded	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²	
Conductor cross section [AWG]	16 ... 14	
Temperature data		
Ambient temperature (operation)	-40 °C ... 80 °C (see also derating diagram)	
Temperature when conductor connected	-5 °C ... 50 °C	

Ordering data

Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		4+PE-pos.	
H-distributor, with four QUICKON nuts and one sealing bolt, for cable diameter:				
6 mm ... 10 mm	1582145	1		
9 mm ... 14 mm	1582148	1		
6 mm ... 11 mm			1406368	1
9 mm ... 16 mm			1406369	1
H-distributor, without QUICKON nuts				
QUICKON nut, for connections up to 2.5 mm², for cable diameter:				
6 mm ... 10 mm				
9 mm ... 14 mm				
6 mm ... 11 mm				
9 mm ... 16 mm				

Ordering data

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.	
1582154	1	1406370	1
1582226	1		
1582229	1		
		1459663	1
		1459647	1

**T-distributor,
2.5 mm²**

N

N

- Also available as gray color versions
- Touch-proof in accordance with DIN EN 50274



With three QUICKON nuts



With two QUICKON nuts

	Technical data	Technical data
General data		
Degree of protection	IP68/IP69K	IP68/IP69K
Electrical data		
Rated voltage (III/3)	690 V	690 V
Rated surge voltage	6 kV	6 kV
Rated current	20 A (see also derating diagram)	20 A (see also derating diagram)
Surge voltage category / pollution degree	III / 3	III / 3
Material data		
Housing material	PA	PA
Contact material	Cu	Cu
Inflammability class according to UL 94	V0	V0
Mechanical data		
Impact category	IK07	IK07
Color	black	black
Connector data QUICKON connection		
Core insulation	PVC/PE/TPE/rubber	PVC/PE/TPE/rubber
Litz wire structure / smallest wire diameter	VDE 0295 class 1 to 6 / min. 0.15 mm	VDE 0295 class 1 to 6 / min. 0.15 mm
Connection frequency	max. 10	max. 10
Conductor cross section [mm ²] solid / stranded	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²
Conductor cross section [AWG]	16 ... 14	16 ... 14
Temperature data		
Ambient temperature (operation)	-40 °C ... 80 °C (see also derating diagram)	-40 °C ... 80 °C (see also derating diagram)
Temperature when conductor connected	-5 °C ... 50 °C	-5 °C ... 50 °C

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
T-distributor , for cable diameter: 6 mm ... 11 mm 9 mm ... 16 mm	QPD T 4PE 3X6-11 BK QPD T 4PE 3X9-16 BK	1405401 1405402	1 1	QPD T 4PE 2X6-11 BK QPD T 4PE 2X9-16 BK	1405403 1405404	1 1
QUICKON nut , for connections up to 2.5 mm ² , for cable diameter: 6 mm ... 11 mm 9 mm ... 16 mm				QPD N 4PE2,5 6-11 BK QPD N 4PE2,5 9-16 BK	1459663 1459647	1 1

Installation system

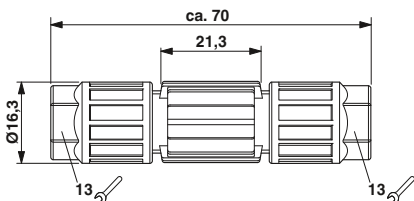
QPD installation system

Cable connectors, 0.34 mm² - 1.5 mm²

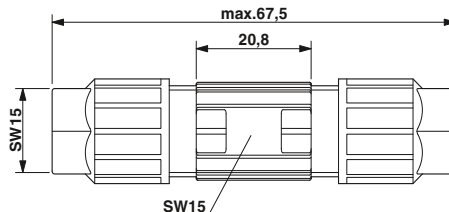
- Easy cable extension or cable repairs
- The QUICKON connections at opposite ends feature different position markings and mechanical coding



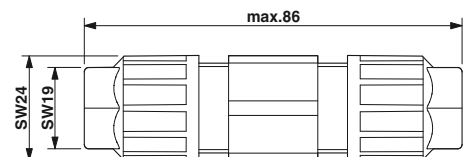
		Technical data			
		0.34 mm ²	0.75 mm ²	1.5 mm ²	
General data					
Degree of protection		IP65/67			
Electrical data					
Rated voltage (III/3)		125 V	250 V	500 V	
Rated surge voltage		2.5 kV	4 kV	6 kV	
Rated current		5 A	9 A	15 A	
Surge voltage category / pollution degree		III / 3			
Material data					
Housing material		PA			
Contact material		Steel		CuZn	
Contact surface material		Tin-plated			
Inflammability class according to UL 94		V0			
Impact category		IK06			
Connector data QUICKON connection					
Core insulation		PVC/PE			
Litz wire structure / smallest wire diameter		VDE 0295 class 1 to 6 / min. 0.10 mm	VDE 0295 class 1 to 6 / min. 0.15 mm		
Connection frequency		10			
Conductor cross section [mm ²] solid / stranded		0.14 mm ² ... 0.25 mm ² / 0.14 mm ² ... 0.34 mm ²	0.34 mm ² ... 0.5 mm ² / 0.34 mm ² ... 0.75 mm ²	0.75 mm ² ... 1 mm ² / 0.75 mm ² ... 1.5 mm ²	
Conductor cross section [AWG]		26 ... 22	22 ... 18	18 ... 16	
Temperature data					
Ambient temperature (operation)		-40 °C ... 80 °C (Specifications of the cable manufacturer must be observed)			
Temperature when conductor connected		-5 °C ... 50 °C (Specifications of the cable manufacturer must be observed)			
Ordering data					
Description	Color	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		0.34 mm ²	0.75 mm ²	1.5 mm ²	
Cable connector, for connecting round cables					
4-pos., cable Ø: 3.5-6 mm	black	1641879	1		
4-pos., cable Ø: 4-8 mm	black			1642140	1
4-pos., cable Ø: 6-12 mm	black			1642153	1
3+PE-pos., cable Ø: 6-12 mm	black			1642182	1



Conductor connector,
QUICKON connection: 0.14 mm² ... 0.34 mm²



Conductor connector,
QUICKON connection: 0.34 mm² ... 0.75 mm²



Conductor connector,
QUICKON connection: 0.75 mm² ... 1.5 mm²

**Cable connectors,
2.5 mm²**

- Easy cable extension or cable repairs
- The QUICKON connections at opposite ends feature different position markings and mechanical coding
- The 2.5 mm² connector can be used here instead of the QUICKON nut
- Also available as gray color versions



With two QUICKON nuts



With one QUICKON nut

Notes:
For matching connector, 2.5 mm², see page 390



Technical data	
3+PE-pos.	4+PE-pos.
IP68/IP69K	
Rated voltage (III/3)	690 V
Rated surge voltage	6 kV
Rated current	20 A
Surge voltage category / pollution degree	III / 3
Material data	
Housing material	PA
Contact material	Cu
Contact surface material	Silver-plated
Inflammability class according to UL 94	V0
Impact category	IK07
Color	black
Connector data QUICKON connection	
Core insulation	PVC/PE/TPE/rubber
Litz wire structure / smallest wire diameter	VDE 0295 class 1 to 6 / min. 0.15 mm
Connection frequency	10
Conductor cross section [mm ²] solid / stranded	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²
Conductor cross section [AWG]	16 ... 14
Temperature data	
Ambient temperature (operation)	-40 °C ... 80 °C
Temperature when conductor connected	-5 °C ... 50 °C



Technical data	
3+PE-pos.	4+PE-pos.
IP68/IP69K	
Rated voltage (III/3)	690 V
Rated surge voltage	6 kV
Rated current	20 A
Surge voltage category / pollution degree	III / 3
Material data	
Housing material	PA
Contact material	Cu
Contact surface material	Silver-plated
Inflammability class according to UL 94	V0
Impact category	IK07
Color	black
Connector data QUICKON connection	
Core insulation	PVC/PE/TPE/rubber
Litz wire structure / smallest wire diameter	VDE 0295 class 1 to 6 / min. 0.15 mm
Connection frequency	10
Conductor cross section [mm ²] solid / stranded	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²
Conductor cross section [AWG]	16 ... 14
Temperature data	
Ambient temperature (operation)	-40 °C ... 80 °C
Temperature when conductor connected	-5 °C ... 50 °C

Ordering data				
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		4+PE-pos.	
Plug-in connectors , for cable diameter:				
6 mm ... 10 mm	1582211	1		
9 mm ... 14 mm	1582214	1		
6 mm ... 11 mm			1403838	1
9 mm ... 16 mm			1403836	1
QUICKON nut , for connections up to 2.5 mm ² , for cable diameter:				
6 mm ... 10 mm				
9 mm ... 14 mm				
6 mm ... 11 mm				
9 mm ... 16 mm				

Ordering data				
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		4+PE-pos.	
6 mm ... 10 mm	1582220	1		
9 mm ... 14 mm	1582223	1		
6 mm ... 11 mm			1403834	1
9 mm ... 16 mm			1403831	1
6 mm ... 10 mm	1582226	1		
9 mm ... 14 mm	1582229	1		
6 mm ... 11 mm			1459663	1
9 mm ... 16 mm			1459647	1

Installation system

QPD installation system

Panel feed-throughs, 2.5 mm², with QUICKON connection on both sides

- Panel cutout with anti-rotation protection
- Interior can be pre-assembled
- QPD connectors can be used on the exterior as an option
- Also available as gray color versions



With two QUICKON nuts



With one QUICKON nut



Technical data

General data	
Degree of protection	IP68/IP69K
Electrical data	
Rated voltage (III/3)	690 V
Rated surge voltage	6 kV
Rated current	20 A
Surge voltage category / pollution degree	III / 3
Material data	
Housing material	PA
Contact material	Cu
Contact surface material	Silver-plated
Inflammability class according to UL 94	V0
Impact category	IK07
Color	black
Connector data QUICKON connection	
Core insulation	PVC/PE/TPE/rubber
Litz wire structure / smallest wire diameter	VDE 0295 class 1 to 6 / min. 0.15 mm
Connection frequency	10
Conductor cross section [mm ²] solid / stranded	1 mm ² ... 2.5 mm ² / 1.5 mm ² ... 2.5 mm ²
Conductor cross section [AWG]	16 ... 14
Temperature data	
Ambient temperature (operation)	-40 °C ... 80 °C
Temperature when conductor connected	-5 °C ... 50 °C



Technical data

	3+PE-pos.	4+PE-pos.	
Degree of protection	IP68/IP69K		
Rated voltage (III/3)	690 V		
Rated surge voltage	6 kV		
Rated current	20 A		
Surge voltage category / pollution degree	III / 3		
Housing material	PA		
Contact material	Cu		
Contact surface material	Silver-plated		
Inflammability class according to UL 94	V0		
Impact category	IK07		
Color	black		
Core insulation	PVC/PE/TPE/rubber		
Litz wire structure / smallest wire diameter	VDE 0295 class 1 to 6 / min. 0.15 mm		
Connection frequency	10		
Conductor cross section [mm ²] solid / stranded	1 mm ² ... 2.5 mm ² / 1.5 mm ² ... 2.5 mm ²	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²	
Conductor cross section [AWG]	16 ... 14		
Ambient temperature (operation)	-40 °C ... 80 °C		
Temperature when conductor connected	-5 °C ... 50 °C		

Ordering data

Description	Order No.	Pcs. / Pkt.
Panel feed-through , with M25 x 1.5 mounting flange, with QUICKON nut, for cable diameter:		
6 mm ... 10 mm	1582542	1
9 mm ... 14 mm	1582539	1
6 mm ... 11 mm		
9 mm ... 16 mm		
QUICKON nut , for connections up to 2.5 mm ² , for cable diameter:		
6 mm ... 10 mm		
9 mm ... 14 mm		
6 mm ... 11 mm		
9 mm ... 16 mm		

	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		4+PE-pos.	
			1403844	1
			1403841	1

Ordering data

	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		4+PE-pos.	
	1582548	1		
	1582545	1		
			1403848	1
			1403846	1
	1582226	1		
	1582229	1		
			1459663	1
			1459647	1

**Panel feed-throughs,
1.5 mm²**

- Devices no longer need to be opened in order to connect the cables
- User-friendly connection, even on devices that are difficult to access



With litz wires



With manual solder/spade connection

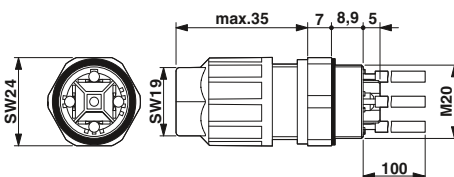


	Technical data	
	3+PE-pos.	4-pos.
General data	IP65/67	
Degree of protection	IP65/67	
Electrical data	500 V (with insulating sleeve PT/FS 4,8. Without insulating sleeve 250 V AC.)	
Rated voltage (III/3)	6 kV	
Rated surge voltage	15 A	
Rated current	III / 3	
Surge voltage category / pollution degree	PA	
Material data	CuZn	
Housing material	Tin-plated	
Contact material	V0	
Contact surface material	IK07	
Inflammability class according to UL 94	black	
Impact category	PVC/PE	
Color	VDE 0295 class 1 to 6 / min. 0.15 mm	
Connector data QUICKON connection	10	
Core insulation	0.75 mm ² ... 1 mm ² / 0.75 mm ² ... 1.5 mm ²	
Litz wire structure / smallest wire diameter	18 ... 16	
Connection frequency	-40 °C ... 80 °C (Specifications of the cable manufacturer must be observed)	
Conductor cross section [mm ²] solid / stranded	-5 °C ... 50 °C (Specifications of the cable manufacturer must be observed)	
Conductor cross section [AWG]		
Temperature data		
Ambient temperature (operation)		
Temperature when conductor connected		

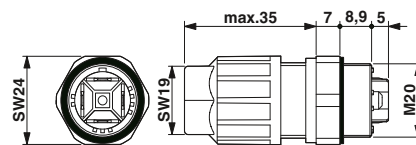
	Technical data	
	3+PE-pos.	4-pos.
General data	IP65/67	
Degree of protection	IP65/67	
Electrical data	500 V (with insulating sleeve PT/FS 4,8. Without insulating sleeve 250 V AC.)	
Rated voltage (III/3)	6 kV	
Rated surge voltage	15 A	
Rated current	III / 3	
Surge voltage category / pollution degree	PA	
Material data	CuZn	
Housing material	Tin-plated	
Contact material	V0	
Contact surface material	IK07	
Inflammability class according to UL 94	black	
Impact category	PVC/PE	
Color	VDE 0295 Cl.2-5, min. wire diameter 0.2 mm	
Connector data QUICKON connection	VDE 0295 class 1 to 6 / min. 0.15 mm	
Core insulation	10	
Litz wire structure / smallest wire diameter	0.75 mm ² ... 1 mm ² / 0.75 mm ² ... 1.5 mm ²	
Connection frequency	18 ... 16	
Conductor cross section [mm ²] solid / stranded	-25 °C ... 80 °C (Specifications of the cable manufacturer must be observed.)	
Conductor cross section [AWG]	-40 °C ... 80 °C (Specifications of the cable manufacturer must be observed.)	
Temperature data	-5 °C ... 50 °C (Specifications of the cable manufacturer must be observed)	
Ambient temperature (operation)		
Temperature when conductor connected		

Description	Cable length	Ordering data			
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		4-pos.	
Panel feed-through , with 1.5 mm ² litz wire, connecting thread: M20 x 1.5	0.1 m 0.5 m	1584787	10	1585045	10
Panel feed-through , with 4.8 mm x 0.8 mm manual solder/spade connection, connection thread: M20 x 1.5, color: black, terminal marking: L1, N, PE					
Panel feed-through , with 4.8 mm x 0.8 mm manual solder/spade connection, connecting thread: M20 x 1.5, color: black					

Description	Cable length	Ordering data			
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		4-pos.	
Panel feed-through , with 4.8 mm x 0.8 mm manual solder/spade connection, connection thread: M20 x 1.5, color: black, terminal marking: L1, N, PE		1641594	10		
Panel feed-through , with 4.8 mm x 0.8 mm manual solder/spade connection, connecting thread: M20 x 1.5, color: black		1641659	10	1643000	10



Dimensional drawing: panel feed-through with litz wire



Dimensional drawing: panel feed-through with manual solder/spade connection

Panel feed-throughs, 2.5 mm², with manual solder/spade connection

- Devices no longer need to be opened in order to connect the cables
- User-friendly connection, even on devices that are difficult to access
- Also available as gray color versions



With QUICKON nut



Without QUICKON nut



Technical data		
	3+PE-pos.	4+PE-pos.
General data	IP68/IP69K	
Electrical data	690 V (With insulating sleeve PT/FS 4,8, 1670497 without insulating sleeve 250 V.)	
Rated voltage (III/3)	6 kV	
Rated surge voltage	20 A	15 A
Rated current	III / 3	
Surge voltage category / pollution degree	PA	
Material data	Cu	
Housing material	V0	
Contact material	IK07	
Inflammability class according to UL 94	black	
Mechanical data	PVC/PE/TPE/rubber	
Impact category	VDE 0295 class 1 to 6 / min. 0.15 mm	
Color	max. 10	
Connector data QUICKON connection	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²	
Core insulation	16 ... 14	
Litz wire structure / smallest wire diameter	-40 °C ... 80 °C	
Connection frequency	-5 °C ... 50 °C	
Conductor cross section [mm ²] solid / stranded		
Conductor cross section [AWG]		
Temperature data		
Ambient temperature (operation)		
Temperature when conductor connected		

Technical data		
	3+PE-pos.	4+PE-pos.
General data	IP68/IP69K	
Electrical data	690 V (With insulating sleeve PT/FS 4,8, 1670497 without insulating sleeve 250 V.)	
Rated voltage (III/3)	6 kV	
Rated surge voltage	20 A	15 A
Rated current	III / 3	
Surge voltage category / pollution degree	PA	
Material data	Cu	
Housing material	V0	
Contact material	IK07	
Inflammability class according to UL 94	black	
Mechanical data	PVC/PE/TPE/rubber	
Impact category	VDE 0295 class 1 to 6 / min. 0.15 mm	
Color	max. 10	
Connector data QUICKON connection	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²	
Core insulation	16 ... 14	
Litz wire structure / smallest wire diameter	-40 °C ... 80 °C	
Connection frequency	-5 °C ... 50 °C	
Conductor cross section [mm ²] solid / stranded		
Conductor cross section [AWG]		
Temperature data		
Ambient temperature (operation)		
Temperature when conductor connected		

Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.
	3+PE-pos.		4+PE-pos.
Panel feed-through, I _N =15 A, with M20 x 1.5 mounting flange, with QUICKON nut, for cable diameter:			
6 mm ... 11 mm			1403729 1
9 mm ... 16 mm			1403735 1
Panel feed-through, with M25 x 1.5 mounting flange, with QUICKON nut, for cable diameter:			
6 mm ... 10 mm	1582166	1	
9 mm ... 14 mm	1582178	1	
6 mm ... 11 mm			1582559 1
9 mm ... 16 mm			1582563 1
Panel feed-through, with mounting flange, without QUICKON nut, connecting thread:			
M20, I _N =15 A			1403741 1
Panel feed-through, with M25 x 1.5 mounting flange, without QUICKON nut			
M25, I _N =20 A			
QUICKON nut, for connections up to 2.5 mm ² , for cable diameter:			
6 mm ... 10 mm			1582226 1
9 mm ... 14 mm			1582229 1
6 mm ... 11 mm			
9 mm ... 16 mm			1459663 1
			1459647 1

Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.
	3+PE-pos.		4+PE-pos.
Panel feed-through, I _N =15 A, with M20 x 1.5 mounting flange, with QUICKON nut, for cable diameter:			
6 mm ... 11 mm			1403729 1
9 mm ... 16 mm			1403735 1
Panel feed-through, with M25 x 1.5 mounting flange, with QUICKON nut, for cable diameter:			
6 mm ... 10 mm	1582166	1	
9 mm ... 14 mm	1582178	1	
6 mm ... 11 mm			1582559 1
9 mm ... 16 mm			1582563 1
Panel feed-through, with mounting flange, without QUICKON nut, connecting thread:			
M20, I _N =15 A			1403741 1
Panel feed-through, with M25 x 1.5 mounting flange, without QUICKON nut			
M25, I _N =20 A			
QUICKON nut, for connections up to 2.5 mm ² , for cable diameter:			
6 mm ... 10 mm			1582226 1
9 mm ... 14 mm			1582229 1
6 mm ... 11 mm			
9 mm ... 16 mm			1459663 1
			1459647 1

Installation system

QPD installation system

Panel feed-throughs, 2.5 mm², with push-in connection

- Devices no longer need to be opened in order to connect the cables
- User-friendly connection, even on devices that are difficult to access
- For internal push-in connection, solid conductors are simply stripped and inserted in the connection
- Also available as gray color versions



With QUICKON nut



Without QUICKON nut



Technical data	
General data	
Degree of protection	IP68/IP69K
Electrical data	
Rated voltage (III/3)	690 V
Rated surge voltage	6 kV
Rated current	20 A
Surge voltage category / pollution degree	III / 3
Material data	
Housing material	PA
Contact material	Cu
Inflammability class according to UL 94	V0
Mechanical data	
Impact category	IK07
Color	black
Connector data QUICKON connection	
Core insulation	PVC / PE / Rubber / TPE
Litz wire structure / smallest wire diameter	VDE 0295 class 1 to 6 / min. 0.15 mm
Connection frequency	max. 10
Conductor cross section [mm ²] solid / stranded	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²
Conductor cross section [AWG]	16 ... 14
Temperature data	
Ambient temperature (operation)	-40 °C ... 80 °C
Temperature when conductor connected	-5 °C ... 50 °C

Ordering data		
Type	Order No.	Pcs. / Pkt.
Panel feed-through, with M25 x 1.5 mounting flange, with QUICKON nut, for cable diameter: 6 mm ... 10 mm	1582169	1
Panel feed-through, with M25 x 1.5 mounting flange, with QUICKON nut, for cable diameter: 9 mm ... 14 mm	1582181	1
QUICKON nut, for connections up to 2.5 mm ² , for cable diameter: 6 mm ... 10 mm		
QUICKON nut, for connections up to 2.5 mm ² , for cable diameter: 9 mm ... 14 mm		

Technical data	
General data	
Degree of protection	IP68/IP69K
Electrical data	
Rated voltage (III/3)	690 V
Rated surge voltage	6 kV
Rated current	20 A
Surge voltage category / pollution degree	III / 3
Material data	
Housing material	PA
Contact material	Cu
Inflammability class according to UL 94	V0
Mechanical data	
Impact category	IK07
Color	black
Connector data QUICKON connection	
Core insulation	PVC / PE / Rubber / TPE
Litz wire structure / smallest wire diameter	VDE 0295 class 1 to 6 / min. 0.15 mm
Connection frequency	max. 10
Conductor cross section [mm ²] solid / stranded	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²
Conductor cross section [AWG]	16 ... 14
Temperature data	
Ambient temperature (operation)	-40 °C ... 80 °C
Temperature when conductor connected	-5 °C ... 50 °C

Ordering data		
Type	Order No.	Pcs. / Pkt.
Panel feed-through, with M25 x 1.5 mounting flange, without QUICKON nut		
QUICKON nut, for connections up to 2.5 mm ² , for cable diameter: 6 mm ... 10 mm		
QUICKON nut, for connections up to 2.5 mm ² , for cable diameter: 9 mm ... 14 mm		

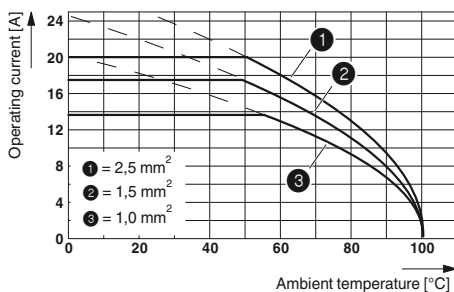
Special solution for motor connection



- Particularly suitable for connecting drives of up to 15 kW using wires with ring cable lugs
- Direct connection without the need to open the motor terminal box

Pin assignment

- Pos. 1 BK (black)
- Pos. 2 BN (brown)
- Pos. 3 GY (gray)
- Pos. \perp GNYE (green-yellow)



Derating diagram



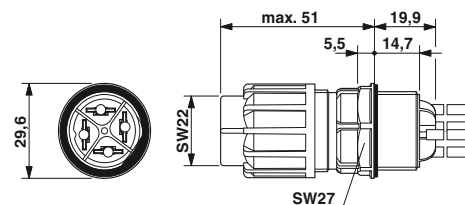
Panel feed-throughs with/without QUICKON nut

General data	
Pollution degree	3
Degree of protection	IP68/IP69K
Electrical data	
Rated voltage (III/3)	690 V
Rated surge voltage	6 kV
Rated current	20 A
Surge voltage category	III
Material data	
Housing material	PA
Contact material	Cu
Contact surface material	Silver-plated
Contact carrier material	PA
Inflammability class according to UL 94	V0
Mechanical data	
Wrench size, union nut	22 mm
Tightening torque, union nut	5 Nm
Tightening torque, contact carrier	-
Impact category	IK07
Connector data QUICKON connection	
Core insulation	
Litz wire structure / smallest wire diameter	PVC/PE/TPE/rubber
Connection frequency	VDE 0295 class 1 to 6 / min. 0.15 mm
Conductor cross section [mm²] solid / stranded	10
Conductor cross section [AWG]	1 mm² ... 2.5 mm² / 1 mm² ... 2.5 mm²
Temperature data	
Ambient temperature (operation)	-40 °C ... 80 °C
Temperature when conductor connected	-5 °C ... 50 °C

Technical data		
3		
IP68/IP69K		
690 V		
6 kV		
20 A		
III		
PA		
Cu		
Silver-plated		
PA		
V0		
22 mm		
5 Nm		
-		
IK07		
PVC/PE/TPE/rubber		
VDE 0295 class 1 to 6 / min. 0.15 mm		
10		
1 mm² ... 2.5 mm² / 1 mm² ... 2.5 mm²		
16 ... 14		
-40 °C ... 80 °C		
-5 °C ... 50 °C		

Description
Panel feed-through, 3+PE-pos., with QUICKON nut, with four welded-on 1.5 mm² cable wires, with ring cable lugs at the end, for cable diameter:
6 mm ... 10 mm
9 mm ... 14 mm
Panel feed-through, 3+PE-pos., without QUICKON nut, with four welded-on 1.5 mm² cable wires, with ring cable lugs at the end

Ordering data		
Type	Order No.	Pcs. / Pkt.
QPDW3PE1,5 6-10 M25 0,1 BKKTH	1582475	1
QPDW3PE1,5 9-14 M25 0,1 BKKTH	1582476	1
QPD W 3PE1,5 M25 0,1 BK K TH	1577273	1



Drawing without line wires and with nuts

Installation system

QPD installation system

Plug-in connectors, 2.5 mm²

- With capacitive PE contact
- Compatible with QUICKON connection
- Can be coded using the two red coding profiles to prevent incorrect connection of similar connectors
- Touch-proof in accordance with DIN EN 50274
- Also available as gray color versions
- 5-pos. version with SPEEDCON rapid interlock system, cannot be released manually



With green screw locking



With black and gray screw locking



Technical data

Technical data

3+PE-pos.	
General data	
Degree of protection	IP68/IP69K
Electrical data	
Rated voltage (III/3)	690 V
Rated surge voltage	6 kV
Rated current	20 A
Surge voltage category / pollution degree	III / 3
Material data	
Housing material	PA
Contact material	Cu
Contact surface material	Silver-plated
Inflammability class according to UL 94	V0
Impact category	IK07
Color	black
Connector data QUICKON connection	
Core insulation	PVC/PE/TPE/rubber
Litz wire structure / smallest wire diameter	VDE 0295 class 1 to 6 / min. 0.15 mm
Connection frequency	10
Conductor cross section [mm ²] solid / stranded	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²
Conductor cross section [AWG]	16 ... 14
Temperature data	
Ambient temperature (operation)	-40 °C ... 80 °C
Temperature when conductor connected	-5 °C ... 50 °C

3+PE-pos.		4+PE-pos.	
Degree of protection	IP68/IP69K	Degree of protection	IP68/IP69K
Rated voltage (III/3)	690 V	Rated voltage (III/3)	690 V
Rated surge voltage	6 kV	Rated surge voltage	6 kV
Rated current	20 A	Rated current	20 A
Surge voltage category / pollution degree	III / 3	Surge voltage category / pollution degree	III / 3
Housing material	PA	Housing material	PA
Contact material	Cu	Contact material	Cu
Contact surface material	Silver-plated	Contact surface material	Silver-plated
Inflammability class according to UL 94	V0	Inflammability class according to UL 94	V0
Impact category	IK07	Impact category	IK07
Color	black	Color	black
Core insulation	PVC/PE/TPE/rubber	Core insulation	PVC/PE/TPE/rubber
Litz wire structure / smallest wire diameter	VDE 0295 class 1 to 6 / min. 0.15 mm	Litz wire structure / smallest wire diameter	VDE 0295 class 1 to 6 / min. 0.15 mm
Connection frequency	10	Connection frequency	10
Conductor cross section [mm ²] solid / stranded	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²	Conductor cross section [mm ²] solid / stranded	1 mm ² ... 2.5 mm ² / 1 mm ² ... 2.5 mm ²
Conductor cross section [AWG]	16 ... 14	Conductor cross section [AWG]	16 ... 14
Ambient temperature (operation)	-40 °C ... 80 °C	Ambient temperature (operation)	-40 °C ... 80 °C
Temperature when conductor connected	-5 °C ... 50 °C	Temperature when conductor connected	-5 °C ... 50 °C

Ordering data

Ordering data

Description
Plug-in connectors , for cable diameter:
6 mm ... 10 mm
9 mm ... 14 mm
6 mm ... 11 mm
9 mm ... 16 mm

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
3+PE-pos.			
1582202	1		
1582205	1		

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
3+PE-pos.		4+PE-pos.	
1582637	1		
1582638	1		
		1403784	1
		1403782	1

Accessories

- Mounting clip ① for easily fixing the H-distributor in place without the need for tools
- DIN rail mounting can be achieved using two DIN rail adapters ②
- Plastic labels ③ can be stuck to the middle of the H-distributor
- Red sealing plugs ④ can be easily stuck into the QUICKON nuts and create a seal when screwed tight
- Protective caps with retaining cords ⑤ for closing open QUICKON domes which are going to have a connector (for example) fitted at a later date
- Locking nuts ⑥ for fixing the panel feed-throughs to thin panels that are unable to accommodate a proprietary thread
- Insulating sleeve ⑦ for 4.8 mm spade connections
- Transparent protective caps ⑧ for attaching to the open QUICKON dome
- Transparent protective caps ⑨ at front for attaching to the connector
- Slotted socket wrenches ⑩ enable you to tighten the QUICKON nuts easily and securely
- Red coding profiles ⑪ for preventing QPD connector mix-ups. Simply insert them into the QUICKON dome and connector on the front side. They are marked with an arrow and their symmetrical form enables them to be mounted in four different positions.
- AS-Interface seals ⑫ for connecting 1 or 2 AS-Interface cables
- Aluminum shielding tape ⑬ prevents the splicing of the braided shield and enables a clean shield connection



Description		Ordering data		
Type	Order No.	Pcs. / Pkt.		
Mounting clip , for the 4-pos. H-distributor, color: black ①				
QPD CLIP 2,5 BK	1582235	10		
DIN rail adapter For M5 screws ②				
USA 10/4,6	1202713	10		
Plastic label ③ For plotting and engraving Can be printed using thermal transfer printer				
GPE 13X 9 WH	0806932	10		
EMLP (13X9)R	0819453	1		
Sealing plug , for closing unused bore holes in multiple seals and cable glands ④ Ø 10 mm Ø 14 mm				
SEALING PLUG 10X16 RD	1400284	10		
SEALING PLUG 14X22 RD	1400270	10		
Protective cap , captive, IP68 ⑤ Color: green Color: black Color: gray Color: black				
QPD QSK 2,5 FS	1582488	1		
QPD QSK BK 2,5 FS	1582645	1		
QPD QSK GY 5X2,5 FS	1404526	1		
QPD QSK BK 5X2,5 FS	1404525	1		
Locking nut , (plastic), to lock the contact carrier from the inside of the device ⑥ M16 / SW22 / color: green M20 / SW26 / color: green M25 / SW32 / color: black Pg21 / SW36 / color: black				
Q-MU M16	1640692	25		
Q-MU M20	1640702	25		
Q-MU M25	1640715	25		
Q-MU PG 21 BK	1582655	50		
Insulating sleeve , as shock protection for 4.8 mm slip-on sleeves; first slide over the conductor For 4.8 mm slip-on sleeves ⑦				
PT/FS 4,8	1670497	25		
Protective cap , transparent plastic, for QUICKON connection, IP54 ⑧				
QPD QSK 2,5	1582150	10		
QPD QSK 5X2,5	1404528	10		
Protective cap , transparent plastic, for QUICKON connection, IP50 ⑨				
QPD PSK 2,5	1582151	10		
QPD PSK 5X2,5	1404529	10		
Slotted socket wrench for QUICKON nuts and panel feed-throughs, for wrench size: ⑩ 15 mm 19 mm 22 mm 24 mm 27 mm				
QSS 15	1641992	1		
QSS 19	1670895	1		
QSS 22	1670206	1		
QSS 24	1670219	1		
QSS 27	1670646	1		
Coding profile , for insertion into the plug-in connector and QUICKON dome ⑪				
CP-QPD	1582459	10		
CP-QPD 5X2,5	1404530	10		
Seal for 4-pos. versions , NBR, black, for IP65/IP67 protection ⑫ One AS-i cable Two AS-i cables				
KV-DI-PG16-1XASI	1582462	10		
KV-DI-PG16-2XASI	1582464	10		
Shielding tape , aluminum, for the shielded QPD versions ⑬				
ALU-SB	1404531	100		

T-distributor with QUICKON fast connection technology



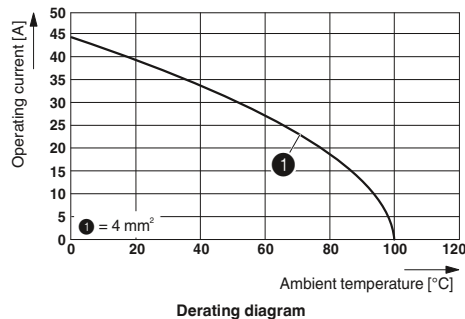
The QUICKON T-distributor allows fast connection to a 5-conductor master cable with stranded single wires. Instead of time-consuming installation, the branch line to the load is connected using the proven insulation displacement connection method without disconnecting the master cable.

For connection, it is simply stripped and inserted in the lower part of the housing. The upper part is then fitted and the electrical connection established by tightening the black wing nut. The branch line is connected using the proven QUICKON fast connection method, with color-coding in acc. with VDE 0293-308.

Notes:

Designed for permanent installation only

There are other insert seals (Q-T-EDG...) available for smaller cable diameters (9 mm to 14 mm)



**Power T-distributor, 5-pos.,
for 2.5 ... 4.0 mm²**

Electrical data

Rated voltage (III/3)
Rated surge voltage
Rated current at 25°C

Material data

Housing material
Contact material
Contact surface material

Mechanical data

No. of pos.
Pollution degree
Degree of protection

Connector data QUICKON connection

Core insulation
Litz wire structure / smallest wire diameter
External cable diameter
External cable diameter

Conductor cross section [mm²]
Conductor cross section [AWG]

Temperature data

Ambient temperature (operation)
Temperature when conductor connected

Technical data

630 V
8 kV
32 A

PA
Cu alloy
Pre-nickel plated and tin-plated

5

3

IP65

PVC/PE

Class 2 to 5 / 0.25 mm

9 mm ... 16 mm (branch line)

9 mm ... 16 mm

(Master cable (for diameters < 13.5 mm, additional insert seals are available))

2.5 mm² ... 4 mm²

14 ... 12

-40 °C ... 80 °C

10 °C ... 50 °C

(Specifications of the cable manufacturer must be observed)

Ordering data

Type	Order No.	Pcs. / Pkt.
Q 4,0/5IDC/KU-T	1641963	1

Accessories

Fixing nuts with O-ring, plastic, to lock the distributor when mounting in a metal cabinet

Insert seal, for IP65 sealing of thin master cables, clamping range:

9.0 mm ... 11.0 mm

10.0 mm ... 12.5 mm

11.5 mm ... 14.0 mm

Closing cap, for closing unused bore holes in multiple seals and cable glands

Ø 14 mm

Stripping tool, for stripping conductors of 4.5 – 40–mm–Ø, insulation strength up to 4.5 mm, swiveling knife for round, longitudinal and spiral cuts

Accessories	Order No.	Pcs. / Pkt.
Q-MU-T	1640993	10
Q-T-EDG-K	1580011	10
Q-T-EDG-M	1580024	10
Q-T-EDG-G	1580037	10
SEALING PLUG 14X22 RD	1400270	10
WIREFOX-D 40	1212161	1



Heavy-duty plug-in connectors

HEAVYCON plug-in connectors with IP65 protection have been established in industrial environments for decades. The HEAVYCON ADVANCE housing range is a further development of the classic HEAVYCON range for panel feed-throughs with up to IP68/IP69K protection. The housing is attached directly to the mounting panel by means of screw or bayonet locking, meaning that the panel mounting base is no longer required.

HEAVYCON offers a comprehensive range of plug-in connector solutions for sensitive signals ranging from just a few mA up to high currents of 200 A with various numbers of positions. The contact inserts and contact insert modules are available with screw, crimp, spring-cage, push-in, axial screw, and IDC connection technology. A comprehensive range of accessories rounds off the entire range.

HEAVYCON EVO made from fiberglass-reinforced polyamide is the inexpensive alternative to die-cast aluminum housing. The corresponding cable glands with bayonet locking reduce overall warehousing by 70% and are also fully compatible with HEAVYCON standard die-cast aluminum housing. The capacitive PE design ensures conformance with standards.

Phoenix Contact will also deliver plug-in connector sets and assembled cables on request. We are always ready to share our extensive solution expertise when it comes to special requirements.

DUPLICON stackable plug-in connectors are designed for distributed installation with the focus on power distribution. The plug-in connectors can be easily and flexibly integrated into modular machines and systems. Thanks to this stackable design, DUPLICON offers consistent installation, from the power rail in the control cabinet to the PCB in the field device, and can be extended by simply connecting further plug-in connectors.

HEAVYCON product range overview

HEAVYCON cross-reference list - contact inserts and housing	402
Type D7	
Contact inserts	404
Housing	410
Type D	
Contact inserts	414
Housing	422
Type B	
Contact inserts	428
Housing	482
Type compact	
Contact inserts	548
Housing	550
Cable glands	552
Accessories	560
DUPLICON stackable plug-in connectors	588

Heavy-duty plug-in connectors

HEAVYCON EVO product range overview



Flexible thanks to reduced number of versions

Thanks to the unique HEAVYCON EVO bayonet locking, only the swivel cable glands have to be replaced in order to cover the M20, M25, M32, and M40 clamping areas with straight and lateral outlet.



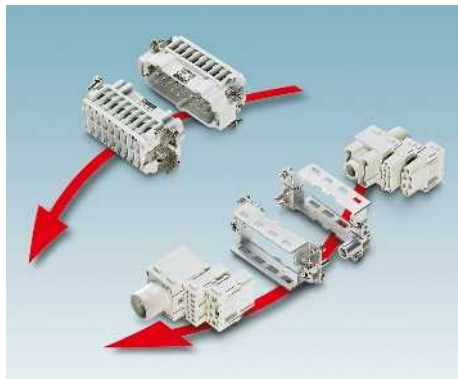
Robust plastic

HEAVYCON EVO plug-in connectors made from high-quality plastic meet virtually all the requirements of heavy-duty industrial plug-in connectors as well as protection class IP65 and shock resistance IK08.



Fully compatible

The HEAVYCON EVO housing is plug-compatible with standard aluminum housing. It fits the standard panel cutouts of heavy-duty industrial plug-in connectors.



Suitable for all inserts

All fixed and modular contact inserts in B series format fit in HEAVYCON EVO housing.



Safety thanks to capacitive PE

Two metal inlays in the housing are used to hold the contact inserts and coding screws. They form the electrical bridge between the PE contacts of the inserts.



Complete range

The IP65-protected plastic housings are available in B6 to B24 design with double and single locking latch. The supporting base element is available as a panel mounting base, box mounting base, and coupling housing, with and without protective cover.



Also suitable for protection class II

The plastic version is robust, light, and resistant to corrosion and can also be used in applications with protection class II.



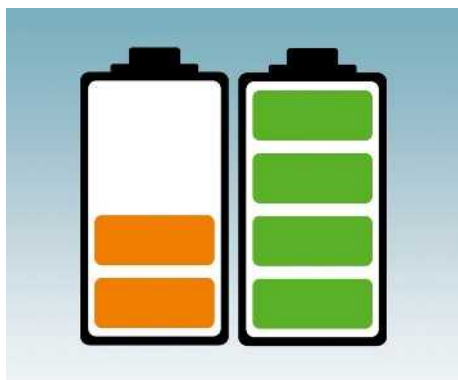
UL-listed materials

The plastic housing made from PA and PBT is UL listed and resistant to mechanical loads. Fire protection add-ons according to UL94 V0 are completely halogen-free.



Easy cable assembly

On the HEAVYCON EVO housing, the angled cable inlet is particularly large. This simplifies cable assembly if the cable gland is only mounted at the end of the process.

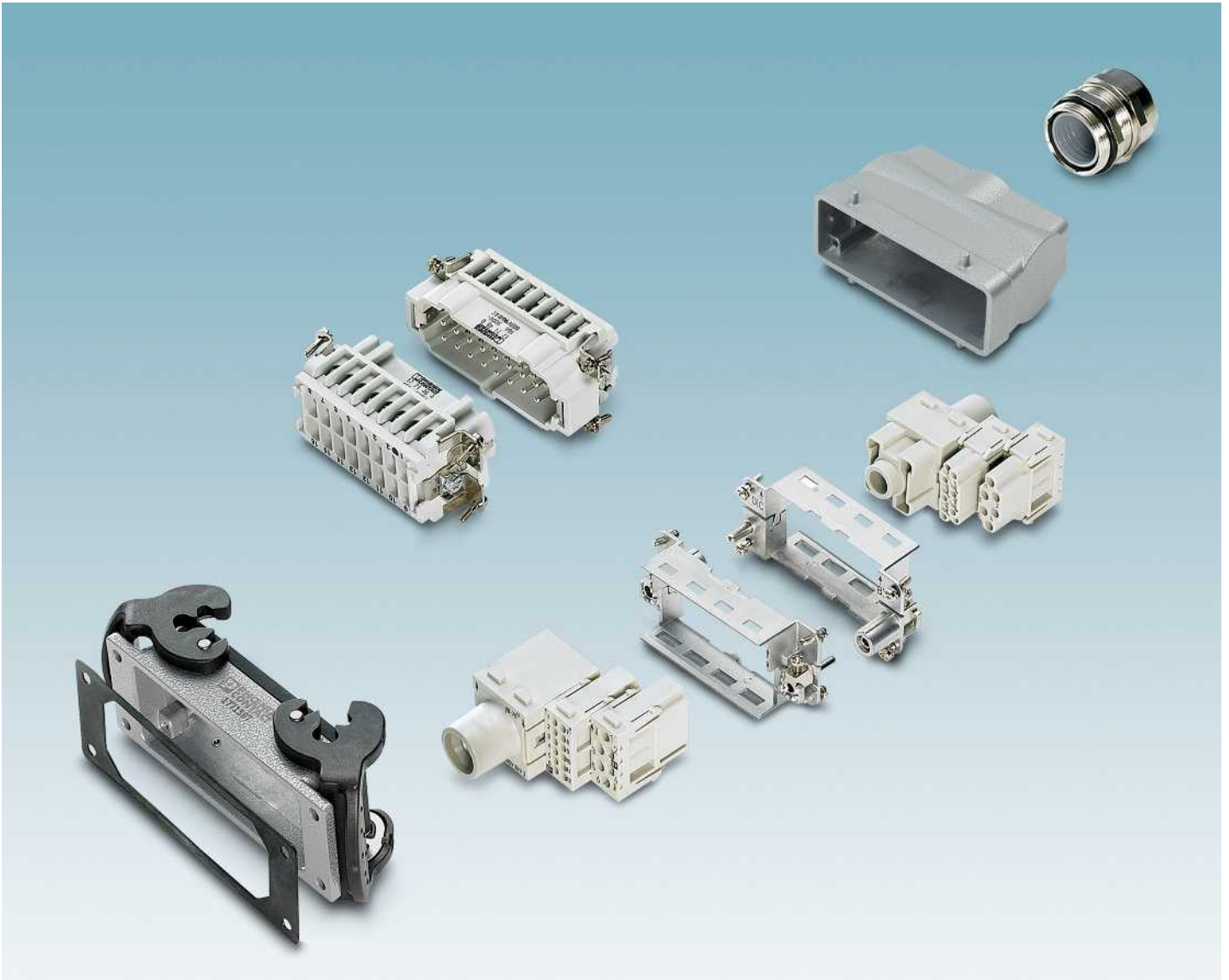


Ecological aspects

With regard to the resources consumed, factor 9 is positioned between aluminum and plastic. This means that the ecological footprint is significantly smaller.

Heavy-duty plug-in connectors

HEAVYCON standard product range overview



Housing with locking latch

The double locking latch supports particularly space-saving side-by-side mounting. Housing with single locking latches can be locked with one hand and mounted one on top of the other.



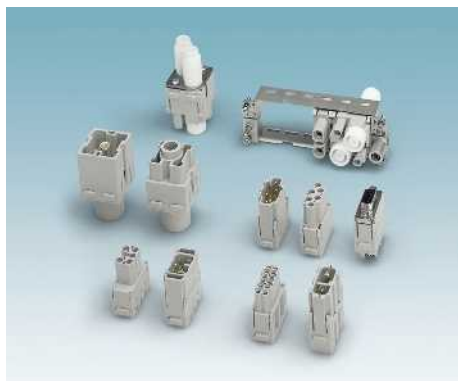
EMC housing with locking latch

A range of EMC housing versions is available for sensitive interfaces. Panel mounting bases are not suitable for terminal adapters.



Contact inserts with a fixed number of positions

The range includes A/B/BB/BBB/D/DD/HS/HV and K series contact inserts. The B series is available with screw, crimp, spring-cage, push-in, and QUICKON connection.



Modular contact inserts

Modular contact inserts enable the efficient, individual design of type B contact inserts, e.g., with bus or D-SUB modules.



Terminal adapters

The terminal adapters have been specially developed for type B and type D industrial plug-in connectors. They combine contact inserts and modular terminal blocks to create a connection element.



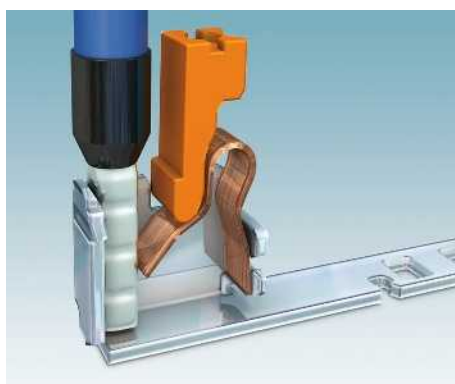
Shield connection

The HEAVYCON D bus contact is used to connect shielded, 2-wire bus cables within a heavy-duty plug-in connector.



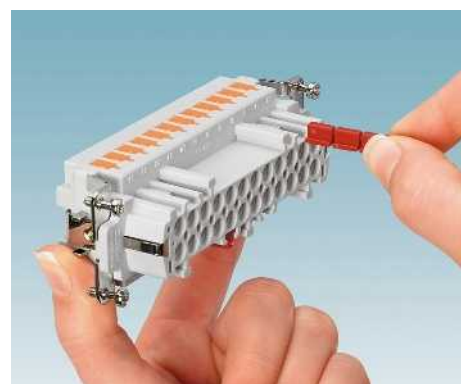
IDC QUICKON connection

With the QUICKON connection, the wire no longer needs to be stripped. Here the conductor is inserted directly into the terminal point without preparation and makes contact by means of IDC connection.



Push-in connection

Contact inserts with push-in technology allow wires with ferrules or solid conductors to be inserted directly into the terminal point without having to open the terminal point beforehand.



Coding

Coding profiles enable coding in just a few seconds. The profiles just need to be snapped into the keyways of the contact inserts.



Plug assembly frames

When it comes to mounting standard type B contact inserts directly on the DIN rail, die-cast aluminum plug assembly frames are the ideal solution, see installation and mounting material.



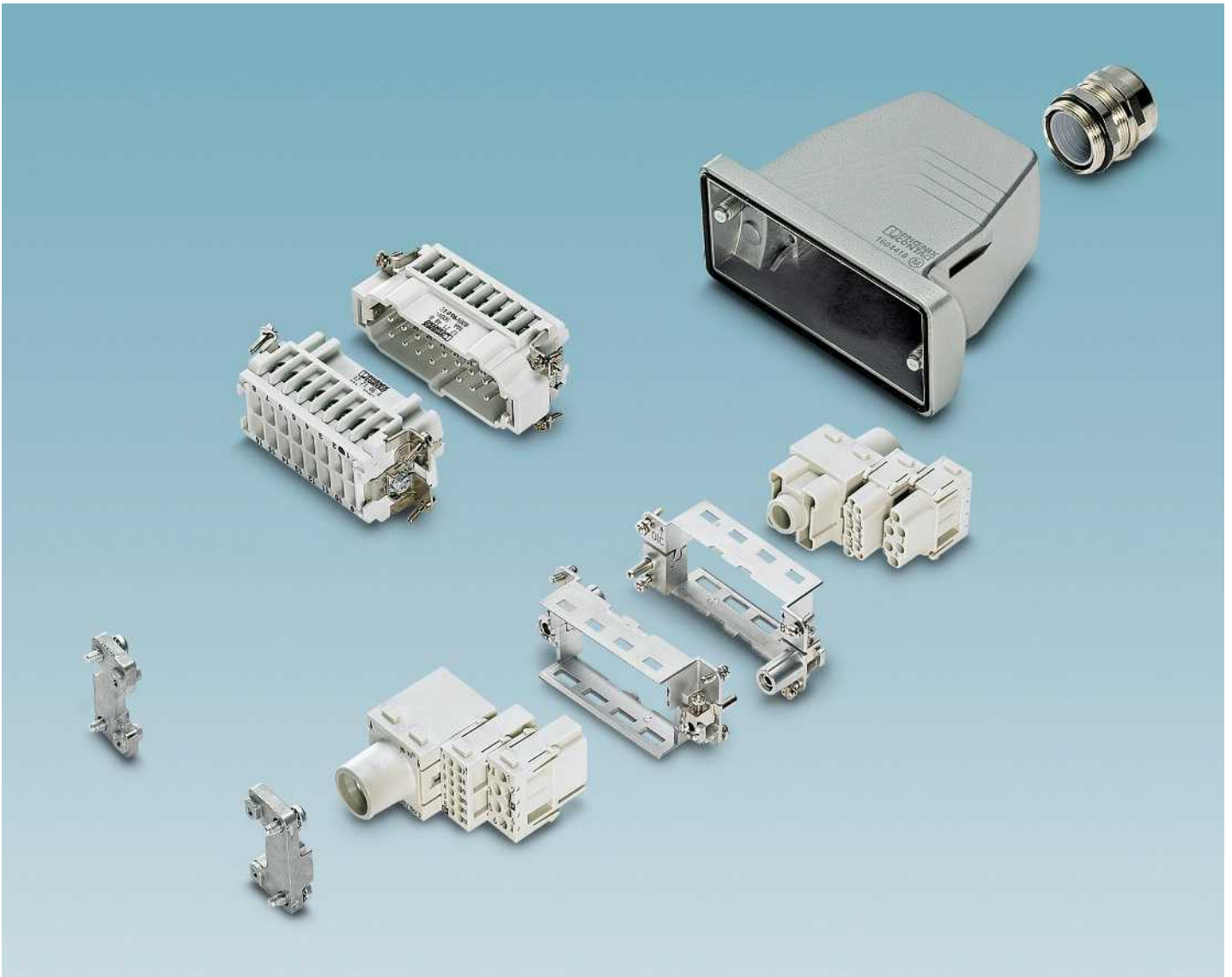
Docking frames

Docking frames ensure that socket and pin inserts are located in insert systems and contact is made reliably.



D-SUB adapter plates

HEAVYCON D-SUB adapter plates can be used to mount D-SUB plug-in connectors in the robust HEAVYCON housing.



Advantages:

- Cost savings, as no panel mounting base is required
- Suitable for all HEAVYCON B series contact inserts
- Compatible with standard panel cutouts
- Effective EMC protection by means of EMC screw connection and conductive seal
- 50% larger cabling space
- IP68/IP69K protection



Standard version (STA)

Field of application:

- For extremely demanding requirements, e.g., in the automotive industry, in machine building and systems manufacturing, and in measurement and control technology

Housing material:

- Aluminum die-cast alloy
 - NBR sealing material
- Screw locking:
- Made of stainless steel (V2A)

Version for increased environmental requirements (EUA)

Field of application:

- For particularly aggressive ambient conditions and harsh climatic atmospheres in all areas of application, e.g., chemicals, railways, and offshore

Housing material:

- Corrosion-resistant aluminum die-cast alloy
 - Viton sealing material
- Screw locking:
- Made of stainless steel (V2A)

Version for offshore and EMC applications (EEE)

Field of application:

- On ships, drilling platforms or in wind power plants, also for EMC applications

Housing material:

- Salt-water-resistant die-cast aluminum
 - With EMC-conductive NBR seal
- Screw locking:
- Made of stainless steel (V2A)



Plastic version (PL)

Field of application:

- For standard applications, with the exception of extremely cold, hot, dry or damp ambient conditions, and with the exception of EMC applications

Housing material:

- Polyamide plastic with NBR seals
- Screw locking:
- Made of stainless steel (V2A)

Supporting base element

EEE series supporting base elements can be combined with all ADVANCE sleeve housing types. Coupling housing and box mounting bases are available.





Heavy-duty plug-in connectors

HEAVYCON cross-reference list - contact inserts and housing

The system cross-reference list illustrates in a simple manner which contact insert matches which housing type.

The top rows describe the contact insert according to the number of positions, voltage, current, and connection method.

The marking in the columns denotes the matching housing type.

																			
Series	A					B						BB						BBB	
No. of positions	3	4	10	16	2x16	6	10	16	24	2x16	2x24	10	18	32	46	2x32	2x46	40	64
Size	D7	D7	D15	D25	D50	B6	B10	B16	B24	B32	B48	B6	B10	B16	B24	B32	B48	B16	B24
Rated voltage [V]	230/400		250			500						500						500	
Rated current [A]	16					16						16						16	
Connection method	UT					UT						-						-	
UT = Screw	UT					UT						-						-	
CT = Crimp	-		CT			CT						CT						CT	
CT = Crimp	-		CT			CT						CT						CT	
PT = Push-in	-					PT						-						-	
PT = Push-in	-					PT						-						-	
Z = Spring-cage	-					-						-						-	
Z = Spring-cage	-					-						-						-	
Q = QUICKON	-					Q						-						-	
Q = QUICKON	-					Q						-						-	
L = Fiber optic	-					-						-						-	
L = Fiber optic	-					-						-						-	
A = Axial screw	-					-						-						-	
A = Axial screw	-					-						-						-	
P = Pneumatics	-					-						-						-	
P = Pneumatics	-					-						-						-	








Size	Housing version				
	Metal			Plastic	
	STA	EUA	EEE	PL	
D housing	D7	●			●
	D15	●			
	D25	●			
	D50	●			

B housing	B6	●			●
	B10	●			●
	B16	●			●
	B24	●			●
	B32	●			
	B48	●			

ADVANCE housing	B6	●	●	●	●
	B10	●	●	●	●
	B16	●	●	●	●
	B24	●	●	●	●
	B32			●	

Series	A					B						BB						BBB	
No. of positions	3	4	10	16	2x16	6	10	16	24	2x16	2x24	10	18	32	46	2x32	2x46	40	64
Page	404	404	414	416	416	436	438	440	442	440	442	448	448	448	448	448	448	450	450
From 410	●	●																	
From 422			●																
From 424				●															
From 426					●														
From 486						●						●							
From 494							●						●						
From 510								●						●				●	
From 528									●						●				●
From 544										●						●			
From 546											●						●		
From 482						●						●							
From 490							●						●						
From 506								●						●				●	
From 524									●						●				●
From 542										●						●			

HEAVYCON contact inserts

      																									
D								DD						HV			HS		Q				K		M
7	8	15	25	40	2x25	64	2x40	2x64	24	42	72	108	2x72	2x108	3+2	6+2	10+2	6	12	2	5	7	12	Variable	Variable
D7	D7	D15	D25	B16	D50	B24	B32	B48	B6	B10	B16	B24	B32	B48	B10	B16	B24	B16	B32	D7	D7	D7	D7	B10 - B24	B6 - B48
250	50	250						250						830			500		400	230/400	400	160 - 830		50 - 5000	
10								10						16			35		40	16	10	10 - 80		5 - 200	
-								-						-			UT		-				UT		-
CT								CT						CT			-		-				CT		CT
-								-						-			-		-				-		-
-								-						-			-		-				-		Z
-								-						-			-		-				-		-
L								L						-			-		-				L		L
-								-						-			-		A				A		A
-								-						-			-		-				-		P
D								DD						HV			HS		Q				K		M
7	8	15	25	40	2x25	64	2x40	2x64	24	42	72	108	2x72	2x108	3	6	10	6	12	2	5	7	12	Variable	Variable
406	406	418	420	428	420	428	428	428	434	434	434	434	434	434	452	454	456	458	458	408	408	408	408	460	464
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Heavy-duty plug-in connectors

HEAVYCON type D7 - contact inserts

A3/A4 series

230/400 V, 16 A

Connection technology:

- Screw connection
- Insulation displacement connection

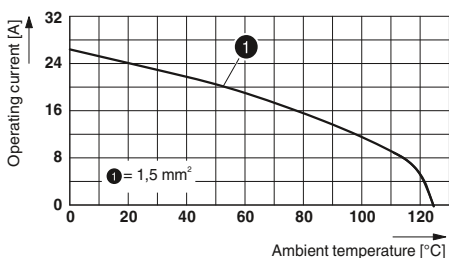
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
HC-A 3-EST/HC-A 4-EST profile gaskets made from NBR
HC-A 4-E...S contact inserts already contain an IP65 sealing screw
Connectors may only be operated when under no load.
Observe notes on the connection technology

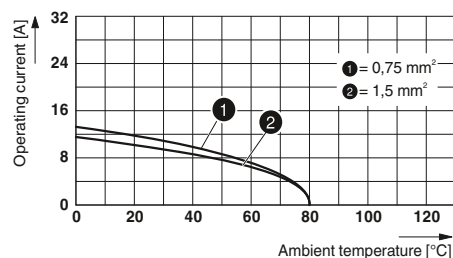


Type	Technical data			
	HC-A 3-E...S	HC-A3-...Q1,5-TFL-G-PA Sleeve housing	HC-A3-...Q1,5-KML-G-PA Coupling housing	HC-A 4-E...S
Approvals				
IEC data				
Rated current, contacts (at 40°C)	A	16	10	16
Surge voltage category		III	III	III
Pollution degree		3	3	3
Rated voltage (III/3) contacts	V	230 / 400	230 / 400	230 / 400
Rated surge voltage, contacts	kV	4	4	4
Connection cross section	mm ²	0.5 ... 2.5	0.75 ... 1.5	0.5 ... 1.5
UL data				
Rated voltage	V	-	600	600
Rated current	A	-	10	-
AWG		20-13	18-16	20-13
CSA data				
Rated voltage	V	600	-	600
Rated current	A	10	-	10
AWG		20-13	-	20-13
Material data				
Contact carrier material		PA	PA / PC	PA
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag	Ag	Ag
Temperature data				
Ambient temperature range	°C	-40 ... 125	-25 ... 80	-40 ... 125
General data				
Connection method		Screw connection	QUICKON connection	QUICKON connection
No. of pos.		3	3	4
Contact numbering		1 - 3	1 - 3	1 - 4
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500


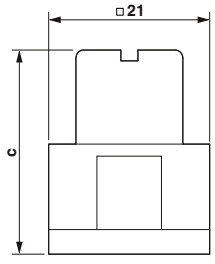


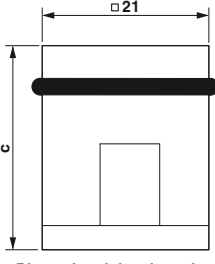

Derating curves



HC-A 3.../HC-A 4...



HC-A 3...Q1,5...

Description	Pos.	Number	Housing	Ordering data		Pcs. / Pkt.	Dimensions (in mm)																																													
				Type	Order No. Socket Plug																																															
Screw connection 	3	1 - 3	D7	① HC-A 3-E...S	1773093 1773080	10	 Dimensional drawing: socket																																													
Insulation displacement connection 	3	1 - 3	D7	Sleeve housing ② HC-A3-...Q1,5-TFL-G-PA	1641510 1641581	1																																														
Insulation displacement connection 	3	1 - 3	D7	Coupling housing ③ HC-A3-...Q1,5-KML-G-PA	1641617 1641604	1	 Dimensional drawing: pin																																													
Screw connection 	4	1 - 4	D7	④ HC-A 4-E...S	1774908 1774911	10	<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td></td> <td></td> <td>25</td> <td></td> </tr> <tr> <td>② Socket</td> <td></td> <td></td> <td>66</td> <td></td> </tr> <tr> <td>③ Socket</td> <td></td> <td></td> <td>62.8</td> <td></td> </tr> <tr> <td>④ Socket</td> <td></td> <td></td> <td>30</td> <td></td> </tr> <tr> <td>① Plug</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>② Plug</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>③ Plug</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>④ Plug</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		a	b	c	d	① Socket			25		② Socket			66		③ Socket			62.8		④ Socket			30		① Plug					② Plug					③ Plug					④ Plug				
	a	b	c	d																																																
① Socket			25																																																	
② Socket			66																																																	
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④ Socket			30																																																	
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② Plug																																																				
③ Plug																																																				
④ Plug																																																				

Accessories



Sealing screw, IP65
From page 570



Profile gaskets
From page 571

Heavy-duty plug-in connectors

HEAVYCON type D7 - contact inserts

D7/D8 series

50 - 250 V, 10 A

Connection technology:

- Crimp connection
- Voltages > 42 V only for D7 series contact inserts in conjunction with plastic housing

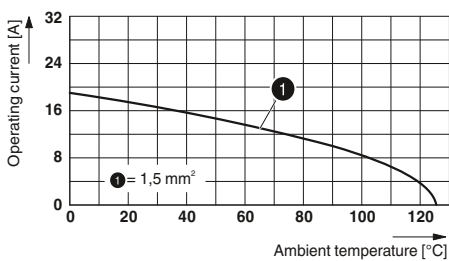
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Coding of HC-D 7-EBUC/HC-D 8-EBUC contact inserts using CK 1,6 ED-BB dummy sockets
HC-D 7-E...F/HC-D 8-E...C contact inserts already contain an IP65 sealing screw
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

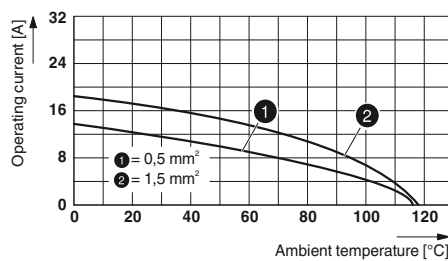


Type	Technical data		
	HC-D 7-I-CT-...	HC-D 7-E...C-R	HC-D 8-I-CT-... Without PE
Approvals	-	UL, P, CE, VDE	-
IEC data			
Rated current, contacts (at 40°C)	A 10	10	10
Surge voltage category	III	III	III
Pollution degree	3	3	3
Rated voltage (III/3) contacts	V 250	250	50
Rated surge voltage, contacts	kV 4	4	0.8
Connection cross section	mm ² 0.14 ... 2.5	0.14 ... 1.5	0.14 ... 2.5
UL data			
Rated voltage	V -	600	-
Rated current	A -	10	-
AWG	-	-	-
CSA data			
Rated voltage	V -	600	-
Rated current	A -	10	-
AWG	-	-	-
Material data			
Contact carrier material	PA	PBTP	PA
Inflammability class in acc. with UL 94	V0	V0	V0
Contact material	Copper alloy	Copper alloy	Copper alloy
Contact surface material	Ag (alternatively Au)	Ag (alternatively Au)	Ag (alternatively Au)
Temperature data			
Ambient temperature range	°C -40 ... 125	-40 ... 125	-40 ... 125
General data			
Connection method	Crimp connection	Crimp connection	Crimp connection
No. of pos.	7	7	8
Contact numbering	1 - 7	1 - 7	1 - 8
Insertion/withdrawal cycles	≥ 500	≥ 500	≥ 500

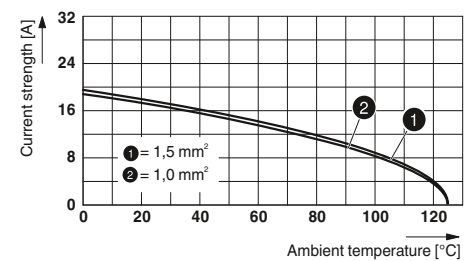
Derating curves



HC-D 7-I-CT-...

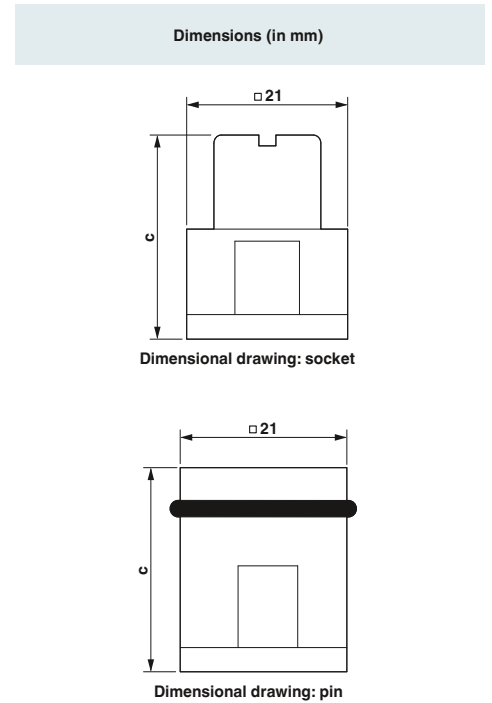


HC-D 7-E...C-R



HC-D 8-I-CT-...

Description	Pos.	Number	Housing	Ordering data			
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.
Crimp connection, turned contacts							
	7	1 - 7	D7	① HC-D 7-I-CT-...	1584347	1584334	10
Crimp connection, rolled contacts							
	7	1 - 7	D7	② HC-D 7-E...C-R	1679508	1679456	10
Crimp connection, turned contacts							
	8	1 - 8	D7	Without PE ③ HC-D 8-I-CT-...	1584363	1584350	10
Turned crimp contacts CK 1,6 Silver-plated							
		Cross section mm ² / AWG					
		0.14 - 0.37 / 26 - 22	CK1,6-ED-0,37... AG	1663394	1663336	100	
		0.5 / 20	CK1,6-ED-0,50... AG	1663404	1663349	100	
		0.75 / 18	CK1,6-ED-0,75... AG	1663417	1663352	100	
		0.75 - 1 / 18	CK1,6-ED-1,00... AG	1663420	1663365	100	
		1.5 / 16	CK1,6-ED-1,50... AG	1663433	1663378	100	
		2.5 / 14	CK1,6-ED-2,50... AG	1663446	1663381	100	
Rolled crimp contacts CK 1,6 Silver-plated							
		Cross section mm ² / AWG					
		0.14 - 0.5 / 26 - 20	CK1,6-ER-0,50... AG	1884128	1884092	100	
		0.5 - 1.5 / 20 - 16	CK1,6-ER-1,50... AG	1884115	1884089	100	
		1.5 - 2.5 / 16 - 14	CK1,6-ER-2,50... AG	1884131	1884102	100	



	a	b	c	d
① Socket			32	
① Plug				
② Socket			35.5	
② Plug			33.5	
③ Socket			32	
③ Plug				

Accessories



Sealing screw, IP65
From page 570



Profile gaskets
From page 571



Dummy sockets
From page 582



Crimp contacts
From page 564

Heavy-duty plug-in connectors

HEAVYCON type D7 - contact inserts

Q series

250 - 500 V, 10 - 40 A

Connection technology:

- Axial screw connection
- Crimp connection

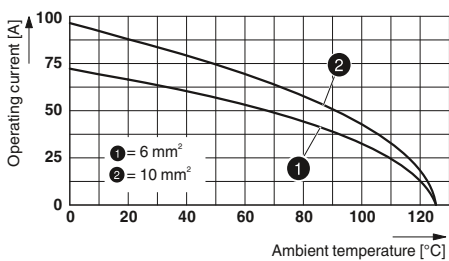
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
HC-B 5-E...C does not contain an IP65 sealing screw
HC-B5-ESTC profile gaskets made from NBR
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

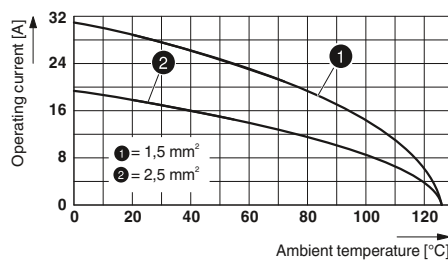


Type	Technical data			
	HC-HS 2-D7-E...S	HC-B 5-E...C	HC-D 7-E...C-COD	HC-Q 12-I-CT-...
Approvals				-
IEC data				
Rated current, contacts (at 40°C)	A	40	16	10
Surge voltage category	III	III	III	III
Pollution degree	3	3	3	3
Rated voltage (III/3) contacts	V	400	230 / 400	400
Rated surge voltage, contacts	kV	6	4	6
Connection cross section	mm ²	4 ... 10	0.5 ... 2.5	0.14 ... 2.5
UL data				
Rated voltage	V	600	-	600
Rated current	A	28	-	10
AWG	-	-	14	-
CSA data				
Rated voltage	V	-	-	-
Rated current	A	-	-	-
AWG	-	-	-	-
Material data				
Contact carrier material	PC	PA	PC	PC
Inflammability class in acc. with UL 94	V0	V0	V0	V0
Contact material	Copper alloy	Copper alloy	Copper alloy	Copper alloy
Contact surface material	Ag	Ag (alternatively Au)	Ag (alternatively Au)	Ag (alternatively Au)
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method	Axial screw connection	Crimp connection	Crimp connection	Crimp connection
No. of pos.	2	5	7	12
Contact numbering	1 - 2	1 - 5	1 - 7	1 - 12
Insertion/withdrawal cycles	≥ 500	≥ 500	≥ 500	≥ 500

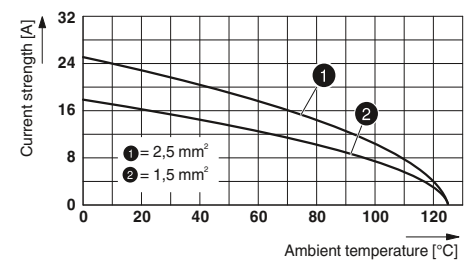
Derating curves




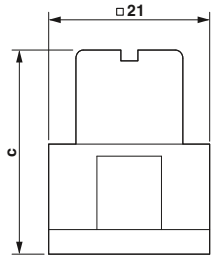

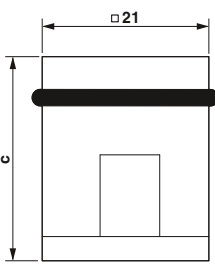




HC-HS 2-D7-E...S



HC-B 5-E...C



HC-D 7-E...C-COD

Description	Pos.	Number	Housing	Ordering data			Pcs. / Pkt.	Dimensions (in mm)																																													
				Type	Order No. Socket	Order No. Plug																																															
Axial screw connection																																																					
	2	1 - 2	D7	① HC-HS 2-D7-E...S	1586264	1586277	10	 Dimensional drawing: socket																																													
Crimp connection CK 2,5																																																					
	5	1 - 5	D7	② HC-B 5-E...C	1687820	1687817	10	 Dimensional drawing: pin																																													
Crimp connection CK 1,6																																																					
	7	1 - 7	D7	③ HC-D 7-E...C-COD	1408588	1408575	10																																														
Crimp connection CK 1,6																																																					
	12	1 - 12	D7	④ HC-Q 12-I-CT...	1409419	1409422	1	<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td></td> <td></td> <td>34.8</td> <td></td> </tr> <tr> <td>① Plug</td> <td></td> <td></td> <td>40</td> <td></td> </tr> <tr> <td>② Socket</td> <td></td> <td></td> <td>40</td> <td></td> </tr> <tr> <td>② Plug</td> <td></td> <td></td> <td>39.5</td> <td></td> </tr> <tr> <td>③ Socket</td> <td></td> <td></td> <td>40.1</td> <td></td> </tr> <tr> <td>③ Plug</td> <td></td> <td></td> <td>39.5</td> <td></td> </tr> <tr> <td>④ Socket</td> <td></td> <td></td> <td>43.1</td> <td></td> </tr> <tr> <td>④ Plug</td> <td></td> <td></td> <td>40.8</td> <td></td> </tr> </tbody> </table>		a	b	c	d	① Socket			34.8		① Plug			40		② Socket			40		② Plug			39.5		③ Socket			40.1		③ Plug			39.5		④ Socket			43.1		④ Plug			40.8	
	a	b	c	d																																																	
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Turned crimp contacts CK 1,6 Silver-plated																																																					
																																																					
			Cross section mm ² / AWG																																																		
			0.14 - 0.37 / 26 - 22	CK1,6-ED-0,37... AG	1663394	1663336	100																																														
			0.5 / 20	CK1,6-ED-0,50... AG	1663404	1663349	100																																														
			0.75 / 18	CK1,6-ED-0,75... AG	1663417	1663352	100																																														
			0.75 - 1 / 18	CK1,6-ED-1,00... AG	1663420	1663365	100																																														
			1.5 / 16	CK1,6-ED-1,50... AG	1663433	1663378	100																																														
			2.5 / 14	CK1,6-ED-2,50... AG	1663446	1663381	100																																														
Turned crimp contacts CK 2,5 Silver-plated																																																					
																																																					
			Cross section mm ² / AWG																																																		
			0.5 / 20	CK2,5-ED-0,50... AG	1663640	1663572	100																																														
			0.75 / 18	CK2,5-ED-0,75... AG	1663653	1663585	100																																														
			0.75 - 1 / 18	CK2,5-ED-1,00... AG	1663666	1663598	100																																														
			1.5 / 16	CK2,5-ED-1,50... AG	1663679	1663608	100																																														
			2.5 / 14	CK2,5-ED-2,50... AG	1663682	1663611	100																																														
			4 / 12	CK2,5-ED-4,00... AG	1663705	1663637	100																																														

Accessories



Heavy-duty plug-in connectors

HEAVYCON type D7 - housing

Type D7, metal, sleeve housing for single locking latch



General data

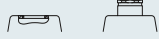
Housing material	Zinc die-cast
Surface material	Powder-coated, gray
Locking latch material	-
Sealing material	-
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP54 / IP65 with sealing screw

Technical data

Ordering data

Description

Cable entry: top Height: 57 mm



1 x M20

1 x Pg11

Type

HC-D 7-TFL-57/O1M20G

HC-D 7-TFL-57/M1PG11G

Order No.

1604888

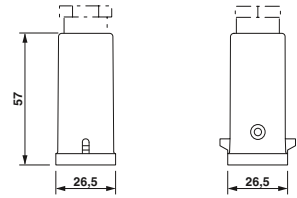
1773048

Pcs. /
Pkt.

10

10

Dimensions



Cable entry: lateral Height: 48 mm



1 x M20

1 x Pg11

HC-D 7-TFL-48/O1M20S

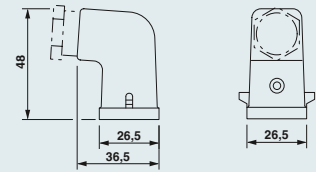
HC-D 7-TFL-48/M1PG11S

1604891

1773271

10

10



Notes:

For further accessories, see from page 552

Accessories



Sealing screw, IP65
From page 570



Pressure screw set
From page 556



Flat gaskets
From page 571


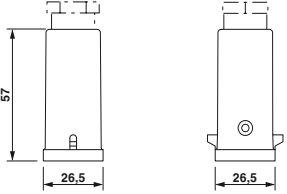

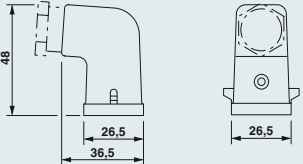
Type D7, plastic, sleeve housing for single locking latch



Technical data

General data	
Housing material	Polyamide
Surface material	PA, light gray
Locking latch material	-
Sealing material	-
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP54 / IP65 with sealing screw

Ordering data

Description		Type	Order No.	Pcs. / Pkt.	Dimensions
Cable entry: top Height: 57 mm 	1 x M20	HC-D 7-TFL-57/O1M20G/PA	1604889	10	
	1 x Pg11	HC-D 7-TFL-57/M1PG11G/PA	1772269	10	
Cable entry: lateral Height: 48 mm 	1 x M20	HC-D 7-TFL-48/O1M20S/PA	1604890	10	
	1 x Pg11	HC-D 7-TFL-49/M1PG11S/PA	1772256	10	

Notes:

For further accessories, see from page 552

Accessories



Sealing screw, IP65
From page 570



Pressure screw set
From page 556



Flat gaskets
From page 571



Replacement latch
From page 570

Heavy-duty plug-in connectors

HEAVYCON type D7 - housing

Type D7, metal, supporting base element with single locking latch


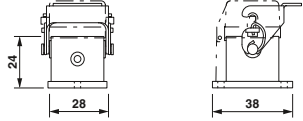

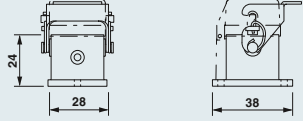

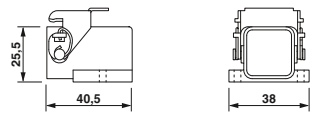

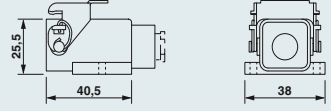

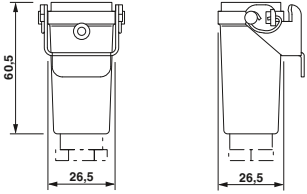

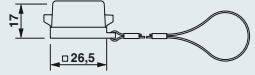


General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data	
Housing material	Zinc die-cast
Surface material	Powder-coated, gray (metal housing)
Locking latch material	Steel, galvanized
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP54 / IP65 with sealing screw

Ordering data

Description	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 24 mm 	Without cover HC-D 7-AML-24/GR	1773035	10	
Panel mounting base Height: 24 mm 	With metal cover, socket HC-D 7-AML-24/GR With metal cover, plug HC-D 7-AML-24/GR-OD	1676970 1684994	10 10	
Panel mounting base Height: 25.5 mm 	Angled version HC-D 7-AML-26/GW	1773022	10	
Box mounting base Height: 25.5 mm 	1 x M20 HC-D 7-SML-26/O1M20 1 x Pg11 HC-D 7-SML-26/M1PG11	1604885 1773284	10 10	
Coupling housing Height: 60.5 mm 	1 x M20 HC-D 7-KML-61/O1M20 1 x Pg11 HC-D 7-KML-61/M1PG11	1604883 1773297	10 10	
Protective cover, plastic 	Socket HC-D 7-SD-FL/FS-MD Plug HC-D 7-SD-FL/FS	1644300 1772573	10 10	

Notes:

For further accessories, see from page 552

Accessories



Sealing screw, IP65
From page 570



Pressure screw set
From page 556



Flat gaskets
From page 571

Type D7, plastic, supporting base element with single locking latch




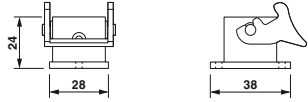

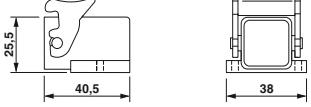

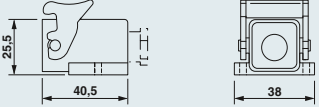

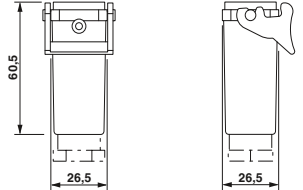

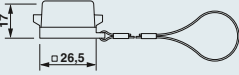
General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Polyamide
PA, light gray
Polyamide
NBR
-40 °C ... 125 °C
IP54 / IP65 with sealing screw

Ordering data

Description	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 24 mm 	Without cover HC-D 7-AML-24/GR/PA	1772272	10	
Panel mounting base Height: 25.5 mm 	Angled version HC-D 7-AML-26/GW/PA	1772285	10	
Box mounting base Height: 25.5 mm 1 x M20 1 x Pg11 	HC-D 7-SML-57/O1M20/PA HC-D 7-SML-57/M1PG11/PA	1604886 1772298	10 10	
Coupling housing Height: 60.5 mm 1 x M20 1 x Pg11 	HC-D 7-KML-61/O1M20/PA HC-D 7-KML-61/M1PG11/PA	1604884 1772308	10 10	
Protective cover, plastic 	Socket HC-D 7-SD-FL/FS-MD Plug HC-D 7-SD-FL/FS	1644300 1772573	10 10	

Notes:

For further accessories, see from page 552

Accessories



Sealing screw, IP65
From page 570



Pressure screw set
From page 556



Flat gaskets
From page 571



Replacement latch
From page 570

Heavy-duty plug-in connectors

HEAVYCON type D - contact inserts

A10 series

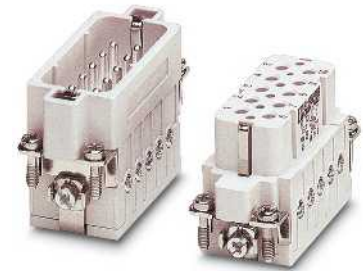
250 V, 16 A

Connection technology:

- Screw connection
- Crimp connection

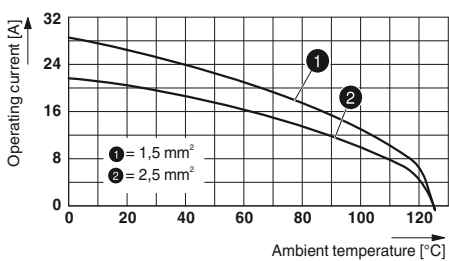
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Type A10/A16 with wire protection
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

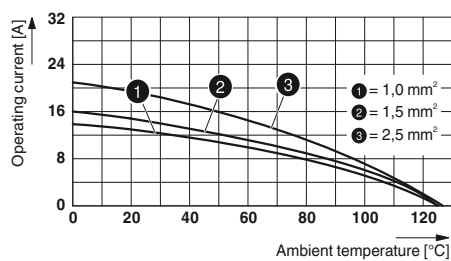


Technical data				
Type		HC-A 10-E...S	HC-A 10-E...C	
Approvals		UL, IEC, CE	UL, IEC, CE	
IEC data				
Rated current, contacts (at 40°C)	A	16	16	
Surge voltage category		III	III	
Pollution degree		3	3	
Rated voltage (III/3) contacts	V	250	250	
Rated surge voltage, contacts	kV	4	4	
Connection cross section	mm ²	0.5 ... 2.5	0.5 ... 4	
UL data				
Rated voltage	V	600	600	
Rated current	A	-	-	
AWG		-	-	
CSA data				
Rated voltage	V	600	600	
Rated current	A	10	10	
AWG		20-13	20-13	
Material data				
Contact carrier material		PA	PA	
Inflammability class in acc. with UL 94		V0	V0	
Contact material		Copper alloy	Copper alloy	
Contact surface material		Ag	Ag (alternatively Au)	
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	
General data				
Connection method		Screw connection	Crimp connection	
No. of pos.		10	10	
Contact numbering		1 - 10	1 - 10	
Insertion/withdrawal cycles		≥ 500	≥ 500	






Derating curves

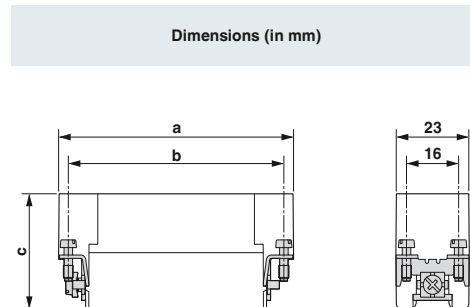


HC-A 10-E...S

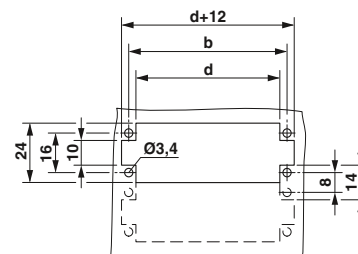


HC-A 10-E...C

Description	Pos.	Number	Housing	Ordering data			
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.
Screw connection 	10	1 - 10	D15	① HC-A 10-E...S	1773077	1773051	10
Crimp connection 	10	1 - 10	D15	② HC-A 10-E...C	1676983	1676996	10
				Turned crimp contacts CK 2,5 Silver-plated 			
				Turned crimp contacts CK 2,5 Gold-plated 			
				Accessories 			



Dimensional drawing



Panel cutout

	a	b	c	d
① Socket			33	
① Plug	55.5	49.5	36	43.5
② Socket			30	
② Plug	56.5	49.5	33	43.5

Cross section mm ² / AWG
0.5 / 20
0.75 / 18
0.75 - 1 / 18
1.5 / 16
2.5 / 14
4 / 12

Cross section mm ² / AWG
0.5 / 20
0.75 - 1 / 18
1.5 / 16
2.5 / 14
4 / 12

CK2,5-ED-0,50... AG	1663640	1663572	100
CK2,5-ED-0,75... AG	1663653	1663585	100
CK2,5-ED-1,00... AG	1663666	1663598	100
CK2,5-ED-1,50... AG	1663679	1663608	100
CK2,5-ED-2,50... AG	1663682	1663611	100
CK2,5-ED-4,00... AG	1663705	1663637	100

CK2,5-ED-0,50... AU	1674859	1674804	100
CK2,5-ED-1,00... AU	1674833	1674781	100
CK2,5-ED-1,50... AU	1674820	1674778	100
CK2,5-ED-2,50... AU	1674862	1674817	100
CK2,5-ED-4,00... AU	1674846	1674794	100

Heavy-duty plug-in connectors

HEAVYCON type D - contact inserts

A16/A32 series

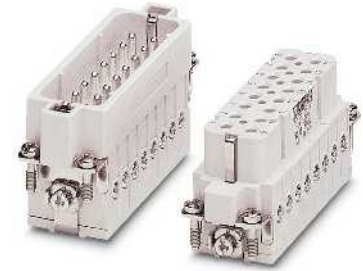
250 V, 16 A

Connection technology:

- Screw connection
- Crimp connection

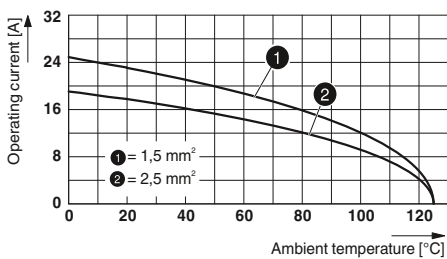
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Type A10/A16 with wire protection
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

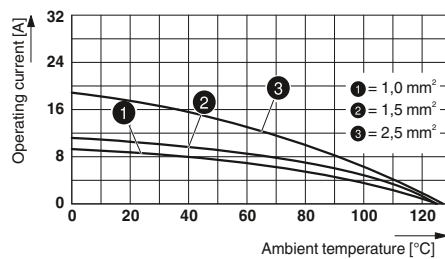


Type	Technical data			
	HC-A 16-E...S	HC-A 16-E...C		
Approvals				
IEC data				
Rated current, contacts (at 40°C)	A	16	16	
Surge voltage category		III	III	
Pollution degree		3	3	
Rated voltage (III/3) contacts	V	250	250	
Rated surge voltage, contacts	kV	4	4	
Connection cross section	mm ²	0.5 ... 2.5	0.5 ... 4	
UL data				
Rated voltage	V	600	600	
Rated current	A	-	-	
AWG		-	-	
CSA data				
Rated voltage	V	600	600	
Rated current	A	10	10	
AWG		20-13	20-13	
Material data				
Contact carrier material		PA	PA	
Inflammability class in acc. with UL 94		V0	V0	
Contact material		Copper alloy	Copper alloy	
Contact surface material		Ag	Ag (alternatively Au)	
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	
General data				
Connection method		Screw connection	Crimp connection	
No. of pos.		16	16	
Contact numbering		1 - 16	1 - 16	
Insertion/withdrawal cycles		≥ 500	≥ 500	

Derating curves

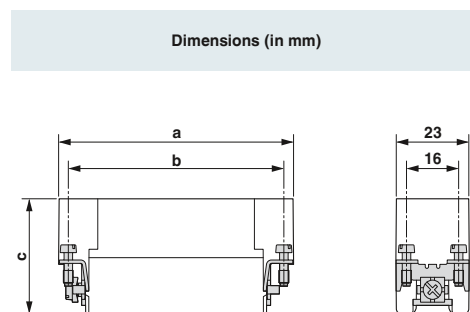


HC-A 16-E...S

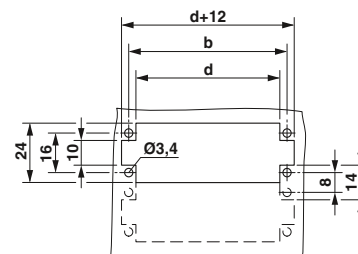


HC-A 16-E...C

Description	Pos.	Number	Housing	Ordering data			
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.
Screw connection							
	16	1 - 16	D25 / D50	① HC-A 16-E...S	1677005	1677021	10
	16	17 - 32	D25 / D50	② HC-A 16-E...S-32	1677047	1677063	10
Crimp connection							
	16	1 - 16	D25 / D50	③ HC-A 16-E...C	1677018	1677034	10
	16	17 - 32	D25 / D50	④ HC-A 16-E...C-32	1677050	1677076	10
Turned crimp contacts CK 2,5 Silver-plated							
			Cross section				
			mm² / AWG				
			0.5 / 20	CK2,5-ED-0,50... AG	1663640	1663572	100
			0.75 / 18	CK2,5-ED-0,75... AG	1663653	1663585	100
			0.75 - 1 / 18	CK2,5-ED-1,00... AG	1663666	1663598	100
			1.5 / 16	CK2,5-ED-1,50... AG	1663679	1663608	100
		2.5 / 14	CK2,5-ED-2,50... AG	1663682	1663611	100	
		4 / 12	CK2,5-ED-4,00... AG	1663705	1663637	100	
Turned crimp contacts CK 2,5 Gold-plated							
			Cross section				
			mm² / AWG				
			0.5 / 20	CK2,5-ED-0,50... AU	1674859	1674804	100
			0.75 - 1 / 18	CK2,5-ED-1,00... AU	1674833	1674781	100
			1.5 / 16	CK2,5-ED-1,50... AU	1674820	1674778	100
			2.5 / 14	CK2,5-ED-2,50... AU	1674862	1674817	100
		4 / 12	CK2,5-ED-4,00... AU	1674846	1674794	100	



Dimensional drawing



Panel cutout

	a	b	c	d
① Socket	72.5	66	33	60
① Plug	72.5	66	36	60
② Socket	75.5	66	33	60
② Plug	72.5	66	36	60
③ Socket	73	66	30	60
③ Plug	73	66	31.8	60
④ Socket	73	66	30	60
④ Plug	73	66	31.8	60

Accessories



Coding elements
From page 581



PE screws
From page 580

Heavy-duty plug-in connectors

HEAVYCON type D - contact inserts

D15 series

250 V, 10 A

Connection technology:

– Crimp connection

Coding pins and sockets are mandatory for HC-D... and HC-DD series contact inserts.

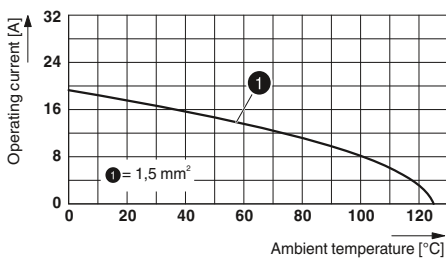
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

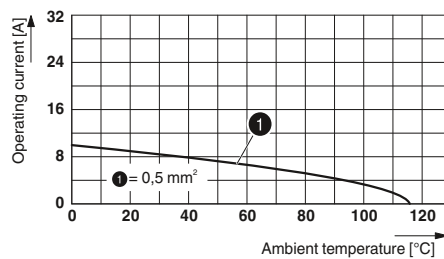


Type	Technical data		
	HC-D 15-I-CT-...	HC-D 15-E...C-R	
Approvals	-	CE PC RA	
IEC data			
Rated current, contacts (at 40°C)	A	10	10
Surge voltage category		III	III
Pollution degree		3	3
Rated voltage (III/3) contacts	V	250	250
Rated surge voltage, contacts	kV	4	4
Connection cross section	mm ²	0.14 ... 2.5	0.14 ... 1.5
UL data			
Rated voltage	V	-	600
Rated current	A	-	10
AWG		-	-
CSA data			
Rated voltage	V	-	600
Rated current	A	-	10
AWG		-	-
Material data			
Contact carrier material		PA	PC
Inflammability class in acc. with UL 94		V0	V0
Contact material		Copper alloy	Copper alloy
Contact surface material		Ag (alternatively Au)	Ag (alternatively Au)
Temperature data			
Ambient temperature range	°C	-40 ... 125	-40 ... 125
General data			
Connection method		Crimp connection	Crimp connection
No. of pos.		15	15
Contact numbering		-	-
Insertion/withdrawal cycles		≥ 500	≥ 500





Derating curves

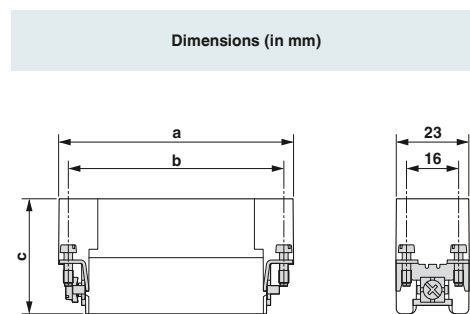


HC-D 15-I-CT-....

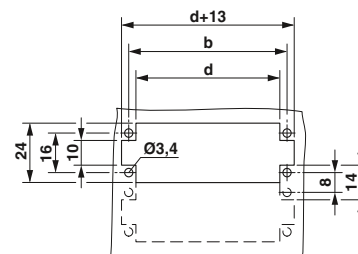


HC-D 15-E...C-R

Description	Pos.	Number	Housing	Ordering data			
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.
Crimp connection, turned contacts							
	15		D15	① HC-D 15-I-CT...	1584389	1584376	10
Crimp connection, rolled contacts							
	15		D15	② HC-D 15-E...C-R	1679511	1679469	10
Turned crimp contacts CK 1,6 Silver-plated							
							
		Cross section mm² / AWG					
		0.14 - 0.37 / 26 - 22		CK1,6-ED-0,37... AG	1663394	1663336	100
		0.5 / 20		CK1,6-ED-0,50... AG	1663404	1663349	100
		0.75 / 18		CK1,6-ED-0,75... AG	1663417	1663352	100
		0.75 - 1 / 18		CK1,6-ED-1,00... AG	1663420	1663365	100
		1.5 / 16		CK1,6-ED-1,50... AG	1663433	1663378	100
		2.5 / 14		CK1,6-ED-2,50... AG	1663446	1663381	100
Rolled crimp contacts CK 1,6 Silver-plated							
							
		Cross section mm² / AWG					
		0.14 - 0.5 / 26 - 20		CK1,6-ER-0,50... AG	1884128	1884092	100
		0.5 - 1.5 / 20 - 16		CK1,6-ER-1,50... AG	1884115	1884089	100
		1.5 - 2.5 / 16 - 14		CK1,6-ER-2,50... AG	1884131	1884102	100



Dimensional drawing



Panel cutout

	a	b	c	d
① Socket			33.5	
① Plug	55.4	49.5	34.2	43.5
② Socket	56	49.5	36	
② Plug			34	43.5

Accessories



Coding elements
From page 581



PE screws
From page 580



Crimping contacts
From page 564

Heavy-duty plug-in connectors

HEAVYCON type D - contact inserts

D25/D50 series

250 V, 10 A

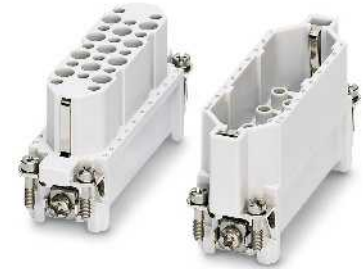
Connection technology:

– Crimp connection

Coding pins and sockets are mandatory for HC-D... and HC-DD series contact inserts.

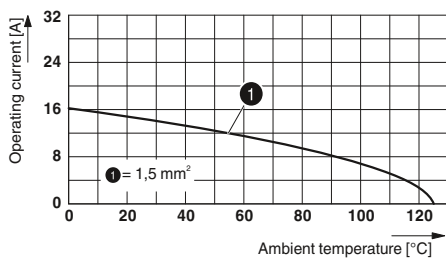
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

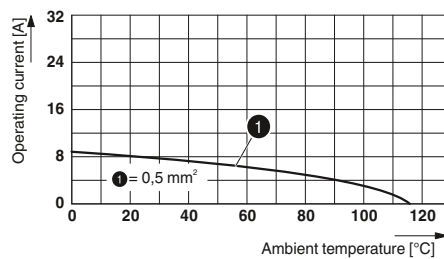


Type	Technical data		
	HC-D 25-I-CT-...	HC-D 25-E...C-R	
Approvals	-		
IEC data			
Rated current, contacts (at 40°C)	A	10	10
Surge voltage category		III	III
Pollution degree		3	3
Rated voltage (III/3) contacts	V	250	250
Rated surge voltage, contacts	kV	4	4
Connection cross section	mm ²	0.14 ... 2.5	0.14 ... 1.5
UL data			
Rated voltage	V	-	600
Rated current	A	-	10
AWG		-	-
CSA data			
Rated voltage	V	-	600
Rated current	A	-	10
AWG		-	-
Material data			
Contact carrier material		PA	PC
Inflammability class in acc. with UL 94		V0	V0
Contact material		Copper alloy	Copper alloy
Contact surface material		Ag (alternatively Au)	Ag (alternatively Au)
Temperature data			
Ambient temperature range	°C	-40 ... 125	-40 ... 125
General data			
Connection method		Crimp connection	Crimp connection
No. of pos.		25	25
Contact numbering		-	-
Insertion/withdrawal cycles		≥ 500	≥ 500





Derating curves

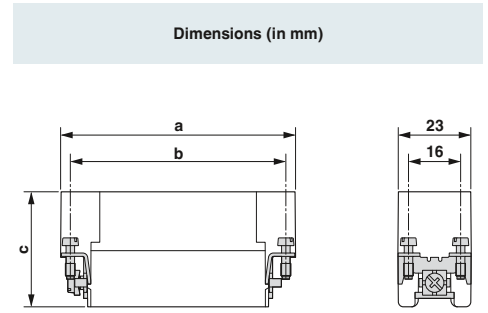


HC-D 25-I-CT-...

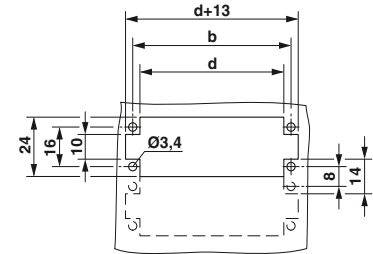


HC-D 25-E...C-R

Description	Pos.	Number	Housing	Ordering data			
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.
Crimp connection, turned contacts							
	25		D25 / D50	① HC-D 25-I-CT-...	1584402	1584392	10
	25		D25 / D50	② HC-D 25-I-CT-...	1584402	1584392	10
Crimp connection, rolled contacts							
	25		D25 / D50	③ HC-D 25-E...C-R	1679524	1679472	10
	25		D25 / D50	④ HC-D 25-E...C-R	1679524	1679472	10
Turned crimp contacts CK 1,6 Silver-plated							
	Cross section mm ² / AWG			CK1,6-ED-0,37... AG	1663394	1663336	100
	0.14 - 0.37 / 26 - 22			CK1,6-ED-0,50... AG	1663404	1663349	100
	0.5 / 20			CK1,6-ED-0,75... AG	1663417	1663352	100
	0.75 / 18			CK1,6-ED-1,00... AG	1663420	1663365	100
	0.75 - 1 / 18			CK1,6-ED-1,50... AG	1663433	1663378	100
	1.5 / 16			CK1,6-ED-2,50... AG	1663446	1663381	100
2.5 / 14							
Rolled crimp contacts CK 1,6 Silver-plated							
	Cross section mm ² / AWG			CK1,6-ER-0,50... AG	1884128	1884092	100
	0.14 - 0.5 / 26 - 20			CK1,6-ER-1,50... AG	1884115	1884089	100
	0.5 - 1.5 / 20 - 16			CK1,6-ER-2,50... AG	1884131	1884102	100
	1.5 - 2.5 / 16 - 14						



Dimensional drawing



Panel cutout

	a	b	c	d
① Socket			33.5	
① Plug	72	66	34.2	60
② Socket			33.5	
② Plug	72	66	34.2	60
③ Socket			36	
③ Plug	73	66	34	60
④ Socket			36	
④ Plug	73	66	34	60

Accessories



Coding elements
From page 581



PE screws
From page 580



Crimping contacts
From page 564

Heavy-duty plug-in connectors

HEAVYCON type D - housing

Type D15, metal, sleeve housing for single locking latch



General data

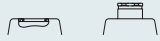
Housing material
Surface material
Material, lock
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
-
NBR
-40 °C ... 125 °C
IP65

Ordering data

Description



Type

Order No.

Pcs. / Pkt.

Dimensions

Cable entry: top Height: 66 mm



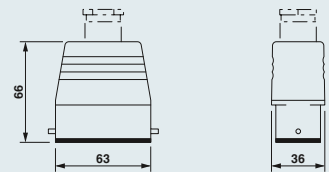
1 x M20
1 x M25

1 x Pg16
1 x Pg21

HC-D 15-TFL-66/O1STM20G
HC-D 15-TFL-66/O1STM25G
HC-D 15-TFL-66/M1PG16G
HC-D 15-TFL-66/M1PG21G

1645163
1645176
1772353
1772366

10
10
10
10



Cable entry: lateral Height: 66 mm



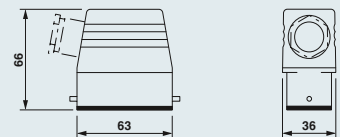
1 x M20
1 x M25

1 x Pg16
1 x Pg21

HC-D 15-TFL-66/O1STM20S
HC-D 15-TFL-66/O1STM25S
HC-D 15-TFL-66/M1PG16S
HC-D 15-TFL-66/M1PG21S

1636046
1636059
1772337
1772340

10
10
10
10



Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Cover plates
From page 572

Type D15, metal, supporting base element with single locking latch

General data


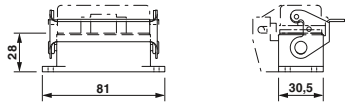

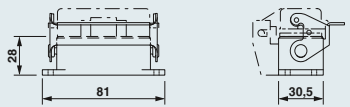

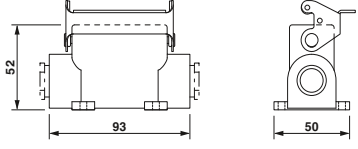

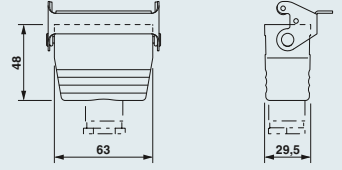

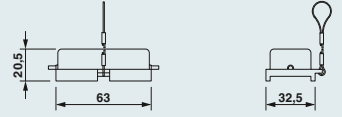
Housing material
Surface material
Material, lock
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
Steel, galvanized
NBR
-40 °C ... 125 °C
IP65



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 26 mm 		Without cover HC-D 15-AML	1772379	10	
Panel mounting base Height: 26 mm 		With cover HC-D 15-AMLD	1678363	10	
Box mounting base Height: 52 mm 	1 x M25 1 x Pg16 2 x M20 2 x M25 2 x Pg16	HC-D 15-SML-52/O1M25 HC-D 15-SML-52/M1PG16 HC-D 15-SML-52/O2M20 HC-D 15-SML-52/O2M25 HC-D 15-SML-52/M2PG16	1604893 1772382 1604894 1604895 1772395	10 10 10 10 10	
Coupling housing Height: 48 mm 	1 x M20 1 x Pg16	HC-D 15-KML-48/O1M20 HC-D 15-KML-48/M1PG16	1604892 1674639	10 10	
Protective cover, plastic 		HC-D 15-SD-FL/FS	1660164	10	

Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type D - housing

Type D25, metal, sleeve housing for single locking latch



General data

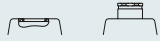
Housing material
Surface material
Material, lock
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
-
NBR
-40 °C ... 125 °C
IP65

Ordering data

Description



Type

Order No.

Pcs. / Pkt.

Dimensions

Cable entry: top Height: 72 mm



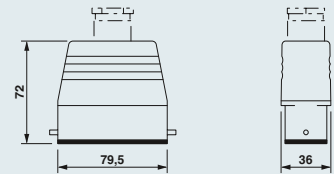
1 x M20
1 x M25

1 x Pg16
1 x Pg21

HC-D 25-TFL-72/O1STM20G
HC-D 25-TFL-72/O1STM25G
HC-D 25-TFL-72/M1PG16G
HC-D 25-TFL-72/M1PG21G

1636075
1645189
1772447
1772450

10
10
10
10



Cable entry: lateral Height: 72 mm



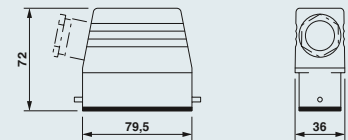
1 x M20
1 x M25

1 x Pg16
1 x Pg21

HC-D 25-TFL-72/O1STM20S
HC-D 25-TFL-72/O1STM25S
HC-D 25-TFL-72/M1PG16S
HC-D 25-TFL-72/M1PG21S

1636062
1645273
1772421
1772434

10
10
10
10



Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Cover plates
From page 572

Type D25, metal, supporting base element with single locking latch

General data


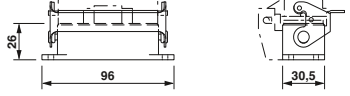

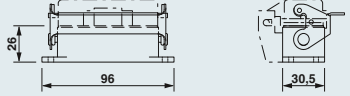

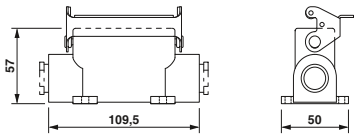

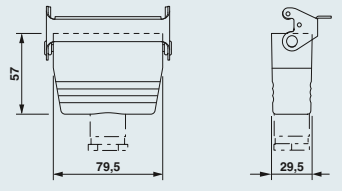

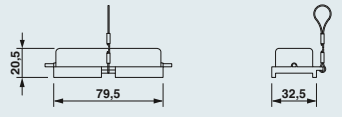
Housing material
Surface material
Material, lock
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
Steel, galvanized
NBR
-40 °C ... 125 °C
IP65



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 26 mm 		Without cover HC-D 25-AML	1772463	10	
Panel mounting base Height: 26 mm 		With cover HC-D 25-AMLD	1672754	10	
Box mounting base Height: 57 mm 	1 x M25 1 x Pg16 1 x Pg21 2 x M20 2 x M25 2 x Pg16 2 x Pg21	HC-D 25-SML-57/O1M25 HC-D 25-SML-57/M1PG16 HC-D 25-SML-57/M1PG21 HC-D 25-SML-57/O2M20 HC-D 25-SML-57/O2M25 HC-D 25-SML-57/M2PG16 HC-D 25-SML-57/M2PG21	1604901 1772476 1677571 1604902 1604903 1772489 1677584	10 10 10 10 10 10 10	
Coupling housing Height: 57 mm 	1 x M20 1 x Pg16	HC-D 25-KML-53/O1M20 HC-D 25-KML-53/M1PG16G	1604900 1674642	10 10	
Protective cover, plastic 		HC-D 25-SD-FL/FS	1660135	10	

Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type D - housing

Type D50, metal, sleeve housing for single locking latch



General data

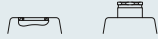
Housing material
Surface material
Material, lock
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
-
-40 °C ... 125 °C
IP65

Ordering data

Description



Type

Order No.

Pcs. / Pkt.

Dimensions

Cable entry: top Height: 76 mm



1 x M25
1 x M32

1 x Pg21
1 x Pg29

HC-D 50-TFQ-76/O1STM25G
HC-D 50-TFQ-76/O1STM32G

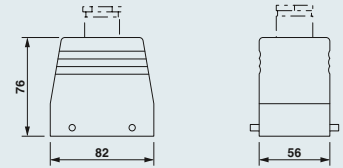
1645192
1645215

10
10

HC-D 50-TFQ-76/M1PG21G
HC-D 50-TFQ-76/M1PG29G

1775800
1775813

10
10



Cable entry: lateral Height: 76 mm



1 x M25
1 x M32

1 x Pg21
1 x Pg29

HC-D 50-TFQ-76/O1STM25S
HC-D 50-TFQ-76/O1STM32S

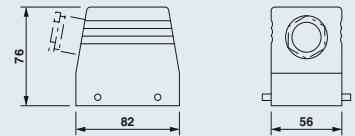
1645202
1645286

10
10

HC-D 50-TFQ-76/M1PG21S
HC-D 50-TFQ-76/M1PG29S

1775787
1775790

10
10



Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556

Type D50, metal, supporting base element with single locking latch

General data


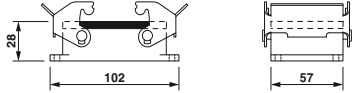

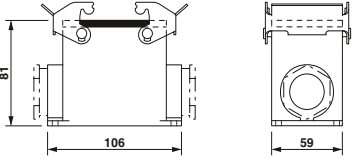

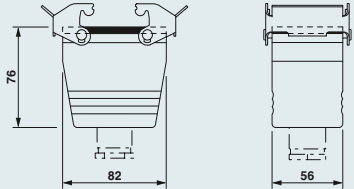


Housing material
Surface material
Material, lock
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
Steel, galvanized
NBR
-40 °C ... 125 °C
IP65



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 28 mm 		Without cover HC-D 50-AMQ	1775868	10	
Box mounting base Height: 81 mm 	1 x M25 1 x M32 1 x Pg21 1 x Pg29 2 x M32 2 x Pg21	HC-D 50-SMQ-81/O1M25 HC-D 50-SMQ-81/O1M32 HC-D 50-SMQ-81/M1PG21 HC-D 50-SMQ-81/M1PG29 HC-D 50-SMQ-81/O2M32 HC-D 50-SMQ-81/M2PG21	1604908 1604909 1775884 1775907 1604910 1775897	10 10 10 10 10 10	
Coupling housing Height: 76 mm 	1 x M25 1 x M32 1 x Pg21	HC-D 50-KMQ-76/O1M25 HC-D 50-KMQ-76/O1M32 HC-D 50-KMQ-76/M1PG21	1604970 1604971 1672945	10 10 10	
Protective cover, plastic 		HC-D 50-SD-FQ/FS	1660193	10	

Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

D40/D64 series

250 V, 10 A

Connection technology:

– Crimp connection

Coding pins and sockets are mandatory for HC-D... and HC-DD series contact inserts.

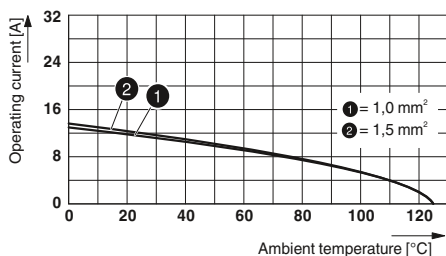
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

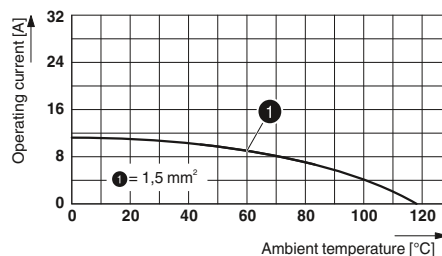


Type	Technical data			
	HC-D 40-I-CT-...	HC-D 64-I-CT-...	HC-D 40-E...C-R	HC-D 64-E...C-R
Approvals	-	-	SE PC RL	SE PC RL
IEC data				
Rated current, contacts (at 40°C)	A	10	10	10
Surge voltage category		III	III	III
Pollution degree		3	3	3
Rated voltage (III/3) contacts	V	250	250	250
Rated surge voltage, contacts	kV	4	4	4
Connection cross section	mm ²	0.14 ... 2.5	0.14 ... 2.5	0.14 ... 1.5
UL data				
Rated voltage	V	-	600	600
Rated current	A	-	10	10
AWG		-	-	-
CSA data				
Rated voltage	V	-	600	600
Rated current	A	-	10	10
AWG		-	-	-
Material data				
Contact carrier material		PA	PC	PC
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag (alternatively Au)	Ag (alternatively Au)	Ag (alternatively Au)
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method		Crimp connection	Crimp connection	Crimp connection
No. of pos.		40	40	64
Contact numbering		-	-	-
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500

Derating curves



HC-D 40-I-CT-... / HC-D 64-I-CT-...



HC-D 40-E...C-R / HC-D 64-E...C-R

				Ordering data																																																							
Description	Pos.	Number	Housing	Type	Order No.		Pcs. / Pkt.	Dimensions (in mm)																																																			
					Socket	Plug																																																					
Crimp connection, turned contacts																																																											
	40	B16 / B32	① HC-D 40-I-CT-...	1584428	1584415	10																																																					
Crimp connection, turned contacts											<p>Dimensional drawing</p> <p>Panel cutout</p>																																																
	64	B24 / B48	② HC-D 64-I-CT-...	1584444	1584431	10																																																					
Crimp connection, rolled contacts											<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td>83.5</td> <td>77.5</td> <td>34.2</td> <td>72</td> </tr> <tr> <td>① Plug</td> <td></td> <td></td> <td>32.8</td> <td></td> </tr> <tr> <td>② Socket</td> <td>110.5</td> <td>104.5</td> <td>34.2</td> <td>98</td> </tr> <tr> <td>② Plug</td> <td></td> <td></td> <td>32.8</td> <td></td> </tr> <tr> <td>③ Socket</td> <td>83</td> <td>77.5</td> <td>36</td> <td>72</td> </tr> <tr> <td>③ Plug</td> <td></td> <td></td> <td>34</td> <td></td> </tr> <tr> <td>④ Socket</td> <td>110</td> <td>104</td> <td>36</td> <td>98</td> </tr> <tr> <td>④ Plug</td> <td></td> <td></td> <td>34</td> <td></td> </tr> </tbody> </table>					a	b	c	d	① Socket	83.5	77.5	34.2	72	① Plug			32.8		② Socket	110.5	104.5	34.2	98	② Plug			32.8		③ Socket	83	77.5	36	72	③ Plug			34		④ Socket	110	104	36	98	④ Plug			34	
	a	b	c	d																																																							
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	40	B16 / B32	③ HC-D 40-E...C-R	1679537	1679485	10																																																					
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	a	b	c	d																																																							
④ Socket	110	104	36	98																																																							
④ Plug			34																																																								
	64	B24 / B48	④ HC-D 64-E...C-R	1679546	1679498	10																																																					
Turned crimp contacts CK 1,6 Silver-plated																																																											
		Cross section mm² / AWG																																																									
		0.14 - 0.37 / 26 - 22		CK1,6-ED-0,37... AG	1663394	1663336	100																																																				
		0.5 / 20		CK1,6-ED-0,50... AG	1663404	1663349	100																																																				
		0.75 / 18		CK1,6-ED-0,75... AG	1663417	1663352	100																																																				
		0.75 - 1 / 18		CK1,6-ED-1,00... AG	1663420	1663365	100																																																				
		1.5 / 16		CK1,6-ED-1,50... AG	1663433	1663378	100																																																				
		2.5 / 14		CK1,6-ED-2,50... AG	1663446	1663381	100																																																				
Rolled crimp contacts CK 1,6 Silver-plated																																																											
		Cross section mm² / AWG																																																									
		0.14 - 0.5 / 26 - 20		CK1,6-ER-0,50... AG	1884128	1884092	100																																																				
		0.5 - 1.5 / 20 - 16		CK1,6-ER-1,50... AG	1884115	1884089	100																																																				

Accessories



Coding elements
From page 581



PE screws
From page 580



Crimping tools
From page 562



Crimp contacts
From page 564

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

D-A series, 40/64, terminal adapter

250 V, 10 A

Connection technology:

– Screw connection

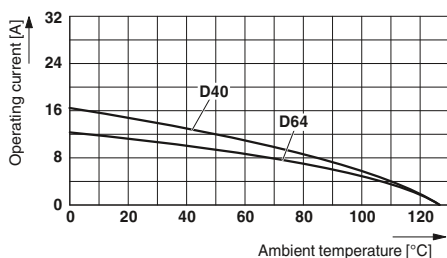
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Connectors may only be operated when under no load.
Observe notes on the connection technology



Type	Technical data			
	HC-D 40-A-UT-PEL-...	HC-D 64-A-UT-PEL-...		
Approvals	-	-		
IEC data				
Rated current, contacts (at 40°C)	A	10	10	
Surge voltage category		III	III	
Pollution degree		3	3	
Rated voltage (III/3) contacts	V	250	250	
Rated surge voltage, contacts	kV	4	4	
Connection cross section	mm ²	0.5 ... 2.5	0.2 ... 2.5	
UL data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
CSA data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
Material data				
Contact carrier material		PA	PA	
Inflammability class in acc. with UL 94		V0	V0	
Contact material		Copper alloy	Copper alloy	
Contact surface material		Ag	Ag	
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	
General data				
Connection method		Screw connection	Screw connection	
No. of pos.		40	64	
Contact numbering		-	-	
Insertion/withdrawal cycles		≥ 500	≥ 500	

Derating curves



HC-D 40-A-UT-PEL-.../HC-D 40-A-UT-PEL-...

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

D-A series, 40/64, terminal adapter

250 V, 10 A

Connection technology:

- Push-in connection

To determine the matching housings, refer to the cross-reference list on page 402.

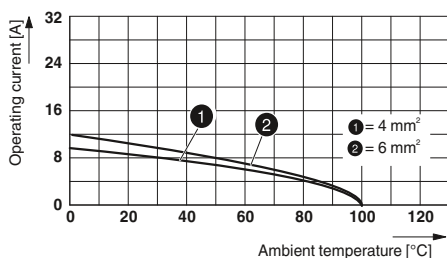
- For 2 wires per position

Notes:
For accessories, see from page 552
Connectors may only be operated when under no load.
Observe notes on the connection technology

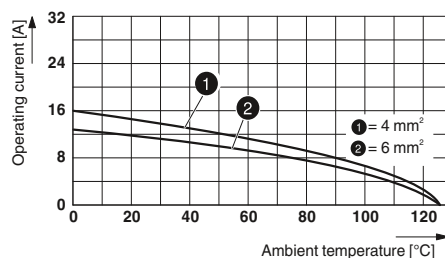


Type	Technical data			
	HC-D 40-A-TWIN-PEL-...	HC-D 64-A-TWIN-PEL-...		
Approvals	-	-		
IEC data				
Rated current, contacts (at 40°C)	A	10	10	
Surge voltage category		III	III	
Pollution degree		3	3	
Rated voltage (III/3) contacts	V	250	250	
Rated surge voltage, contacts	kV	6	6	
Connection cross section	mm ²	0.5 ... 2.5	0.5 ... 2.5	
UL data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
CSA data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
Material data				
Contact carrier material		PA	PA	
Inflammability class in acc. with UL 94		V0	V0	
Contact material		Copper alloy	Copper alloy	
Contact surface material		Ag	Ag	
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	
General data				
Connection method		Push-in connection	Push-in connection	
No. of pos.		40	64	
Contact numbering		-	-	
Insertion/withdrawal cycles		≥ 500	≥ 500	




Derating curves

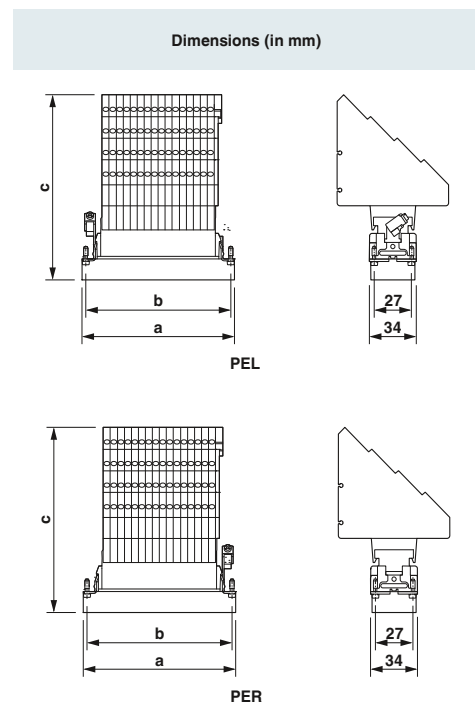


HC-D 40-A-TWIN-PER-...

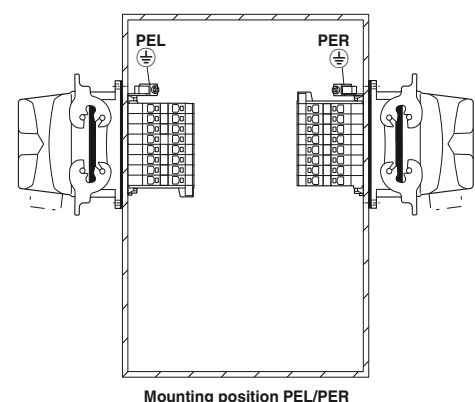


HC-D 64-A-TWIN-PER-...

Description	Pos.	Number	Housing	Ordering data			
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.
Push-in connection 	40		B16	PE left ① HC-D 40-A-TWIN-PEL...	1580147	1580150	4
	40		B16	PE right ② HC-D 40-A-TWIN-PER...	1580163	1580176	4
Push-in connection 	64		B24	PE left ③ HC-D 64-A-TWIN-PEL...	1580189	1580192	4
	64		B24	PE right ④ HC-D 64-A-TWIN-PER...	1580202	1580215	4
Foot element 				HC-KA-FE	1775240		10
Locking screw barrel 				HC-VSH	1660083		10



	a	b	c	d
① Socket			141.1	
① Plug	83	77.5	139.3	
② Socket			141.1	
② Plug	83	77.5	139.3	
③ Socket			141.1	
③ Plug	110	104	139.3	
④ Socket			141.1	
④ Plug	110	104	139.3	



Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

DD series, 24 - 108

250 V, 10 A

Connection technology:

– Crimp connection

Coding pins and sockets are mandatory for HC-D... and HC-DD series contact inserts.

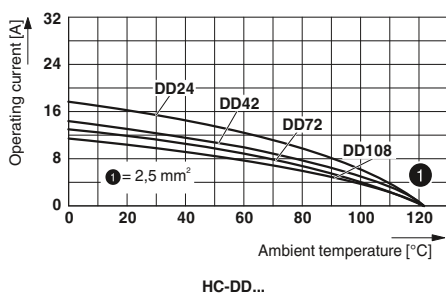
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

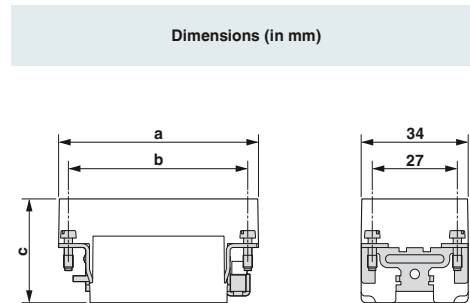


Type	Technical data			
	HC-DD24-I-CT-...	HC-DD42-I-CT-...	HC-DD72-I-CT-...	HC-DD108-I-CT-...
Approvals				
IEC data				
Rated current, contacts (at 40°C)	A	10	10	10
Surge voltage category		III	III	III
Pollution degree		3	3	3
Rated voltage (III/3) contacts	V	250	250	250
Rated surge voltage, contacts	kV	4	4	4
Connection cross section	mm ²	0.14 ... 2.5	0.14 ... 2.5	0.14 ... 2.5
UL data				
Rated voltage	V	250	250	250
Rated current	A	10	10	10
AWG		14	14	14
CSA data				
Rated voltage	V	250	250	250
Rated current	A	7	7	7
AWG		26-14	26-14	26-14
Material data				
Contact carrier material		PA	PA	PA
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag (alternatively Au)	Ag (alternatively Au)	Ag (alternatively Au)
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method		Crimp connection	Crimp connection	Crimp connection
No. of pos.		24	42	72
Contact numbering		1 - 24	1 - 42	1 - 72
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500

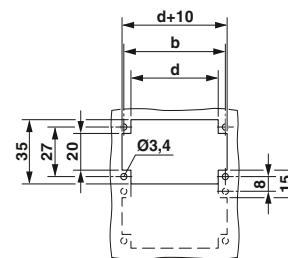
Derating curves



Description	Pos.	Number	Housing	Ordering data			
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.
Crimp connection							
	24	1 - 24	B6	① HC-DD24-I-CT-...	1584046	1584033	10
Crimp connection							
	42	1 - 42	B10	② HC-DD42-I-CT-...	1584062	1584059	10
Crimp connection							
	72	1 - 72	B16 / B32	③ HC-DD72-I-CT-...	1584091	1584075	10
	72	73 - 144	B16 / B32	④ HC-DD72-I-CT-...-144	1584101	1584088	10
Crimp connection							
	108	1 - 108	B24 / B48	⑤ HC-DD108-I-CT-...	1584130	1584114	10
	108	109-216	B24 / B48	⑥ HC-DD108-I-CT-...-216	1584143	1584127	10
Turned crimp contacts CK 1,6 Silver-plated							
							
			Cross section mm ² / AWG				
			0.14 - 0.37 / 26 - 22	CK1,6-ED-0,37... AG	1663394	1663336	100
			0.5 / 20	CK1,6-ED-0,50... AG	1663404	1663349	100
			0.75 / 18	CK1,6-ED-0,75... AG	1663417	1663352	100
			0.75 - 1 / 18	CK1,6-ED-1,00... AG	1663420	1663365	100
			1.5 / 16	CK1,6-ED-1,50... AG	1663433	1663378	100
Turned crimp contacts Gold-plated							
							
			Cross section mm ² / AWG				
			0.14 - 0.37 / 22 - 24	CK1,6-ED-0,37... AU	1674969	1674901	100
			0.75 / 18	CK1,6-ED-0,75... AU	1672440	1672453	100
			0.75 / 18	CK1,6-ED-0,75... AU	1672440	1674914	100
			0.75 - 1 / 18	CK1,6-ED-1,00... AU	1674943	1674888	100
			1.5 / 16	CK1,6-ED-1,50... AU	1674930	1674875	100



Dimensional drawing



Panel cutout

	a	b	c	d
① Socket			34.5	
① Plug	50.5	44	32.5	36
② Socket			34.5	
② Plug	64	57	32.5	49
③ Socket			34.5	
③ Plug	84	77.5	32.5	72
④ Socket			34.5	
④ Plug	84	77.5	32.5	72
⑤ Socket			34.5	
⑤ Plug	111	104	32.5	98
⑥ Socket			34.5	
⑥ Plug	111	104	32.5	98

Accessories



Coding elements
From page 581



PE screws
From page 580



Crimping tools
From page 562

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

B6 series

500 V, 16 A

Connection technology:

- Screw connection
- Push-in connection
- Insulation displacement connection
- Crimp connection

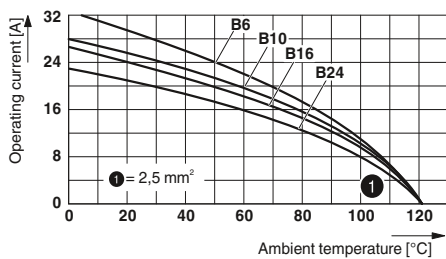
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

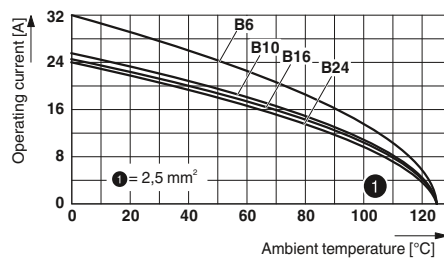


Type	Technical data			
	HC-B 6-I-UT...	HC-B 6-I-PT...	HC-B 6-E...Q-2,5	HC-B 6-I-CT...
Approvals		-		
IEC data				
Rated current, contacts (at 40°C)	A	16	16	16
Surge voltage category		III	III	III
Pollution degree		3	3	3
Rated voltage (III/3) contacts	V	500	500	500
Rated surge voltage, contacts	kV	6	6	6
Connection cross section	mm ²	0.5 ... 2.5	0.14 ... 2.5	0.5 ... 4
UL data				
Rated voltage	V	600	-	600
Rated current	A	13	-	13
AWG		22-14	-	16-14
CSA data				
Rated voltage	V	600	-	600
Rated current	A	13	-	20
AWG		22-14	-	16
Material data				
Contact carrier material		PA	PA	PA
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag	Ag	Ag (alternatively Au)
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method		Screw connection	Push-in connection	QUICKON connection
No. of pos.		6	6	6
Contact numbering		1 - 6	1 - 6	1 - 6
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500

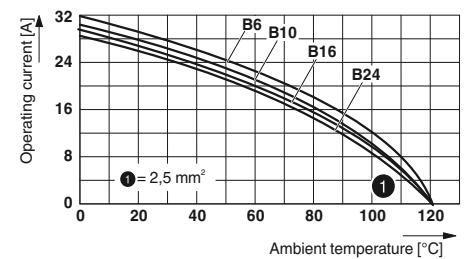
Derating curves



HC-B 6-I-UT...

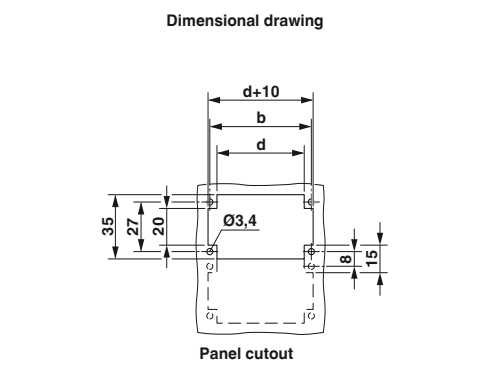
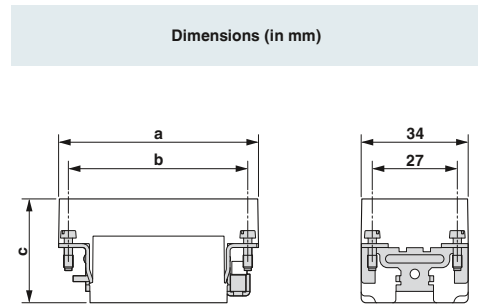


HC-B 6-E...Q-2,5



HC-B 6-I-CT...

				Ordering data																																																							
Description	Pos.	Number	Housing	Type	Order No.		Pcs. / Pkt.	Dimensions (in mm)																																																			
					Socket	Plug																																																					
Screw connection																																																											
	6	1 - 6	B6	① HC-B 6-I-UT...	1648128	1648115	10																																																				
Push-in connection											<p style="text-align: center;">Dimensional drawing</p> <p style="text-align: center;">Panel cutout</p>																																																
	6	1 - 6	B6	② HC-B 6-I-PT...	1407727	1407728	1																																																				
Insulation displacement connection											<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td>50.5</td> <td>44</td> <td>34.6</td> <td>36</td> </tr> <tr> <td>① Plug</td> <td>50.5</td> <td>44</td> <td>32</td> <td>36</td> </tr> <tr> <td>② Socket</td> <td>50.5</td> <td>44</td> <td>37</td> <td>36</td> </tr> <tr> <td>② Plug</td> <td>50.5</td> <td>44</td> <td>34.4</td> <td>36</td> </tr> <tr> <td>③ Socket</td> <td>51</td> <td>44</td> <td>37</td> <td>36</td> </tr> <tr> <td>③ Plug</td> <td>51.5</td> <td>44</td> <td>35</td> <td>36</td> </tr> <tr> <td>④ Socket</td> <td>50.5</td> <td>44</td> <td>34.6</td> <td>36</td> </tr> <tr> <td>④ Plug</td> <td>50.5</td> <td>44</td> <td>32</td> <td>36</td> </tr> </tbody> </table>					a	b	c	d	① Socket	50.5	44	34.6	36	① Plug	50.5	44	32	36	② Socket	50.5	44	37	36	② Plug	50.5	44	34.4	36	③ Socket	51	44	37	36	③ Plug	51.5	44	35	36	④ Socket	50.5	44	34.6	36	④ Plug	50.5	44	32	36
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	6	1 - 6	B6	③ HC-B 6-E...Q-2,5	1605556	1605611	10																																																				
Crimp connection											<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td>50.5</td> <td>44</td> <td>34.6</td> <td>36</td> </tr> <tr> <td>① Plug</td> <td>50.5</td> <td>44</td> <td>32</td> <td>36</td> </tr> <tr> <td>② Socket</td> <td>50.5</td> <td>44</td> <td>37</td> <td>36</td> </tr> <tr> <td>② Plug</td> <td>50.5</td> <td>44</td> <td>34.4</td> <td>36</td> </tr> <tr> <td>③ Socket</td> <td>51</td> <td>44</td> <td>37</td> <td>36</td> </tr> <tr> <td>③ Plug</td> <td>51.5</td> <td>44</td> <td>35</td> <td>36</td> </tr> <tr> <td>④ Socket</td> <td>50.5</td> <td>44</td> <td>34.6</td> <td>36</td> </tr> <tr> <td>④ Plug</td> <td>50.5</td> <td>44</td> <td>32</td> <td>36</td> </tr> </tbody> </table>					a	b	c	d	① Socket	50.5	44	34.6	36	① Plug	50.5	44	32	36	② Socket	50.5	44	37	36	② Plug	50.5	44	34.4	36	③ Socket	51	44	37	36	③ Plug	51.5	44	35	36	④ Socket	50.5	44	34.6	36	④ Plug	50.5	44	32	36
	a	b	c	d																																																							
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③ Socket	51	44	37	36																																																							
③ Plug	51.5	44	35	36																																																							
④ Socket	50.5	44	34.6	36																																																							
④ Plug	50.5	44	32	36																																																							
	6	1 - 6	B6	④ HC-B 6-I-CT...	1648160	1648157	10																																																				
Turned crimp contacts CK 2,5 Silver-plated																																																											
		Cross section																																																									
		mm ² / AWG																																																									
		0.5 / 20		CK2,5-ED-0,50... AG		1663640		1663572		100																																																	
		0.75 / 18		CK2,5-ED-0,75... AG		1663653		1663585		100																																																	
		0.75 - 1 / 18		CK2,5-ED-1,00... AG		1663666		1663598		100																																																	
		1.5 / 16		CK2,5-ED-1,50... AG		1663679		1663608		100																																																	
		2.5 / 14		CK2,5-ED-2,50... AG		1663682		1663611		100																																																	
		4 / 12		CK2,5-ED-4,00... AG		1663705		1663637		100																																																	
Turned crimp contacts CK 2,5 Gold-plated																																																											
		Cross section																																																									
		mm ² / AWG																																																									
		0.5 / 20		CK2,5-ED-0,50... AU		1674859		1674804		100																																																	
		0.75 - 1 / 18		CK2,5-ED-1,00... AU		1674833		1674781		100																																																	
		1.5 / 16		CK2,5-ED-1,50... AU		1674820		1674778		100																																																	
		2.5 / 14		CK2,5-ED-2,50... AU		1674862		1674817		100																																																	
		4 / 12		CK2,5-ED-4,00... AU		1674846		1674794		100																																																	



	a	b	c	d
① Socket	50.5	44	34.6	36
① Plug	50.5	44	32	36
② Socket	50.5	44	37	36
② Plug	50.5	44	34.4	36
③ Socket	51	44	37	36
③ Plug	51.5	44	35	36
④ Socket	50.5	44	34.6	36
④ Plug	50.5	44	32	36

Accessories



Coding elements
From page 582



PE screws
From page 580



Crimping tools
From page 562

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

B10 series

500 V, 16 A

Connection technology:

- Screw connection
- Push-in connection
- Insulation displacement connection
- Crimp connection

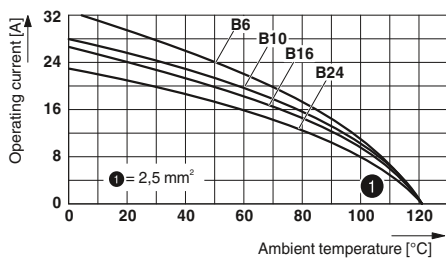
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

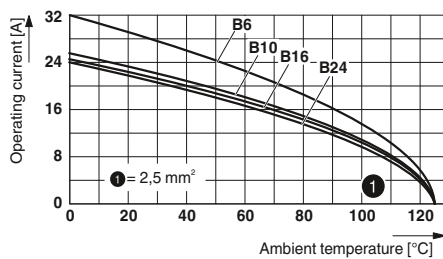


Type	Technical data			
	HC-B 10-I-UT-...	HC-B 10-I-PT-...	HC-B 10-E...Q-2,5	HC-B 10-I-CT-...
Approvals		-		
IEC data				
Rated current, contacts (at 40°C)	A	16	16	16
Surge voltage category	III	III	III	III
Pollution degree	3	3	3	3
Rated voltage (III/3) contacts	V	500	500	500
Rated surge voltage, contacts	kV	6	6	6
Connection cross section	mm ²	0.5 ... 2.5	0.14 ... 2.5	0.5 ... 4
UL data				
Rated voltage	V	600	-	600
Rated current	A	13	-	13
AWG		22-14	-	22-14
CSA data				
Rated voltage	V	600	-	600
Rated current	A	13	-	20
AWG		22-14	-	16
Material data				
Contact carrier material		PA	PA	PA
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag	Ag	Ag (alternatively Au)
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method		Screw connection	Push-in connection	QUICKON connection
No. of pos.		10	10	10
Contact numbering		1 - 10	1 - 10	1 - 10
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500

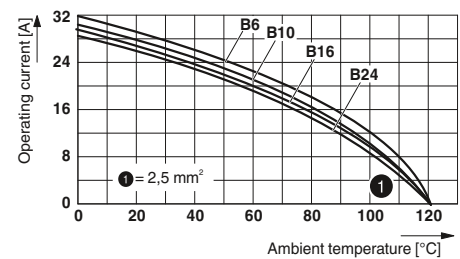
Derating curves



HC-B 10-I-UT-...



HC-B 10-E...Q-2,5



HC-B 10-I-CT-...

				Ordering data																																																							
Description	Pos.	Number	Housing	Type	Order No.		Pcs. / Pkt.	Dimensions (in mm)																																																			
					Socket	Plug																																																					
Screw connection																																																											
	10	1 - 10	B10	① HC-B 10-I-UT...	1648186	1648173	10																																																				
Push-in connection											<p>Dimensional drawing</p> <p>Panel cutout</p>																																																
	10	1 - 10	B10	② HC-B 10-I-PT...	1407729	1407730	1																																																				
Insulation displacement connection																																																											
	10	1 - 10	B10	③ HC-B 10-E...Q-2,5	1605569	1605624	10																																																				
Crimp connection											<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td></td> <td></td> <td>34.6</td> <td></td> </tr> <tr> <td>① Plug</td> <td>64</td> <td>57</td> <td>32</td> <td>49</td> </tr> <tr> <td>② Socket</td> <td></td> <td></td> <td>37</td> <td></td> </tr> <tr> <td>② Plug</td> <td>64</td> <td>57</td> <td>34.4</td> <td>49</td> </tr> <tr> <td>③ Socket</td> <td></td> <td></td> <td>37</td> <td></td> </tr> <tr> <td>③ Plug</td> <td>64</td> <td>57</td> <td>35</td> <td>49</td> </tr> <tr> <td>④ Socket</td> <td></td> <td></td> <td>34.6</td> <td></td> </tr> <tr> <td>④ Plug</td> <td>64</td> <td>57</td> <td>32</td> <td>49</td> </tr> </tbody> </table>					a	b	c	d	① Socket			34.6		① Plug	64	57	32	49	② Socket			37		② Plug	64	57	34.4	49	③ Socket			37		③ Plug	64	57	35	49	④ Socket			34.6		④ Plug	64	57	32	49
	a	b	c	d																																																							
① Socket			34.6																																																								
① Plug	64	57	32	49																																																							
② Socket			37																																																								
② Plug	64	57	34.4	49																																																							
③ Socket			37																																																								
③ Plug	64	57	35	49																																																							
④ Socket			34.6																																																								
④ Plug	64	57	32	49																																																							
	10	1 - 10	B10	④ HC-B 10-I-CT...	1648225	1648212	10																																																				
Turned crimp contacts CK 2,5 Silver-plated																																																											
		Cross section mm ² / AWG																																																									
		0.5 / 20		CK2,5-ED-0,50... AG		1663640		1663572		100																																																	
		0.75 / 18		CK2,5-ED-0,75... AG		1663653		1663585		100																																																	
		0.75 - 1 / 18		CK2,5-ED-1,00... AG		1663666		1663598		100																																																	
		1.5 / 16		CK2,5-ED-1,50... AG		1663679		1663608		100																																																	
		2.5 / 14		CK2,5-ED-2,50... AG		1663682		1663611		100																																																	
		4 / 12		CK2,5-ED-4,00... AG		1663705		1663637		100																																																	
Turned crimp contacts CK 2,5 Gold-plated																																																											
		Cross section mm ² / AWG																																																									
		0.5 / 20		CK2,5-ED-0,50... AU		1674859		1674804		100																																																	
		0.75 - 1 / 18		CK2,5-ED-1,00... AU		1674833		1674781		100																																																	
		1.5 / 16		CK2,5-ED-1,50... AU		1674820		1674778		100																																																	
		2.5 / 14		CK2,5-ED-2,50... AU		1674862		1674817		100																																																	
		4 / 12		CK2,5-ED-4,00... AU		1674846		1674794		100																																																	

Accessories



Coding elements
From page 582



PE screws
From page 580



Crimping tools
From page 562

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

B16/B32 series

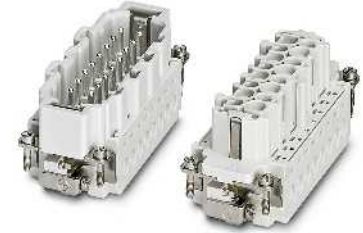
500 V, 16 A

Connection technology:

- Screw connection
- Push-in connection
- Insulation displacement connection
- Crimp connection

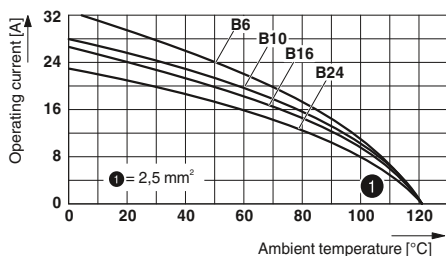
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

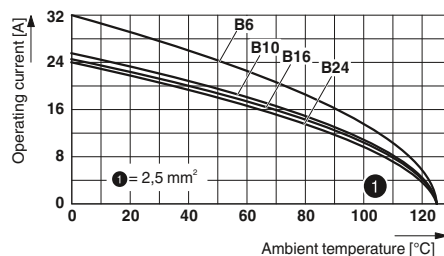


Type	Technical data			
	HC-B 16-I-UT-...	HC-B 16-I-PT-...	HC-B 16-E...Q-2,5	HC-B 16-I-CT-...
Approvals		-		
IEC data				
Rated current, contacts (at 40°C)	A	16	16	16
Surge voltage category		III	III	III
Pollution degree		3	3	3
Rated voltage (III/3) contacts	V	500	500	500
Rated surge voltage, contacts	kV	6	6	6
Connection cross section	mm ²	0.5 ... 2.5	0.14 ... 2.5	0.34 ... 2.5
UL data				
Rated voltage	V	600	-	600
Rated current	A	13	-	13
AWG		22-14	-	16-14
CSA data				
Rated voltage	V	600	-	600
Rated current	A	13	-	20
AWG		22-14	-	20-12
Material data				
Contact carrier material		PA	PA	PA
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag	Ag	Ag (alternatively Au)
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method		Screw connection	QUICKON connection	Crimp connection
No. of pos.		16	16	16
Contact numbering		1 - 16	1 - 16	1 - 16
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500

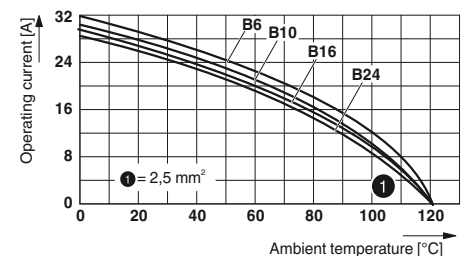
Derating curves









HC-B 16-I-UT-...

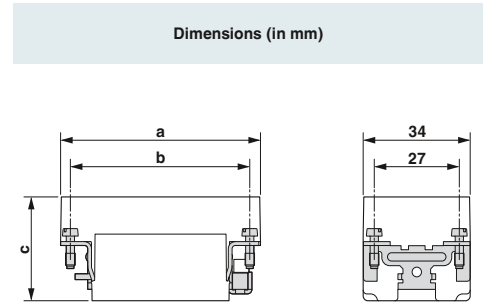


HC-B 16-E...Q-2,5

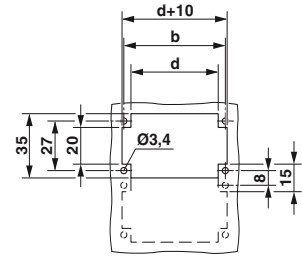


HC-B 16-I-CT-...

Description	Pos.	Number	Housing	Type	Order No.		Pcs. / Pkt.
					Socket	Plug	
Screw connection							
	16	1 - 16	B16 / B32	① HC-B 16-I-UT-...	1648241	1648238	10
	16	17 - 32	B16 / B32	② HC-B 16-I-UT-...-32	1584884	1584871	10
Push-in connection							
	16	1 - 16	B16 / B32	③ HC-B 16-I-PT-...	1407731	1407732	1
	16	17 - 32	B16 / B32	④ HC-B 16-I-PT-...-32	1407733	1407734	1
Insulation displacement connection							
	16	1 - 16	B16 / B32	⑤ HC-B 16-E...Q-2,5	1605572	1605637	10
	16	17 - 32	B16 / B32	⑥ HC-B 16-E...Q-2,5-32	1605598	1605653	10
Crimp connection							
	16	1 - 16	B16 / B32	⑦ HC-B 16-I-CT-...	1648283	1648270	10
	16	17 - 32	B16 / B32	⑧ HC-B 16-I-CT-...-32	1584923	1584910	10
Turned crimp contacts CK 2,5		Cross section					
Silver-plated		mm² / AWG					
		0.5 / 20	CK2,5-ED-0,50... AG	1663640	1663572	100	
		0.75 / 18	CK2,5-ED-0,75... AG	1663653	1663585	100	
		0.75 - 1 / 18	CK2,5-ED-1,00... AG	1663666	1663598	100	
		1.5 / 16	CK2,5-ED-1,50... AG	1663679	1663608	100	
		2.5 / 14	CK2,5-ED-2,50... AG	1663682	1663611	100	
	4 / 12	CK2,5-ED-4,00... AG	1663705	1663637	100		
Turned crimp contacts CK 2,5		Cross section					
Gold-plated		mm² / AWG					
		0.5 / 20	CK2,5-ED-0,50... AU	1674859	1674804	100	
		0.75 - 1 / 18	CK2,5-ED-1,00... AU	1674833	1674781	100	
		1.5 / 16	CK2,5-ED-1,50... AU	1674820	1674778	100	
		2.5 / 14	CK2,5-ED-2,50... AU	1674862	1674817	100	
		4 / 12	CK2,5-ED-4,00... AU	1674846	1674794	100	



Dimensional drawing



Panel cutout

	a	b	c	d
① Socket	84	77.5	34.6	72
			32	
② Socket	84	77.5	34.6	72
			32	
③ Socket	84	77.5	37	72
			34.4	
④ Socket	84	77.5	37	72
			34.4	
⑤ Socket	84.5	77.5	37	72
			35	
⑥ Socket	84.5	77.5	37	72
			35	
⑦ Socket	84	77.5	34.6	72
			32	
⑧ Socket	84	77.5	34.6	72
			32	

Accessories



Coding elements
From page 582



PE screws
From page 580



Crimping tools
From page 562

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

B24/B48 series

500 V, 16 A

Connection technology:

- Screw connection
- Push-in connection
- Insulation displacement connection
- Crimp connection

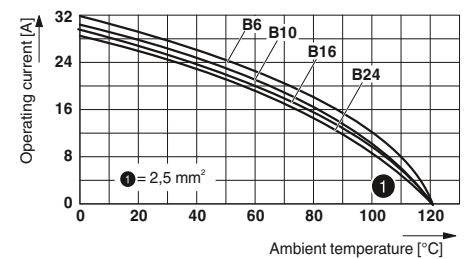
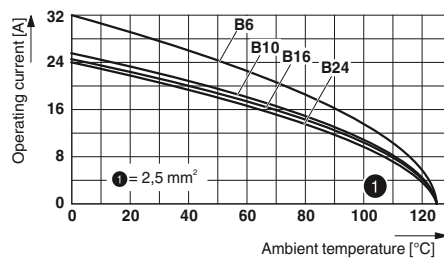
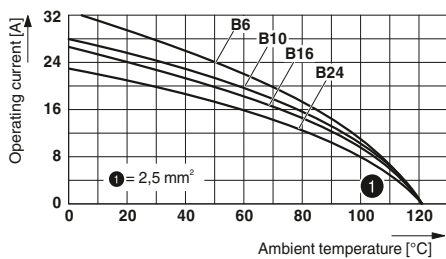
To determine the matching housings, refer to the cross-reference list on page 402.


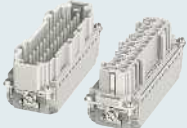




Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

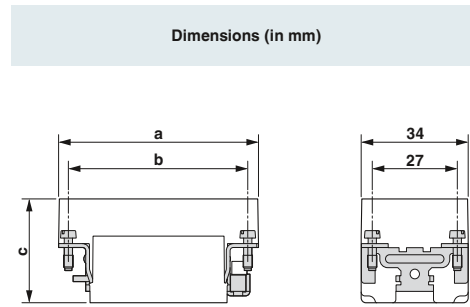


Type	Technical data			
	HC-B 24-I-UT-...	HC-B 24-I-PT-...	HC-B 24-E...Q-2,5	HC-B 24-I-CT-...
Approvals		-		
IEC data				
Rated current, contacts (at 40°C)	A	16	16	16
Surge voltage category		III	III	III
Pollution degree		3	3	3
Rated voltage (III/3) contacts	V	500	500	500
Rated surge voltage, contacts	kV	6	6	6
Connection cross section	mm ²	0.5 ... 2.5	0.14 ... 2.5	0.34 ... 2.5
UL data				
Rated voltage	V	600	-	600
Rated current	A	13	-	13
AWG		22-14	-	16-14
CSA data				
Rated voltage	V	600	-	600
Rated current	A	13	-	20
AWG		22-14	-	16
Material data				
Contact carrier material		PA	PA	PA
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag	Ag	Ag (alternatively Au)
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method		Screw connection	Push-in connection	QUICKON connection
No. of pos.		24	24	24
Contact numbering		1 - 24	1 - 24	1 - 24
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500

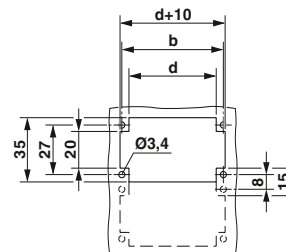
Derating curves



Description	Pos.	Number	Housing	Type	Order No.		Pcs. / Pkt.
					Socket	Plug	
Screw connection							
	24	1 - 24	B24 / B48	① HC-B 24-I-UT-...	1648306	1648296	10
	24	25 - 48	B24 / B48	② HC-B 24-I-UT-...-48	1584949	1584936	10
Push-in connection							
	24	1 - 24	B24 / B48	③ HC-B 24-I-PT-...	1407735	1407736	1
	24	25 - 48	B24 / B48	④ HC-B 24-I-PT-...-48	1407737	1407738	1
Insulation displacement connection							
	24	1 - 24	B24 / B48	⑤ HC-B 24-E...Q-2,5	1605585	1605640	10
	24	1 - 24	B24 / B48	⑥ HC-B 24-E...Q-2,5-48	1605608	1605666	10
Crimp connection							
	24	1 - 24	B24 / B48	⑦ HC-B 24-I-CT-...	1648348	1648335	10
	24	25 - 48	B24 / B48	⑧ HC-B 24-I-CT-...-48	1584981	1584978	10
Turned crimp contacts CK 2,5 Silver-plated							
			Cross section mm ² / AWG	CK2,5-ED-0,50... AG	1663640	1663572	100
			0.5 / 20	CK2,5-ED-0,75... AG	1663653	1663585	100
			0.75 - 1 / 18	CK2,5-ED-1,00... AG	1663666	1663598	100
			1.5 / 16	CK2,5-ED-1,50... AG	1663679	1663608	100
			2.5 / 14	CK2,5-ED-2,50... AG	1663682	1663611	100
			4 / 12	CK2,5-ED-4,00... AG	1663705	1663637	100
Turned crimp contacts CK 2,5 Gold-plated							
			Cross section mm ² / AWG	CK2,5-ED-0,50... AU	1674859	1674804	100
			0.5 / 20	CK2,5-ED-1,00... AU	1674833	1674781	100
			0.75 - 1 / 18	CK2,5-ED-1,50... AU	1674820	1674778	100
			1.5 / 16	CK2,5-ED-2,50... AU	1674862	1674817	100
			2.5 / 14	CK2,5-ED-4,00... AU	1674846	1674794	100
			4 / 12				



Dimensional drawing



Panel cutout

	a	b	c	d
① Socket	111	104	34.6	98
			32	
② Socket	111	104	34.6	98
			32	
③ Socket	111	104	37	98
			34.4	
④ Socket	111	104	37	98
			34.4	
⑤ Socket	111	104	37	98
			35	
⑥ Socket	111	104	37	98
			35	
⑦ Socket	111	104	34.6	98
			32	
⑧ Socket	111	104	34.6	98
			32	

Accessories



Coding elements
From page 582



PE screws
From page 580



Crimping tools
From page 562

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

B-A series, 6 - 24, terminal adapter

500 V, 16 A

Connection technology:

– Screw connection

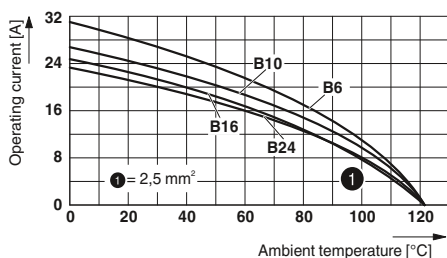
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Connectors may only be operated when under no load.
Observe notes on the connection technology









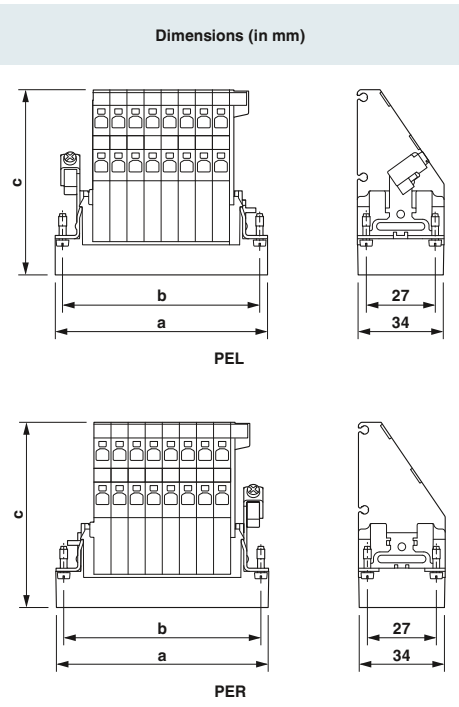
Type	Technical data			
	HC-B 6-A-UT-PEL-...	HC-B 10-A-UT-PEL-...	HC-B 16-A-UT-PEL-...	HC-B 24-A-UT-PEL-...
Approvals				
IEC data				
Rated current, contacts (at 40°C)	A	16	16	16
Surge voltage category	III	III	III	III
Pollution degree	3	3	3	3
Rated voltage (III/3) contacts	V	500	500	500
Rated surge voltage, contacts	kV	6	6	6
Connection cross section	mm ²	0.5 ... 2.5	0.5 ... 2.5	0.5 ... 2.5
UL data				
Rated voltage	V	600	600	600
Rated current	A	13	13	13
AWG		22-14	22-14	22-14
CSA data				
Rated voltage	V	600	600	600
Rated current	A	13	13	13
AWG		22-14	22-14	22-14
Material data				
Contact carrier material		PA	PA	PA
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag	Ag	Ag
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method		Screw connection	Screw connection	Screw connection
No. of pos.		6	10	16
Contact numbering		1 - 6	1 - 10	1 - 16
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500

Derating curves



HC-B ...-A-UT-...

Description	Pos.	Number	Housing	Ordering data			
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.
Screw connection 	6	1 - 6	B6	PE left ① HC-B 6-A-UT-PEL-...	1648018	1648024	5
	6	1 - 6	B6	PE right ② HC-B 6-A-UT-PER-...	1648066	1648072	5
Screw connection 	10	1 - 10	B10	PE left ③ HC-B 10-A-UT-PEL-...	1648030	1648036	5
	10	1 - 10	B10	PE right ④ HC-B 10-A-UT-PER-...	1648078	1648084	5
Screw connection 	16	1 - 16	B16	PE left ⑤ HC-B 16-A-UT-PEL-...	1648042	1648048	5
	16	1 - 16	B16	PE right ⑥ HC-B 16-A-UT-PER-...	1648090	1648096	5
Screw connection 	24	1 - 24	B24	PE left ⑦ HC-B 24-A-UT-PEL-...	1648054	1648060	5
	24	1 - 24	B24	PE right ⑧ HC-B 24-A-UT-PER-...	1648102	1648108	5
Foot element 				HC-KA-FE	1775240		10
Locking screw barrel 				HC-VSH	1660083		10

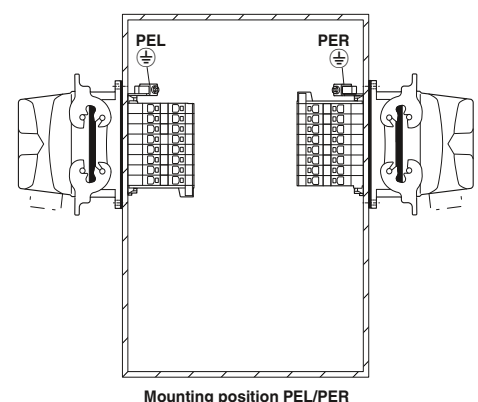


	a	b	c	d
① Socket	51	44	74.2	
① Plug	51	44	71.6	
② Socket	51	44	74.2	
② Plug	51	44	71.6	
③ Socket	64	57	74.2	
③ Plug	64	57	71.6	
④ Socket	64	57	74.2	
④ Plug	64	57	71.6	
⑤ Socket	84.5	77.5	74.2	
⑤ Plug	84.5	77.5	71.6	
⑥ Socket	84.5	77.5	74.2	
⑥ Plug	84.5	77.5	71.6	
⑦ Socket	111	104	74.2	
⑦ Plug	111	104	71.6	
⑧ Socket	111	104	74.2	
⑧ Plug	111	104	71.6	

Accessories



Coding elements
From page 582



Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

B-A series, 6 - 24, terminal adapter

500 V, 16 A

Connection technology:
– Push-in connection

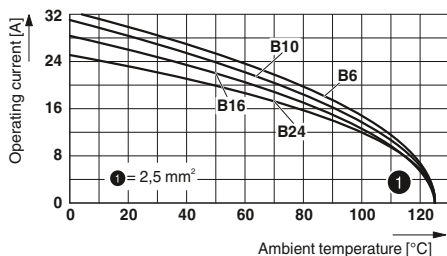
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Connectors may only be operated when under no load.
Observe notes on the connection technology









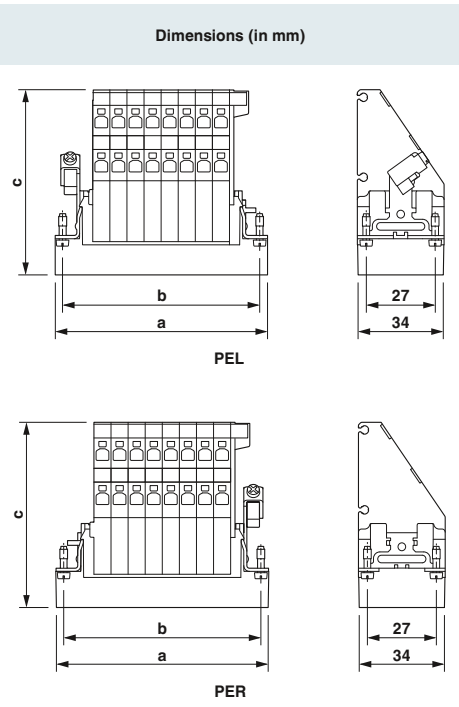
Type	Technical data			
	HC-B 6-A-DT-PEL-...	HC-B 10-A-DT-PEL-...	HC-B 16-A-DT-PEL-...	HC-B 24-A-DT-PEL-...
Approvals				
IEC data				
Rated current, contacts (at 40°C)	A	16	16	16
Surge voltage category		III	III	III
Pollution degree		3	3	3
Rated voltage (III/3) contacts	V	500	500	500
Rated surge voltage, contacts	kV	6	6	6
Connection cross section	mm ²	0.5 ... 2.5	0.5 ... 2.5	0.5 ... 2.5
UL data				
Rated voltage	V	600	600	600
Rated current	A	13	13	13
AWG		22-14	22-14	22-14
CSA data				
Rated voltage	V	600	600	600
Rated current	A	13	13	13
AWG		22-14	22-14	22-14
Material data				
Contact carrier material		PA	PA	PA
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag	Ag	Ag
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method		Push-in connection	Push-in connection	Push-in connection
No. of pos.		6	10	16
Contact numbering		1 - 6	1 - 10	1 - 16
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500

Derating curves



HC-B ...-A-DT-PER-...

Description	Pos.	Number	Housing	Ordering data			
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.
Push-in connection 	6	1 - 6	B6	PE left ① HC-B 6-A-DT-PEL-...	1648351	1648364	5
	6	1 - 6	B6	PE right ② HC-B 6-A-DT-PER-...	1648377	1648380	5
Push-in connection 	10	1 - 10	B10	PE left ③ HC-B 10-A-DT-PEL-...	1648393	1648403	5
	10	1 - 10	B10	PE right ④ HC-B 10-A-DT-PER-...	1648416	1648429	5
Push-in connection 	16	1 - 16	B16	PE left ⑤ HC-B 16-A-DT-PEL-...	1648432	1648445	5
	16	1 - 16	B16	PE right ⑥ HC-B 16-A-DT-PER-...	1648458	1648461	5
Push-in connection 	24	1 - 24	B24	PE left ⑦ HC-B 24-A-DT-PEL-...	1648474	1648487	5
	24	1 - 24	B24	PE right ⑧ HC-B 24-A-DT-PER-...	1648490	1648500	5
Foot element 				HC-KA-FE	1775240		10
Locking screw barrel 				HC-VSH	1660083		10

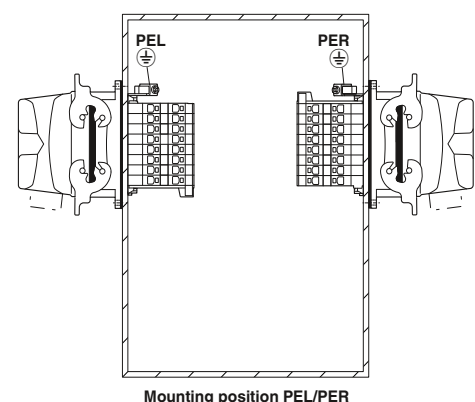


	a	b	c	d
① Socket	50.5	44	72.1	
① Plug	50.5	44	70.5	
② Socket	50.5	44	72.1	
② Plug	50.5	44	70.5	
③ Socket	64	57	72.1	
③ Plug	64	57	70.5	
④ Socket	64	57	72.1	
④ Plug	64	57	70.5	
⑤ Socket	84	77.5	72.1	
⑤ Plug	84	77.5	70.5	
⑥ Socket	84	77.5	72.1	
⑥ Plug	84	77.5	70.5	
⑦ Socket	111	104	72.1	
⑦ Plug	111	104	70.5	
⑧ Socket	111	104	72.1	
⑧ Plug	111	104	70.5	

Accessories



Coding elements
From page 582



Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

BB series, 10 - 92

500 V, 16 A

Connection technology:

– Crimp connection

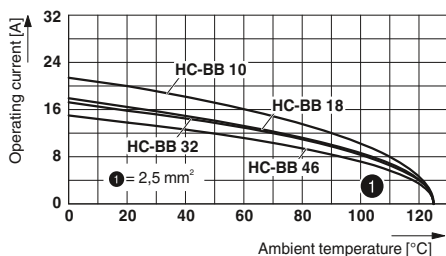
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology



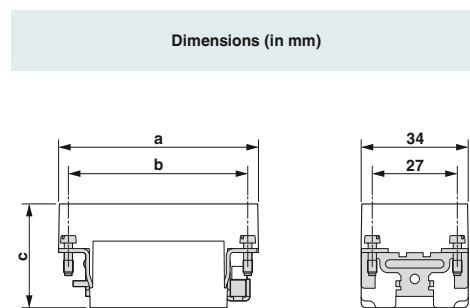
Type	Technical data			
	HC-BB 10-E...C	HC-BB 18-E...C	HC-BB 32-E...C	HC-BB 46-E...C
Approvals	CE PC RU	CE PC RU	CE PC RU	CE PC RU
IEC data				
Rated current, contacts (at 40°C)	A	16	16	16
Surge voltage category		III	III	III
Pollution degree		3	3	3
Rated voltage (III/3) contacts	V	500	500	500
Rated surge voltage, contacts	kV	6	6	6
Connection cross section	mm ²	0.5 ... 4	0.5 ... 4	0.5 ... 4
UL data				
Rated voltage	V	-	-	-
Rated current	A	-	-	-
AWG		-	-	-
CSA data				
Rated voltage	V	600	600	600
Rated current	A	16	16	16
AWG		20-12	20-12	20-12
Material data				
Contact carrier material		PC	PC	PC
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag (alternatively Au)	Ag (alternatively Au)	Ag (alternatively Au)
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method		Crimp connection	Crimp connection	Crimp connection
No. of pos.		10	18	32
Contact numbering		1 - 10	1 - 18	1 - 32
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500

Derating curves

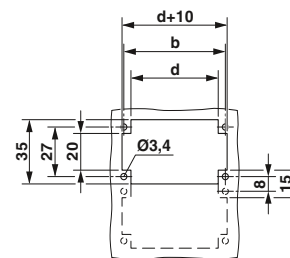


HC-BB ...

Description	Pos.	Number	Housing	Ordering data			
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.
Crimp connection							
	10	1 - 10	B6	① HC-BB 10-E...C	1687435	1687448	1
Crimp connection							
	18	1 - 18	B10	② HC-BB 18-E...C	1687451	1687464	1
Crimp connection							
	32	1 - 32	B16 / B32	③ HC-BB 32-E...C	1687477	1687480	1
	32	33 - 64	B16 / B32	④ HC-BB 32-E...C 64	1410615	1410628	1
Crimp connection							
	46	1 - 46	B24 / B48	⑤ HC-BB 46-E...C	1687493	1687503	1
	46	47 - 92	B24 / B48	⑥ HC-BB 46-E...C-92	1410631	1410644	1
Turned crimp contacts CK 2,5 Silver-plated							
							
			Cross section mm² / AWG				
			0.5 / 20	CK2,5-ED-0,50... AG	1663640	1663572	100
			0.75 / 18	CK2,5-ED-0,75... AG	1663653	1663585	100
			0.75 - 1 / 18	CK2,5-ED-1,00... AG	1663666	1663598	100
			1.5 / 16	CK2,5-ED-1,50... AG	1663679	1663608	100
			2.5 / 14	CK2,5-ED-2,50... AG	1663682	1663611	100
			4 / 12	CK2,5-ED-4,00... AG	1663705	1663637	100
Turned crimp contacts CK 2,5 Gold-plated							
							
			Cross section mm² / AWG				
			0.5 / 20	CK2,5-ED-0,50... AU	1674859	1674804	100
			0.75 - 1 / 18	CK2,5-ED-1,00... AU	1674833	1674781	100
			1.5 / 16	CK2,5-ED-1,50... AU	1674820	1674778	100
			2.5 / 14	CK2,5-ED-2,50... AU	1674862	1674817	100
			4 / 12	CK2,5-ED-4,00... AU	1674846	1674794	100



Dimensional drawing



Panel cutout

	a	b	c	d
① Socket	51	44	36.2	35
① Plug			33.2	
② Socket	64	57	36.2	48
② Plug			33.2	
③ Socket	84.5	77.5	36.2	68.5
③ Plug			33.2	
④ Socket	84.5	77.5	36.2	78.5
④ Plug			33.2	
⑤ Socket	111	104	36.2	95
⑤ Plug			33.2	
⑥ Socket	111	104	36.2	105
⑥ Plug			33.2	

Accessories



Coding elements
From page 581



PE screws
From page 580



Crimping tools
From page 562

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

BBB40/BBB64 series

500 V, 16 A

Connection technology:

– Crimp connection

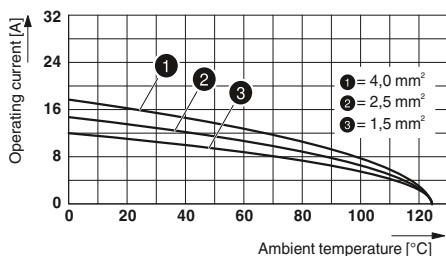
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology






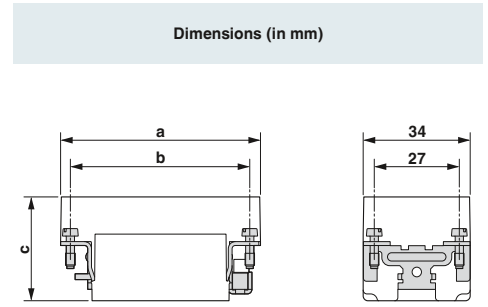
Type	Technical data			
	HC-BBB 40-E...C	HC-BBB 64-E...C		
Approvals	-	-		
IEC data				
Rated current, contacts (at 40°C)	A	16	16	
Surge voltage category		III	III	
Pollution degree		3	3	
Rated voltage (III/3) contacts	V	500	500	
Rated surge voltage, contacts	kV	6	6	
Connection cross section	mm ²	0.5 ... 4	0.5 ... 4	
UL data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
CSA data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
Material data				
Contact carrier material		PC	PC	
Inflammability class in acc. with UL 94		V0	V0	
Contact material		Copper alloy	Copper alloy	
Contact surface material		Ag (alternatively Au)	Ag (alternatively Au)	
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	
General data				
Connection method		Crimp connection	Crimp connection	
No. of pos.		40	64	
Contact numbering		1 - 40	1 - 64	
Insertion/withdrawal cycles		≥ 500	≥ 500	

Derating curves

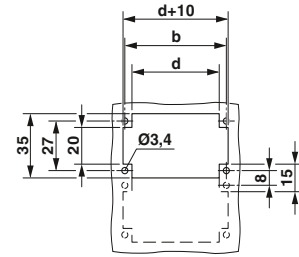


HC-BBB ...

Description	Pos.	Number	Housing	Ordering data			
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.
Crimp connection							
	40	1 - 40	B16 / B32	① HC-BBB 40-E...C	1409930	1409921	1
Crimp connection							
	64	1 - 64	B24 / B48	② HC-BBB 64-E...C	1409914	1409901	1
Turned crimp contacts CK 2,5 Silver-plated							
							
			Cross section mm ² / AWG				
			0.5 / 20	CK2,5-ED-0,50... AG	1663640	1663572	100
			0.75 / 18	CK2,5-ED-0,75... AG	1663653	1663585	100
			0.75 - 1 / 18	CK2,5-ED-1,00... AG	1663666	1663598	100
			1.5 / 16	CK2,5-ED-1,50... AG	1663679	1663608	100
			2.5 / 14	CK2,5-ED-2,50... AG	1663682	1663611	100
			4 / 12	CK2,5-ED-4,00... AG	1663705	1663637	100
Turned crimp contacts CK 2,5 Gold-plated							
							
			Cross section mm ² / AWG				
			0.5 / 20	CK2,5-ED-0,50... AU	1674859	1674804	100
			0.75 - 1 / 18	CK2,5-ED-1,00... AU	1674833	1674781	100
			1.5 / 16	CK2,5-ED-1,50... AU	1674820	1674778	100
			2.5 / 14	CK2,5-ED-2,50... AU	1674862	1674817	100
			4 / 12	CK2,5-ED-4,00... AU	1674846	1674794	100



Dimensional drawing



Panel cutout

	a	b	c	d
① Socket	84	77.5	37	68.5
① Plug	84.5	77.5	34.4	68.5
② Socket	111	104	39	95
② Plug	111	104	36.4	95

Accessories



Coding elements
From page 581



PE screws
From page 580



Crimping tools
From page 562

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

HV3 series, high-voltage applications

830 V, 16 A

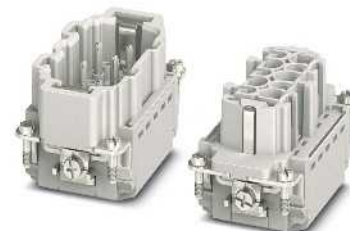
Connection technology:

- Push-in connection
- Crimp connection

- With 2 lagging switch contacts
- For all type B housing

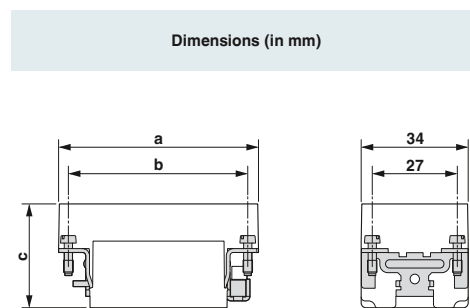
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

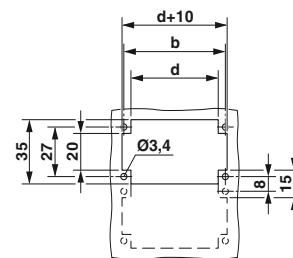


Type	Technical data			
		HC-HV03-I-PT-...	HC-HV 3-E...C	
Approvals		-		
IEC data				
Rated current, contacts (at 40°C)	A	16	16	
Surge voltage category		III	III	
Pollution degree		3	3	
Rated voltage (III/3) contacts	V	830	400 / 690	
Rated surge voltage, contacts	kV	8	6	
Connection cross section	mm ²	0.14 ... 2.5	0.37 ... 4	
UL data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
CSA data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
Material data				
Contact carrier material		PA	PA	
Inflammability class in acc. with UL 94		V0	V0	
Contact material		Copper alloy	Copper alloy	
Contact surface material		Ag	Ag (alternatively Au)	
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	
General data				
Connection method		Push-in connection	Crimp connection	
No. of pos.		3	3	
Contact numbering		-	-	
Insertion/withdrawal cycles		≥ 500	≥ 500	

Description	Pos.	Number	Housing	Ordering data				
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.	
Push-in connection 	3		B10	① HC-HV03-I-PT...	1407743	1407739	1	
Crimp connection 	3		B10	② HC-HV 3-E...C	1773349	1773336	10	
Turned crimp contacts CK 2,5 Silver-plated				Cross section mm ² / AWG				
				0.5 / 20	CK2,5-ED-0,50... AG	1663640	1663572	100
				0.75 / 18	CK2,5-ED-0,75... AG	1663653	1663585	100
				0.75 - 1 / 18	CK2,5-ED-1,00... AG	1663666	1663598	100
				1.5 / 16	CK2,5-ED-1,50... AG	1663679	1663608	100
				2.5 / 14	CK2,5-ED-2,50... AG	1663682	1663611	100
				4 / 12	CK2,5-ED-4,00... AG	1663705	1663637	100
Turned switch contacts CK 2,5 Pin, silver-plated				Cross section mm ² / AWG				
				1 / 18	CK2,5-ED-1,00ST-S AG		1663857	
				1.5 / 16	CK2,5-ED-1,50ST-S AG		1663860	
				2.5 / 14	CK2,5-ED-2,50ST-S AG		1663873	



Dimensional drawing



Panel cutout

	a	b	c	d
① Socket			34.6	49
① Plug	64	57	32	
② Socket			34.6	49
② Plug	64	57	32	

Accessories



Coding elements
From page 581



PE screws
From page 580



Crimping tools
From page 562



Crimp contacts
From page 564

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

HV6 series, high-voltage applications

830 V, 16 A

Connection technology:

- Push-in connection
- Crimp connection

- With 2 lagging switch contacts
- For all type B housing

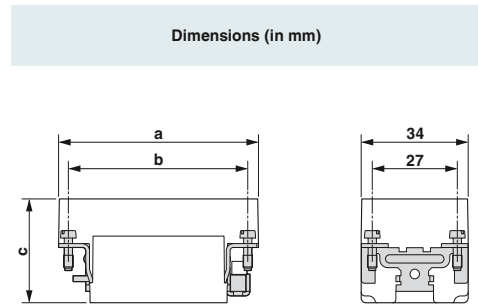
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

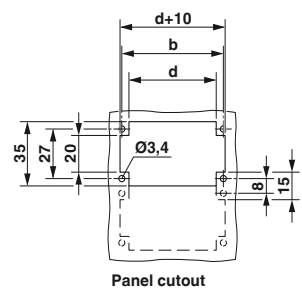


Type	Technical data			
	HC-HV06-I-PT-...	HC-HV 6-E...C		
Approvals	-			
IEC data				
Rated current, contacts (at 40°C)	A	16	16	
Surge voltage category		III	III	
Pollution degree		3	3	
Rated voltage (III/3) contacts	V	830	400 / 690	
Rated surge voltage, contacts	kV	8	6	
Connection cross section	mm ²	0.14 ... 2.5	0.37 ... 4	
UL data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
CSA data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
Material data				
Contact carrier material		PA	PA	
Inflammability class in acc. with UL 94		V0	V0	
Contact material		Copper alloy	Copper alloy	
Contact surface material		Ag	Ag (alternatively Au)	
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	
General data				
Connection method		Push-in connection	Crimp connection	
No. of pos.		6	6	
Contact numbering		-	-	
Insertion/withdrawal cycles		≥ 500	≥ 500	

Description	Pos.	Number	Housing	Ordering data																											
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.																								
Push-in connection 	6	B16 / B32	① HC-HV06-I-PT...	1407744	1407740	1																									
Crimp connection 	6	B16 / B32	② HC-HV 6-E...C	1773381	1773378	10																									
<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td>84</td> <td>77.5</td> <td>34.6</td> <td>72</td> </tr> <tr> <td>① Plug</td> <td></td> <td></td> <td>32</td> <td></td> </tr> <tr> <td>② Socket</td> <td>84</td> <td>77.5</td> <td>34.6</td> <td>72</td> </tr> <tr> <td>② Plug</td> <td></td> <td></td> <td>32</td> <td></td> </tr> </tbody> </table>								a	b	c	d	① Socket	84	77.5	34.6	72	① Plug			32		② Socket	84	77.5	34.6	72	② Plug			32	
	a	b	c	d																											
① Socket	84	77.5	34.6	72																											
① Plug			32																												
② Socket	84	77.5	34.6	72																											
② Plug			32																												
Turned crimp contacts CK 2,5 Silver-plated 		Cross section mm ² / AWG 0.5 / 20 0.75 / 18 0.75 - 1 / 18 1.5 / 16 2.5 / 14 4 / 12	CK2,5-ED-0,50... AG CK2,5-ED-0,75... AG CK2,5-ED-1,00... AG CK2,5-ED-1,50... AG CK2,5-ED-2,50... AG CK2,5-ED-4,00... AG	1663640 1663653 1663666 1663679 1663682 1663705	1663572 1663585 1663598 1663608 1663611 1663637	100 100 100 100 100 100																									
Turned switch contacts CK 2,5 Pin, silver-plated 		Cross section mm ² / AWG 1 / 18 1.5 / 16 2.5 / 14	CK2,5-ED-1,00ST-S AG CK2,5-ED-1,50ST-S AG CK2,5-ED-2,50ST-S AG		1663857 1663860 1663873																										



Dimensional drawing



Panel cutout

	a	b	c	d
① Socket	84	77.5	34.6	72
① Plug			32	
② Socket	84	77.5	34.6	72
② Plug			32	

Accessories

 Coding elements From page 581	 PE screws From page 580	 Crimping tools From page 562	 Crimp contacts From page 564
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Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

HV10 series, high-voltage applications

830 V, 16 A

Connection technology:

- Push-in connection
- Crimp connection

- With 2 lagging switch contacts
- For all type B housing

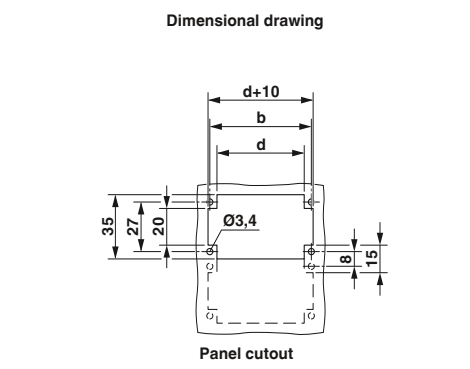
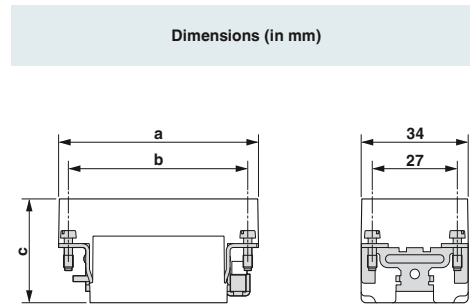
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology



Type	Technical data			
	HC-HV10-I-PT...	HC-HV 10-E...C		
Approvals	-			
IEC data				
Rated current, contacts (at 40°C)	A	16	16	
Surge voltage category		III	III	
Pollution degree		3	3	
Rated voltage (III/3) contacts	V	830	400 / 690	
Rated surge voltage, contacts	kV	8	6	
Connection cross section	mm ²	0.14 ... 2.5	0.37 ... 4	
UL data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
CSA data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
Material data				
Contact carrier material		PA	PA	
Inflammability class in acc. with UL 94		V0	V0	
Contact material		Copper alloy	Copper alloy	
Contact surface material		Ag	Ag (alternatively Au)	
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	
General data				
Connection method		Push-in connection	Crimp connection	
No. of pos.		10	10	
Contact numbering		-	-	
Insertion/withdrawal cycles		≥ 500	≥ 500	

Description	Pos.	Number	Housing	Ordering data																											
				Type	Order No. Socket	Order No. Plug	Pcs. / Pkt.																								
Push-in connection 	10	B24 / B48	① HC-HV10-I-PT...	1407745	1407741	1																									
Crimp connection 	10	B24 / B48	② HC-HV 10-E...C	1773420	1773417	10																									
<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td>111</td> <td>104</td> <td>34.6</td> <td>98</td> </tr> <tr> <td>① Plug</td> <td></td> <td></td> <td>32</td> <td></td> </tr> <tr> <td>② Socket</td> <td>111</td> <td>104</td> <td>34.6</td> <td>98</td> </tr> <tr> <td>② Plug</td> <td></td> <td></td> <td>32</td> <td></td> </tr> </tbody> </table>								a	b	c	d	① Socket	111	104	34.6	98	① Plug			32		② Socket	111	104	34.6	98	② Plug			32	
	a	b	c	d																											
① Socket	111	104	34.6	98																											
① Plug			32																												
② Socket	111	104	34.6	98																											
② Plug			32																												
Turned crimp contacts CK 2,5 Silver-plated 			Cross section mm ² / AWG 0.5 / 20 0.75 / 18 0.75 - 1 / 18 1.5 / 16 2.5 / 14 4 / 12	CK2,5-ED-0,50... AG CK2,5-ED-0,75... AG CK2,5-ED-1,00... AG CK2,5-ED-1,50... AG CK2,5-ED-2,50... AG CK2,5-ED-4,00... AG	1663640 1663653 1663666 1663679 1663682 1663705	1663572 1663585 1663598 1663608 1663611 1663637	100 100 100 100 100 100																								
Turned switch contacts CK 2,5 Pin, silver-plated 			Cross section mm ² / AWG 1 / 18 1.5 / 16 2.5 / 14	CK2,5-ED-1,00ST-S AG CK2,5-ED-1,50ST-S AG CK2,5-ED-2,50ST-S AG	1663857 1663860 1663873																										



	a	b	c	d
① Socket	111	104	34.6	98
① Plug			32	
② Socket	111	104	34.6	98
② Plug			32	

Accessories

 Coding elements From page 581	 PE screws From page 580	 Crimping tools From page 562	 Crimp contacts From page 564
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Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

HS series/K series, high-current applications

500 V, 35 A
– 1000 V, 80 A

Connection technology:
– Screw connection

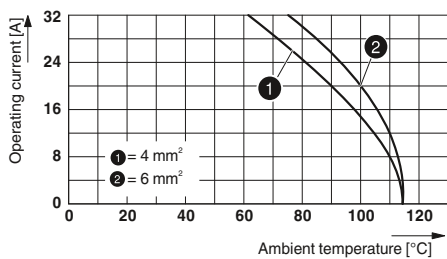
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Connectors may only be operated when under no load.
Observe notes on the connection technology

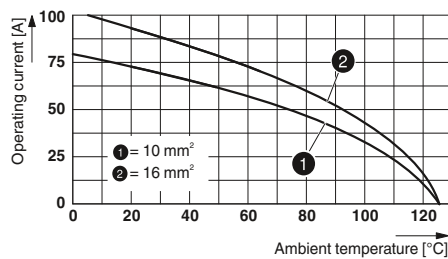


Type	Technical data		
	HC-HS 6-E...S	HC-K 6/0-E...S	
Approvals		-	
IEC data			
Rated current, contacts (at 40°C)	A	35	80
Surge voltage category		III	III
Pollution degree		3	3
Rated voltage (III/3) contacts	V	500	1000
Rated surge voltage, contacts	kV	6	8
Connection cross section	mm ²	0.5 ... 6	6 ... 16
UL data			
Rated voltage	V	600	-
Rated current	A	35	-
AWG		10	-
CSA data			
Rated voltage	V	600	-
Rated current	A	35	-
AWG		20-10	-
Material data			
Contact carrier material		PA	PA
Inflammability class in acc. with UL 94		V0	V0
Contact material		Copper alloy	Copper alloy
Contact surface material		Ag	Ag
Temperature data			
Ambient temperature range	°C	-40 ... 125	-40 ... 125
General data			
Connection method		Screw connection	Screw connection
No. of pos.		6	6
Contact numbering		1 - 6	1-6
Insertion/withdrawal cycles		≥ 500	≥ 500

Derating curves

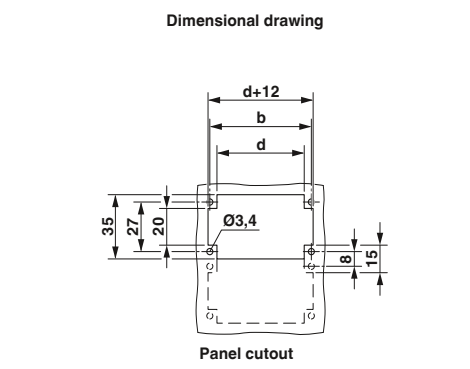
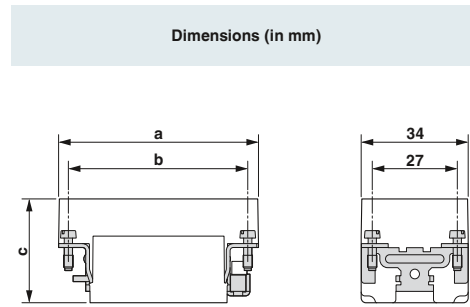


HC-HS 6-E...S



HC-K 6/0-E...S

Description	Pos.	Number	Housing	Type	Ordering data		Pcs. / Pkt.
					Socket	Plug	
Screw connection 	6	1 - 6	B16 / B32	① HC-HS 6-E...S	1773132	1773129	10
	6	7 - 12	B16 / B32	② HC-HS 6-E...S-12	1674561	1674574	10
Screw connection 	6	1-6	B16 / B32	③ HC-K 6/0-E...S	1580537	1580538	10



	a	b	c	d
① Socket			33	
① Plug	84.5	77.5	34	72
② Socket			33	
② Plug	84.5	77.5	34	72
③ Socket			49.7	
③ Plug	84	77.4	46.3	72

Accessories

 Coding elements From page 581	 PE screws From page 580	 Crimping tools From page 562
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Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

K series, combination applications

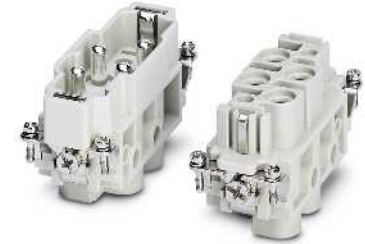
400 - 830 V, 40 - 80 A

Connection technology:

- Power and control contacts
- Screw connection

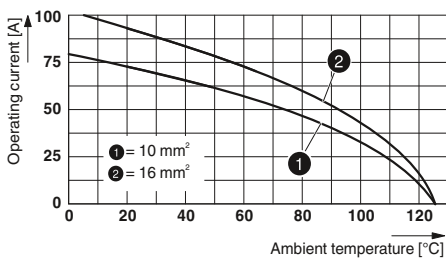
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Connectors may only be operated when under no load.
Observe notes on the connection technology

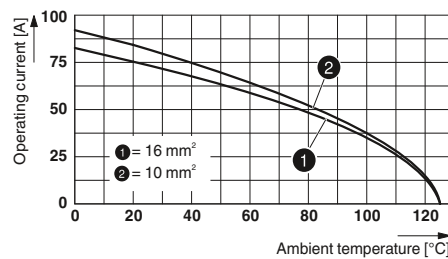


Type	Technical data						
	HC-K 4/0-E...S		HC-K 4/8-E...S		HC-K 6/12-E...S		
	Power contacts	Control contacts	Power contacts	Control contacts	Power contacts	Control contacts	
Approvals	UL, PC, RL		PC, RL		UL, RL		
IEC data							
Rated current	A	80	-	80	16	40	10
Surge voltage category			III		III		III
Pollution degree			3		3		3
Rated voltage (III/3) contacts	V	830	-	400	400	690	230 / 400
Rated surge voltage, contacts	kV	8	-	6	6	8	4
Connection cross section	mm ²	1.5 ... 16	-	1.5 ... 16	0.5 ... 2.5	2.5 ... 8	0.2 ... 2.5
UL data							
Rated voltage	V	-	-	-	-	-	-
Rated current	A	-	-	-	-	-	-
AWG		-	-	-	-	-	-
CSA data							
Rated voltage	V	600	-	-	-	600	-
Rated current	A	80	-	-	-	40	-
AWG		5	-	-	-	13-7	-
Material data							
Contact carrier material		PC		PA		PC	
Inflammability class in acc. with UL 94		V0		HB		V0	
Contact material		Cu alloy		Cu alloy		Cu alloy	
Contact surface material		Ag	-	Ag	Ag	Ag	Ag
Temperature data							
Ambient temperature range	°C	-40 ... 125		-40 ... 125		-40 ... 125	
General data							
Connection method		Screw connection	-	Screw connection	Screw connection	Axial screw connection	Screw connection
No. of pos.		4	-	4	8	6	12
Contact numbering		1-4	-	1-4	1-8	1-6	1-12
Insertion/withdrawal cycles		≥ 500		≥ 500		≥ 500	

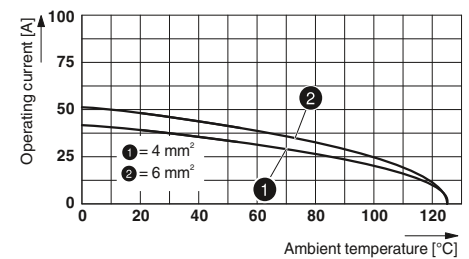
Derating curves



HC-K 4/0-E...S

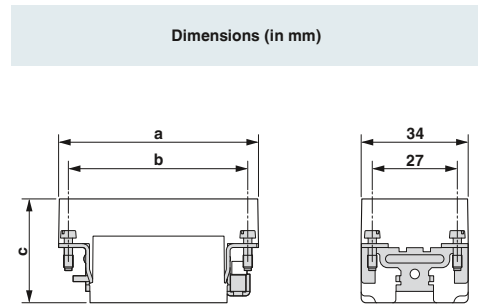


HC-K 4/8-E...S

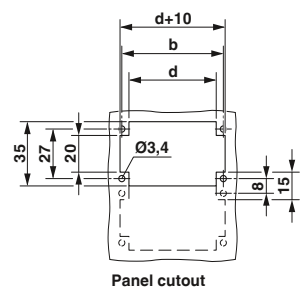


HC-K 6/12-E...S

Description	Pos.	Number	Housing	Type	Ordering data		Pcs. / Pkt.
					Socket	Plug	
Screw connection 	4	1-4	B16 / B32	① HC-K 4/0-E...S	1679427	1679414	1
Screw connection 	4 / 8	1-4	B24 / B48	② HC-K 4/8-E...S	1679320	1679333	1
Axial screw connection 	6 / 12	1-6	B16 / B32	③ HC-K 6/12-E...S	1636363	1636350	1



Dimensional drawing



	a	b	c	d
① Socket	84.5	77.5	44.2	72
① Plug			42	
② Socket	111	104	44.2	98
② Plug			42	
③ Socket	84.1	77.5	47	68.5
③ Plug	84.5		47.2	

Accessories



Coding elements
From page 581



PE screws
From page 580

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

K series, combination applications

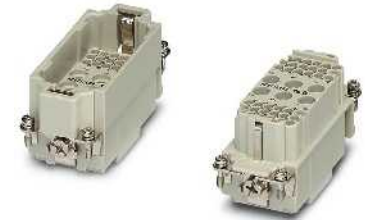
400 - 690 V, 16 - 40 A

Connection technology:

- Power and control contacts
- Crimp connection

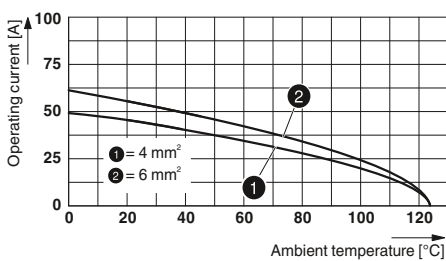
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

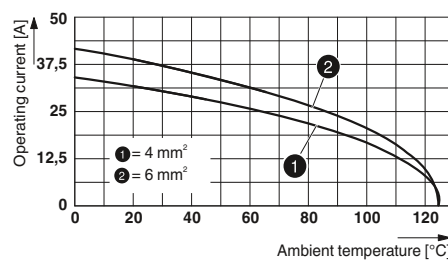


Type	Technical data						
	HC-K 6/36-E...C		HC-K12/ 2-E...C		HC-K 8/24-E...C		
	Power contacts	Control contacts	Power contacts	Control contacts	Power contacts	Control contacts	
Approvals	UL		UL		UL		
IEC data							
Rated current	A	40	10	40	10	16	10
Surge voltage category		III		III		III	
Pollution degree		3		3		3	
Rated voltage (III/3) contacts	V	690	160	690	250	230 / 400	160
Rated surge voltage, contacts	kV	8	2.5	8	4	4	2.5
Connection cross section	mm ²	1.5 ... 6	0.14 ... 2.5	1.5 ... 6	0.14 ... 2.5	0.5 ... 4	0.14 ... 2.5
UL data							
Rated voltage	V	-	-	-	-	-	-
Rated current	A	-	-	-	-	-	-
AWG		-	-	-	-	-	-
CSA data							
Rated voltage	V	600	-	600	-	600	-
Rated current	A	40	-	40	-	16	-
AWG		13-9	-	13-8	-	20-12	-
Material data							
Contact carrier material		PC		PC		PA	
Inflammability class in acc. with UL 94		V0		V0		V0	
Contact material		Cu alloy		Cu alloy		Cu alloy	
Contact surface material		Ag	Ag (alternatively Au)	Ag	Ag (alternatively Au)	Ag (alternat. Au)	Ag (alternatively Au)
Temperature data							
Ambient temperature range	°C	-40 ... 125		-40 ... 125		-40 ... 125	
General data							
Connection method		Crimp connection	Crimp connection	Crimp connection	Crimp connection	Crimp connection	Crimp connection
No. of pos.		6	36	12	2	8	24
Contact numbering		1-6	1-36	1-12	1-2	1-8	1-24
Insertion/withdrawal cycles		≥ 500		≥ 500		≥ 500	

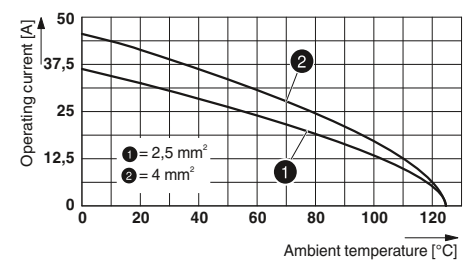
Derating curves



HC-K 6/36 E...C

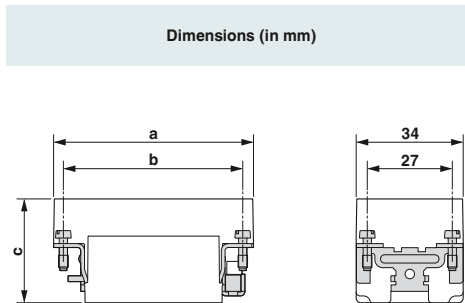


HC-K 12/2 E...C

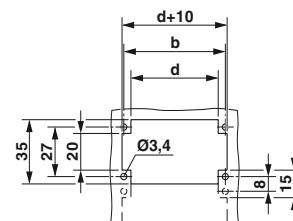


HC-K 8/24 E...C

				Ordering data																																										
Description	Pos.	Number	Housing	Type	Order No.		Pcs. / Pkt.	Dimensions (in mm)																																						
					Socket	Plug																																								
Crimp connection CK 4,0/CK 1,6																																														
	6 / 36	1-6	B16 / B32	① HC-K 6/36-E...C	1663389	1663376	1																																							
Crimp connection CK 4,0/CK 1,6																																														
	12 / 2	1-12	B16 / B32	② HC-K12/ 2-E...C	1663347	1663334	1																																							
Crimp connection CK 2,5/CK 1,6																																														
	8 / 24	1-8	B10	③ HC-K 8/24-E...C	1663321	1663318	1																																							
Turned crimp contacts CK 1,6 Silver-plated								<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td>84.5</td> <td>77.5</td> <td>41.5</td> <td></td> </tr> <tr> <td>① Plug</td> <td></td> <td></td> <td>39</td> <td>68.5</td> </tr> <tr> <td>② Socket</td> <td>84.5</td> <td>77.5</td> <td>41.5</td> <td>72</td> </tr> <tr> <td>② Plug</td> <td></td> <td></td> <td>39.6</td> <td></td> </tr> <tr> <td>③ Socket</td> <td>64</td> <td>57</td> <td>38</td> <td>49</td> </tr> <tr> <td>③ Plug</td> <td></td> <td></td> <td>36</td> <td></td> </tr> </tbody> </table>					a	b	c	d	① Socket	84.5	77.5	41.5		① Plug			39	68.5	② Socket	84.5	77.5	41.5	72	② Plug			39.6		③ Socket	64	57	38	49	③ Plug			36	
	a	b	c	d																																										
① Socket	84.5	77.5	41.5																																											
① Plug			39	68.5																																										
② Socket	84.5	77.5	41.5	72																																										
② Plug			39.6																																											
③ Socket	64	57	38	49																																										
③ Plug			36																																											
	Cross section mm ² / AWG			CK1,6-ED-0,37... AG	1663394	1663336	100																																							
	0.14 - 0.37 / 26 - 22			CK1,6-ED-0,50... AG	1663404	1663349	100																																							
	0.5 / 20			CK1,6-ED-0,75... AG	1663417	1663352	100																																							
	0.75 / 18			CK1,6-ED-1,00... AG	1663420	1663365	100																																							
	0.75 - 1 / 18			CK1,6-ED-1,50... AG	1663433	1663378	100																																							
	1.5 / 16			CK1,6-ED-2,50... AG	1663446	1663381	100																																							
	2.5 / 14																																													
Turned crimp contacts CK 2,5 Silver-plated																																														
	Cross section mm ² / AWG			CK2,5-ED-0,50... AG	1663640	1663572	100																																							
	0.5 / 20			CK2,5-ED-0,75... AG	1663653	1663585	100																																							
	0.75 / 18			CK2,5-ED-1,00... AG	1663666	1663598	100																																							
	0.75 - 1 / 18			CK2,5-ED-1,50... AG	1663679	1663608	100																																							
	1.5 / 16			CK2,5-ED-2,50... AG	1663682	1663611	100																																							
	2.5 / 14			CK2,5-ED-4,00... AG	1663705	1663637	100																																							
	4 / 12																																													
Turned crimp contacts CK 4,0 Silver-plated																																														
	Cross section mm ² / AWG			CK4,0-ED-1,50... AG	1663271	1663239	25																																							
	1.5 / 16			CK4,0-ED-2,50... AG	1663284	1663242	25																																							
	2.5 / 14			CK4,0-ED-4,00... AG	1663297	1663255	25																																							
	4 / 12			CK4,0-ED-6,00... AG	1663307	1663268	25																																							
	6 / 10			CK4,0-ED-10,00... AG	1586183	1586198	25																																							
	10 / 8																																													



Dimensional drawing



Panel cutout

	a	b	c	d
① Socket	84.5	77.5	41.5	
① Plug			39	68.5
② Socket	84.5	77.5	41.5	72
② Plug			39.6	
③ Socket	64	57	38	49
③ Plug			36	

Accessories



Coding elements
From page 581



PE screws
From page 580



Crimping tools
From page 562



Crimp contacts
From page 564

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

Modular contact inserts, high-current modules

1000 V, 200 A

Connection technology:

- Axial screw connection

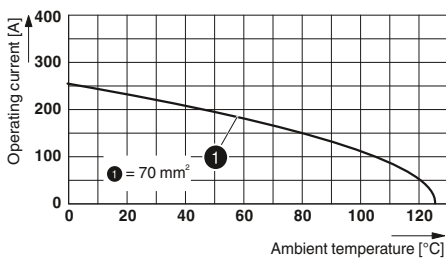
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Connectors may only be operated when under no load.
Observe housing height
Observe notes on the connection technology

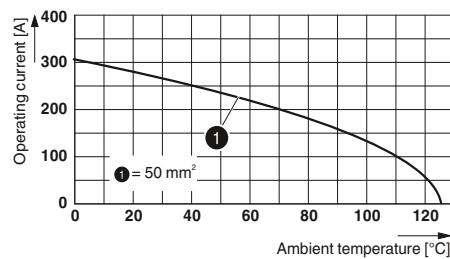


Type	Technical data			
	HC-M-HS 200/70-MOD-...	HC-M-HS 200/70-MOD-...-PE	HC-M-HS 200/40-MOD-...	HC-M-HS 200/40-MOD-...-PE
Approvals				
IEC data				
Rated current, contacts (at 40°C)	A	200	200	200
Surge voltage category		III	-	III
Pollution degree		3	-	3
Rated voltage (III/3) contacts	V	1000	-	1000
Rated surge voltage, contacts	kV	8	-	8
Connection cross section	mm ²	40 ... 70	40 ... 70	25 ... 40
UL data				
Rated voltage	V	600	-	600
Rated current	A	200	200	200
AWG		2-0	2-0	2-0
CSA data				
Rated voltage	V	-	-	-
Rated current	A	-	-	-
AWG		-	-	-
Material data				
Contact carrier material		PC	PC	PC
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag	Ag	Ag
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method		Axial screw connection	Axial screw connection	Axial screw connection
No. of pos.		1	1	1
Contact numbering		-	-	-
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500


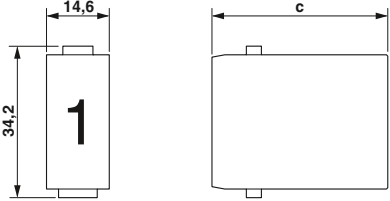

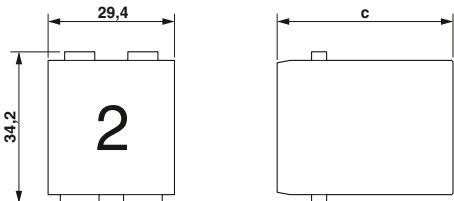

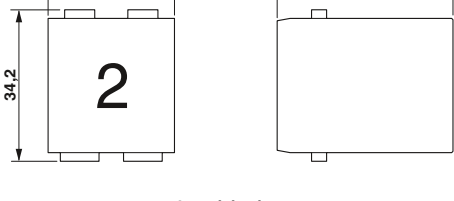

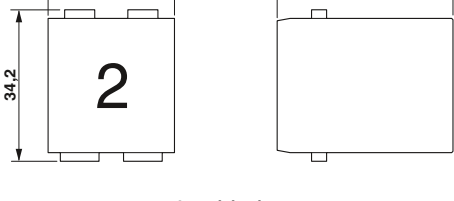
Derating curves



HC-M-HS 200/70-MOD-...



HC-M-HS 200/40-MOD-...

Description	Pos.	Number	Slots	Type	Ordering data		Pcs. / Pkt.	Dimensions (in mm)	
					Socket	Plug			
Axial screw connection 	1		2	① HC-M-HS 200/70-MOD-...	1636897	1636884	1		
Axial screw connection 	1		2	② HC-M-HS 200/70-MOD-...-PE	1636910	1636907	1		
Axial screw connection 	1		2	③ HC-M-HS 200/40-MOD-...	1637171	1637168	1		
Axial screw connection 	1		2	④ HC-M-HS 200/40-MOD-...-PE	1637197	1637184	1		

	a	b	c	d
① Socket			60	
① Plug	29.4		54.5	
② Socket			54.3	
② Plug	29.4		54.5	
③ Socket			60	
③ Plug	29.4		54.5	
④ Socket			54.3	
④ Plug	29.4		54.5	

Accessories



Hinged retaining frames
From page 480

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

Modular contact inserts, 2-pos. modules

1000 V, 40 - 100 A

Connection technology:
– Axial screw connection

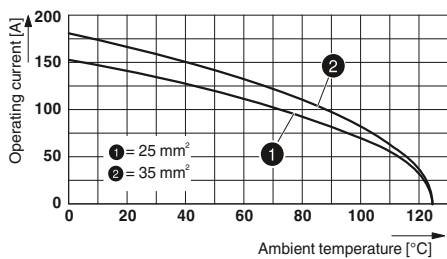
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Connectors may only be operated when under no load.
Observe housing height
Observe notes on the connection technology

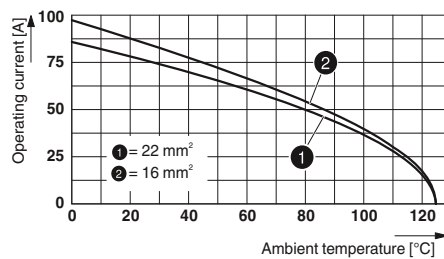


Type	Technical data			
	HC-M-HS-MOD-...	HC-M-02-HS-70/22-MOD-...	HC-M-02-HS-70/16-MOD-...	HC-M-02-MOD-...
Approvals				
IEC data				
Rated current, contacts (at 40°C)	A	100	70	40
Surge voltage category		III	III	III
Pollution degree		3	3	3
Rated voltage (III/3) contacts	V	1000	1000	1000
Rated surge voltage, contacts	kV	8	8	8
Connection cross section	mm ²	16 ... 35	14 ... 22	2.5 ... 8
UL data				
Rated voltage	V	600	600	600
Rated current	A	100	70	40
AWG		2	4	-
CSA data				
Rated voltage	V	-	-	-
Rated current	A	-	-	-
AWG		-	-	-
Material data				
Contact carrier material		PC	PC	PC
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag	Ag	Ag
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method		Axial screw connection	Axial screw connection	Axial screw connection
No. of pos.		2	2	2
Contact numbering		1 - 2	1 - 2	1 - 2
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500

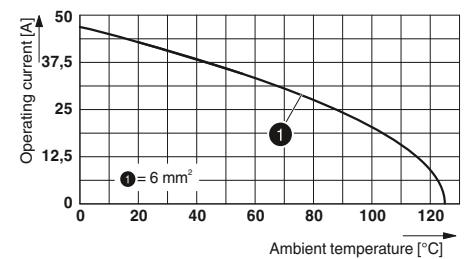
Derating curves



HC-M-HS-MOD-...



HC-M-02-HS-70/...-MOD-...



HC-M-02-MOD-...

Description	Pos.	Number	Slots	Type	Ordering data		Pcs. / Pkt.	Dimensions (in mm)																																														
					Socket	Plug																																																
Axial screw connection 	2	1 - 2	2	① HC-M-HS-MOD-...	1605001	1605000	1		1 module slot																																													
Axial screw connection 	2	1 - 2	1	② HC-M-02-HS-70/22-MOD-...	1585731	1585728	2		2 module slots																																													
Axial screw connection 	2	1 - 2	1	③ HC-M-02-HS-70/16-MOD-...	1585715	1585702	2		2 module slots																																													
Axial screw connection 	2	1 - 2	1	④ HC-M-02-MOD-...	1679359	1679346	2	<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td></td> <td></td> <td>50.3</td> <td></td> </tr> <tr> <td>① Plug</td> <td>29.4</td> <td></td> <td>49</td> <td></td> </tr> <tr> <td>② Socket</td> <td>14.6</td> <td></td> <td>46.5</td> <td></td> </tr> <tr> <td>② Plug</td> <td>14.6</td> <td></td> <td>45</td> <td></td> </tr> <tr> <td>③ Socket</td> <td>14.6</td> <td></td> <td>46.5</td> <td></td> </tr> <tr> <td>③ Plug</td> <td>14.6</td> <td></td> <td>45</td> <td></td> </tr> <tr> <td>④ Socket</td> <td>14.6</td> <td></td> <td>40.6</td> <td></td> </tr> <tr> <td>④ Plug</td> <td>14.6</td> <td></td> <td>41.8</td> <td></td> </tr> </tbody> </table>		a	b	c	d	① Socket			50.3		① Plug	29.4		49		② Socket	14.6		46.5		② Plug	14.6		45		③ Socket	14.6		46.5		③ Plug	14.6		45		④ Socket	14.6		40.6		④ Plug	14.6		41.8		
	a	b	c	d																																																		
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④ Socket	14.6		40.6																																																			
④ Plug	14.6		41.8																																																			

Accessories



Hinged retaining frames
From page 480

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

Modular contact inserts

500 - 1000 V, 40 A

Connection technology:

– Crimp connection CK 4,0

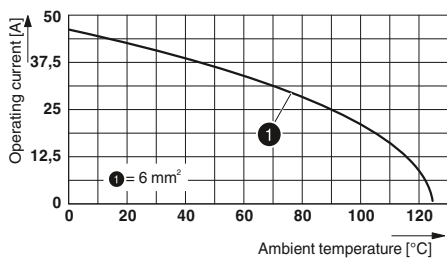
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe housing height
Observe notes on the connection technology

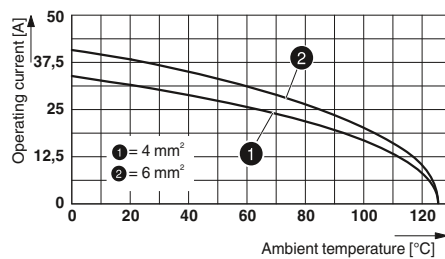


Type	Technical data			
	HC-M-02-MOD-...C	HC-M-03-MOD-...C	HC-M-04-MOD-...C	HC-M-03/04-MOD-...C
Approvals				
IEC data				
Rated current, contacts (at 40°C)	A	40	40	40
Surge voltage category		III	III	III
Pollution degree		3	3	3
Rated voltage (III/3) contacts	V	1000	500	830
Rated surge voltage, contacts	kV	8	6	8
Connection cross section	mm ²	1.5 ... 10	1.5 ... 10	1.5 ... 6
UL data				
Rated voltage	V	600	600	600
Rated current	A	40	-	-
AWG		-	-	18-10
CSA data				
Rated voltage	V	-	-	-
Rated current	A	-	-	-
AWG		-	-	-
Material data				
Contact carrier material		PC	PC	PC
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag	Ag	-
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125
General data				
Connection method		Crimp connection	Crimp connection	Crimp connection
No. of pos.		2	3	4
Contact numbering		1 - 2	1 - 3	1 - 4
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500

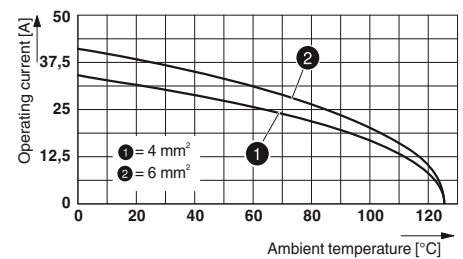
Derating curves



HC-M-02-MOD-...C



HC-M-03-MOD-...C



HC-M-04-MOD-...C

Description	Pos.	Number	Slots	Ordering data			Dimensions (in mm)																																																	
				Type	Socket	Plug	Pcs. / Pkt.																																																	
Crimp connection CK 4,0																																																								
	2	1 - 2	1	① HC-M-02-MOD-...C	1587519	1587506	2																																																	
Crimp connection CK 4,0																																																								
	3	1 - 3	1	② HC-M-03-MOD-...C	1645972	1645969	2																																																	
Crimp connection CK 4,0																																																								
	4	1 - 4	1	③ HC-M-04-MOD-...C	1585605	1585618	2																																																	
Crimp connection CK 4,0/CK 1,6																																																								
	3 / 4	1-3	1	④ HC-M-03/04-MOD-...C	1585786	1585799	2	<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td>14.6</td> <td></td> <td>42.4</td> <td></td> </tr> <tr> <td>① Plug</td> <td>14.6</td> <td></td> <td>43.7</td> <td></td> </tr> <tr> <td>② Socket</td> <td>14.6</td> <td></td> <td>44.7</td> <td></td> </tr> <tr> <td>② Plug</td> <td>14.6</td> <td></td> <td>43.1</td> <td></td> </tr> <tr> <td>③ Socket</td> <td>14.6</td> <td></td> <td>40.9</td> <td></td> </tr> <tr> <td>③ Plug</td> <td>14.6</td> <td></td> <td>44.6</td> <td></td> </tr> <tr> <td>④ Socket</td> <td>14.6</td> <td></td> <td>39.1</td> <td></td> </tr> <tr> <td>④ Plug</td> <td>14.6</td> <td></td> <td>44.3</td> <td></td> </tr> </tbody> </table>					a	b	c	d	① Socket	14.6		42.4		① Plug	14.6		43.7		② Socket	14.6		44.7		② Plug	14.6		43.1		③ Socket	14.6		40.9		③ Plug	14.6		44.6		④ Socket	14.6		39.1		④ Plug	14.6		44.3	
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④ Plug	14.6		44.3																																																					
Turned crimp contacts CK 1,6 Silver-plated																																																								
				Cross section mm ² / AWG																																																				
				0.14 - 0.37 / 26 - 22	CK1,6-ED-0,37... AG	1663394	1663336	100																																																
				0.5 / 20	CK1,6-ED-0,50... AG	1663404	1663349	100																																																
				0.75 / 18	CK1,6-ED-0,75... AG	1663417	1663352	100																																																
				0.75 - 1 / 18	CK1,6-ED-1,00... AG	1663420	1663365	100																																																
				1.5 / 16	CK1,6-ED-1,50... AG	1663433	1663378	100																																																
				2.5 / 14	CK1,6-ED-2,50... AG	1663446	1663381	100																																																
Turned crimp contacts CK 4,0 Silver-plated																																																								
				Cross section mm ² / AWG																																																				
				1.5 / 16	CK4,0-ED-1,50... AG	1663271	1663239	25																																																
				2.5 / 14	CK4,0-ED-2,50... AG	1663284	1663242	25																																																
				4 / 12	CK4,0-ED-4,00... AG	1663297	1663255	25																																																
				6 / 10	CK4,0-ED-6,00... AG	1663307	1663268	25																																																
				10 / 8	CK4,0-ED-10,00... AG	1586183	1586198	25																																																

Accessories



Hinged retaining frames
From page 480



Crimping tools
From page 562



Crimp contacts
From page 564



Crimp contacts
From page 564

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

Modular contact inserts

400 - 830 V, 16 A

Connection technology:

– Crimp connection CK 2,5

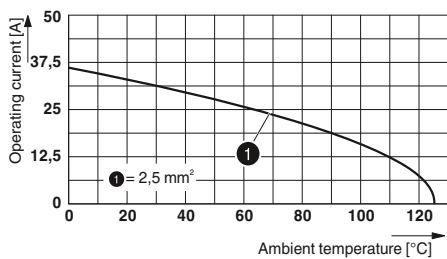
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe housing height
Observe notes on the connection technology

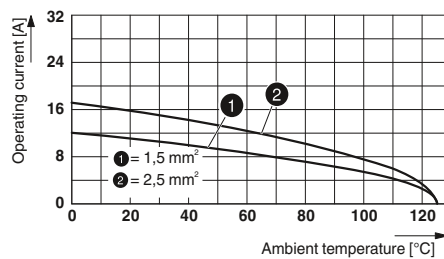


Type	Technical data				
	HC-M-HV-MOD-...	HC-M-06P-MOD-...	HC-M-06-MOD-...	HC-M-08-MOD-...	HC-M-20-MOD-...
Approvals					
IEC data					
Rated current, contacts (at 40°C)	A	16	16	16	16
Surge voltage category		III	III	III	III
Pollution degree		3	3	3	3
Rated voltage (III/3) contacts	V	2900 / 5000	830	500	500
Rated surge voltage, contacts	kV	15	8	6	6
Connection cross section	mm ²	0.5 ... 4	0.5 ... 4	0.5 ... 4	0.5 ... 4
UL data					
Rated voltage	V	-	600	600	600
Rated current	A	-	16	16	16
AWG		-	12	12	12
CSA data					
Rated voltage	V	-	600	-	-
Rated current	A	-	32	-	-
AWG		-	16-10	-	-
Material data					
Contact carrier material		PC / PTFE	PC	PC	PC
Inflammability class in acc. with UL 94		V0	V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag (alternatively Au)	Ag (alternatively Au)	Ag (alternatively Au)	Ag (alternatively Au)
Temperature data					
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 125	-40 ... 125
General data					
Connection method		Crimp connection	Crimp connection	Crimp connection	Crimp connection
No. of pos.		2	6	6	8
Contact numbering		I, II	1 - 6	1 - 6	1 - 8
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500	≥ 500

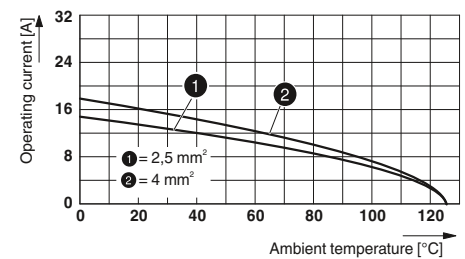
Derating curves




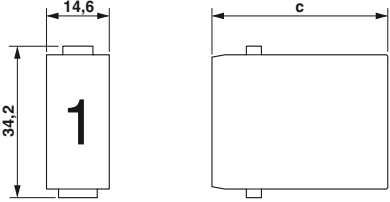

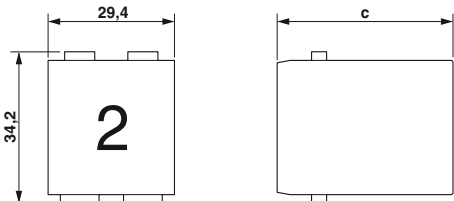

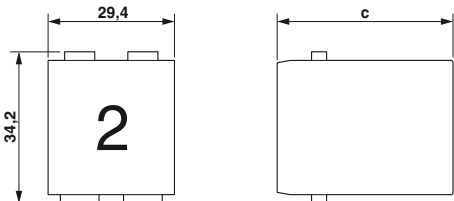



HC-M-HV-MOD-...



HC-M-06-MOD-...



HC-M-20-MOD-...

Description	Pos.	Number	Slots	Ordering data			Dimensions (in mm)																																																												
				Type	Socket	Plug	Pcs. / Pkt.																																																												
Crimp connection CK 2,5 	2	I, II	2	① HC-M-HV-MOD-...	1604999	1604998	1																																																												
Crimp connection CK 2,5 	6	1 - 6	1	② HC-M-06P-MOD-...	1636460	1636457	2																																																												
Crimp connection CK 2,5 	6	1 - 6	1	③ HC-M-06-MOD-...	1663462	1663459	2																																																												
Crimp connection CK 2,5 	8	1 - 8	1	④ HC-M-08-MOD-...	1605003	1605002	2	<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td></td> <td></td> <td>62</td> <td></td> </tr> <tr> <td>① Plug</td> <td>29.4</td> <td></td> <td>59</td> <td></td> </tr> <tr> <td>② Socket</td> <td></td> <td></td> <td>37.4</td> <td></td> </tr> <tr> <td>② Plug</td> <td>14.6</td> <td></td> <td>39.2</td> <td></td> </tr> <tr> <td>③ Socket</td> <td></td> <td></td> <td>35.8</td> <td></td> </tr> <tr> <td>③ Plug</td> <td>14.6</td> <td></td> <td>34</td> <td></td> </tr> <tr> <td>④ Socket</td> <td></td> <td></td> <td>35.8</td> <td></td> </tr> <tr> <td>④ Plug</td> <td>14.6</td> <td></td> <td>34.5</td> <td></td> </tr> <tr> <td>⑤ Socket</td> <td></td> <td></td> <td>39.95</td> <td></td> </tr> <tr> <td>⑤ Plug</td> <td>29.4</td> <td></td> <td>37.6</td> <td></td> </tr> </tbody> </table>						a	b	c	d	① Socket			62		① Plug	29.4		59		② Socket			37.4		② Plug	14.6		39.2		③ Socket			35.8		③ Plug	14.6		34		④ Socket			35.8		④ Plug	14.6		34.5		⑤ Socket			39.95		⑤ Plug	29.4		37.6	
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⑤ Plug	29.4		37.6																																																																
Crimp connection CK 2,5 	20	1 - 20	2	⑤ HC-M-20-MOD-...	1636936	1636923	1																																																												
Turned crimp contacts CK 2,5 Silver-plated 								<table border="1"> <thead> <tr> <th>Cross section</th> <th>mm² / AWG</th> <th>Type</th> <th>Socket</th> <th>Plug</th> <th>Pcs.</th> </tr> </thead> <tbody> <tr> <td>0.5 / 20</td> <td></td> <td>CK2,5-ED-0,50... AG</td> <td>1663640</td> <td>1663572</td> <td>100</td> </tr> <tr> <td>0.75 / 18</td> <td></td> <td>CK2,5-ED-0,75... AG</td> <td>1663653</td> <td>1663585</td> <td>100</td> </tr> <tr> <td>0.75 - 1 / 18</td> <td></td> <td>CK2,5-ED-1,00... AG</td> <td>1663666</td> <td>1663598</td> <td>100</td> </tr> <tr> <td>1.5 / 16</td> <td></td> <td>CK2,5-ED-1,50... AG</td> <td>1663679</td> <td>1663608</td> <td>100</td> </tr> <tr> <td>2.5 / 14</td> <td></td> <td>CK2,5-ED-2,50... AG</td> <td>1663682</td> <td>1663611</td> <td>100</td> </tr> <tr> <td>4 / 12</td> <td></td> <td>CK2,5-ED-4,00... AG</td> <td>1663705</td> <td>1663637</td> <td>100</td> </tr> </tbody> </table>					Cross section	mm ² / AWG	Type	Socket	Plug	Pcs.	0.5 / 20		CK2,5-ED-0,50... AG	1663640	1663572	100	0.75 / 18		CK2,5-ED-0,75... AG	1663653	1663585	100	0.75 - 1 / 18		CK2,5-ED-1,00... AG	1663666	1663598	100	1.5 / 16		CK2,5-ED-1,50... AG	1663679	1663608	100	2.5 / 14		CK2,5-ED-2,50... AG	1663682	1663611	100	4 / 12		CK2,5-ED-4,00... AG	1663705	1663637	100													
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1.5 / 16		CK2,5-ED-1,50... AG	1663679	1663608	100																																																														
2.5 / 14		CK2,5-ED-2,50... AG	1663682	1663611	100																																																														
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Accessories



Hinged retaining frames
From page 480



Crimping tools
From page 562



Crimp contacts
From page 564



Crimp contacts
From page 564

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

Modular contact inserts

50 - 250 V, 10 A

Connection technology:

– Crimp connection CK 1,6

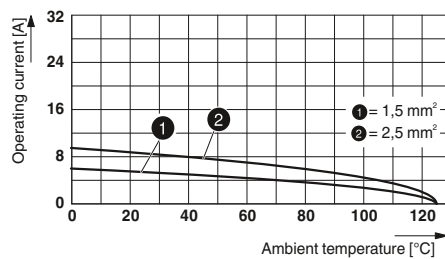
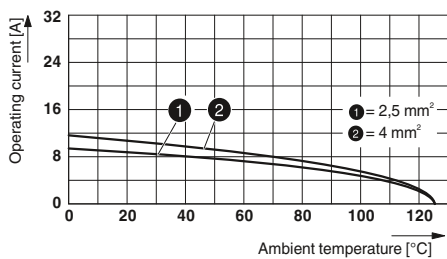
To determine the matching housings, refer to the cross-reference list on page 402.


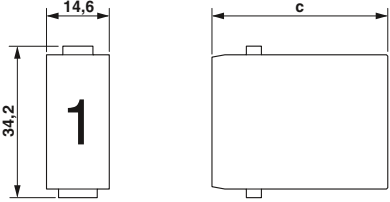

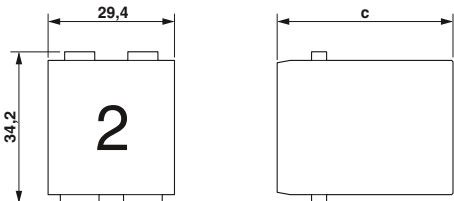

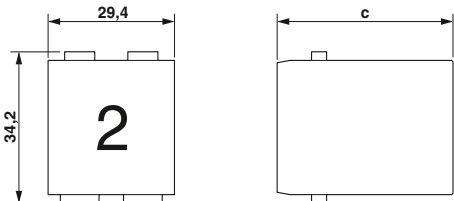


Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe housing height
Observe notes on the connection technology



Type	Technical data			
	HC-M-12-MOD-...	HC-M-17-MOD-...	HC-M-EMV-MOD-...	HC-M-EMV-.../3-9,5
Approvals				
IEC data				
Rated current, contacts (at 40°C)	A	10	10	10
Surge voltage category		III	III	III
Pollution degree		3	3	3
Rated voltage (III/3) contacts	V	250	160	50
Rated surge voltage, contacts	kV	3	2.5	0.8
Connection cross section	mm ²	0.14 ... 2.5	0.14 ... 2.5	0.14 ... 2.5
UL data				
Rated voltage	V	600	250	-
Rated current	A	-	-	-
AWG		-	-	-
CSA data				
Rated voltage	V	600	-	-
Rated current	A	12	-	-
AWG		26-14	-	-
Material data				
Contact carrier material		PC	PC	PC
Inflammability class in acc. with UL 94		V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy
Contact surface material		Ag (alternatively Au)	Ag (alternatively Au)	Ag (alternatively Au)
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	-40 ... 85
General data				
Connection method		Crimp connection	Crimp connection	Crimp connection
No. of pos.		12	17	4
Contact numbering		1 - 12	1 - 17	1-4
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500

Derating curves



Description	Pos.	Number	Slots	Type	Order No.		Pcs. / Pkt.	Dimensions (in mm)																																																
					Socket	Plug																																																		
Crimp connection CK 1,6 	12	1 - 12	1	① HC-M-12-MOD-...	1663323	1663310	2																																																	
Crimp connection CK 1,6 	17	1 - 17	1	② HC-M-17-MOD-...	1636486	1636473	2																																																	
EMC module 			2	③ HC-M-EMV-MOD-...	1678570	1678567	2																																																	
EMC plug-in connector, crimp connection CK 1,6 	4	1-4	2	④ HC-M-EMV-.../3-9,5	1636091	1636088	1	<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td>14,6</td> <td></td> <td>34</td> <td></td> </tr> <tr> <td>① Plug</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>② Socket</td> <td>14,6</td> <td></td> <td>34</td> <td></td> </tr> <tr> <td>② Plug</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>③ Socket</td> <td>29,4</td> <td></td> <td>34</td> <td></td> </tr> <tr> <td>③ Plug</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>④ Socket</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>④ Plug</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					a	b	c	d	① Socket	14,6		34		① Plug					② Socket	14,6		34		② Plug					③ Socket	29,4		34		③ Plug					④ Socket					④ Plug				
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Accessories



Hinged retaining frames
From page 480



Crimping tools
From page 562



Crimp contacts
From page 564



Crimp contacts
From page 564

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

Modular contact inserts, Ethernet and D-SUB 09

50 V, 1 - 5 A

Connection technology:
– Crimp connection VS 1,0

Coding pins and sockets are mandatory when using HC-M-25-MOD-... and HC-M-DSUB 09-MOD-... modules.

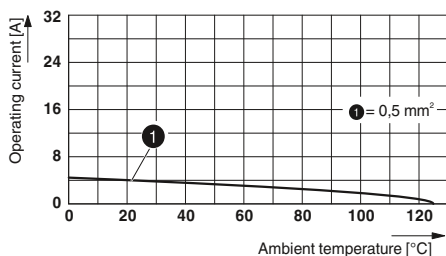
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe housing height
Observe notes on the connection technology


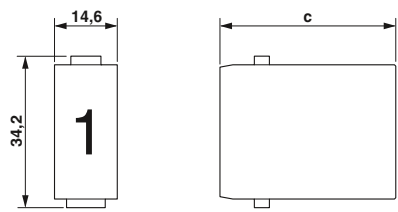

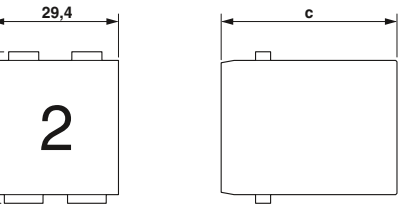

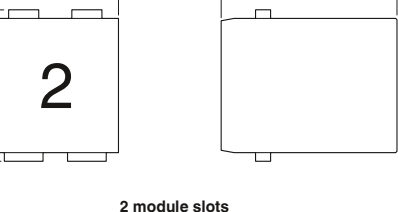





Type	Technical data				
	HC-M-25-MOD-...	HC-M-08-GBIT-...C	HC-M-08-GBIT-MOD-...	HC-M-DSUB 09-MOD-...	HC-M-DSUB 09/O2T-MOD-... 2-pos.
Approvals		-	-	-	-
IEC data					
Rated current, contacts (at 40°C)	A	5	5	1	5
Surge voltage category		III	III	III	III
Pollution degree		3	3	3	3
Rated voltage (III/3) contacts	V	50	50	50	50
Rated surge voltage, contacts	kV	0.8	0.8	0.8	0.8
Connection cross section	mm ²	0.08 ... 0.5	0.08 ... 0.5	0.08 ... 0.5	0.09 ... 0.5
UL data					
Rated voltage	V	-	-	-	-
Rated current	A	-	-	-	-
AWG		-	-	-	-
CSA data					
Rated voltage	V	-	-	-	-
Rated current	A	-	-	-	-
AWG		-	-	-	-
Material data					
Contact carrier material		PC	PC	PC	PC
Inflammability class in acc. with UL 94		V0	V0	V0	V0
Contact material		Copper alloy	Copper alloy	Copper alloy	Copper alloy
Contact surface material		Au	Au	Au	Au
Temperature data					
Ambient temperature range	°C	-40 ... 125	-40 ... 85	-40 ... 125	-40 ... 125
General data					
Connection method		Crimp connection	Crimp connection	Crimp connection	Screw connection
No. of pos.		25	8	9	2
Contact numbering		1 - 25	1-8	1-9	A,B
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500	≥ 500

Derating curves



HC-M-25-MOD-...

				Ordering data			Dimensions (in mm)																																																												
Description	Pos.	Number	Slots	Type	Order No.		Pcs. / Pkt.																																																												
					Socket	Plug																																																													
Crimp connection VS 1,0 	25	1 - 25	1	① HC-M-25-MOD-...	1605005	1605004	2	 <p>1 module slot</p>																																																											
Ethernet plug-in connector, crimp connection VS 1,0 	8	1-8	1	② HC-M-08-GBIT-...C	1587726	1587713	1	 <p>1 module slot</p>																																																											
Module, Ethernet plug-in connector 			1	③ HC-M-08-GBIT-MOD-...	1587700	1587690	1	 <p>2 module slots</p>																																																											
D-SUB 09 module, crimp connection VS 1,0 	9	1-9	1	④ HC-M-DSUB 09-MOD-...	1647543	1647530	2	<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td></td> <td></td> <td>30.65</td> <td></td> </tr> <tr> <td>① Plug</td> <td>14.6</td> <td></td> <td>34</td> <td></td> </tr> <tr> <td>② Socket</td> <td></td> <td></td> <td>40.3</td> <td></td> </tr> <tr> <td>② Plug</td> <td>13.9</td> <td></td> <td>41.4</td> <td></td> </tr> <tr> <td>③ Socket</td> <td></td> <td></td> <td>28.1</td> <td></td> </tr> <tr> <td>③ Plug</td> <td>14.6</td> <td></td> <td>40.85</td> <td></td> </tr> <tr> <td>④ Socket</td> <td></td> <td></td> <td>35.2</td> <td></td> </tr> <tr> <td>④ Plug</td> <td>14.6</td> <td></td> <td>35.2</td> <td></td> </tr> <tr> <td>⑤ Socket</td> <td></td> <td></td> <td>35.2</td> <td></td> </tr> <tr> <td>⑤ Plug</td> <td>14.6</td> <td></td> <td>35.2</td> <td></td> </tr> </tbody> </table>						a	b	c	d	① Socket			30.65		① Plug	14.6		34		② Socket			40.3		② Plug	13.9		41.4		③ Socket			28.1		③ Plug	14.6		40.85		④ Socket			35.2		④ Plug	14.6		35.2		⑤ Socket			35.2		⑤ Plug	14.6		35.2	
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D-SUB 09 module, crimp connection VS 1,0 	2	A,B	1	2-pos. ⑤ HC-M-DSUB 09/02T-MOD-...	1636444		2																																																												
Turned crimp contacts VS 1,0 Gold-plated 				Cross section mm² / AWG 0.08 - 0.2 / 28 - 24 0.2 - 0.5 / 24 - 20	VS-...-CD-1,0/14,4/0,2 VS-...-CD-1,0/14,4/0,5	1688997 1688984	1688971 1688968	30 30																																																											

Accessories



Hinged retaining frames
From page 480



Crimping tools
From page 562



Crimp contacts
See Catalog 2

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

Modular contact inserts, pneumatic modules

Connection technology:

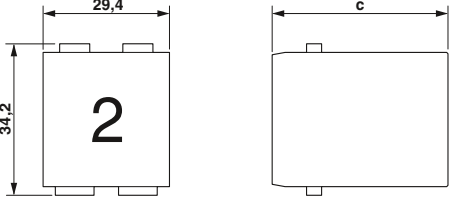

- Pneumatic contact with valve
- Pneumatic contact without valve

To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Connectors may only be operated when under no load.
Observe housing height
Observe notes on the connection technology



Type	Technical data			
	HC-M-PN2-MOD-...	HC-M-PN3-MOD-...		
Approvals				
IEC data				
Rated current, contacts (at 40°C)	A	-	-	
Surge voltage category		-	-	
Pollution degree		-	-	
Rated voltage (III/3) contacts	V	-	-	
Rated surge voltage, contacts	kV	-	-	
Connection cross section	mm ²	-	-	
UL data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
CSA data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
Material data				
Contact carrier material	PC	PC		
Inflammability class in acc. with UL 94	V0	V0		
Contact material	-	-		
Contact surface material	-	-		
Temperature data				
Ambient temperature range	°C	-40 ... 80	-40 ... 80	
General data				
Connection method		-	-	
No. of pos.		2	3	
Contact numbering		1 - 2	1 - 3	
Insertion/withdrawal cycles		≥ 500	≥ 500	

Description	Pos.	Number	Slots	Type	Ordering data		Pcs. / Pkt.	Dimensions (in mm)																										
					Socket	Plug																												
PN2 pneumatic module 	2	1 - 2	1	① HC-M-PN2-MOD-...	1674998	1674998	2	 <p>1 module slot</p>																										
PN3 pneumatic module 	3	1 - 3	1	② HC-M-PN3-MOD-...	1663475	1663475	2																											
PN2 pneumatic contact With valve 				HC-M-PN2-6,00-...-V	1676776		10	 <p>2 module slots</p>																										
PN2 pneumatic contact Without valve 				HC-M-PN2-6,00-...	1676763	1676750	10																											
PN3 pneumatic contact With valve 				HC-M-PN3-1,60-BU-V HC-M-PN3-3,00-BU-V HC-M-PN3-4,00-BU-V	1663543 1663556 1663569		10 10 10	<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td>14.6</td> <td></td> <td>27.2</td> <td></td> </tr> <tr> <td>① Plug</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>② Socket</td> <td>14.6</td> <td></td> <td>27.2</td> <td></td> </tr> <tr> <td>② Plug</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		a	b	c	d	① Socket	14.6		27.2		① Plug					② Socket	14.6		27.2		② Plug					
	a	b	c	d																														
① Socket	14.6		27.2																															
① Plug																																		
② Socket	14.6		27.2																															
② Plug																																		
PN3 pneumatic contact Without valve 				HC-M-PN3-1,60-... HC-M-PN3-3,00-... HC-M-PN3-4,00-...	1663514 1663527 1663530	1663488 1663491 1663501	10 10 10																											

Accessories



Hinged retaining frames
From page 480

Heavy-duty plug-in connectors

HEAVYCON type B - contact inserts

Modular contact inserts

400 V, 16 A

Connection technology:

- Spring-cage connection
- Coaxial contacts

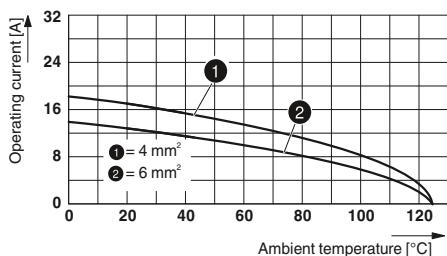
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
For accessories, see from page 552
Connectors may only be operated when under no load.
Observe housing height
Observe notes on the connection pin technology
Coaxial module with coding pin and coding socket


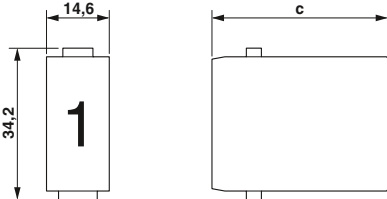

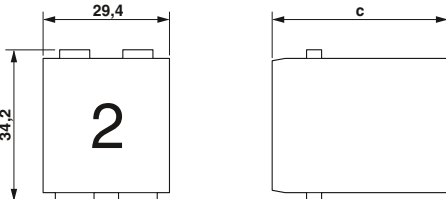

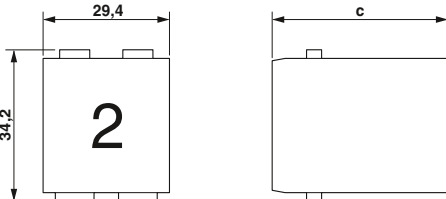



Type	Technical data			
	HC-M-05-MOD-...Z	HC-M-04-MOD-...		
Approvals				
IEC data				
Rated current, contacts (at 40°C)	A	16	1.5	
Surge voltage category		III	III	
Pollution degree		3	3	
Rated voltage (III/3) contacts	V	400	50	
Rated surge voltage, contacts	kV	6	3	
Connection cross section	mm ²	0.14 ... 2.5	-	
UL data				
Rated voltage	V	600	-	
Rated current	A	16	-	
AWG		12	-	
CSA data				
Rated voltage	V	-	-	
Rated current	A	-	-	
AWG		-	-	
Material data				
Contact carrier material		PC	PC	
Inflammability class in acc. with UL 94		V0	V0	
Contact material		Copper alloy	Copper alloy	
Contact surface material		Ag	AU	
Temperature data				
Ambient temperature range	°C	-40 ... 125	-40 ... 125	
General data				
Connection method		Spring-cage connection	Soldering and crimp connection	
No. of pos.		5	4	
Contact numbering		1 - 5	1 - 4	
Insulation resistance	GΩ	-	≥ 10	
Volume resistance	mΩ	-	-	
Insertion/withdrawal cycles		≥ 500	≥ 500	

Derating curves



HC-M-05-MOD-...Z

Description	Pos.	Number	Slots	Type	Ordering data		Pcs. / Pkt.	Dimensions (in mm)																												
					Socket	Plug		a	b	c	d																									
Spring-cage connection 	5	1 - 5	1	① HC-M-05-MOD-...Z	1647721	1647718	2	 <p>1 module slot</p>																												
Coaxial module 	4	1 - 4	1	② HC-M-04-MOD-...	1676789	1676792	2	 <p>1 module slot</p>																												
Coaxial contacts, 50 Ω 				HC-M-04-...-KOAX-50	1676815	1676802	10	 <p>2 module slots</p>																												
Coaxial contacts, 75 Ω 				HC-M-04-...-KOAX-75	1686245	1686258	10	<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td></td> <td></td> <td>34</td> <td></td> </tr> <tr> <td>① Plug</td> <td>14.6</td> <td></td> <td>35.5</td> <td></td> </tr> <tr> <td>② Socket</td> <td>14.6</td> <td></td> <td>32.6</td> <td></td> </tr> <tr> <td>② Plug</td> <td></td> <td></td> <td>31.5</td> <td></td> </tr> </tbody> </table>					a	b	c	d	① Socket			34		① Plug	14.6		35.5		② Socket	14.6		32.6		② Plug			31.5	
	a	b	c	d																																
① Socket			34																																	
① Plug	14.6		35.5																																	
② Socket	14.6		32.6																																	
② Plug			31.5																																	

Accessories



Hinged retaining frames
From page 480



Crimping tools
From page 562

Heavy-duty plug-in connectors


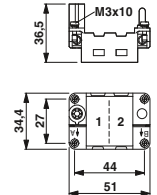

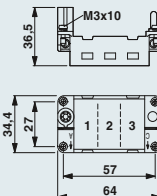

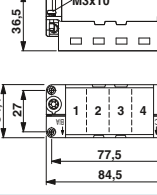

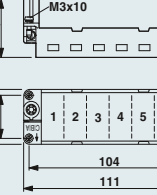


HEAVYCON type B - contact inserts

Modular contact inserts, hinged retaining frames

Technical data	
General data	
Housing material	-
Surface material	-
Material, lock	-
Sealing material	-
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	-



Ordering data

Description	Type	Order No.	Pcs. / Pkt.	Dimensions
Hinged retaining frames 	For sleeve housing (A, B, C, etc.) HC-M-MHR-T2-N For panel mounting base (a, b, c, etc.) HC-M-MHR-A2-N	1679249 1679281	2 2	
Hinged retaining frames 	For sleeve housing (A, B, C, etc.) HC-M-MHR-T3-N For panel mounting base (a, b, c, etc.) HC-M-MHR-A3-N	1679252 1679294	2 2	
Hinged retaining frames 	For sleeve housing (A, B, C, etc.) HC-M-MHR-T4-N For panel mounting base (a, b, c, etc.) HC-M-MHR-A4-N	1679265 1679304	2 2	
Hinged retaining frames 	For sleeve housing (A, B, C, etc.) HC-M-MHR-T6-N For panel mounting base (a, b, c, etc.) HC-M-MHR-A6-N	1679278 1679317	2 2	
Fixing wedges 	HC-M-MHR-FIX	1585155	2	
Cable lug 	PE extension to 16 mm ² HC-M-MHR-PE16	1636981	50	


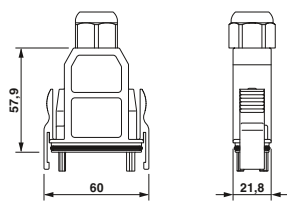

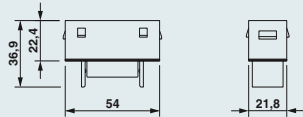




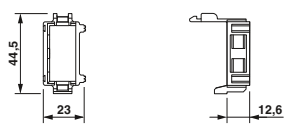

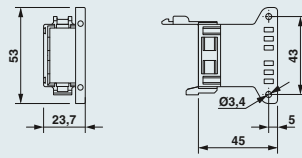
Notes:
For accessories, see from page 552
Observe notes on the connection technology

Modular contact inserts, accessories

General data		Technical data
Housing material		Polycarbonate
Surface material		-
Material, lock		-
Sealing material		-
Ambient temperature (operation)		-40 °C ... 85 °C
Type of protection (when plugged in)		IP65 protection when the connector is inserted



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Sleeve housing Height: 57.9 mm 	1x M20	HC-MOD-K-TMS-M1M20-G-PE	1408520	2	
Panel mounting base Height: 22.4 mm 		HC-MOD-K-AFS-PE	1408533	2	
Coding profile 		HC-MOD-K-CP	1408562	10	
Dummy modules 		HC-M-BM	1676828	2	
Contact insert frame 		Without strain relief HC-M-MHOZ	1676844	2	
Contact insert frame 		With strain relief HC-M-MHMZ	1676831	2	

Notes:
For accessories, see from page 552
Observe notes on the connection technology

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B6, metal, ADVANCE sleeve housing, STA - standard







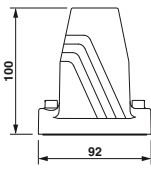
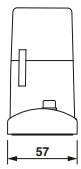
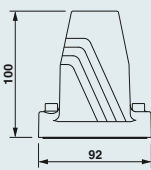
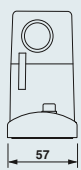
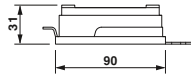

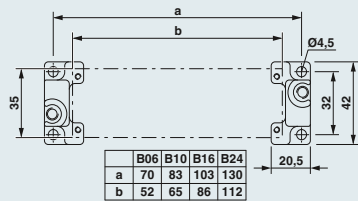
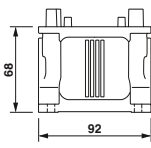
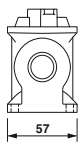
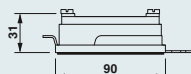

General data

Housing material
Surface material
Material, lock
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data	
Aluminum, die-cast	
Powder-coated, gray	
Stainless steel	
NBR	
-40 °C ... 125 °C	
IP65 / IP68 (0.2 bar, 24h) / IP69K	

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.
Cable entry: top¹⁾ Height: 100 mm 	1 x M20	HC-B 6-TMS-100/O1STM20G-STA	1604052	10
	1 x M25	HC-B 6-TMS-100/O1STM25G-STA	1604117	10
Cable entry: lateral¹⁾ Height: 100 mm 	1 x M20	HC-B 6-TMS-100/O1STM20S-STA	1604081	10
	1 x M25	HC-B 6-TMS-100/O1STM25S-STA	1604146	10
IP50 protective cover 		For the sleeve side HC-B 6-TMS-SD-IP50	1690736	10
Panel mounting flange²⁾ 		2 pcs. per housing HC-B-AF Set with 2 panel mounting flanges HC-B-AF-SET	1686533 1604638	20 1
Box mounting base Height: 68 mm 	2 x M20	HC-ADV-B06-SHFH-2STM20-EEE	1408630	1
	2 x M25	HC-ADV-B06-SHFH-2STM25-EEE	1408656	1
IP65 protective cover 		For the panel mounting side HC-B 6-TMS-SD-IP65	1690778	10

Dimensions																
																
																
																
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	B06	B10	B16	B24												
a	70	83	103	130												
b	52	65	86	112												
																
																

Notes:
Pozidriv® Trademark of European Ind. Serv. Ltd.
¹⁾ Screw locking with M6 Pozidriv® screws
²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)

Accessories



Screw connections
From page 552


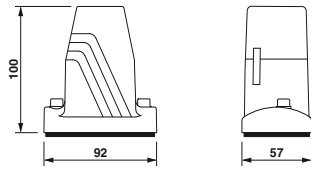

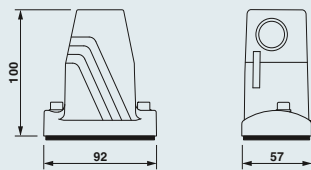

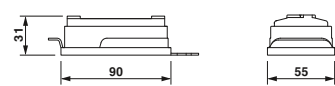

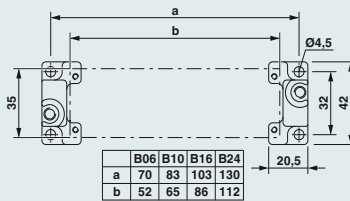

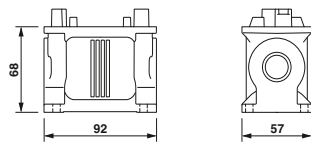

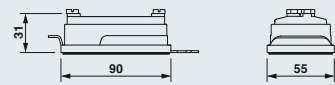
Type B6, metal, ADVANCE sleeve housing, EEE - offshore/EMC



Technical data

General data	
Housing material	Die-cast aluminum, salt water resistant
Surface material	Uncoated
Material, lock	Stainless steel
Sealing material	NBR, conductive
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65 / IP68 (0.2 bar, 24h) / IP69K

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions															
Cable entry: top¹⁾ Height: 100 mm 	1 x M20 1 x M25 1 x M32	HC-B 6-TMS-100/O1STM20G-EEE HC-B 6-TMS-100/O1STM25G-EEE HC-B 6-TMS-100/O1STM32G-EEE	1580480 1408229 1580477	10 10 10																
Cable entry: lateral¹⁾ Height: 100 mm 	1 x M20 1 x M25	HC-B 6-TMS-100/O1STM20S-EEE HC-B 6-TMS-100/O1STM25S-EEE	1587645 1460356	10 10																
IP50 protective cover 		For the sleeve side HC-B 6-TMS-SD-IP50	1690736	10																
Panel mounting flange²⁾ 		2 pcs. per housing HC-B-AF Set with 2 panel mounting flanges HC-B-AF-SET	1686533 1604638	20 1	 <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>B06</th> <th>B10</th> <th>B16</th> <th>B24</th> </tr> </thead> <tbody> <tr> <td>a</td> <td>70</td> <td>83</td> <td>103</td> <td>130</td> </tr> <tr> <td>b</td> <td>52</td> <td>65</td> <td>86</td> <td>112</td> </tr> </tbody> </table>		B06	B10	B16	B24	a	70	83	103	130	b	52	65	86	112
	B06	B10	B16	B24																
a	70	83	103	130																
b	52	65	86	112																
Box mounting base Height: 68 mm 	2 x M20 2 x M25	HC-ADV-B06-SHFH-2STM20-EEE HC-ADV-B06-SHFH-2STM25-EEE	1408630 1408656	1 1																
IP65 protective cover 		For the panel mounting side HC-B 6-TMS-SD-IP65	1690778	10																

Notes:

In order to achieve optimum shielding results, the mounting surface must be conductive

¹⁾ Screw locking with M6 Allen screws

²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)



Screw connections
From page 552

Accessories


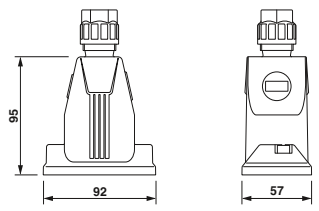

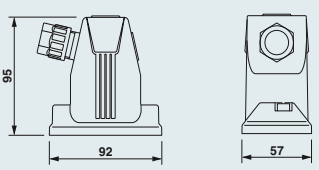

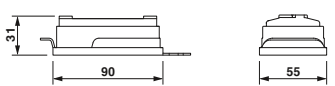

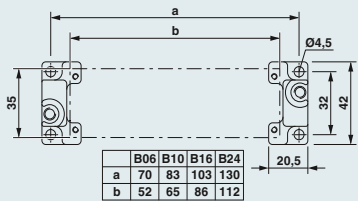

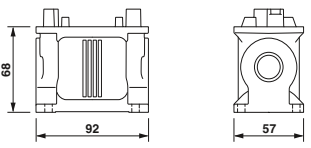

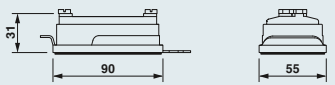
Type B6, plastic, ADVANCE PL sleeve housing with cable gland



Technical data

General data	
Housing material	Polyamide
Surface material	-
Material, lock	V2A
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65/67

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions															
Cable entry: top¹⁾ Height: 95 mm 	1 x M20 1 x M25	HC-ADV-B06-HHWH-1TGM20-PL	1404222	1																
		HC-ADV-B06-HHWH-1TGM25-PL	1404225	1																
Cable entry: lateral¹⁾ Height: 95 mm 	1 x M20 1 x M25	HC-ADV-B06-HHWH-1SGM20-PL	1404224	1																
		HC-ADV-B06-HHWH-1SGM25-PL	1404226	1																
IP50 protective cover 		For the sleeve side HC-B 6-TMS-SD-IP50	1690736	10																
Panel mounting flange²⁾ 		2 pcs. per housing HC-B-AF Set with 2 panel mounting flanges HC-B-AF-SET	1686533	20	 <table border="1" data-bbox="1189 1312 1348 1375"> <tr> <td></td> <td>B06</td> <td>B10</td> <td>B16</td> <td>B24</td> </tr> <tr> <td>a</td> <td>70</td> <td>83</td> <td>103</td> <td>130</td> </tr> <tr> <td>b</td> <td>52</td> <td>65</td> <td>86</td> <td>112</td> </tr> </table>		B06	B10	B16	B24	a	70	83	103	130	b	52	65	86	112
		B06	B10	B16		B24														
a	70	83	103	130																
b	52	65	86	112																
HC-B-AF-SET 1604638 1																				
Box mounting base Height: 68 mm 	2 x M20 2 x M25	HC-ADV-B06-SHFH-2STM20-EEE	1408630	1																
		HC-ADV-B06-SHFH-2STM25-EEE	1408656	1																
IP65 protective cover 		For the panel mounting side HC-B 6-TMS-SD-IP65	1690778	10																

Notes:

For further accessories, see from page 552

¹⁾ Corresponding marking label: US-EMP (20X9), Order No. 0829439

²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)



Screw connections
From page 552

Accessories

Heavy-duty plug-in connectors

HEAVYCON type B - housing


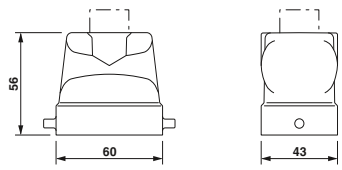

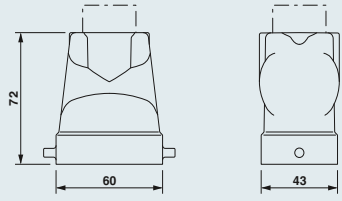

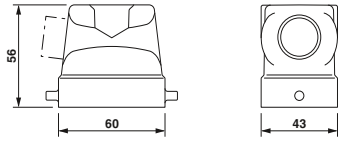

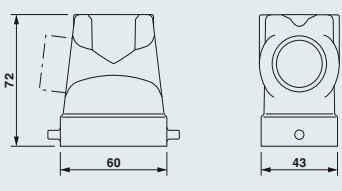
Type B6, metal, sleeve housing for single locking latch



Technical data

General data	
Housing material	Aluminum, die-cast
Surface material	Powder-coated, gray
Locking latch material	-
Sealing material	-
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65

Ordering data

Description		Type	Order No.	Pcs. / Pkt.	Dimensions
Cable entry: top Height: 56 mm 	1 x M20	HC-B 6-TFL-N-O1STM20G	1460339	10	
	1 x M25	HC-B 6-TFL-N-O1STM25G	1460258	10	
	1 x Pg13.5	HC-B 6-TFL-N-O1PG13.5G	1460340	10	
	1 x Pg16	HC-B 6-TFL-N-O1PG16G	1460341	10	
Cable entry: top Height: 72 mm 	1 x M25	HC-B 6-TFL-H-O1STM25G	1460027	10	
	1 x M32	HC-B 6-TFL-H-O1STM32G	1460029	10	
	1 x Pg21	HC-B 6-TFL-H-O1PG21G	1460021	10	
	1 x Pg29	HC-B 6-TFL-H-O1PG29G	1460023	10	
Cable entry: lateral Height: 56 mm 	1 x M20	HC-B 6-TFL-N-O1STM20S	1460346	10	
	1 x M25	HC-B 6-TFL-N-O1STM25S	1460347	10	
	1 x Pg13.5	HC-B 6-TFL-N-O1PG13.5S	1460348	10	
	1 x Pg16	HC-B 6-TFL-N-O1PG16S	1460349	10	
Cable entry: lateral Height: 72 mm 	1 x M25	HC-B 6-TFL-H-O1STM25S	1460028	10	
	1 x M32	HC-B 6-TFL-H-O1STM32S	1460030	10	
	1 x Pg21	HC-B 6-TFL-H-O1PG21S	1460022	10	
	1 x Pg29	HC-B 6-TFL-H-O1PG29S	1460024	10	

Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556

N

Type B6, plastic, EVO sleeve housing for single locking latch




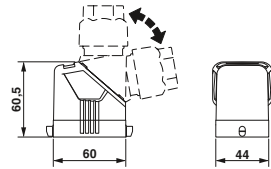

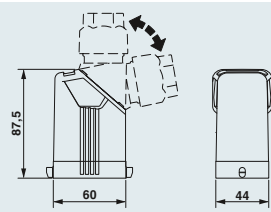

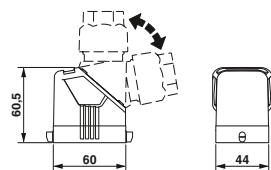

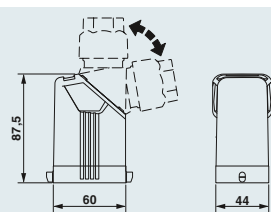

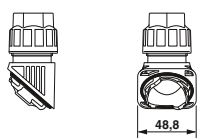

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Polyamide
-
-
-40 °C ... 100 °C
IP65

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Cable entry: top/lateral Height: 60.5 mm 		HC-EVO-B06-HLFS-PLBK	1407619	1	
Cable entry: top/lateral Height: 87.5 mm 		HC-EVO-B06-HHFS-PLBK	1407620	1	
Cable entry: top/lateral Height: 60.5 mm 		HC-EVO-B06-HLFS-PLBK	1407619	1	
Cable entry: top/lateral Height: 87.5 mm 		HC-EVO-B06-HHFS-PLBK	1407620	1	
Cable gland 	1 x M20 1 x M25 1 x M32 1 x M40	HC-B-G-M20-PLRBK HC-B-G-M25-PLRBK HC-B-G-M32-PLRBK HC-B-G-M40-PLRBK	1407669 1407670 1407671 1407672	1 1 1 1	
Plug-in connector set 		Push-in connection HC-EVO-B06PT-BWSC-HL-M20-PLRBK	1407710	1	

Notes:

For further accessories, see from page 552
Corresponding marking label: US-EMP (20X9), Order No. 0829439

Accessories



Protective cover
From page 578



Corrugated pipe adapter
From page 584

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B6, metal, supporting base element with single locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data	
Material	Aluminum, die-cast
Surface treatment	Powder-coated, gray
Locking latch material	Stainless steel, handle: PA
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 29 mm		Without cover HC-B 6-AML With plastic cover HC-B 6-AMLD With metal cover HC-B 6-AMLD-AL	1771134 1771147 1645464	10 10 10	
Box mounting base Height: 52 mm	1 x M20 1 x M25 1 x Pg16 2 x M20 2 x M25 2 x Pg16	HC-B 6-SML-52/O1M20 HC-B 6-SML-52/O1M25 HC-B 6-SML-52/O1PG16 HC-B 6-SML-52/O2M20 HC-B 6-SML-52/O2M25 HC-B 6-SML-52/O2PG16	1604721 1604722 1675214 1604723 1604724 1675230	10 10 10 10 10 10	
Box mounting base Height: 74 mm	1 x M25 1 x M32 1 x Pg21 1 x Pg29 2 x M25 2 x M32 2 x Pg21 2 x Pg29	HC-B 6-SML-74/O1M25 HC-B 6-SML-74/O1M32 HC-B 6-SML-74/O1PG21 HC-B 6-SML-74/O1PG29 HC-B 6-SML-74/O2M25 HC-B 6-SML-74/O2M32 HC-B 6-SML-74/O2PG21 HC-B 6-SML-74/O2PG29	1604725 1646845 1678114 1678127 1460195 1646858 1678130 1678143	10 10 10 10 10 10 10 10	
Box mounting base with cover Height: 52 mm	1 x M25 2 x M20 2 x M25 2 x Pg16	HC-B 6-SMLD-52/O1M25 HC-B 6-SMLD-52/O1PG16 HC-B 6-SMLD-52/O2M20 HC-B 6-SMLD-52/O2M25 HC-B 6-SMLD-52/O2PG16	1604728 1675269 1604729 1604730 1675272	10 10 10 10 10	
Box mounting base with cover Height: 74 mm	1 x Pg21 1 x Pg29 2 x M32 2 x Pg21 2 x Pg29	HC-B 6-SMLD-74/O1PG21 HC-B 6-SMLD-74/O1PG29 HC-B 6-SMLD-74/O2M32 HC-B 6-SMLD-74/O2PG21 HC-B 6-SMLD-74/O2PG29	1678156 1678169 1646861 1678172 1678185	10 10 10 10 10	
Coupling housing Height: 62 mm	1 x M20 1 x Pg13.5	HC-B 6-KML-N-O1STM20 HC-B 6-KML-N-O1PG13.5	1460137 1460168	10 10	

Notes:
For further accessories, see from page 552

Accessories

Flat gaskets From page 571	Pressure screw set From page 556	Screw connections From page 552	Cover plates From page 572

Type B6, plastic, EVO supporting base element with single locking latch


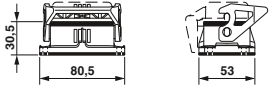

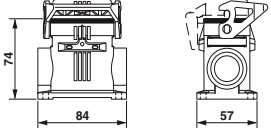

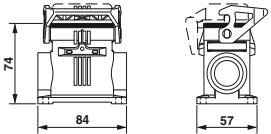

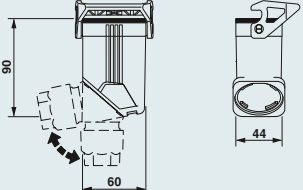
General data

Housing material	Polyamide
Surface material	-
Locking latch material	Polyamide
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted

Technical data

Ordering data



Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 30.5 mm 		Without cover HC-EVO-B06-BWS-PLRBK	1407621	1	
		With cover HC-EVO-B06-BWSC-PLRBK	1407622	1	
Box mounting base Height: 74 mm 	2 x M32	HC-EVO-B06-SHWS-2SSM32-PLRBK	1407623	1	
Box mounting base with cover Height: 74 mm 	2 x M32	HC-EVO-B06-SHWSC-2SSM32-PLRBK	1407624	1	
Coupling housing Height: 90 mm 	1 x M40 1 x M32 1 x M25 1 x M20	HC-EVO-B06-CHWS-PLRBK	1407625	1	
		HC-B-G-M40-PLRBK	1407672	1	
		HC-B-G-M32-PLRBK	1407671	1	
		HC-B-G-M25-PLRBK	1407670	1	
		HC-B-G-M20-PLRBK	1407669	1	

Notes:

- For further accessories, see from page 552
- Corresponding marking label: US-EMP (20X9), Order No. 0829439
- Replacement hinged cover: Order No. 1407692

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B10, metal, ADVANCE sleeve housing, STA - standard


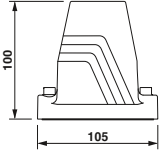
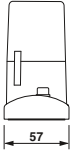

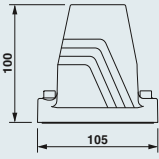
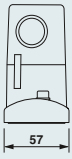

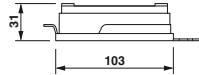


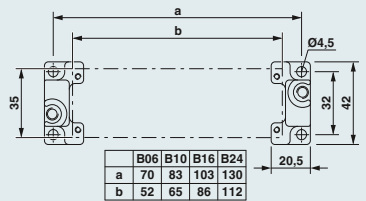

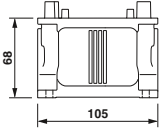


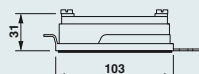

General data

Housing material
Surface material
Material, lock
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data	
Aluminum, die-cast	
Powder-coated, gray	
Stainless steel	
NBR	
-40 °C ... 125 °C	
IP65 / IP68 (0.2 bar, 24h) / IP69K	



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions															
Cable entry: top¹⁾ Height: 100 mm 	1 x M25	HC-B 10-TMS-100/O1STM25G-STA	1690040	10	 															
	1 x M32	HC-B 10-TMS-100/O1STM32G-STA	1690121	10																
Cable entry: lateral¹⁾ Height: 100 mm 	1 x M25	HC-B 10-TMS-100/O1STM25S-STA	1690082	10	 															
	1 x M32	HC-B 10-TMS-100/O1STM32S-STA	1690163	10																
IP50 protective cover 		For the sleeve side HC-B 10-TMS-SD-IP50	1690749	10	 															
Panel mounting flange²⁾ 		2 pcs. per housing HC-B-AF Set with 2 panel mounting flanges HC-B-AF-SET	1686533 1604638	20 1	 <table border="1" data-bbox="1204 1323 1364 1375"> <thead> <tr> <th></th> <th>B06</th> <th>B10</th> <th>B16</th> <th>B24</th> </tr> </thead> <tbody> <tr> <td>a</td> <td>70</td> <td>83</td> <td>103</td> <td>130</td> </tr> <tr> <td>b</td> <td>52</td> <td>65</td> <td>86</td> <td>112</td> </tr> </tbody> </table>		B06	B10	B16	B24	a	70	83	103	130	b	52	65	86	112
	B06	B10	B16	B24																
a	70	83	103	130																
b	52	65	86	112																
Box mounting base Height: 68 mm 	2 x M25	HC-ADV-B10-SHFH-2STM25-EEE	1408753	1	 															
IP65 protective cover 		For the panel mounting side HC-B 10-TMS-SD-IP65	1690781	10	 															

Notes:

Pozidriv®
Trademark of European Ind. Serv. Ltd.
¹⁾ Screw locking with M6 Pozidriv® screws
²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)

Accessories



Screw connections
From page 552


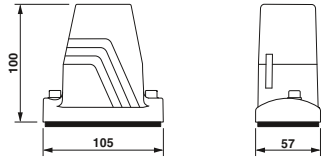

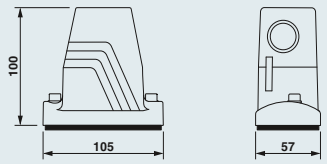

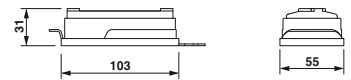

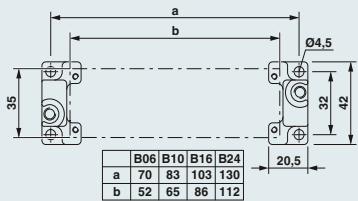

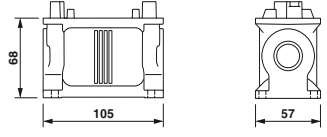

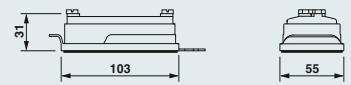
Type B10, metal, ADVANCE sleeve housing, EEE - offshore/EMC



Technical data

General data	
Housing material	Die-cast aluminum, salt water resistant
Surface material	Uncoated
Material, lock	Stainless steel
Sealing material	NBR, conductive
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65 / IP68 (0.2 bar, 24h) / IP69K

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions															
Cable entry: top¹⁾ Height: 100 mm 	1 x M25 1 x M32	HC-B 10-TMS-100/O1STM25G-EEE HC-B 10-TMS-100/O1STM32G-EEE	1580486 1580483	10 10																
Cable entry: lateral¹⁾ Height: 100 mm 	1 x M25 1 x M32	HC-B 10-TMS-100/O1STM25S-EEE HC-B 10-TMS-100/O1STM32S-EEE	1587658 1460357	10 10																
IP50 protective cover 		For the sleeve side HC-B 10-TMS-SD-IP50	1690749	10																
Panel mounting flange²⁾ 		2 pcs. per housing HC-B-AF Set with 2 panel mounting flanges HC-B-AF-SET	1686533 1604638	20 1	 <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>B06</td> <td>B10</td> <td>B16</td> <td>B24</td> </tr> <tr> <td>a</td> <td>70</td> <td>83</td> <td>103</td> <td>130</td> </tr> <tr> <td>b</td> <td>52</td> <td>65</td> <td>86</td> <td>112</td> </tr> </table>		B06	B10	B16	B24	a	70	83	103	130	b	52	65	86	112
	B06	B10	B16	B24																
a	70	83	103	130																
b	52	65	86	112																
Box mounting base Height: 68 mm 	2 x M25	HC-ADV-B10-SHFH-2STM25-EEE	1408753	1																
IP65 protective cover 		For the panel mounting side HC-B 10-TMS-SD-IP65	1690781	10																

Notes:

In order to achieve optimum shielding results, the mounting surface must be conductive

¹⁾ Screw locking with M6 Allen screws

²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)



Screw connections
From page 552

Accessories

Heavy-duty plug-in connectors

HEAVYCON type B - housing

**Type B10, metal,
ADVANCE sleeve housing,
EUA - increased environmental requirements**



General data

Housing material
Surface material
Material, lock
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Die-cast aluminum, salt water resistant
Powder-coated, black
Stainless steel
Viton
-40 °C ... 125 °C
IP65 / IP68 (0.2 bar, 24h) / IP69K

Ordering data

Description	Thread
-------------	--------

Cable entry: top¹⁾
Height: 100 mm

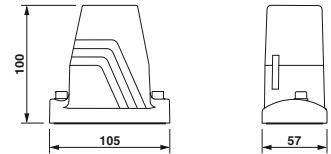


1 x M25
1 x M32

Type	Order No.	Pcs. / Pkt.
------	-----------	-------------

HC-B 10-TMS-100/O1STM25G-EUA 1690037 10
HC-B 10-TMS-100/O1STM32G-EUA 1690118 10

Dimensions

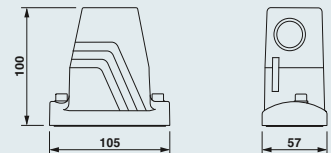


Cable entry: lateral¹⁾
Height: 100 mm



1 x M25
1 x M32

HC-B 10-TMS-100/O1STM25S-EUA 1690079 10
HC-B 10-TMS-100/O1STM32S-EUA 1690150 10



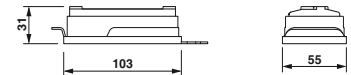
IP50 protective cover



For the sleeve side
HC-B 10-TMS-SD-IP50

1690749

10



Panel mounting flange²⁾



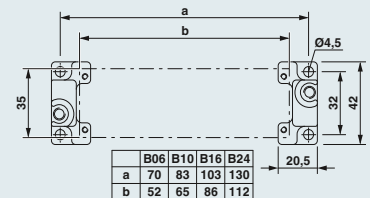
2 pcs. per housing
HC-B-AF
Set with 2 panel mounting flanges
HC-B-AF-SET

1686533

20

1604638

1



Box mounting base
Height: 68 mm

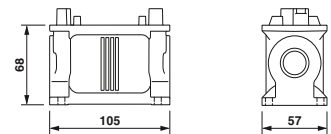


2 x M25

HC-ADV-B10-SHFH-2STM25-EEE

1408753

1



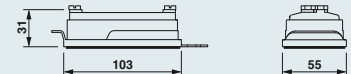
IP65 protective cover



For the panel mounting side
HC-B 10-TMS-SD-IP65

1690781

10



Notes:

Pozidriv®
Trademark of European Ind. Serv. Ltd.

¹⁾ Screw locking with M6 Pozidriv® screws

²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)

Accessories



Screw connections
From page 552


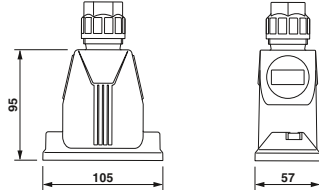

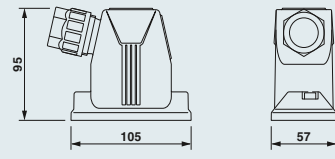

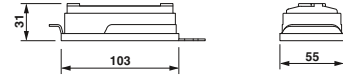

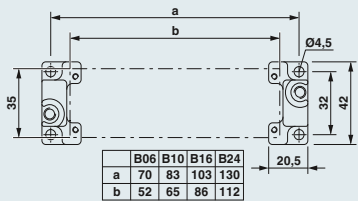

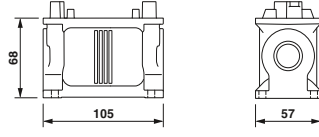


Type B10, plastic, ADVANCE PL sleeve housing with cable gland



Technical data

General data	
Housing material	Polyamide
Surface material	-
Material, lock	V2A
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65/67

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions															
Cable entry: top¹⁾ Height: 95 mm 	1 x M25	HC-ADV-B10-HHWH-1TGM25-PL	1404227	1																
	1 x M32	HC-ADV-B10-HHWH-1TGM32-PL	1404229	1																
Cable entry: lateral¹⁾ Height: 95 mm 	1 x M25	HC-ADV-B10-HHWH-1SGM25-PL	1404228	1																
	1 x M32	HC-ADV-B10-HHWH-1SGM32-PL	1404230	1																
IP50 protective cover 		For the sleeve side HC-B 10-TMS-SD-IP50	1690749	10																
Panel mounting flange²⁾ 		2 pcs. per housing HC-B-AF Set with 2 panel mounting flanges HC-B-AF-SET	1686533 1604638	20 1	 <table border="1" data-bbox="1189 1323 1348 1375"> <tr> <td></td> <td>B06</td> <td>B10</td> <td>B16</td> <td>B24</td> </tr> <tr> <td>a</td> <td>70</td> <td>83</td> <td>103</td> <td>130</td> </tr> <tr> <td>b</td> <td>52</td> <td>65</td> <td>86</td> <td>112</td> </tr> </table>		B06	B10	B16	B24	a	70	83	103	130	b	52	65	86	112
		B06	B10	B16		B24														
a	70	83	103	130																
b	52	65	86	112																
Box mounting base Height: 68 mm 	2 x M25	HC-ADV-B10-SHFH-2STM25-EEE	1408753	1																
IP65 protective cover 		For the panel mounting side HC-B 10-TMS-SD-IP65	1690781	10																

Notes:

For further accessories, see from page 552

¹⁾ Corresponding marking label: US-EMP (20X9), Order No. 0829439

²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)



Screw connections
From page 552

Accessories

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B10, metal, sleeve housing for single locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
-
-40 °C ... 125 °C
IP65



Ordering data

Description

Cable entry: top
Height: 56 mm



1 x M20
1 x M25

1 x Pg16



Type

HC-B 10-TFL-N-O1STM20G
HC-B 10-TFL-N-O1STM25G
HC-B 10-TFL-N-O1PG16G

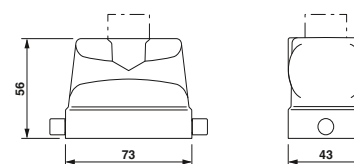
Order No.

1460034
1460039
1460036

Pcs. / Pkt.

10
10
10

Dimensions



Cable entry: top
Height: 72 mm

1 x M25
1 x M32

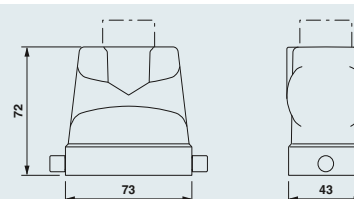
1 x Pg16
1 x Pg29



HC-B 10-TFL-H-O1STM25G
HC-B 10-TFL-H-O1STM32G
HC-B 10-TFL-H-O1PG21G
HC-B 10-TFL-H-O1PG29G

1460054
1460056
1460048
1460050

10
10
10
10



Cable entry: lateral
Height: 56 mm

1 x M20
1 x M25

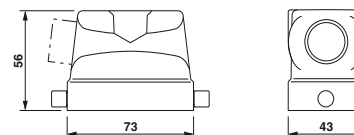
1 x Pg29



HC-B 10-TFL-N-O1STM20S
HC-B 10-TFL-N-O1STM25S
HC-B 10-TFL-N-O1PG16S

1460035
1460040
1460041

10
10
10



Cable entry: lateral
Height: 72 mm

1 x M25
1 x M32

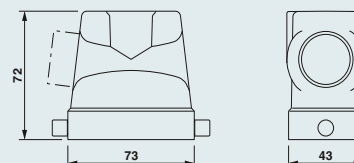
1 x Pg29
1 x Pg29



HC-B 10-TFL-H-O1STM25S
HC-B 10-TFL-H-O1STM32S
HC-B 10-TFL-H-O1PG21S
HC-B 10-TFL-H-O1PG29S

1460055
1460057
1460049
1460051

10
10
10
10



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556

Type B10, plastic, EVO sleeve housing for single locking latch




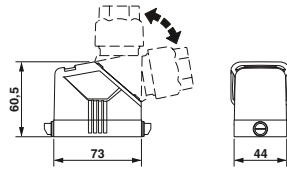

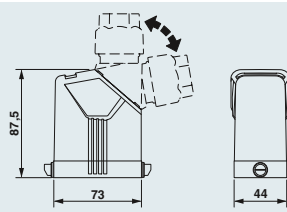

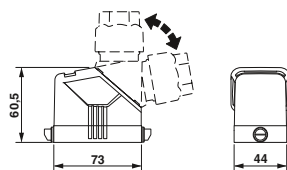

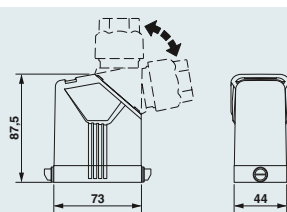

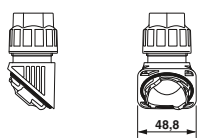

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Polyamide
-
-
-40 °C ... 100 °C
IP65

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Cable entry: top/lateral Height: 60.5 mm 		HC-EVO-B10-HLFS-PLBK	1407626	1	
Cable entry: top/lateral Height: 87.5 mm 		HC-EVO-B10-HHFS-PLBK	1407627	1	
Cable entry: top/lateral Height: 60.5 mm 		HC-EVO-B10-HLFS-PLBK	1407626	1	
Cable entry: top/lateral Height: 87.5 mm 		HC-EVO-B10-HHFS-PLBK	1407627	1	
Cable gland 	1 x M20 1 x M25 1 x M32 1 x M40	HC-B-G-M20-PLRBK HC-B-G-M25-PLRBK HC-B-G-M32-PLRBK HC-B-G-M40-PLRBK	1407669 1407670 1407671 1407672	1 1 1 1	
Plug-in connector set 		Push-in connection HC-EVO-B10PT-BWSC-HL-M25-PLRBK	1408791	1	

Notes:

For further accessories, see from page 552
Corresponding marking label: US-EMP (20X9), Order No. 0829439

Accessories



Protective cover
From page 578



Corrugated pipe adapter
From page 584

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B10, metal, supporting base element with single locking latch


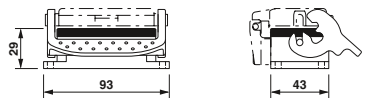

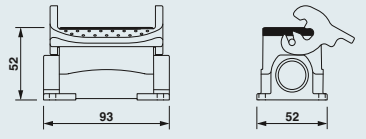

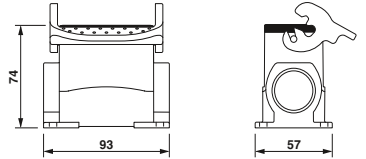

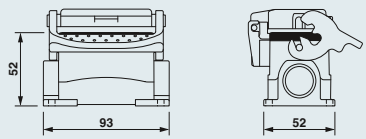

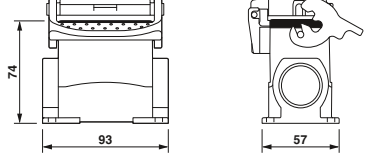

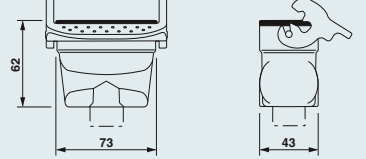
General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data	
Material	Aluminum, die-cast
Surface treatment	Powder-coated, gray
Locking latch material	Stainless steel, handle: PA
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 29 mm 		Without cover HC-B 10-AML	1771338	10	
		With plastic cover HC-B 10-AMLD	1771354	10	
		With metal cover HC-B 10-AMLD-AL	1645477	10	
Box mounting base Height: 52 mm 	1 x M20 1 x M25	HC-B 10-SML-52/O1M20 HC-B 10-SML-52/O1M25 HC-B 10-SML-52/O1PG16	1646269 1604749 1673449	10 10 10	
	2 x M20	HC-B 10-SML-52/O2M20	1646272	10	
	2 x Pg16	HC-B 10-SML-52/O2PG16	1673452	10	
Box mounting base Height: 74 mm 	1 x M25 1 x M32	HC-B 10-SML-74/O1M25 HC-B 10-SML-74/O1M32 HC-B 10-SML-74/O1PG21 HC-B 10-SML-74/O1PG29	1646395 1646418 1677636 1677649	10 10 10 10	
	2 x M25 2 x M32	HC-B 10-SML-74/O2M25 HC-B 10-SML-74/O2M32 HC-B 10-SML-74/O2PG21	1646285 1646421 1677652	10 10 10	
Box mounting base with cover Height: 52 mm 	1 x M20	HC-B 10-SMLD-52/O1M20 HC-B 10-SMLD-52/O1PG16	1646434 1673465	10 10	
	2 x M20 2 x M25	HC-B 10-SMLD-52/O2M20 HC-B 10-SMLD-52/O2M25 HC-B 10-SMLD-52/O2PG16	1604750 1604751 1673478	10 10 10	
Box mounting base with cover Height: 74 mm 	1 x M25 1 x M32	HC-B 10-SMLD-74/O1M25 HC-B 10-SMLD-74/O1M32 HC-B 10-SMLD-74/O1PG21 HC-B 10-SMLD-74/O1PG29	1646447 1646463 1677678 1677681	10 10 10 10	
	2 x M25 2 x M32	HC-B 10-SMLD-74/O2M25 HC-B 10-SMLD-74/O2M32 HC-B 10-SMLD-74/O2PG21 HC-B 10-SMLD-74/O2PG29	1646450 1646476 1677694 1677704	10 10 10 10	
Coupling housing Height: 62 mm 	1 x M20	HC-B 10-KML-N-O1STM20	1460316	10	
	1 x Pg16	HC-B 10-KML-N-O1PG16	1460287	10	

Notes:
For further accessories, see from page 552

Accessories

 Flat gaskets From page 571	 Pressure screw set From page 556	 Screw connections From page 552	 Cover plates From page 572
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Type B10, plastic, EVO supporting base element with single locking latch


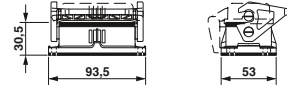

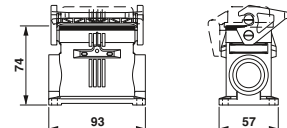

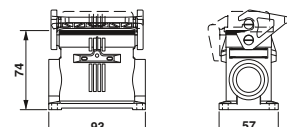

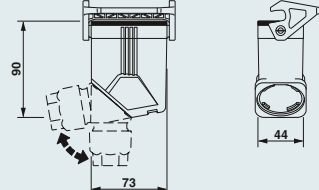
General data

Housing material	Polyamide
Surface material	-
Locking latch material	Polyamide
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted

Technical data



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 30.5 mm 		Without cover HC-EVO-B10-BWS-PLRBK	1407632	1	
		With cover HC-EVO-B10-BWSC-PLRBK	1407633	1	
Box mounting base Height: 74 mm 	2 x M32	HC-EVO-B10-SHWS-2SSM32-PLRBK	1407636	1	
Box mounting base with cover Height: 74 mm 	2 x M32	HC-EVO-B10-SHWSC-2SSM32-PLRBK	1407637	1	
Coupling housing Height: 90 mm 	1 x M40 1 x M32 1 x M25 1 x M20	HC-EVO-B10-CHWS-PLRBK	1407640	1	
		Cable gland HC-B-G-M40-PLRBK	1407672	1	
		HC-B-G-M32-PLRBK	1407671	1	
		HC-B-G-M25-PLRBK	1407670	1	
		HC-B-G-M20-PLRBK	1407669	1	

Notes:

- For further accessories, see from page 552
- Corresponding marking label: US-EMP (20X9), Order No. 0829439
- Replacement hinged cover: Order No. 1407693

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B10, metal, sleeve housing for double locking latch



General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
-
-40 °C ... 125 °C
IP65

Ordering data

Description



Cable entry: top
Height: 56 mm

1 x M20
1 x M25

1 x Pg16



Type

Order No.

Pcs. /
Pkt.

HC-B 10-TFQ-N-O1STM20G
HC-B 10-TFQ-N-O1STM25G

1460061
1460066

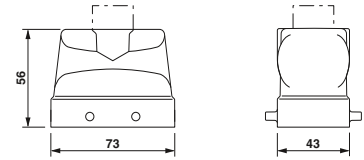
10
10

HC-B 10-TFQ-N-O1PG16G

1460063

10

Dimensions



Cable entry: top
Height: 72 mm

1 x M25
1 x M32

1 x Pg21
1 x Pg29



HC-B 10-TFQ-H-O1STM25G
HC-B 10-TFQ-H-O1STM32G

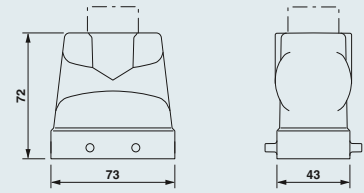
1460080
1460082

10
10

HC-B 10-TFQ-H-O1PG21G
HC-B 10-TFQ-H-O1PG29G

1460074
1460076

10
10



Cable entry: lateral
Height: 56 mm

1 x M20
1 x M25

1 x Pg16



HC-B 10-TFQ-N-O1STM20S
HC-B 10-TFQ-N-O1STM25S

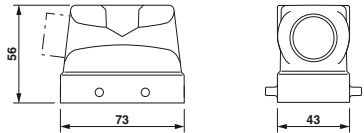
1460062
1460067

10
10

HC-B 10-TFQ-N-O1PG16S

1460068

10



Cable entry: lateral
Height: 72 mm

1 x M25
1 x M32

1 x Pg21
1 x Pg29



HC-B 10-TFQ-H-O1STM25S
HC-B 10-TFQ-H-O1STM32S

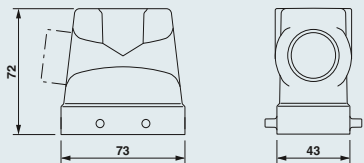
1460081
1460083

10
10

HC-B 10-TFQ-H-O1PG21S
HC-B 10-TFQ-H-O1PG29S

1460075
1460077

10
10



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556

Type B10, plastic, EVO sleeve housing for double locking latch




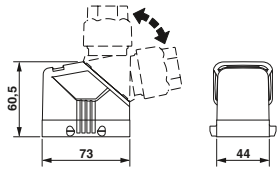

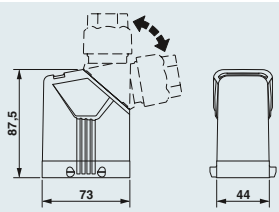

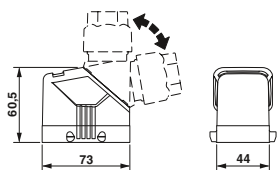

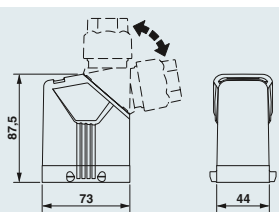

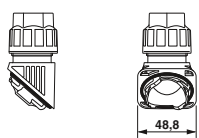
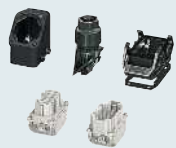
General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Polyamide
-
-
-40 °C ... 100 °C
IP65

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Cable entry: top/lateral Height: 60.5 mm 		HC-EVO-B10-HLFD-PLBK	1407628	1	
Cable entry: top/lateral Height: 87.5 mm 		HC-EVO-B10-HHFD-PLBK	1407629	1	
Cable entry: top/lateral Height: 60.5 mm 		HC-EVO-B10-HLFD-PLBK	1407628	1	
Cable entry: top/lateral Height: 87.5 mm 		HC-EVO-B10-HHFD-PLBK	1407629	1	
Cable gland 	1 x M20 1 x M25 1 x M32 1 x M40	HC-B-G-M20-PLRBK HC-B-G-M25-PLRBK HC-B-G-M32-PLRBK HC-B-G-M40-PLRBK	1407669 1407670 1407671 1407672	1 1 1 1	
Plug-in connector set 		Push-in connection HC-EVO-B10PT-BWD-HL-M25-PLRBK	1407711	1	

Notes:

For further accessories, see from page 552
Corresponding marking label: US-EMP (20X9), Order No. 0829439

Accessories



Protective cover
From page 578



Corrugated pipe adapter
From page 584

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B10, metal, supporting base element with double locking latch




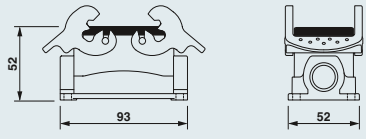

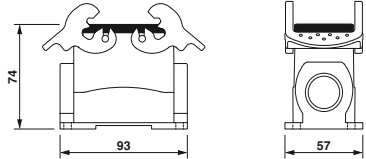

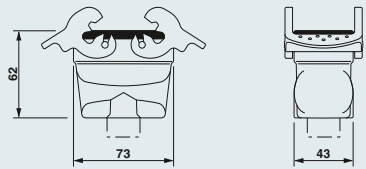
General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data	
Aluminum, die-cast	
Powder-coated, gray	
Stainless steel, handle: PA	
NBR	
-40 °C ... 125 °C	
IP65 protection when the connector is inserted	



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 29 mm 		HC-B 10-AMQ	1771325	10	
Box mounting base Height: 52 mm 	1 x M20 1 x Pg16 2 x M20 2 x M25 2 x Pg16	HC-B 10-SMQ-52/O1M20 HC-B 10-SMQ-52/O1PG16 HC-B 10-SMQ-52/O2M20 HC-B 10-SMQ-52/O2M25 HC-B 10-SMQ-52/O2PG16	1604752 1673481 1604753 1604754 1673494	10 10 10 10 10	
Box mounting base Height: 74 mm 	1 x M25 1 x M32 1 x Pg21 1 x Pg29 2 x M25 2 x M32 2 x Pg21 2 x Pg29	HC-B 10-SMQ-74/O1M25 HC-B 10-SMQ-74/O1M32 HC-B 10-SMQ-74/O1PG21 HC-B 10-SMQ-74/O1PG29 HC-B 10-SMQ-74/O2M25 HC-B 10-SMQ-74/O2M32 HC-B 10-SMQ-74/O2PG21 HC-B 10-SMQ-74/O2PG29	1604755 1604756 1677717 1678415 1604757 1645820 1677720 1678444	10 10 10 10 10 10 10 10	
Coupling housing Height: 62 mm 	1 x M20 1 x Pg16	HC-B 10-KMQ-N-O1STM20 HC-B 10-KMQ-N-O1PG16	1460151 1460042	10 10	

Notes:
For further accessories, see from page 552

Accessories

 Flat gaskets From page 571	 Pressure screw set From page 556	 Screw connections From page 552	 Cover plates From page 572
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Type B10, plastic, EVO supporting base element with double locking latch


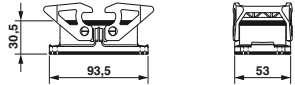

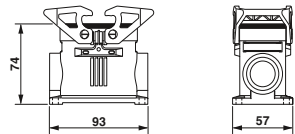

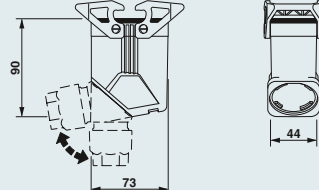
General data

Housing material	Polyamide
Surface material	-
Locking latch material	Polyamide
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted

Technical data



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 30.5 mm 		HC-EVO-B10-BWD-PLRBK	1407634	1	
Box mounting base Height: 74 mm 	2 x M32	HC-EVO-B10-SHWD-2SSM32-PLRBK	1407638	1	
Coupling housing Height: 90 mm 	1 x M40 1 x M32 1 x M25 1 x M20	HC-EVO-B10-CHWD-PLRBK Cable gland HC-B-G-M40-PLRBK HC-B-G-M32-PLRBK HC-B-G-M25-PLRBK HC-B-G-M20-PLRBK	1407641 1407672 1407671 1407670 1407669	1 1 1 1 1	

Notes:

- For further accessories, see from page 552
- Corresponding marking label: US-EMP (20X9), Order No. 0829439
- Replacement hinged cover: Order No. 1407693

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B10, metal, sleeve housing with double locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
Stainless steel, handle: PA
-
-40 °C ... 125 °C
IP65



Ordering data

Description



Cable entry: top
Height: 56 mm

1 x M20

1 x Pg16



Type

Order No.

Pcs. / Pkt.

HC-B 10-TMQ-N-O1STM20G

1460088

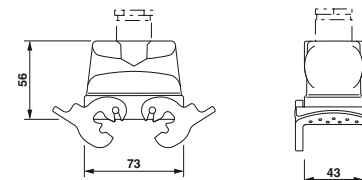
10

HC-B 10-TMQ-N-M1PG16G

1460086

10

Dimensions



Cable entry: top
Height: 72 mm

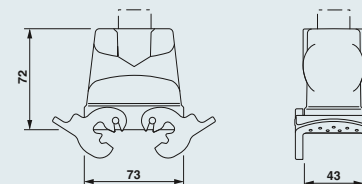
1 x M25



HC-B 10-TMQ-H-O1STM25G

1460097

10



Cable entry: lateral
Height: 56 mm

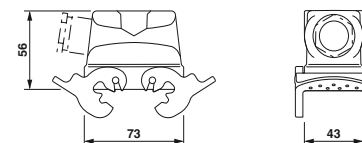
1 x Pg16



HC-B 10-TMQ-N-M1PG16S

1460090

10



Cable entry: lateral
Height: 72 mm

1 x M20

1 x M25



HC-B 10-TMQ-H-O1STM20S

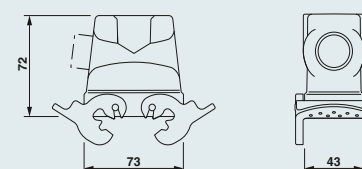
1460096

10

HC-B 10-TMQ-H-O1STM25S

1460098

10



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556


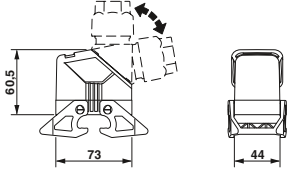

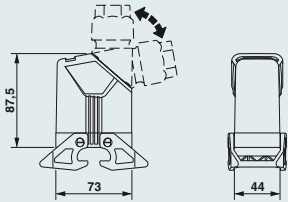

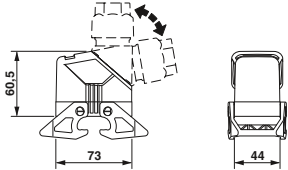

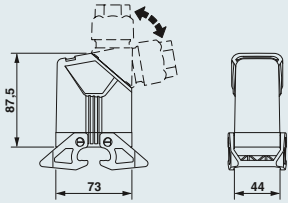

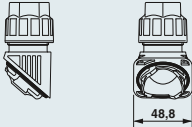
Type B10, plastic, EVO sleeve housing with double locking latch



Technical data

General data	
Housing material	Polyamide
Surface material	-
Locking latch material	Polyamide
Sealing material	-
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Cable entry: top/lateral Height: 60.5 mm 		HC-EVO-B10-HLWD-PLBK	1407630	1	
Cable entry: top/lateral Height: 87.5 mm 		HC-EVO-B10-HHWD-PLBK	1407631	1	
Cable entry: top/lateral Height: 60.5 mm 		HC-EVO-B10-HLWD-PLBK	1407630	1	
Cable entry: top/lateral Height: 87.5 mm 		HC-EVO-B10-HHWD-PLBK	1407631	1	
Cable gland 	1 x M20 1 x M25 1 x M32 1 x M40	HC-B-G-M20-PLRBK HC-B-G-M25-PLRBK HC-B-G-M32-PLRBK HC-B-G-M40-PLRBK	1407669 1407670 1407671 1407672	1 1 1 1	

Notes:

For further accessories, see from page 552
 Corresponding marking label: US-EMP (20X9),
 Order No. 0829439

Accessories



Replacement latch
From page 570



Protective cover
From page 578



Corrugated pipe adapter
From page 584

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B10, metal, supporting base element for double locking latch



General data

Housing material	Aluminum, die-cast
Surface material	Powder-coated, gray
Locking latch material	-
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted

Technical data

Ordering data

Description

Thread

Type

Order No.

Pcs. / Pkt.

Dimensions

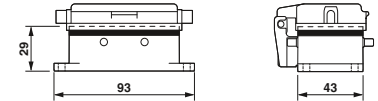
Panel mounting base with cover
Height: 29 mm



HC-B 10-AFQD

1771341

10



Box mounting base with cover
Height: 52 mm



1 x M20

1 x Pg16

HC-B 10-SFQD-52/O1M20
HC-B 10-SFQD-52/O1PG16

1646489

10

1673423

10

2 x M20

2 x M25

2 x Pg16

HC-B 10-SFQD-52/O2M20
HC-B 10-SFQD-52/O2M25
HC-B 10-SFQD-52/O2PG16

1646492

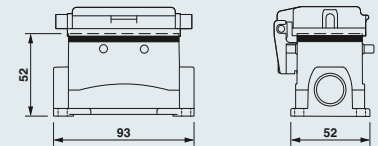
10

1604748

10

1673436

5



Box mounting base with cover
Height: 74 mm



1 x M25

1 x M32

HC-B 10-SFQD-74/O1M25

1646502

10

HC-B 10-SFQD-74/O1M32

1646528

10

2 x M25

2 x M32

HC-B 10-SFQD-74/O2M25

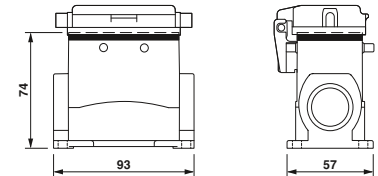
1646515

10

HC-B 10-SFQD-74/O2M32

1646531

10



Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

**Type B10, plastic,
EVO supporting base element
for double locking latch**


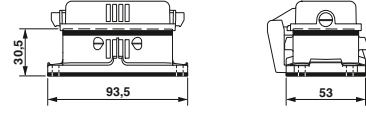

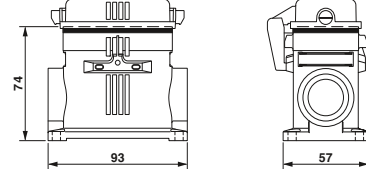
General data

Housing material	Polyamide
Surface material	-
Locking latch material	-
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted

Technical data

Ordering data



Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base with cover Height: 30.5 mm 		HC-EVO-B10-BFDC-PLRBK	1407635	1	
Box mounting base with cover Height: 74 mm 	2 x M32	HC-EVO-B10-SHFDC-2SSM32-PLRBK	1407639	1	

Notes:

- For further accessories, see from page 552
- Corresponding marking label: US-EMP (20X9), Order No. 0829439
- Replacement hinged cover: Order No. 1407693

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B16, metal, ADVANCE sleeve housing, STA - standard



General data

Housing material
Surface material
Material, lock
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
Stainless steel
NBR
-40 °C ... 125 °C
IP65 / IP68 (0.2 bar, 24h) / IP69K

Ordering data

Description	Thread
-------------	--------

Cable entry: top¹⁾
Height: 100 mm

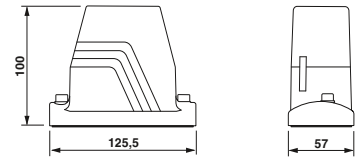


1 x M25
1 x M32
1 x M40

Type	Order No.	Pcs. / Pkt.
------	-----------	-------------

HC-B 16-TMS-100/O1STM25G-STA 1644630
HC-B 16-TMS-100/O1STM32G-STA 1690202
HC-B 16-TMS-100/O1STM40G-STA 1690286

Dimensions	
------------	--

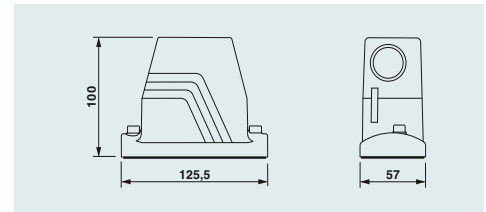


Cable entry: lateral¹⁾
Height: 100 mm



1 x M25
1 x M32
1 x M40

HC-B 16-TMS-100/O1STM25S-STA 1644643
HC-B 16-TMS-100/O1STM32S-STA 1690244
HC-B 16-TMS-100/O1STM40S-STA 1690325



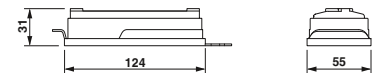
IP50 protective cover



For the sleeve side
HC-B 16-TMS-SD-IP50

1690752

10



Panel mounting flange²⁾



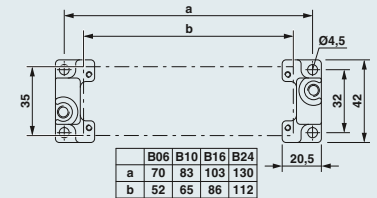
2 pcs. per housing
HC-B-AF
Set with 2 panel mounting flanges
HC-B-AF-SET

1686533

20

1604638

1



Box mounting base
Height: 72 mm

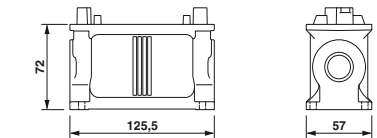


2 x M32

HC-ADV-B16-SHFH-2STM32-EEE

1408850

1



IP65 protective cover



For the panel mounting side
HC-B 16-TMS-SD-IP65

1690794

10



Notes:

Pozidriv®
Trademark of European Ind. Serv. Ltd.

¹⁾ Screw locking with M6 Pozidriv® screws

²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)

Accessories



Screw connections
From page 552


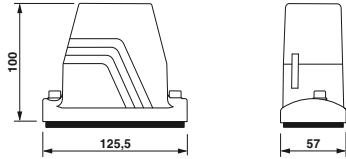

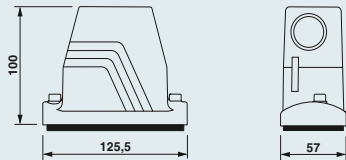

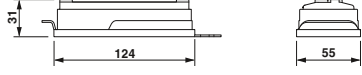

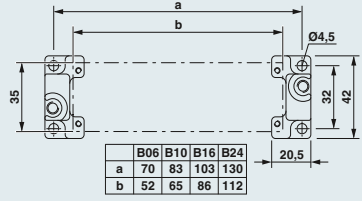

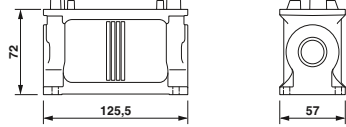


Type B16, metal, ADVANCE sleeve housing, EEE - offshore/EMC



Technical data

General data	
Housing material	Die-cast aluminum, salt water resistant
Surface material	Uncoated
Material, lock	Stainless steel
Sealing material	NBR, conductive
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65 / IP68 (0.2 bar, 24h) / IP69K

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions															
Cable entry: top¹⁾ Height: 100 mm 	1 x M32 1 x M40	HC-B 16-TMS-100/O1STM32G-EEE HC-B 16-TMS-100/O1STM40G-EEE	1587661 1580507	10 10																
Cable entry: lateral¹⁾ Height: 100 mm 	1 x M32 1 x M40	HC-B 16-TMS-100/O1STM32S-EEE HC-B 16-TMS-100/O1STM40S-EEE	1587674 1460358	10 10																
IP50 protective cover 		For the sleeve side HC-B 16-TMS-SD-IP50	1690752	10																
Panel mounting flange²⁾ 		2 pcs. per housing HC-B-AF Set with 2 panel mounting flanges HC-B-AF-SET	1686533 1604638	20 1	 <table border="1" data-bbox="1193 1329 1345 1381"> <tr> <td></td> <td>B06</td> <td>B10</td> <td>B16</td> <td>B24</td> </tr> <tr> <td>a</td> <td>70</td> <td>83</td> <td>103</td> <td>130</td> </tr> <tr> <td>b</td> <td>52</td> <td>65</td> <td>86</td> <td>112</td> </tr> </table>		B06	B10	B16	B24	a	70	83	103	130	b	52	65	86	112
	B06	B10	B16	B24																
a	70	83	103	130																
b	52	65	86	112																
Box mounting base Height: 72 mm 	2 x M32	HC-ADV-B16-SHFH-2STM32-EEE	1408850	1																
IP65 protective cover 		For the panel mounting side HC-B 16-TMS-SD-IP65	1690794	10																

Notes:

In order to achieve optimum shielding results, the mounting surface must be conductive

¹⁾ Screw locking with M6 Allen screws

²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)



Screw connections
From page 552

Accessories

Type B16, plastic, ADVANCE PL sleeve housing with cable gland


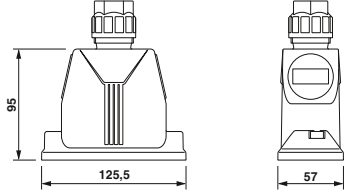

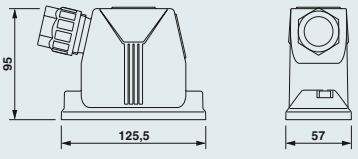

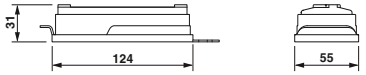

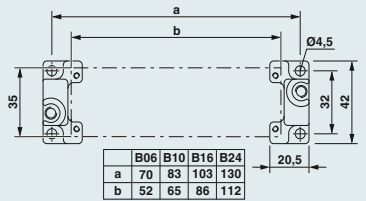

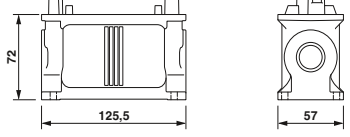


General data

Housing material	Polyamide
Surface material	-
Material, lock	V2A
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65/67



Technical data

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions															
Cable entry: top¹⁾ Height: 95 mm 	1 x M32	HC-ADV-B16-HHWH-1TGM32-PL	1404231	1																
	1 x M40	HC-ADV-B16-HHWH-1TGM40-PL	1404233	1																
Cable entry: lateral¹⁾ Height: 95 mm 	1 x M32	HC-ADV-B16-HHWH-1SGM32-PL	1404232	1																
	1 x M40	HC-ADV-B16-HHWH-1SGM40-PL	1404234	1																
IP50 protective cover 		For the sleeve side HC-B 16-TMS-SD-IP50	1690752	10																
Panel mounting flange²⁾ 		2 pcs. per housing HC-B-AF Set with 2 panel mounting flanges HC-B-AF-SET	1686533 1604638	20 1	 <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>B06</td> <td>B10</td> <td>B16</td> <td>B24</td> </tr> <tr> <td>a</td> <td>70</td> <td>83</td> <td>103</td> <td>130</td> </tr> <tr> <td>b</td> <td>52</td> <td>65</td> <td>86</td> <td>112</td> </tr> </table>		B06	B10	B16	B24	a	70	83	103	130	b	52	65	86	112
		B06	B10	B16		B24														
a	70	83	103	130																
b	52	65	86	112																
Box mounting base Height: 72 mm 	2 x M32	HC-ADV-B16-SHFH-2STM32-EEE	1408850	1																
IP65 protective cover 		For the panel mounting side HC-B 16-TMS-SD-IP65	1690794	10																

Notes:

For further accessories, see from page 552

¹⁾ Corresponding marking label: US-EMP (20X9), Order No. 0829439

²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)



Screw connections
From page 552

Accessories

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B16, metal, sleeve housing for single locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
-
-40 °C ... 125 °C
IP65



Ordering data

Description



Cable entry: top
Height: 65 mm

1 x M25
1 x M32

1 x Pg21



Type

Order No.

Pcs. / Pkt.

HC-B 16-TFL-N-O1STM25G
HC-B 16-TFL-N-O1STM32G

1460100
1460095

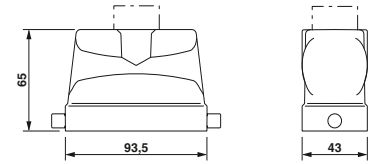
10
10

HC-B 16-TFL-N-O1PG21G

1460101

10

Dimensions



Cable entry: top
Height: 76 mm

1 x M32
1 x M40

1 x Pg21
1 x Pg29



HC-B 16-TFL-H-O1STM32G
HC-B 16-TFL-H-O1STM40G

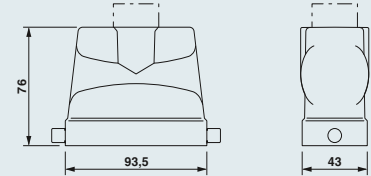
1460124
1460126

10
10

HC-B 16-TFL-H-O1PG21G
HC-B 16-TFL-H-O1PG29G

1460118
1460120

10
10



Cable entry: lateral
Height: 65 mm

1 x M25
1 x M32

1 x Pg21



HC-B 16-TFL-N-O1STM25S
HC-B 16-TFL-N-O1STM32S

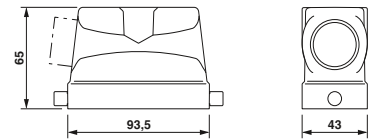
1460102
1460109

10
10

HC-B 16-TFL-N-O1PG21S

1460103

10



Cable entry: lateral
Height: 76 mm

1 x M32
1 x M40

1 x Pg21
1 x Pg29



HC-B 16-TFL-H-O1STM32S
HC-B 16-TFL-H-O1STM40S

1460125
1460127

10
10

HC-B 16-TFL-H-O1PG21S
HC-B 16-TFL-H-O1PG29S

1460119
1460121

10
10



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556

N


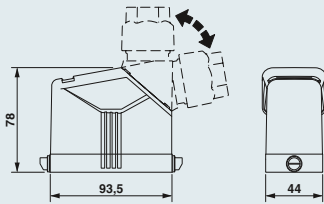

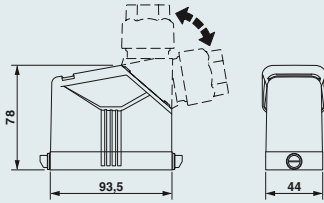

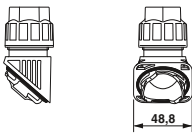

Type B16, plastic, EVO sleeve housing for single locking latch



Technical data

General data	
Housing material	Polyamide
Surface material	-
Locking latch material	-
Sealing material	-
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
<p>Cable entry: top/lateral Height: 76 mm</p> 		HC-EVO-B16-HHFS-PLBK	1407642	1	
<p>Cable entry: top/lateral Height: 76 mm</p> 		HC-EVO-B16-HHFS-PLBK	1407642	1	
<p>Cable gland</p> 	<p>1 x M20 1 x M25 1 x M32 1 x M40</p>	<p>HC-B-G-M20-PLRBK HC-B-G-M25-PLRBK HC-B-G-M32-PLRBK HC-B-G-M40-PLRBK</p>	<p>1407669 1407670 1407671 1407672</p>	<p>1 1 1 1</p>	
<p>Plug-in connector set</p> 		<p>Push-in connection HC-EVO-B16PT-BWSC-HH-M25-PLRBK</p>	1408793	1	

Notes:

For further accessories, see from page 552
Corresponding marking label: US-EMP (20X9),
Order No. 0829439

Accessories



Protective cover
From page 578



Corrugated pipe adapter
From page 584

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B16, metal, supporting base element with single locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data	
Aluminum, die-cast	
Powder-coated, gray	
Stainless steel, handle: PA	
NBR	
-40 °C ... 125 °C	
IP65 protection when the connector is inserted	



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 29 mm		Without cover HC-B 16-AML With plastic cover HC-B 16-AMLD With metal cover HC-B 16-AMLD-AL	1771590 1771613 1645480	10 10 10	
Box mounting base Height: 67 mm	1 x M25 1 x Pg21 2 x M25 2 x Pg21	HC-B 16-SML-67/O1M25 HC-B 16-SML-67/O1PG21 HC-B 16-SML-67/O2M25 HC-B 16-SML-67/O2PG21	1604784 1673698 1604785 1673708	10 10 10 10	
Box mounting base Height: 84 mm	1 x M32 1 x M40 1 x Pg21 1 x Pg29 2 x M32 2 x M40 2 x Pg21 2 x Pg29	HC-B 16-SML-84/O1M32 HC-B 16-SML-84/O1M40 HC-B 16-SML-84/O1PG21 HC-B 16-SML-84/O1PG29 HC-B 16-SML-84/O2M32 HC-B 16-SML-84/O2M40 HC-B 16-SML-84/O2PG21 HC-B 16-SML-84/O2PG29	1646299 1646311 1677869 1677843 1646308 1646324 1677872 1677856	10 10 10 10 10 10 5 10	
Box mounting base with cover Height: 67 mm	1 x M25 2 x M25 1 x Pg21 2 x Pg21	HC-B 16-SMLD-67/O1M25 HC-B 16-SMLD-67/O1PG21 HC-B 16-SMLD-67/O2M25 HC-B 16-SMLD-67/O2PG21	1604786 1673711 1604787 1673724	10 10 10 10	
Box mounting base with cover Height: 84 mm	1 x M32 1 x M40 1 x Pg21 1 x Pg29 2 x M32 2 x M40 2 x Pg21 2 x Pg29	HC-B 16-SMLD-84/O1M32 HC-B 16-SMLD-84/O1M40 HC-B 16-SMLD-84/O1PG21 HC-B 16-SMLD-84/O1PG29 HC-B 16-SMLD-84/O2M32 HC-B 16-SMLD-84/O2M40 HC-B 16-SMLD-84/O2PG21 HC-B 16-SMLD-84/O2PG29	1645671 1645697 1677908 1677885 1645684 1645707 1677911 1677898	10 10 10 10 10 10 10 10	
Coupling housing Height: 82 mm	1 x M32 1 x M40 1 x Pg21 1 x Pg29	HC-B 16-KML-H-O1STM32 HC-B 16-KML-H-O1STM40 HC-B 16-KML-H-O1PG21 HC-B 16-KML-H-O1PG29	1460172 1460309 1460306 1460307	10 10 10 10	

Notes:	Accessories
For further accessories, see from page 552	

Flat gaskets From page 571	Pressure screw set From page 556	Screw connections From page 552	Cover plates From page 572

Type B16, plastic, EVO supporting base element with single locking latch


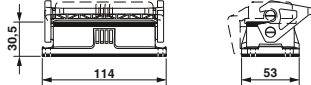

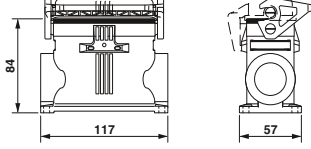

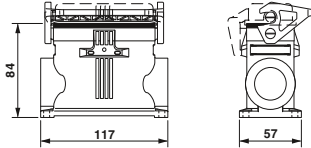

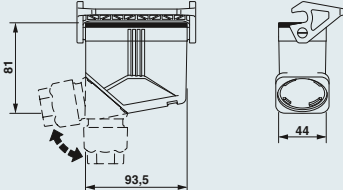
General data

Housing material	Polyamide
Surface material	-
Locking latch material	Polyamide
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted

Technical data



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 30.5 mm 		Without cover HC-EVO-B16-BWS-PLRBK	1407646	1	
		With cover HC-EVO-B16-BWSC-PLRBK	1407647	1	
Box mounting base Height: 84 mm 	2 x M40	HC-EVO-B16-SHWS-2SSM40-PLRBK	1407650	1	
Box mounting base with cover Height: 84 mm 	2 x M40	HC-EVO-B16-SHWSC-2SSM40-PLRBK	1407651	1	
Coupling housing Height: 81 mm 	1 x M40 1 x M32 1 x M25 1 x M20	HC-EVO-B16-CHWS-PLRBK	1407654	1	
		Cable gland HC-B-G-M40-PLRBK	1407672	1	
		HC-B-G-M32-PLRBK	1407671	1	
		HC-B-G-M25-PLRBK	1407670	1	
		HC-B-G-M20-PLRBK	1407669	1	

Notes:

- For further accessories, see from page 552
- Corresponding marking label: US-EMP (20X9), Order No. 0829439
- Replacement hinged cover: Order No. 1407694

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B16, metal, sleeve housing for double locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
-
-40 °C ... 125 °C
IP65



Ordering data

Description

Cable entry: top
Height: 65 mm



1 x M25
1 x M32

1 x Pg21



Type

HC-B 16-TFQ-N-O1STM25G
HC-B 16-TFQ-N-O1STM32G
HC-B 16-TFQ-N-O1PG21G

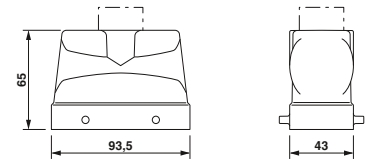
Order No.

1460128
1460134
1460129

Pcs. /
Pkt.

10
10
10

Dimensions



Cable entry: top
Height: 76 mm

1 x M32
1 x M40

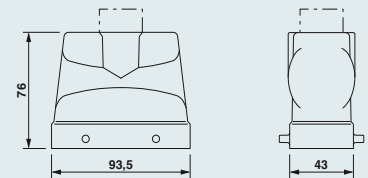
1 x Pg21
1 x Pg29



HC-B 16-TFQ-H-O1STM32G
HC-B 16-TFQ-H-O1STM40G
HC-B 16-TFQ-H-O1PG21G
HC-B 16-TFQ-H-O1PG29G

1460155
1460157
1460146
1460148

10
10
10
10



Cable entry: lateral
Height: 65 mm

1 x M25
1 x M32

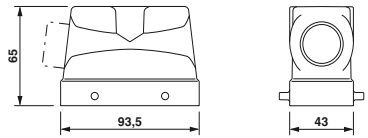
1 x Pg21



HC-B 16-TFQ-N-O1STM25S
HC-B 16-TFQ-N-O1STM32S
HC-B 16-TFQ-N-O1PG21S

1460130
1460160
1460131

10
10
10



Cable entry: lateral
Height: 76 mm

1 x M32
1 x M40

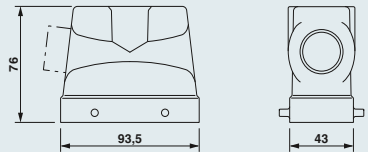
1 x Pg21
1 x Pg29



HC-B 16-TFQ-H-O1STM32S
HC-B 16-TFQ-H-O1STM40S
HC-B 16-TFQ-H-O1PG21S
HC-B 16-TFQ-H-O1PG29S

1409354
1460158
1460147
1460149

10
10
10
10



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556


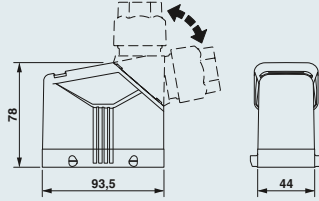

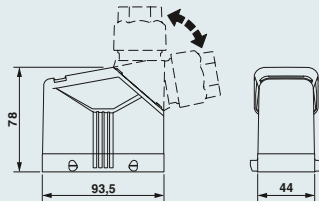

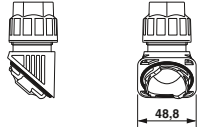

Type B16, plastic, EVO sleeve housing for double locking latch



Technical data

General data	
Housing material	Polyamide
Surface material	-
Locking latch material	-
Sealing material	-
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Cable entry: top/lateral Height: 78 mm 		HC-EVO-B16-HHFD-PLBK	1407643	1	
Cable entry: top/lateral Height: 78 mm 		HC-EVO-B16-HHFD-PLBK	1407643	1	
Cable gland 	1 x M20 1 x M25 1 x M32 1 x M40	HC-B-G-M20-PLRBK HC-B-G-M25-PLRBK HC-B-G-M32-PLRBK HC-B-G-M40-PLRBK	1407669 1407670 1407671 1407672	1 1 1 1	
Plug-in connector set 		Push-in connection HC-EVO-B16PT-BWD-HH-M25-PLRBK	1407712	1	

Notes:

For further accessories, see from page 552
 Corresponding marking label: US-EMP (20X9),
 Order No. 0829439

Accessories



Protective cover
 From page 578



Corrugated pipe adapter
 From page 584

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B16, metal, supporting base element with double locking latch

General data


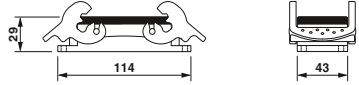

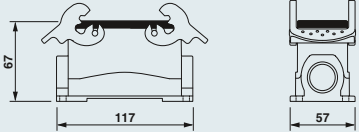

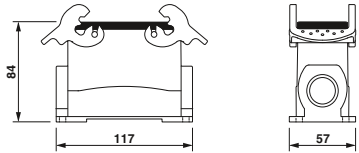

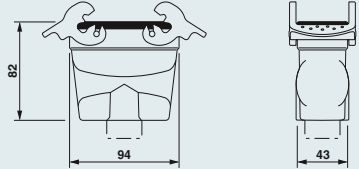
Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
Stainless steel, handle: PA
NBR
-40 °C ... 125 °C
IP65



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions	
Panel mounting base Height: 29 mm 		Without cover HC-B 16-AMQ	1771587	10		
Box mounting base Height: 67 mm 	1 x M25 1 x M32 2 x M25 2 x M32	1 x Pg21 2 x Pg21	HC-B 16-SMQ-67/O1M25 HC-B 16-SMQ-67/O1M32 HC-B 16-SMQ-67/O1PG21 HC-B 16-SMQ-67/O2M25 HC-B 16-SMQ-67/O2M32 HC-B 16-SMQ-67/O2PG21	1604788 1604789 1673740 1604790 1604791 1673753	10 10 10 10 10 10	
Box mounting base Height: 84 mm 	1 x M32 2 x M32	1 x Pg21 1 x Pg29 2 x Pg21 2 x Pg29	HC-B 16-SMQ-84/O1M32 HC-B 16-SMQ-84/O1PG21 HC-B 16-SMQ-67/O1PG29 HC-B 16-SMQ-84/O2M32 HC-B 16-SMQ-84/O2PG21 HC-B 16-SMQ-67/O2PG29	1604793 1677924 1678428 1604794 1677937 1678457	10 10 10 10 10 10	
Coupling housing Height: 82 mm 	1 x M25 1 x M32 1 x Pg21 1 x Pg29	HC-B 16-KMQ-H-O1STM25 HC-B 16-KMQ-H-O1STM32 HC-B 16-KMQ-H-O1PG21 HC-B 16-KMQ-H-O1PG29	1460315 1460312 1460313 1460314	10 10 10 10		

Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572


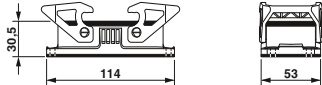


Type B16, plastic, EVO supporting base element with double locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data	
Housing material	Polyamide
Surface material	-
Locking latch material	Polyamide
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted



Description		Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 30.5 mm 			Without cover HC-EVO-B16-BWD-PLRBK	1407648	1	
Box mounting base Height: 84 mm 		2 x M40	HC-EVO-B16-SHWD-2SSM40-PLRBK	1407652	1	
Coupling housing Height: 84 mm 		1 x M40 1 x M32 1 x M25 1 x M20	HC-EVO-B16-CHWD-PLRBK Cable gland HC-B-G-M40-PLRBK HC-B-G-M32-PLRBK HC-B-G-M25-PLRBK HC-B-G-M20-PLRBK	1407655 1407672 1407671 1407670 1407669	1 1 1 1 1	

Notes:

For further accessories, see from page 552
Corresponding marking label: US-EMP (20X9), Order No. 0829439
Replacement hinged cover: Order No. 1407694

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B16, metal, sleeve housing with double locking latch



General data

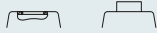
Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
Stainless steel, handle: PA
-
-40 °C ... 125 °C
IP65

Ordering data

Description



Type

Order No.

Pcs. /
Pkt.

Dimensions

Cable entry: top Height: 76 mm

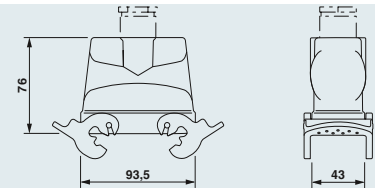


1 x Pg21
1 x Pg29

HC-B 16-TMQ-H-M1PG21G
HC-B 16-TMQ-H-M1PG29G

1460170
1460173

10
10



Cable entry: lateral Height: 76 mm



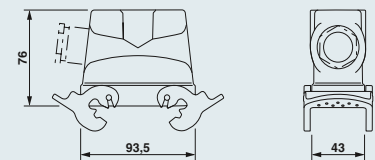
1 x M25
1 x M32

1 x Pg21
1 x Pg29

HC-B 16-TMQ-H-O1STM25S
HC-B 16-TMQ-H-O1STM32S
HC-B 16-TMQ-H-M1PG21S
HC-B 16-TMQ-H-M1PG29S

1460182
1460184
1460171
1460175

10
10
10
10



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556


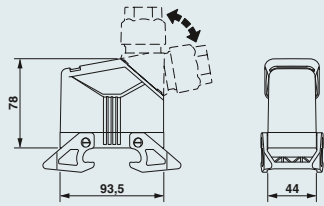

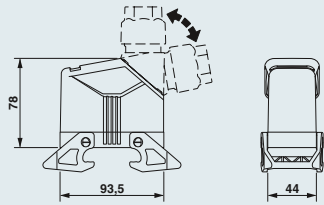

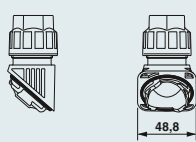
Type B16, plastic, EVO sleeve housing with double locking latch



Technical data

General data	
Housing material	Polyamide
Surface material	-
Locking latch material	Polyamide
Sealing material	-
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Cable entry: top/lateral Height: 78 mm 		HC-EVO-B16-HHWD-PLBK	1407644	1	
Cable entry: top/lateral Height: 78 mm 		HC-EVO-B16-HHWD-PLBK	1407644	1	
Cable gland 	1 x M20 1 x M25 1 x M32 1 x M40	HC-B-G-M20-PLRBK HC-B-G-M25-PLRBK HC-B-G-M32-PLRBK HC-B-G-M40-PLRBK	1407669 1407670 1407671 1407672	1 1 1 1	

Notes:

For further accessories, see from page 552

Corresponding marking label: US-EMP (20X9),
Order No. 0829439

Accessories



Replacement latch
From page 570



Protective cover
From page 578



Corrugated pipe adapter
From page 584

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B16, metal, supporting base element for double locking latch

General data

Housing material	Aluminum, die-cast
Surface material	Powder-coated, gray
Locking latch material	-
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted



Technical data

Ordering data

Description

Thread

Type

Order No.

Pcs. / Pkt.

Dimensions

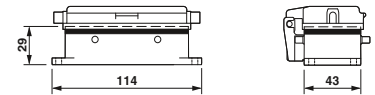
Panel mounting base with cover
Height: 29 mm



HC-B 16-AFQD

1771600

10



Box mounting base with cover
Height: 67 mm



1 x M25

1 x Pg21

HC-B 16-SFQD-68/O1M25
HC-B 16-SFQD-67/O1PG21

1646366

10

1673672

10

2 x M25

2 x Pg21

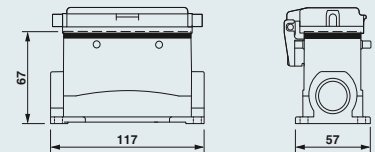
HC-B 16-SFQD-67/O2M25
HC-B 16-SFQD-67/O2PG21

1604783

10

1673685

10



Box mounting base with cover
Height: 84 mm



1 x M32

HC-B 16-SFQD-84/O1M32

1645655

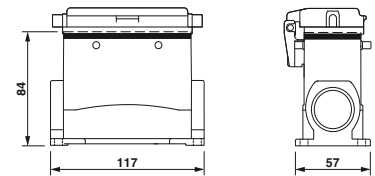
10

2 x M32

HC-B 16-SFQD-84/O2M32

1645668

10



Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572


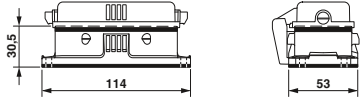

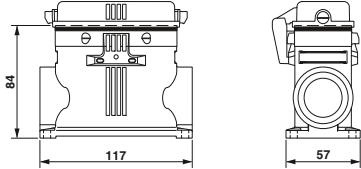
**Type B16, plastic,
EVO supporting base element
for double locking latch**



Technical data

General data	
Housing material	Polyamide
Surface material	-
Locking latch material	-
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base with cover Height: 30.5 mm 		HC-EVO-B16-BFDC-PLRBK	1407649	1	
Box mounting base with cover Height: 84 mm 	2 x M25	HC-EVO-B16-SHFDC-2SSM40-PLRBK	1407653	1	

Notes:

- For further accessories, see from page 552
- Corresponding marking label: US-EMP (20X9), Order No. 0829439
- Replacement hinged cover: Order No. 1407694

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B16, metal, sleeve housing for central locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
Steel, galvanized
-
-40 °C ... 125 °C
IP65



Ordering data

Description



Type

Order No.

Pcs. / Pkt.

Dimensions

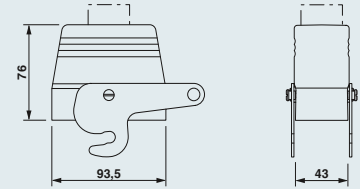
Cable entry: top
Height: 76 mm

1 x M32

HC-B 16-TMZ-76/O1STM32G

1584635

10



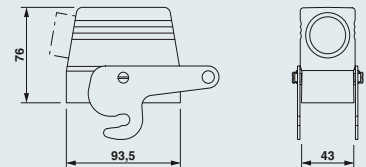
Cable entry: lateral
Height: 76 mm

1 x M32

HC-B 16-TMZ-76/O1STM32S

1584648

10



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556

Type B16, metal, supporting base element for central locking latch

General data


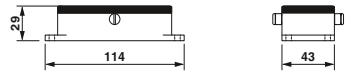

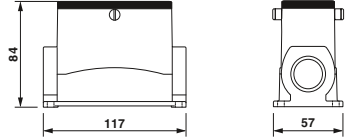
Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
-
NBR
-40 °C ... 125 °C
IP65



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 29 mm 		HC-B 16-AFZ	1584622	10	
Box mounting base Height: 84 mm 	1 x M32	HC-B 16-SFZ-84/O1M32	1584619	10	

Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B24, metal, ADVANCE sleeve housing, STA - standard

General data

Housing material	Aluminum, die-cast
Surface material	Powder-coated, gray
Material, lock	Stainless steel
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65 / IP68 (0.2 bar, 24h) / IP69K

Technical data

Ordering data



Description	Thread
-------------	--------

Cable entry: top¹⁾
Height: 100 mm

1 x M32
1 x M40



Cable entry: lateral¹⁾
Height: 100 mm

1 x M32
1 x M40



IP50 protective cover



Panel mounting flange²⁾



Box mounting base
Height: 72 mm

2 x M32
2 x M40



IP65 protective cover



Type	Order No.	Pcs. / Pkt.
------	-----------	-------------

HC-B 24-TMS-100/O1STM32G-STA 1690367 10
HC-B 24-TMS-100/O1STM40G-STA 1690448 10

HC-B 24-TMS-100/O1STM32S-STA 1690406 10
HC-B 24-TMS-100/O1STM40S-STA 1690480 10

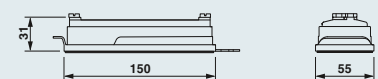
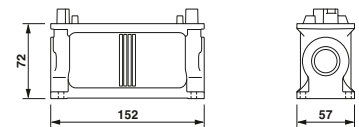
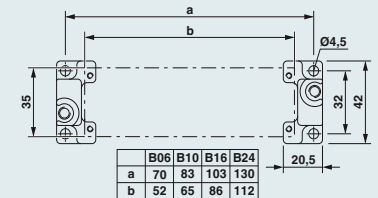
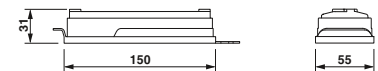
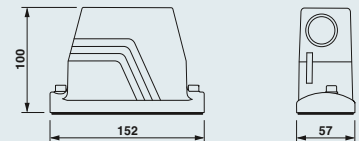
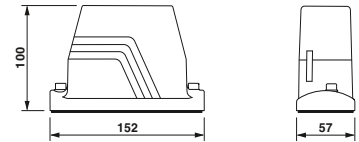
For the sleeve side
HC-B 24-TMS-SD-IP50 1690765 10

2 pcs. per housing
HC-B-AF 1686533 20
Set with 2 panel mounting flanges
HC-B-AF-SET 1604638 1

HC-ADV-B24-SHFH-2STM32-EEE 1408957 1
HC-ADV-B24-SHFH-2STM40-EEE 1408973 1

For the panel mounting side
HC-B 24-TMS-SD-IP65 1690804 10

Dimensions



Notes:

Pozidriv®
Trademark of European Ind. Serv. Ltd.

¹⁾ Screw locking with M6 Pozidriv® screws

²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)

Accessories



Screw connections
From page 552

Type B24, metal, ADVANCE sleeve housing, EEE - offshore/EMC


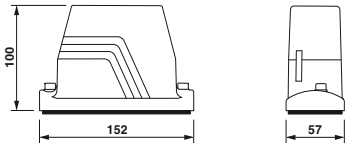

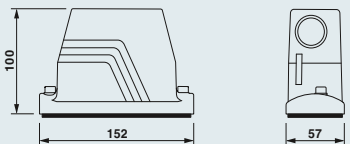

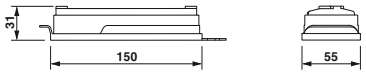

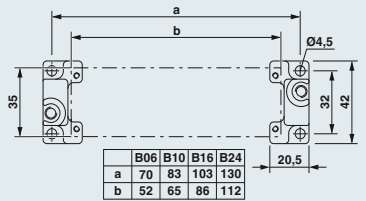

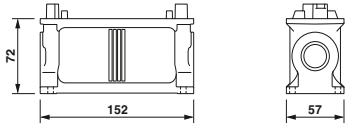




Technical data

General data

Housing material	Die-cast aluminum, salt water resistant
Surface material	Uncoated
Material, lock	Stainless steel
Sealing material	NBR, conductive
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65 / IP68 (0.2 bar, 24h) / IP69K

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions															
Cable entry: top¹⁾ Height: 100 mm 	1 x M32 1 x M40	HC-B 24-TMS-100/O1STM32G-EEE	1580504	10																
		HC-B 24-TMS-100/O1STM40G-EEE	1460359	10																
Cable entry: lateral¹⁾ Height: 100 mm 	1 x M32 1 x M40	HC-B 24-TMS-100/O1STM32S-EEE	1587687	10																
		HC-B 24-TMS-100/O1STM40S-EEE	1460360	10																
IP50 protective cover 		For the sleeve side HC-B 24-TMS-SD-IP50	1690765	10																
Panel mounting flange²⁾ 		2 pcs. per housing HC-B-AF Set with 2 panel mounting flanges HC-B-AF-SET	1686533	20	 <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>B06</th> <th>B10</th> <th>B16</th> <th>B24</th> </tr> </thead> <tbody> <tr> <td>a</td> <td>70</td> <td>83</td> <td>103</td> <td>130</td> </tr> <tr> <td>b</td> <td>52</td> <td>65</td> <td>86</td> <td>112</td> </tr> </tbody> </table>		B06	B10	B16	B24	a	70	83	103	130	b	52	65	86	112
		B06	B10	B16		B24														
a	70	83	103	130																
b	52	65	86	112																
HC-B-AF-SET 1604638 1																				
Box mounting base Height: 72 mm 	2 x M32 2 x M40	HC-ADV-B24-SHFH-2STM32-EEE	1408957	1																
		HC-ADV-B24-SHFH-2STM40-EEE	1408973	1																
IP65 protective cover 		For the panel mounting side HC-B 24-TMS-SD-IP65	1690804	10																

Notes:

In order to achieve optimum shielding results, the mounting surface must be conductive

¹⁾ Screw locking with M6 Allen screws

²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)



Screw connections
From page 552

Accessories

Heavy-duty plug-in connectors

HEAVYCON type B - housing

**Type B24, metal,
ADVANCE sleeve housing,
EUA - increased environmental requirements**




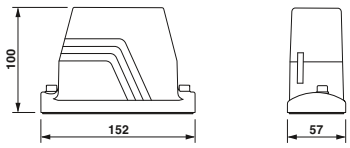

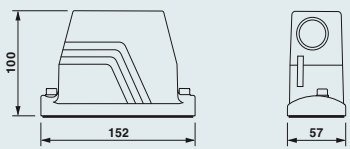

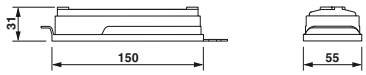

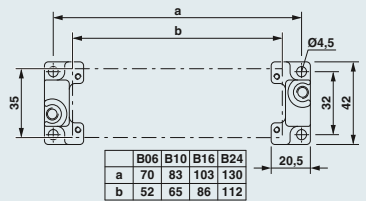

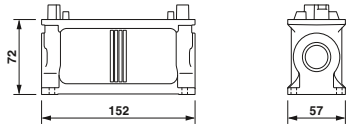


General data

Housing material
Surface material
Material, lock
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Die-cast aluminum, salt water resistant
Powder-coated, black
Stainless steel
Viton
-40 °C ... 125 °C
IP65 / IP68 (0.2 bar, 24h) / IP69K

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions															
Cable entry: top¹⁾ Height: 100 mm 	1 x M32 1 x M40	HC-B 24-TMS-100/O1STM32G-EUA HC-B 24-TMS-100/O1STM40G-EUA	1690354 1690435	10 10																
Cable entry: lateral¹⁾ Height: 100 mm 	1 x M32 1 x M40	HC-B 24-TMS-100/O1STM32S-EUA HC-B 24-TMS-100/O1STM40S-EUA	1690396 1690477	10 10																
IP50 protective cover 		For the sleeve side HC-B 24-TMS-SD-IP50	1690765	10																
Panel mounting flange²⁾ 		2 pcs. per housing HC-B-AF Set with 2 panel mounting flanges HC-B-AF-SET	1686533 1604638	20 1	 <table border="1" data-bbox="1204 1323 1356 1375"> <thead> <tr> <th></th> <th>B06</th> <th>B10</th> <th>B16</th> <th>B24</th> </tr> </thead> <tbody> <tr> <td>a</td> <td>70</td> <td>83</td> <td>103</td> <td>130</td> </tr> <tr> <td>b</td> <td>52</td> <td>65</td> <td>86</td> <td>112</td> </tr> </tbody> </table>		B06	B10	B16	B24	a	70	83	103	130	b	52	65	86	112
	B06	B10	B16	B24																
a	70	83	103	130																
b	52	65	86	112																
Box mounting base Height: 72 mm 	2 x M32 2 x M40	HC-ADV-B24-SHFH-2STM32-EEE HC-ADV-B24-SHFH-2STM40-EEE	1408957 1408973	1 1																
IP65 protective cover 		For the panel mounting side HC-B 24-TMS-SD-IP65	1690804	10																

Notes:

- ¹⁾ Screw locking with M6 Pozidriv® screws
- ²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)

Accessories



Screw connections
From page 552


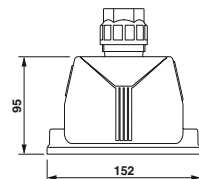

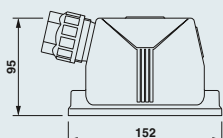



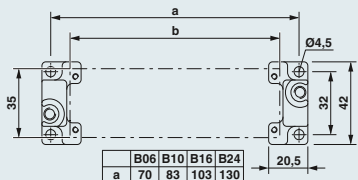

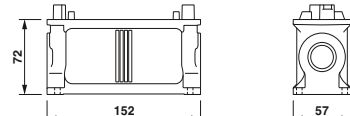


Type B24, plastic, ADVANCE PL sleeve housing with cable gland



Technical data

General data	
Housing material	Polyamide
Surface material	-
Material, lock	V2A
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65/67

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions															
Cable entry: top¹⁾ Height: 95 mm 	1 x M32	HC-ADV-B24-HHWH-1TGM32-PL	1404235	1																
	1 x M40	HC-ADV-B24-HHWH-1TGM40-PL	1404238	1																
Cable entry: lateral¹⁾ Height: 95 mm 	1 x M32	HC-ADV-B24-HHWH-1SGM32-PL	1404237	1																
	1 x M40	HC-ADV-B24-HHWH-1SGM40-PL	1404239	1																
IP50 protective cover 		For the sleeve side HC-B 24-TMS-SD-IP50	1690765	10																
Panel mounting flange²⁾ 		2 pcs. per housing HC-B-AF Set with 2 panel mounting flanges HC-B-AF-SET	1686533 1604638	20 1	 <table border="1" data-bbox="1189 1312 1348 1375"> <tr> <td></td> <td>B06</td> <td>B10</td> <td>B16</td> <td>B24</td> </tr> <tr> <td>a</td> <td>70</td> <td>83</td> <td>103</td> <td>130</td> </tr> <tr> <td>b</td> <td>52</td> <td>65</td> <td>86</td> <td>112</td> </tr> </table>		B06	B10	B16	B24	a	70	83	103	130	b	52	65	86	112
		B06	B10	B16		B24														
a	70	83	103	130																
b	52	65	86	112																
Box mounting base Height: 72 mm 	2 x M32 2 x M40	HC-ADV-B24-SHFH-2STM32-EEE HC-ADV-B24-SHFH-2STM40-EEE	1408957 1408973	1 1																
IP65 protective cover 		For the panel mounting side HC-B 24-TMS-SD-IP65	1690804	10																

Notes:

For further accessories, see from page 552

¹⁾ Corresponding marking label: US-EMP (20X9), Order No. 0829439

²⁾ Bore hole Ø 4.5 mm when using M4 screws, bore hole Ø 3.6 mm when using self-tapping M4 screws (Torx®)



Screw connections
From page 552

Accessories

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B24, metal, sleeve housing for single locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

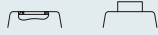
Technical data

Aluminum, die-cast
Powder-coated, gray
-
-40 °C ... 125 °C
IP65



Ordering data

Description



Cable entry: top
Height: 65 mm

1 x M25
1 x M32



1 x Pg21
1 x Pg29

Type

HC-B 24-TFL-N-O1STM25G
HC-B 24-TFL-N-O1STM32G
HC-B 24-TFL-N-O1PG21G
HC-B 24-TFL-N-O1PG29G

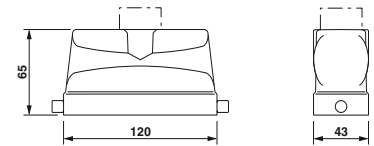
Order No.

1460189
1460297
1460190
1460293

Pcs. /
Pkt.

10
10
10
10

Dimensions



Cable entry: top
Height: 76 mm

1 x M32
1 x M40

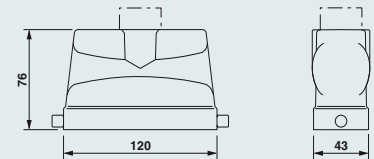


1 x Pg21
1 x Pg29

HC-B 24-TFL-H-O1STM32G
HC-B 24-TFL-H-O1STM40G
HC-B 24-TFL-H-O1PG21G
HC-B 24-TFL-H-O1PG29G

1460212
1460214
1460342
1460207

10
10
10
10



Cable entry: lateral
Height: 65 mm

1 x M25
1 x M32

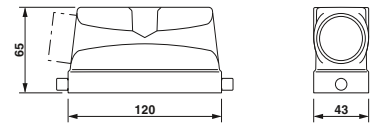


1 x Pg21
1 x Pg29

HC-B 24-TFL-N-O1STM25S
HC-B 24-TFL-N-O1STM32S
HC-B 24-TFL-N-O1PG21S
HC-B 24-TFL-N-O1PG29S

1460191
1460192
1460193
1460194

10
10
10
10



Cable entry: lateral
Height: 76 mm

1 x M32
1 x M40

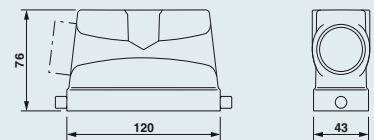


1 x Pg21
1 x Pg29

HC-B 24-TFL-H-O1STM32S
HC-B 24-TFL-H-O1STM40S
HC-B 24-TFL-H-O1PG21S
HC-B 24-TFL-H-O1PG29S

1460213
1460215
1460206
1460208

10
10
10
10



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556

Type B24, plastic, EVO sleeve housing for single locking latch



Technical data

General data	
Housing material	Polyamide
Surface material	-
Locking latch material	-
Sealing material	-
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
<p>Cable entry: top/lateral Height: 87.5 mm</p>		HC-EVO-B24-HHFS-PLBK	1407656	1	
<p>Cable entry: top/lateral Height: 87.5 mm</p>		HC-EVO-B24-HHFS-PLBK	1407656	1	
<p>Cable gland</p>	1 x M20 1 x M25 1 x M32 1 x M40	HC-B-G-M20-PLRBK HC-B-G-M25-PLRBK HC-B-G-M32-PLRBK HC-B-G-M40-PLRBK	1407669 1407670 1407671 1407672	1 1 1 1	
<p>Plug-in connector set</p>		Push-in connection HC-EVO-B24PT-BWSC-HH-M32-PLRBK	1408794	1	

Notes:

For further accessories, see from page 552
 Corresponding marking label: US-EMP (20X9),
 Order No. 0829439

Accessories



Protective cover
From page 578



Corrugated pipe adapter
From page 584

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B24, metal, supporting base element with single locking latch


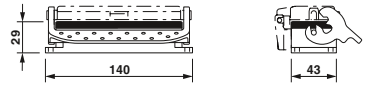

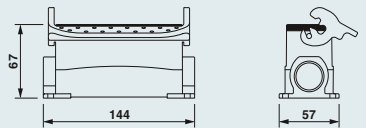

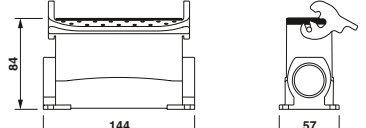



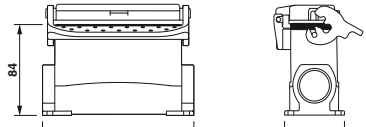

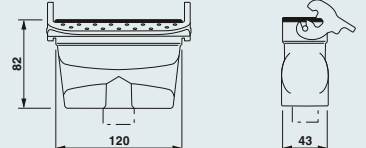
General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data	
Material	Aluminum, die-cast
Surface treatment	Powder-coated, gray
Locking latch material	Stainless steel, handle: PA
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 29 mm 		Without cover HC-B 24-AML	1771930	10	
		With plastic cover HC-B 24-AMLD	1771943	10	
		With metal cover HC-B 24-AML-AL	1645493	10	
Box mounting base Height: 68 mm 	1 x M25	HC-B 24-SML-68/O1M25	1646337	10	
	1 x Pg21	HC-B 24-SML-67/O1PG21	1674134	10	
	2 x M25	HC-B 24-SML-68/O2M25	1646340	10	
Box mounting base Height: 84 mm 	1 x M32	HC-B 24-SML-84/O1M32	1645752	10	
	1 x M40	HC-B 24-SML-84/O1M40	1645765	10	
	1 x Pg21	HC-B 24-SML-84/O1PG21	1677966	10	
	1 x Pg29	HC-B 24-SML-84/O1PG29	1677979	10	
	2 x M32	HC-B 24-SML-84/O2M32	1604832	10	
	2 x M40	HC-B 24-SML-84/O2M40	1645778	10	
Box mounting base with cover Height: 67 mm 	1 x M25	HC-B 24-SMLD-67/O1M25	1604833	10	
	1 x Pg21	HC-B 24-SMLD-67/O1PG21	1674150	10	
	2 x M25	HC-B 24-SMLD-67/O2M25	1604834	10	
	2 x Pg21	HC-B 24-SMLD-67/O2PG21	1674163	10	
Box mounting base with cover Height: 84 mm 	1 x M32	HC-B 24-SMLD-84/O1M32	1645781	10	
	1 x Pg21	HC-B 24-SMLD-84/O1PG21	1678004	10	
	1 x Pg29	HC-B 24-SMLD-84/O1PG29	1678017	10	
	2 x M32	HC-B 24-SMLD-84/O2M32	1645794	10	
	2 x M40	HC-B 24-SMLD-84/O2M40	1645817	10	
	2 x Pg21	HC-B 24-SMLD-84/O2PG21	1678020	10	
Coupling housing Height: 82 mm 	1 x M32	HC-B 24-KML-H-O1STM32	1460325	10	
	1 x M40	HC-B 24-KML-H-O1STM40	1460326	10	
	1 x Pg29	HC-B 24-KML-H-O1PG29	1460250	10	

Notes:	Accessories
For further accessories, see from page 552	

 Flat gaskets From page 571	 Pressure screw set From page 556	 Screw connections From page 552	 Cover plates From page 572
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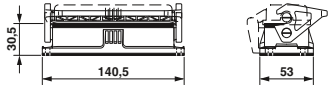

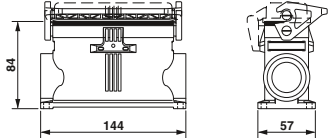

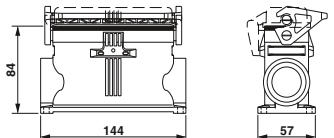

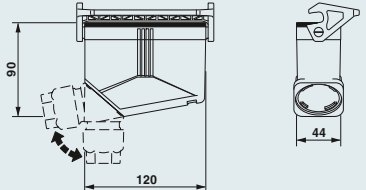
**Type B24, plastic,
EVO supporting base element
with single locking latch**

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data	
Housing material	Polyamide
Surface material	-
Locking latch material	Polyamide
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted



Description		Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 30.5 mm 			Without cover HC-EVO-B24-BWS-PLRBK	1407659	1	
			With cover HC-EVO-B24-BWSC-PLRBK	1407660	1	
Box mounting base Height: 84 mm 		2 x M40	HC-EVO-B24-SHWS-2SSM40-PLRBK	1407663	1	
Box mounting base with cover Height: 84 mm 		2 x M40	HC-EVO-B24-SHWSC-2SSM40-PLRBK	1407664	1	
Coupling housing Height: 90 mm 			HC-EVO-B24-CHWS-PLRBK	1407667	1	
		1 x M40	Cable gland HC-B-G-M40-PLRBK	1407672	1	
		1 x M32	HC-B-G-M32-PLRBK	1407671	1	
		1 x M25	HC-B-G-M25-PLRBK	1407670	1	
		1 x M20	HC-B-G-M20-PLRBK	1407669	1	

Notes:
For further accessories, see from page 552
Corresponding marking label: US-EMP (20X9), Order No. 0829439
Replacement hinged cover: Order No. 1407695

Accessories



Screw connections
From page 552



Replacement latch
From page 570

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B24, metal, sleeve housing for double locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
-
-40 °C ... 125 °C
IP65



Ordering data

Description



Cable entry: top
Height: 65 mm

1 x M25
1 x M32

1 x Pg29



Type

Order No.

Pcs. / Pkt.

HC-B 24-TFQ-N-O1STM25G
HC-B 24-TFQ-N-O1STM32G

1460218
1460222

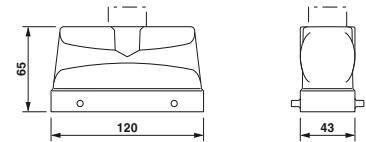
10
10

HC-B 24-TFQ-N-O1PG29G

1460332

10

Dimensions



Cable entry: top
Height: 76 mm

1 x M32
1 x M40

1 x Pg21
1 x Pg29



HC-B 24-TFQ-H-O1STM32G
HC-B 24-TFQ-H-O1STM40G

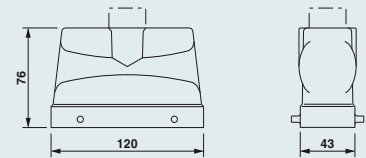
1460243
1460245

10
10

HC-B 24-TFQ-H-O1PG21G
HC-B 24-TFQ-H-O1PG29G

1460350
1460239

10
10



Cable entry: lateral
Height: 65 mm

1 x M25
1 x M32

1 x Pg21



HC-B 24-TFQ-N-O1STM25S
HC-B 24-TFQ-N-O1STM32S

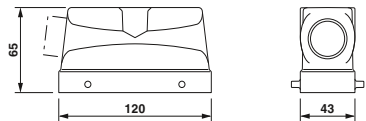
1460219
1460223

10
10

HC-B 24-TFQ-N-O1PG21S

1460224

10



Cable entry: lateral
Height: 76 mm

1 x M32
1 x M40

1 x Pg21
1 x Pg29



HC-B 24-TFQ-H-O1STM32S
HC-B 24-TFQ-H-O1STM40S

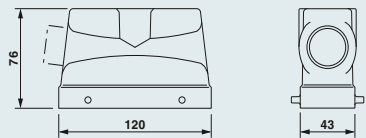
1409367
1460246

10
10

HC-B 24-TFQ-H-O1PG21S
HC-B 24-TFQ-H-O1PG29S

1460238
1460240

10
10



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556


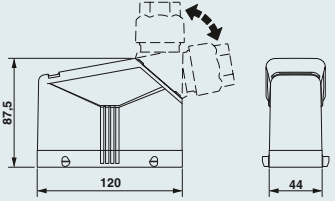

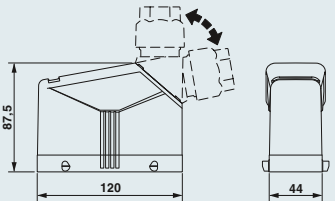

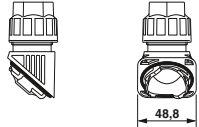

Type B24, plastic, EVO sleeve housing for double locking latch



Technical data

General data	
Housing material	Polyamide
Surface material	-
Locking latch material	-
Sealing material	-
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Cable entry: top/lateral Height: 87.5 mm 		HC-EVO-B24-HHFD-PLBK	1407657	1	
Cable entry: top/lateral Height: 87.5 mm 		HC-EVO-B24-HHFD-PLBK	1407657	1	
Cable gland 	1 x M20 1 x M25 1 x M32 1 x M40	HC-B-G-M20-PLRBK HC-B-G-M25-PLRBK HC-B-G-M32-PLRBK HC-B-G-M40-PLRBK	1407669 1407670 1407671 1407672	1 1 1 1	
Plug-in connector set 		Push-in connection HC-EVO-B24PT-BWD-HH-M32-PLRBK	1407713	1	

Notes:

For further accessories, see from page 552
 Corresponding marking label: US-EMP (20X9),
 Order No. 0829439

Accessories



Protective cover
 From page 578



Corrugated pipe adapter
 From page 584

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B24, metal, base element with double locking latch

General data


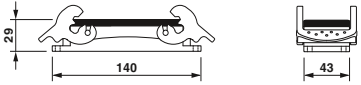

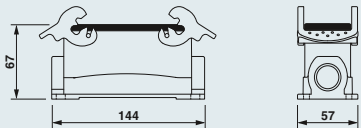

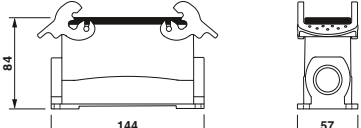

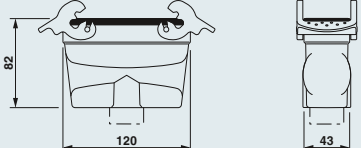
Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
Stainless steel, handle: PA
NBR
-40 °C ... 125 °C
IP65



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 29 mm 		Without cover HC-B 24-AMQ	1771927	10	
Box mounting base Height: 67 mm 	1 x M25 1 x Pg21 2 x M25 2 x Pg21	HC-B 24-SMQ-67/O1M25 HC-B 24-SMQ-67/O1PG21 HC-B 24-SMQ-68/O2M25 HC-B 24-SMQ-67/O2PG21	1604835 1674176 1646353 1674189	10 10 10 10	
Box mounting base Height: 84 mm 	1 x M32 1 x M40 1 x Pg21 1 x Pg29 2 x M32 2 x M40 2 x Pg21 2 x Pg29	HC-B 24-SMQ-84/O1M32 HC-B 24-SMQ-84/O1M40 HC-B 24-SMQ-84/O1PG21 HC-B 24-SMQ-84/O1PG29 HC-B 24-SMQ-84/O2M32 HC-B 24-SMQ-84/O2M40 HC-B 24-SMQ-84/O2PG21 HC-B 24-SMQ-84/O2PG29	1604836 1645419 1678046 1678402 1604837 1645723 1678059 1678431	10 10 10 10 10 10 10 10	
Coupling housing Height: 82 mm 	1 x M32 1 x M40 1 x Pg21 1 x Pg29	HC-B 24-KMQ-H-O1STM32 HC-B 24-KMQ-H-O1STM40 HC-B 24-KMQ-H-O1PG21 HC-B 24-KMQ-H-O1PG29	1460335 1460336 1460329 1460330	10 10 10 10	

Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Type B24, plastic, EVO supporting base element with double locking latch


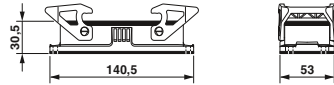

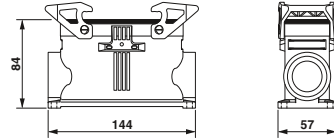

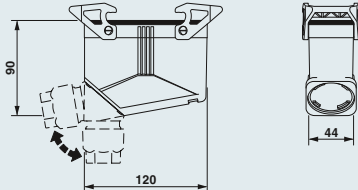
General data

Housing material	Polyamide
Surface material	-
Locking latch material	Polyamide
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted

Technical data



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 30.5 mm 		Without cover HC-EVO-B24-BWD-PLRBK	1407661	1	
Box mounting base Height: 84 mm 	2 x M40	HC-EVO-B24-SHWD-2SSM40-PLRBK	1407665	1	
Coupling housing Height: 90 mm 	1 x M40 1 x M32 1 x M25 1 x M20	HC-EVO-B24-CHWD-PLRBK Cable gland HC-B-G-M40-PLRBK HC-B-G-M32-PLRBK HC-B-G-M25-PLRBK HC-B-G-M20-PLRBK	1407668 1407672 1407671 1407670 1407669	1 1 1 1 1	

Notes:

- For further accessories, see from page 552
- Corresponding marking label: US-EMP (20X9), Order No. 0829439
- Replacement hinged cover: Order No. 1407695

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B24, metal, sleeve housing with double locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
Stainless steel, handle: PA
-
-40 °C ... 125 °C
IP65



Ordering data

Description



Type

Order No.

Pcs. / Pkt.

Dimensions

Cable entry: top Height: 76 mm

1 x M32
1 x M40

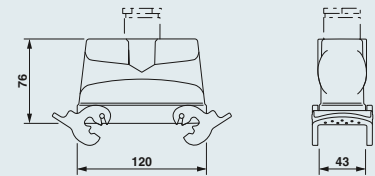
1 x Pg21
1 x Pg29



HC-B 24-TMQ-H-O1STM32G
HC-B 24-TMQ-H-O1STM40G
HC-B 24-TMQ-H-M1PG21G
HC-B 24-TMQ-H-M1PG29G

1460269
1460271
1460255
1460257

10
10
10
10



Cable entry: lateral Height: 76 mm

1 x M32
1 x M40

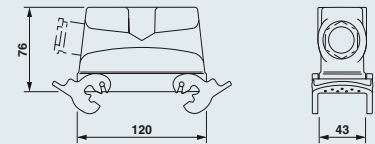
1 x Pg21
1 x Pg29



HC-B 24-TMQ-H-O1STM32S
HC-B 24-TMQ-H-O1STM40S
HC-B 24-TMQ-H-M1PG21S
HC-B 24-TMQ-H-M1PG29S

1460270
1460272
1460256
1460259

10
10
10
10



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556

Type B24, plastic, EVO sleeve housing with double locking latch


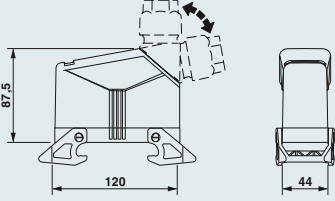

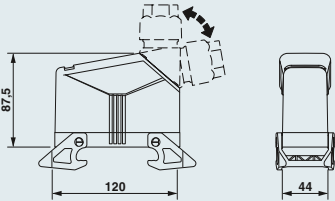

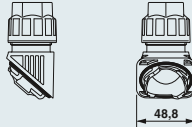
General data

Housing material	Polyamide
Surface material	-
Locking latch material	Polyamide
Sealing material	-
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65

Technical data



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Cable entry: top/lateral Height: 78 mm 		HC-EVO-B24-HHWD-PLBK	1407658	1	
Cable entry: top/lateral Height: 78 mm 		HC-EVO-B24-HHWD-PLBK	1407658	1	
Cable gland 	1 x M20 1 x M25 1 x M32 1 x M40	HC-B-G-M20-PLRBK HC-B-G-M25-PLRBK HC-B-G-M32-PLRBK HC-B-G-M40-PLRBK	1407669 1407670 1407671 1407672	1 1 1 1	

Notes:

Corresponding marking label: US-EMP (20X9), Order No. 0829439

Accessories



Replacement latch
From page 570



Corrugated pipe adapter
From page 584

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B24, metal, supporting base element for double locking latch

General data


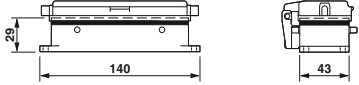

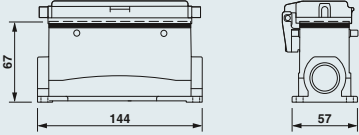

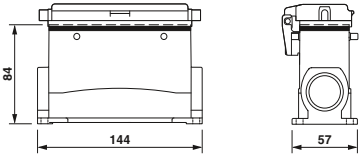
Housing material	Aluminum, die-cast
Surface material	Powder-coated, gray
Locking latch material	-
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65

Technical data

Housing material	Aluminum, die-cast
Surface material	Powder-coated, gray
Locking latch material	-
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base with cover Height: 29 mm 		With cover HC-B 24-AFQD	1771956	10	
Box mounting base with cover Height: 67 mm 	1 x M25 1 x Pg21 2 x M25 2 x Pg21	HC-B 24-SFQD-67/O1M25 HC-B 24-SFQD-67/O1PG21 HC-B 24-SFQD-67/O2M25 HC-B 24-SFQD-67/O2PG21	1604830 1674118 1604831 1674121	10 10 10 10	
Box mounting base with cover Height: 84 mm 	1 x M32 2 x M32	HC-B 24-SFQD-84/O1M32 HC-B 24-SFQD-84/O2M32	1645736 1645749	10 10	

Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572


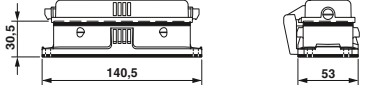

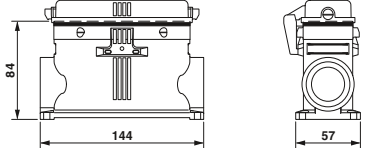
**Type B24, plastic,
EVO supporting base element
for double locking latch**



Technical data

General data	
Housing material	Polyamide
Surface material	-
Locking latch material	-
Sealing material	NBR
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65 protection when the connector is inserted

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base with cover Height: 30.5 mm 		With cover HC-EVO-B24-BFDC-PLRBK	1407662	1	
Box mounting base with cover Height: 84 mm 	2 x M40	HC-EVO-B24-SHFDC-2SSM40-PLRBK	1407666	1	

Notes:

- For further accessories, see from page 552
- Corresponding marking label: US-EMP (20X9), Order No. 0829439
- Replacement hinged cover: Order No. 1407695

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B24, metal, sleeve housing for central locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

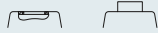
Technical data

Aluminum, die-cast
Powder-coated, gray
Steel, galvanized
-
-40 °C ... 125 °C
IP65



Ordering data

Description



Type

Order No.

Pcs. / Pkt.

Dimensions

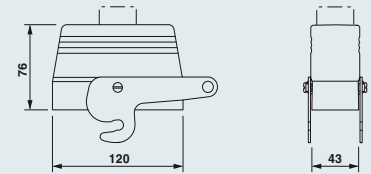
Cable entry: top
Height: 76 mm

1 x M32

HC-B 24-TMZ-76/O1STM32G

1584596

10



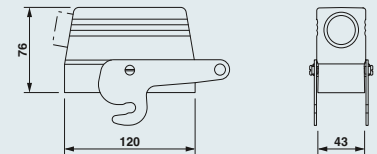
Cable entry: lateral
Height: 76 mm

1 x M32

HC-B 24-TMZ-76/O1STM32S

1584606

10



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556

Type B24, metal, supporting base element for central locking latch

General data


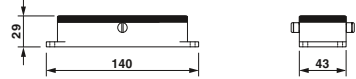

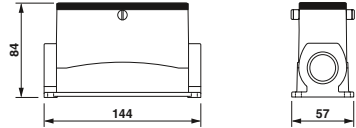
Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
-
NBR
-40 °C ... 125 °C
IP65



Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 29 mm 		HC-B 24-AFZ	1584583	10	
Box mounting base Height: 84 mm 	1 x M32	HC-B 24-SFZ-84/O1M32	1584570	10	

Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B32, metal, ADVANCE sleeve housing, EEE - offshore/EMC




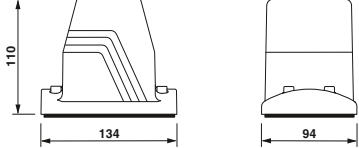

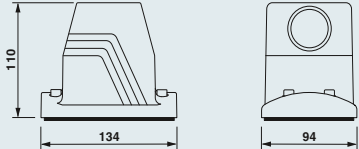

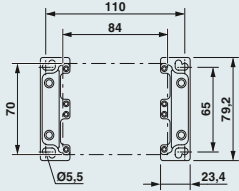

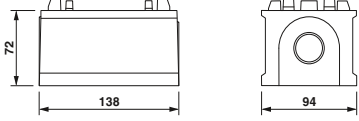

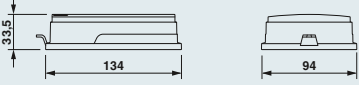
General data

Housing material
Surface material
Material, lock
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Die-cast aluminum, salt water resistant
Uncoated
Stainless steel
NBR, conductive
-40 °C ... 125 °C
IP65 / IP68 (0.2 bar, 24h) / IP69K

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Cable entry: top¹⁾ Height: 110 mm 	1 x M32	HC-B 32-TMS-100-O1STM32G-EEE	1580516	6	
	1 x M40	HC-B 32-TMS-100-O1STM40G-EEE	1580518	6	
	1 x M50	HC-B 32-TMS-100-O1STM50G-EEE	1580522	6	
Cable entry: lateral¹⁾ Height: 110 mm 	1 x M32	HC-B 32-TMS-100-O1STM32S-EEE	1580517	6	
	1 x M40	HC-B 32-TMS-100-O1STM40S-EEE	1580519	6	
	1 x M50	HC-B 32-TMS-100-O1STM50S-EEE	1580521	6	
Panel mounting flange²⁾ 		2 pcs. per housing HC-B 32/48-AF Set with 2 panel mounting flanges HC-B 32/48-AF-SET	1580524 1580523	20 1	
Box mounting base Height: 72 mm 	1 x M32	HC-B 32-SFS-72-O1M32-EEE	1580526	6	
	1 x M40	HC-B 32-SFS-72-O1M40-EEE	1580528	6	
	1 x M50	HC-B 32-SFS-72-O1M50-EEE	1580530	6	
	2 x M32	HC-B 32-SFS-72-O2M32-EEE	1580527	6	
IP65 protective cover 		HC-B 32-TMS-SD-IP65	1580539	6	

Notes:

In order to achieve optimum shielding results, the mounting surface must be conductive

¹⁾ Screw locking with M6 Allen screws

²⁾ Bore hole Ø 5.5 mm when using M4 screws, bore hole Ø 4.5 mm when using self-tapping M5 screws (Torx®)

Accessories



Screw connections
From page 552

Technical data

General data	
Housing material	-
Surface material	-
Material, lock	-
Sealing material	-
Ambient temperature (operation)	-
Type of protection (when plugged in)	-

Ordering data

Description	Thread	Type	Order No.	Pcs. / Pkt.	Dimensions

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B32, metal, sleeve housing for double locking latch



General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
-
-40 °C ... 125 °C
IP65

Ordering data

Description

Cable entry: top
Height: 80 mm



1 x M32
1 x M40

1 x Pg29



Type

HC-B 32-TFQ-80/O1STM32G
HC-B 32-TFQ-80/O1STM40G
HC-B 32-TFQ-80/O1PG29G

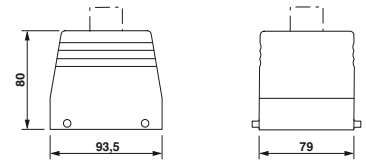
Order No.

1645383
1647307
1675081

Pcs. / Pkt.

10
10
10

Dimensions



Cable entry: lateral
Height: 80 mm

1 x M32
1 x M40
1 x M50

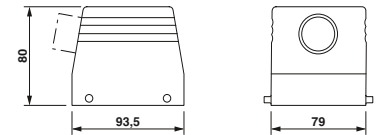
1 x Pg29
1 x Pg36



HC-B 32-TFQ-80/O1STM32S
HC-B 32-TFQ-80/O1STM40S
HC-B 32-TFQ-80/O1STM50S
HC-B 32-TFQ-80/O1PG29S
HC-B 32-TFQ-80/O1PG36S

1645150
1645451
1585980
1675094
1644818

10
10
10
10
10



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556

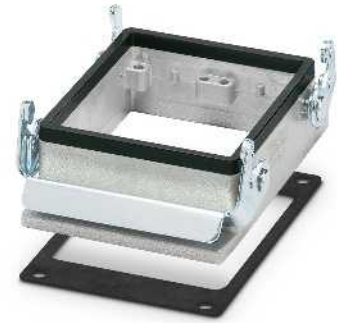
Type B32, metal, supporting base element with double locking latch

General data

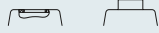
Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
Steel, galvanized
NBR
-40 °C ... 125 °C
IP65



Description



Panel mounting base
Height: 31 mm



Box mounting base
Height: 72 mm



1 x M32
1 x Pg29
2 x M32
2 x M40
2 x Pg29

Ordering data

Type

Order No.

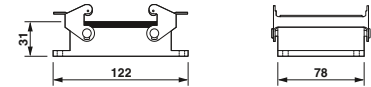
Pcs. / Pkt.

Dimensions

HC-B 32-AMQ

1775693

10



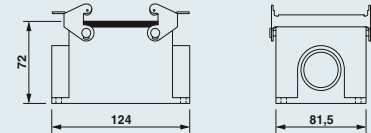
HC-B 32-SMQ-72/O1M32
HC-B 32-SMQ-72/O1PG29

1604867

1675036

10

10



HC-B 32-SMQ-72/O2M32
HC-B 32-SMQ-72/O2M40
HC-B 32-SMQ-72/O2PG29

1604868

1604869

1675049

10

10

10

Coupling housing

Height: 82 mm



1 x M32
1 x M40
1 x Pg21
1 x Pg29

HC-B 32-KMQ-82/O1STM32
HC-B 32-KMQ-82/O1STM40

1647284

1647297

10

10

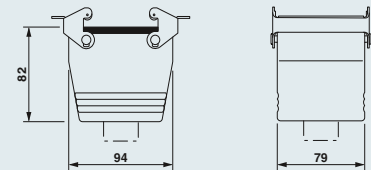
HC-B 32-KMQ-82/O1PG21
HC-B 32-KMQ-82/O1PG29

1675010

1675023

10

10



Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type B - housing

Type B48, metal, sleeve housing for single locking latch

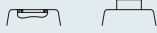


Technical data

General data	
Housing material	Aluminum, die-cast
Surface material	Powder-coated, gray
Locking latch material	-
Sealing material	-
Ambient temperature (operation)	-40 °C ... 125 °C
Type of protection (when plugged in)	IP65

Ordering data

Description



Type

Order No.

Pcs. / Pkt.

Dimensions

Cable entry: top Height: 96 mm

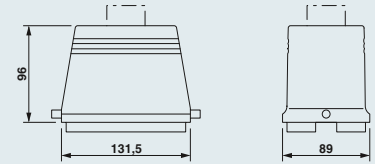
1 x M32
1 x M40

1 x Pg29
1 x Pg36



HC-B 48-TFL-96/O1STM32G
1647349
HC-B 48-TFL-96/O1STM40G
1647310
HC-B 48-TFL-96/O1PG29G
1675159
HC-B 48-TFL-96/O1PG36G
1675175

1
1
1
1



Cable entry: lateral Height: 96 mm

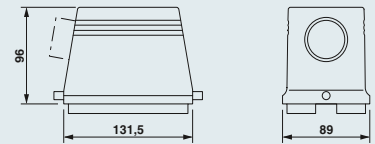
1 x M32
1 x M40

1 x Pg29
1 x Pg36



HC-B 48-TFL-96/O1STM32S
1647336
HC-B 48-TFL-96/O1STM40S
1647323
HC-B 48-TFL-96/O1PG29S
1675162
HC-B 48-TFL-96/O1PG36S
1675188

1
1
1
1



Notes:

For further accessories, see from page 552

Accessories



Screw connections
From page 552



Pressure screw set
From page 556

Type B48, metal, supporting base element with single locking latch

General data

Housing material
Surface material
Locking latch material
Sealing material
Ambient temperature (operation)
Type of protection (when plugged in)

Technical data

Aluminum, die-cast
Powder-coated, gray
Steel, galvanized
NBR
-40 °C ... 125 °C
IP65 protection when the connector is inserted



Ordering data

Description		Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 41 mm		Without cover HC-B 48-AML With plastic cover HC-B 48-AMLD	1772175 1772188	1 1	
Box mounting base Height: 100 mm		1 x M32 1 x Pg29 HC-B 48-SML-100/O1M32 HC-B 48-SML-100/O1PG29 2 x M40 2 x Pg29 HC-B 48-SML-100/O2M40 HC-B 48-SML-100/O2PG29	1604875 1675117 1604876 1675120	1 1 1 1	
Box mounting base with cover Height: 100 mm		1 x Pg29 HC-B 48-SML-100/O1PG29 2 x M40 HC-B 48-SML-100/O2M40	1675117 1604878	1 1	

Notes:

For further accessories, see from page 552

Accessories



Flat gaskets
From page 571



Pressure screw set
From page 556



Screw connections
From page 552



Cover plates
From page 572

Heavy-duty plug-in connectors

HEAVYCON type compact - contact inserts

Compact series

200 - 690 V, 10 - 40 A

Connection technology:

– Crimp connection

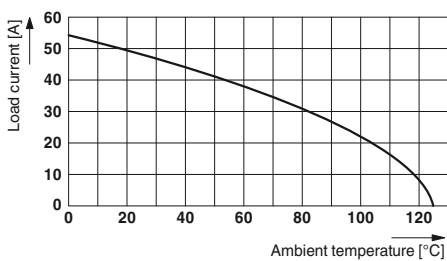
To determine the matching housings, refer to the cross-reference list on page 402.

Notes:
Order crimp contacts separately
Connectors may only be operated when under no load.
Observe notes on the connection technology

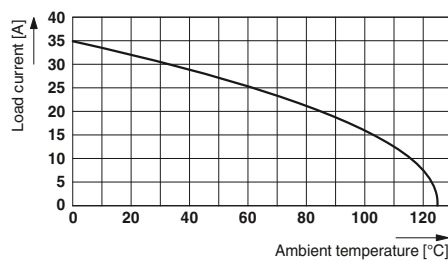


Type	Technical data				
	HC-COM- 8-E...C	HC-COM- 17-E...C	HC-COM- 4/2-E...C		
			Power contacts	Control contacts	
Approvals					
IEC data					
Rated current, contacts (at 40°C)	A	16	10	40	10
Surge voltage category		III	III	III	III
Pollution degree		3	3	3	3
Rated voltage (III/3) contacts	V	500	200	400 / 690	250
Rated surge voltage, contacts	kV	6	4	6	4
Connection cross section	mm ²	0.5 ... 4	0.14 ... 2.5	1.5 ... 6	0.14 ... 2.5
UL data					
Rated voltage	V	600	600	250	-
Rated current	A	19	19.5	15	-
AWG		20-12	22-14	22-14	-
CSA data					
Rated voltage	V	-	-	-	-
Rated current	A	-	-	-	-
AWG		-	-	-	-
Material data					
Contact carrier material		PC	PC	PC	
Inflammability class in acc. with UL 94		V0	V0	V0	
Contact material		Copper alloy	Copper alloy	Copper alloy	
Contact surface material		Ag (alternatively Au)	Ag (alternatively Au)	Ag	Ag (alternatively Au)
Temperature data					
Ambient temperature range	°C	-40 ... 100	-40 ... 100	-40 ... 100	
General data					
Connection method		Crimp connection	Crimp connection	Crimp connection	Crimp connection
No. of pos.		8	17	4	2
Contact numbering		1 - 8	1 - 17	1-4	1-2
Insertion/withdrawal cycles		≥ 500	≥ 500	≥ 500	

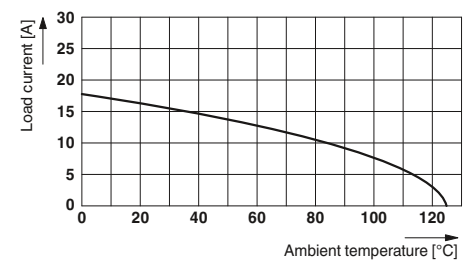
Derating curves




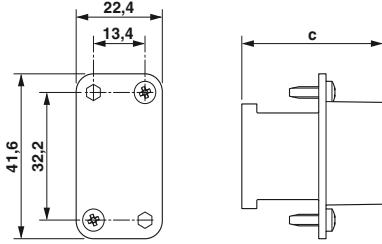


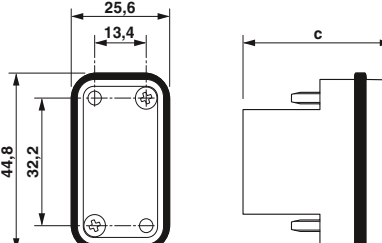



HC-COM- 4/2-E...C



HC-COM- 8-E...C



HC-COM- 17-E...C

				Ordering data			Dimensions (in mm)																																					
Description	Pos.	Number	Housing	Type	Order No.		Pcs. / Pkt.																																					
					Socket	Plug																																						
Crimp connection CK 2,5 	8	1 - 8	COM	① HC-COM- 8-E...C	1408494	1408481	2	 Dimensional drawing: socket																																				
Crimp connection CK 1,6 	17	1 - 17	COM	② HC-COM- 17-E...C	1408478	1408465	2																																					
Crimp connection CK 4,0/CK 1,6 	4 / 2	1-4	COM	③ HC-COM- 4/2-E...C	1408517	1408504	2			 Dimensional drawing: pin																																		
Turned crimp contacts CK 1,6 Silver-plated 	Cross section mm ² / AWG 0.14 - 0.37 / 26 - 22 0.5 / 20 0.75 / 18 0.75 - 1 / 18 1.5 / 16 2.5 / 14			CK1,6-ED-0,37... AG CK1,6-ED-0,50... AG CK1,6-ED-0,75... AG CK1,6-ED-1,00... AG CK1,6-ED-1,50... AG CK1,6-ED-2,50... AG	1663394 1663404 1663417 1663420 1663433 1663446	1663336 1663349 1663352 1663365 1663378 1663381	100 100 100 100 100 100	<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>① Socket</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>① Plug</td> <td></td> <td></td> <td>38.5</td> <td></td> </tr> <tr> <td>② Socket</td> <td></td> <td></td> <td>36.7</td> <td></td> </tr> <tr> <td>② Plug</td> <td></td> <td></td> <td>38.7</td> <td></td> </tr> <tr> <td>③ Socket</td> <td></td> <td></td> <td>48.05</td> <td></td> </tr> <tr> <td>③ Plug</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			a	b	c	d	① Socket					① Plug			38.5		② Socket			36.7		② Plug			38.7		③ Socket			48.05		③ Plug				
	a	b	c	d																																								
① Socket																																												
① Plug			38.5																																									
② Socket			36.7																																									
② Plug			38.7																																									
③ Socket			48.05																																									
③ Plug																																												
Turned crimp contacts CK 2,5 Silver-plated 	Cross section mm ² / AWG 0.5 / 20 0.75 / 18 0.75 - 1 / 18 1.5 / 16 2.5 / 14 4 / 12			CK2,5-ED-0,50... AG CK2,5-ED-0,75... AG CK2,5-ED-1,00... AG CK2,5-ED-1,50... AG CK2,5-ED-2,50... AG CK2,5-ED-4,00... AG	1663640 1663653 1663666 1663679 1663682 1663705	1663572 1663585 1663598 1663608 1663611 1663637	100 100 100 100 100 100																																					
Turned crimp contacts CK 4,0 Silver-plated 	Cross section mm ² / AWG 1.5 / 16 2.5 / 14 4 / 12 6 / 10			CK4,0-ED-1,50... AG CK4,0-ED-2,50... AG CK4,0-ED-4,00... AG CK4,0-ED-6,00... AG	1663271 1663284 1663297 1663307	1663239 1663242 1663255 1663268	25 25 25 25																																					

Accessories



Dummy sockets
From page 582



Crimping tools
From page 562



Crimp contacts
From page 564

Heavy-duty plug-in connectors

HEAVYCON type compact - housing




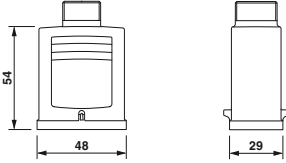



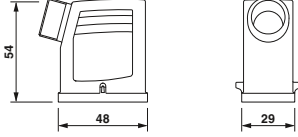

Type compact, plastic, sleeve housing



Technical data

General data	
Housing material	PC
Surface material	-
Material, lock	-
Sealing material	-
Ambient temperature (operation)	-40 °C ... 100 °C
Type of protection (when plugged in)	IP65/IP66

Ordering data

Description		Type	Order No.	Pcs. / Pkt.	Dimensions
Cable entry: top Height: 54 mm 	  1 x Pg16	HC-COM-K-TFL-O1PG16-G	1408342	2	
Cable entry: lateral Height: 54 mm 	  1 x Pg16	HC-COM-K-TFL-O1PG16-S	1408339	2	
Pg16 cable gland 		VC-K-KV-PG16(9-13) VC-K-KV-PG16(11,5-15,5)	1853764 1854844	5 5	

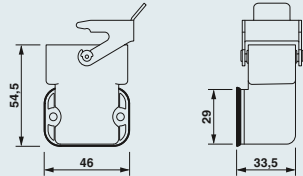

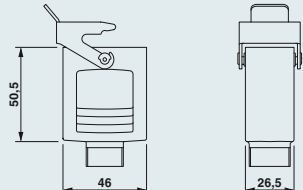
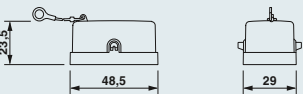
Notes:

For further accessories, see from page 552

Type compact, plastic, supporting base element



General data		Technical data
Housing material		PC
Surface material		-
Material, lock		Stainless steel
Sealing material		NBR
Ambient temperature (operation)		-40 °C ... 100 °C
Type of protection (when plugged in)		IP65/IP66

Description		Thread	Type	Order No.	Pcs. / Pkt.	Dimensions
Panel mounting base Height: 20.5 mm 			Straight version HC-COM-K-AML-GR	1408355	2	
Panel mounting base Height: 33.5 mm 			Angled version HC-COM-K-AML-GW	1408368	2	
Box mounting base Height: 33.5 mm 	1 x Pg16		HC-COM-K-SML-O1PG16	1408371	2	
Coupling housing Height: 50.5 mm 	1 x Pg16		HC-COM-K-KML-O1PG16	1408384	2	
Pg16 cable gland 			HC-COM-K-KV-PG16(9-12) SML HC-COM-K-KV-PG16(11,5-15) SML	1409286 1409299	2 2	
Protective cover, plastic 			Socket HC-COM-K-SD-FLU-BU/FS Plug HC-COM-K-SD-FLU-ST/FS	1408397 1408407	2 2	

Notes:
For further accessories, see from page 552
Box mounting base with open bottom

Accessories for full cable glands



Plastic cable glands are easy to install and cover a wide range of conductor diameters, thanks to the clamping cage principle combined with excellent strain relief. They are suitable for universal application in mechanical and plant engineering, in measuring and control technology, in automation and electrical engineering and in robot construction.

- Full screw connection for use in housing with thread
- High strain relief forces and high cable diameter ranges thanks to clamping cage principle
- Brass screw connections for especially high demands in terms of stability and safety
- EMC screw connections offer an easy way of connecting shielded cables
- Easy to assemble thanks to highly elastic contact springs
- AS-Interface screw connections are available for inserting AS-Interface cables



Plastic gland



Technical data

Material data	
Cable gland material	Polyamide
Material, insert	-
Seal material	Neoprene
Material, O-ring	-
Inflammability class according to UL 94	V2
Mechanical data	
Degree of protection	IP68, up to 5 bar
Temperature data	
Ambient temperature (operation)	-20 °C ... 100 °C

Ordering data

Description	Thread type	Type	Order No.	Pcs. / Pkt.
Plastic gland, gray, for cable diameter [mm]:				
5 mm ... 10 mm	M16	HC-K-KV-M16(5-10)	1690613	25
8 mm ... 13 mm	M20	HC-K-KV-M20(8-13)	1690626	25
11 mm ... 17 mm	M25	HC-K-KV-M25(11-17)	1690639	25
15 mm ... 21 mm	M32	HC-K-KV-M32(15-21)	1690642	10
19 mm ... 28 mm	M40	HC-K-KV-M40(19-28)	1690655	10
Plastic gland, black, for cable diameter [mm]:				
12 mm ... 21 mm	M32	HC-K-KV-M32(12-21)BK	1407673	10
16 mm ... 28 mm	M40	HC-K-KV-M40(16-28)BK	1407674	10
Metal gland, for cable diameter [mm]:				
5 mm ... 9 mm	M16			
9 mm ... 13 mm	M20			
11 mm ... 16 mm	M20			
11 mm ... 16 mm	M25			
14 mm ... 21 mm	M25			
14 mm ... 21 mm	M32			
19 mm ... 27 mm	M32			
19 mm ... 27 mm	M40			
27 mm ... 34 mm	M40			
EMC screw connection, for cable diameter [mm]:				
4.5 mm ... 9 mm	M16			
7 mm ... 12.5 mm	M20			
9 mm ... 16.5 mm	M25			
11 mm ... 21 mm	M32			
19 mm ... 28 mm	M40			
Metal gland, for AS-Interface flat-ribbon conductor				
Thread type: M20	M20			
Thread type: M25	M25			
Special cable gland, M25, brass With 10 mm and 11 mm hole	M25			

Heavy-duty plug-in connectors

HEAVYCON cable glands

Pg16 cable glands for several cables

The screw connection glands allow multiple grommets to be used.



Screw connection with plastic pressure screw



Screw connection with brass pressure screw



Technical data	
VC-K-KV.../...	VC-M-KV...ST
Material	-
Material	Brass, nickel-plated
Sealing material	TPE
Material, O-ring	-
Degree of protection	NBR
IP65	-
Temperature data	-
Ambient temperature (operation)	-20 °C ... 100 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-M-KV-PG16/M25 ST	1644407	10
VC-K-KV-PG16 1X3/1X8	1885376	5
VC-K-KV-PG16 1X3/1X9	1885389	5
VC-K-KV-PG16 1X6/1X8	1885392	5
VC-K-KV-PG16 1X5/1X9	1885402	5
VC-K-KV-PG16 1X3/2X8	1885415	5
VC-K-KV-PG16 1X5/2X6	1885428	5
VC-K-KV-PG16 2X6/1X7	1885431	5
VC-K-KV-PG16 3X7	1885444	5
SEALING PLUG 3X12 RD	1400238	10
SEALING PLUG 5X12 RD	1400253	10
SEALING PLUG 6X16 RD	1400254	10
SEALING PLUG 7X16 RD	1400255	10
SEALING PLUG 8X16 RD	1400257	10
SEALING PLUG 12X22 RD	1400260	10
SEALING PLUG 13X22 RD	1400265	10



Technical data	
VC-M-KV.../...	VC-M-KV...ST
Material	Brass, nickel-plated
Material	Brass, nickel-plated
Sealing material	TPE
Material, O-ring	-
Degree of protection	NBR
IP65	-
Temperature data	-
Ambient temperature (operation)	-40 °C ... 125 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-M-KV-PG16/M25 ST	1644407	10
VC-M-KV-PG16 1X3/1X8	1885457	5
VC-M-KV-PG16 1X3/1X9	1885460	5
VC-M-KV-PG16 1X6/1X8	1885473	5
VC-M-KV-PG16 1X5/1X9	1885486	5
VC-M-KV-PG16 1X3/2X8	1885499	5
VC-M-KV-PG16 1X5/2X6	1885509	5
VC-M-KV-PG16 2X6/1X7	1885512	5
VC-M-KV-PG16 3X7	1885525	5
SEALING PLUG 3X12 RD	1400238	10
SEALING PLUG 5X12 RD	1400253	10
SEALING PLUG 6X16 RD	1400254	10
SEALING PLUG 7X16 RD	1400255	10
SEALING PLUG 8X16 RD	1400257	10
SEALING PLUG 12X22 RD	1400260	10
SEALING PLUG 13X22 RD	1400265	10

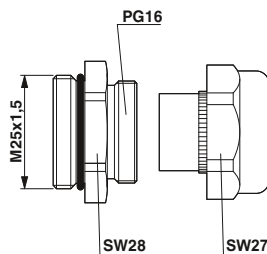
Cable screw connection glands, for adapting the Pg half screw connections to metric cable entry, M25

Half screw connection Pg16, consisting of rubber seal with several holes and a pressure screw, for type VC1 housing and HEAVYCON, additional types available on request

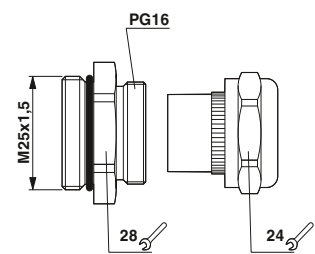
- 1 x 3 / 1 x 8
- 1 x 3 / 1 x 9
- 1 x 6 / 1 x 8
- 1 x 5 / 1 x 9
- 1 x 3 / 2 x 8
- 1 x 5 / 2 x 6
- 2 x 6 / 1 x 7
- 3 x 7

Closing cap, for closing unused bore holes in multiple seals and cable glands

- Ø 3 mm
- Ø 5 mm
- Ø 6 mm
- Ø 7 mm
- Ø 8 mm
- Ø 12 mm
- Ø 13 mm



VC-M-KV-PG16/M25 ST / VC-K-KV-PG16...



VC-M-KV-PG16/M25 ST / VC-M-KV-PG16...

Pg21 cable glands for several cables

The screw connection glands allow multiple grommets to be used.



Screw connection with plastic pressure screw



Screw connection with brass pressure screw



Technical data	
VC-K-KV.../...	VC-M-KV...ST
Material	PA
Sealing material	TPE
Material, O-ring	-
Degree of protection	IP65
Temperature data	-20 °C ... 100 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-M-KV-PG21/M32 ST	1644397	10
VC-K-KV-PG21 1X6/2X9	1885538	5
VC-K-KV-PG21-1X8,5/1X12	1885279	5
VC-K-KV-PG21-2X4,5/1X13	1885282	5
VC-K-KV-PG21 2X6/2X8	1885554	5
VC-K-KV-PG21 2X7,2/1X10,5	1885567	5
VC-K-KV-PG21 3X7	1885570	5
VC-K-KV-PG21 3X9	1885583	5
VC-K-KV-PG21 4X6,5	1885596	5
VC-K-KV-PG21 4X8	1885606	5
SEALING PLUG 3X12 RD	1400238	10
SEALING PLUG 5X12 RD	1400253	10
SEALING PLUG 6X16 RD	1400254	10
SEALING PLUG 7X16 RD	1400255	10
SEALING PLUG 8X16 RD	1400257	10
SEALING PLUG 12X22 RD	1400260	10
SEALING PLUG 13X22 RD	1400265	10

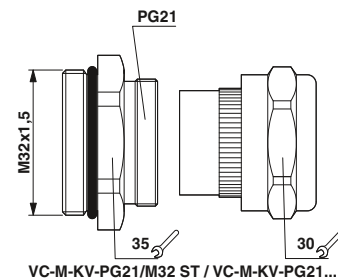
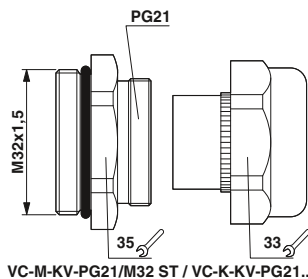


Technical data	
VC-M-KV.../...	VC-M-KV...ST
Material	Brass, nickel-plated
Sealing material	TPE
Material, O-ring	-
Degree of protection	IP65
Temperature data	-40 °C ... 125 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-M-KV-PG21/M32 ST	1644397	10
VC-M-KV-PG21 1X6/2X9	1885619	5
VC-M-KV-PG21-1X8,5/1X12	1854970	5
VC-M-KV-PG21 2X6/2X8	1885635	5
VC-M-KV-PG21 2X7,2/1X10,5	1885648	5
VC-M-KV-PG21 3X7	1885651	5
VC-M-KV-PG21 3X9	1885664	5
VC-M-KV-PG21 4X6,5	1885677	5
VC-M-KV-PG21 4X8	1885680	5
SEALING PLUG 3X12 RD	1400238	10
SEALING PLUG 5X12 RD	1400253	10
SEALING PLUG 6X16 RD	1400254	10
SEALING PLUG 7X16 RD	1400255	10
SEALING PLUG 8X16 RD	1400257	10
SEALING PLUG 12X22 RD	1400260	10
SEALING PLUG 13X22 RD	1400265	10

Description	Cable Ø [mm]
Cable screw connection glands , for adapting the Pg half screw connections to metric cable entry, M32	
Half screw connection Pg21 , consisting of rubber seal, several holes and a pressure screw, for type VC2 ... VC4 and HEAVYCON housing, additional types available on request	
	1 x 6 / 2 x 9
	1 x 8,5 / 1 x 12
	2 x 4,5 / 1 x 13
	2 x 6 / 2 x 8
	2 x 7,2 / 1 x 10,5
	3 x 7
	3 x 9
	4 x 6,5
	4 x 8
Closing cap , for closing unused bore holes in multiple seals and cable glands	
Ø 3 mm	
Ø 5 mm	
Ø 6 mm	
Ø 7 mm	
Ø 8 mm	
Ø 12 mm	
Ø 13 mm	



Heavy-duty plug-in connectors

HEAVYCON cable glands

Half screw connection accessories, pressure screws, seals

- For applications with higher requirements in terms of bend protection and strain relief
- Pressure screws with flared cable bend protection and strain relief clamps
- Half screw connection for use in housing with gland



Pressure screw



Pressure screw set/seal

Material data	
Material, pressure screw	Nickel-plated brass
Cable seal material	-
Degree of protection	-
Temperature data	
Ambient temperature (operation)	-

Technical data		
Material, pressure screw	Nickel-plated brass	
Cable seal material	-	
Degree of protection	-	
Temperature data		
Ambient temperature (operation)	-	

Technical data		
Material, pressure screw	Nickel-plated brass	
Cable seal material	Perbunan	
Degree of protection	IP65	
Temperature data		
Ambient temperature (operation)	-20 °C ... 80 °C	

Ordering data	
Description	Thread type

Ordering data		
Type	Order No.	Pcs. / Pkt.

Ordering data		
Type	Order No.	Pcs. / Pkt.

Pressure screws, with flared cable bend protection, for housing with Pg glands, clamping range:

8 mm ... 11 mm	Pg11	HC-DS-PG11-T	1686779	10
8 mm ... 13.5 mm	Pg13.5	HC-DS-PG13-T	1772683	10
9 mm ... 15 mm	Pg16	HC-DS-PG16-T	1772696	10
13 mm ... 20 mm	Pg21	HC-DS-PG21-T	1772706	10
20 mm ... 27 mm	Pg29	HC-DS-PG29-T	1772719	10

Pressure screws, with strain relief clamp, for housing with Pg glands, clamping range:

10 mm ... 14 mm	Pg13.5	HC-DS-PG13-Z	1772625	10
11 mm ... 15 mm	Pg16	HC-DS-PG16-Z	1772638	10
12 mm ... 20 mm	Pg21	HC-DS-PG21-Z	1772641	10
19 mm ... 27 mm	Pg29	HC-DS-PG29-Z	1772654	10
25.5 mm ... 34 mm	Pg36	HC-DS-PG36-Z	1772667	10

Pressure screw set, consisting of notched seal, two washers and pressure screw, for housing with Pg glands, sealing range:

7.5 mm ... 12.5 mm	Pg11	HC-DS-PG11-E	1675476	10
7.5 mm ... 12.5 mm	Pg13.5	HC-DS-PG13-E	1676873	10
7.5 mm ... 15 mm	Pg16	HC-DS-PG16-E	1676899	10
10 mm ... 19 mm	Pg21	HC-DS-PG21-E	1676886	10
18 mm ... 27 mm	Pg29	HC-DS-PG29-E	1676909	10
24 mm ... 33 mm	Pg36	HC-DS-PG36-E	1676912	10

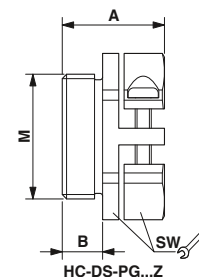
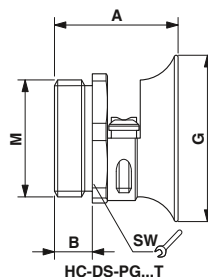
Pressure screw set, consisting of notched seal, two washers and pressure screw, for housing with metric glands, sealing range:

4 mm ... 13 mm	M20	HC-M-DE-M20	1647967	10
8.5 mm ... 18 mm	M25	HC-M-DE-M25	1647970	10
16 mm ... 25 mm	M32	HC-M-DE-M32	1647983	10
23 mm ... 32 mm	M40	HC-M-DE-M40	1647996	10

Notched seals, for Pg pressure screws, sealing range:

7.5 mm ... 12.5 mm	Pg11	HC-DR-PG11	1686795	10
7.5 mm ... 12.5 mm	Pg13.5	HC-DR-PG13	1686575	10
7.5 mm ... 15 mm	Pg16	HC-DR-PG16	1686588	10
10 mm ... 19 mm	Pg21	HC-DR-PG21	1686591	10
18 mm ... 27 mm	Pg29	HC-DR-PG29	1686601	10
24 mm ... 33 mm	Pg36	HC-DR-PG36	1686614	10

Type	A	B	M	SW
HC-DS-PG11-T	22.5	6	Pg11	20
HC-DS-PG13-T	23.5	7.5	Pg13.5	22
HC-DS-PG16-T	23.5	7.5	Pg16	24
HC-DS-PG21-T	26.5	8	Pg21	30
HC-DS-PG29-T	30.5	8	Pg29	41
HC-DS-PG13-Z	18	6.5	Pg13.5	24
HC-DS-PG16-Z	19	7.5	Pg16	27
HC-DS-PG21-Z	21	8	Pg21	34
HC-DS-PG29-Z	22	8	Pg29	42
HC-DS-PG36-Z	25.5	9.5	Pg36	52



Full cable screw connection accessories with bend protection, strain relief clamps

- For applications with extreme requirements in terms of bend protection and strain relief
- Screw connections with flared bend protection and strain relief clamps
- Full screw connection for use in housing with thread



Metal screw connection with conductor bend protection and strain relief

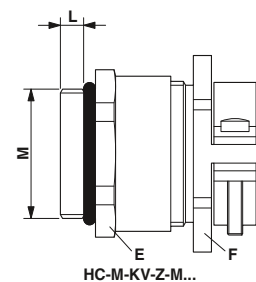
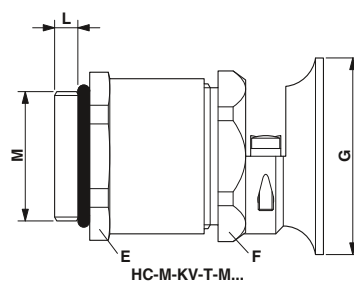


Metal screw connection with strain relief clamp

		Technical data			Technical data		
Material data							
Cable gland material		Nickel-plated brass			Nickel-plated brass		
Material, O-ring		NBR			NBR		
Cable seal material		Perbunan			Perbunan		
Degree of protection		IP65			IP65		
Temperature data							
Ambient temperature (operation)		-20 °C ... 80 °C			-20 °C ... 80 °C		
		Ordering data			Ordering data		
Description	Thread type	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Metal screw connection with conductor bend protection and strain relief, conductor sealing range/thread length:							
7.5 ... 15 mm / 10 ... 16 mm	M20	HC-M-KV-T-M20	1646188	10			
10 ... 19 mm / 14 ... 21 mm	M25	HC-M-KV-T-M25	1646191	10			
18 ... 27 mm / 20 ... 30 mm	M32	HC-M-KV-T-M32	1646201	10			
Metal screw connection with strain relief clamp, conductor sealing range/thread length:							
7.5 ... 15 mm / 11 ... 17 mm	M20				HC-M-KV-Z-M20	1646146	10
10 ... 19 mm / 12 ... 22 mm	M25				HC-M-KV-Z-M25	1646159	10
18 ... 27 mm / 20 ... 30 mm	M32				HC-M-KV-Z-M32	1646162	10
24 ... 33 mm / 26 ... 36 mm	M40				HC-M-KV-Z-M40	1646175	10

Type	L [mm]	E [WAF]	F [WAF]	G [mm]	M
HC-M-KV-T-M20	6	24	24	32	M20
HC-M-KV-T-M25	7	30	30	38	M25
HC-M-KV-T-M32	8	40	41	50	M32

Type	L [mm]	E [WAF]	F [WAF]	M
HC-M-KV-Z-M20	6	24	27	M20
HC-M-KV-Z-M25	7	30	34	M25
HC-M-KV-Z-M32	8	40	42	M32
HC-M-KV-Z-M40	8	50	52	M40



Heavy-duty plug-in connectors

HEAVYCON cable glands

Accessories

Extension, reducing, NPT adapters and filler plugs

The area of application of existing housings can be extended with extension, reducing, and NPT adapters.

A housing with an M32 screw thread can, for example, be equipped with an M25 screw connection by using the REDUC-M-KV-M 32/M 25 reducing adapter.

NPT adapters make it possible to use US cable glands with the conical National Pipe Thread (NPT thread).

Filler plugs are used to seal unused screw connection openings in housing.



Extension adapter

Material data	
Material	Nickel-plated brass
Material, O-ring	NBR
Degree of protection	-
Temperature data	
Ambient temperature (operation)	-20 °C ... 80 °C

Technical data

Material data	
Material	Nickel-plated brass
Material, O-ring	NBR
Degree of protection	-
Temperature data	
Ambient temperature (operation)	-20 °C ... 80 °C

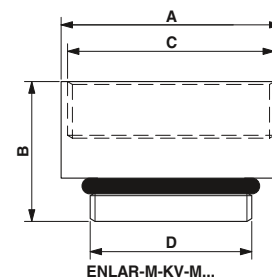
Description	
Extension adapter , including O-ring	
M16 to M20	
M20 to M25	
M25 to M32	
M32 to M40	
Reducing adapter , including O-ring	
M20 to M16	
M25 to M20	
M32 to M25	
M40 to M32	
NPT adapter , including O-ring seal	
1/2" to M20	
3/4" to M25	
1" to M32	
1 1/4" to M40	
Filler plug , for metric screw connection openings, including O-ring	
M16	
M20	
M25	
M32	
M40	
Filler plug , for Pg screw connection openings, including O-ring	
Pg11	
Pg13.5	
Pg16	
Pg21	
Pg29	
Pg36	

Ordering data

Type	Order No.	Pcs. / Pkt.
ENLAR-M-KV-M16/M20	1647653	10
ENLAR-M-KV-M20/M25	1647666	10
ENLAR-M-KV-M25/M32	1647679	10
ENLAR-M-KV-M32/M40	1647682	10

Type	Cable diameter [mm]	A [mm]	B [mm]	C [mm]	D [mm]
ENLAR-M-KV-M16/M20	≤ 12	22	17.5	M20	M16
ENLAR-M-KV-M20/M25	≤ 15	27	19	M25	M20
ENLAR-M-KV-M25/M32	≤ 20	34	21	M32	M25
ENLAR-M-KV-M32/M40	≤ 26	42	23	M40	M32

Type	Dimensions [mm]				Dimension ["]	Thread	Type	A [mm]	B [mm]	C [mm]	D [mm]
	A	B	C	D							
HC-NPT-1/2-M20	25.0	6.5	24	15	1/2	20	REDUC-M-KV-M20/M16	24	9	M16	M20
HC-NPT-3/4-M25	28.0	7.0	30	18	3/4	25	REDUC-M-KV-M25/M20	30	10	M20	M25
HC-NPT-1-M32	33.0	8.0	38	27	1	32	REDUC-M-KV-M32/M25	37	11.5	M25	M32
HC-NPT-1 1/4-M40	34.0	8.0	46	34	1 1/4	40	REDUC-M-KV-M40/M32	43	11.5	M32	M40





Reducing adapter



NPT adapter



Filler plug



Technical data
Nickel-plated brass
NBR
-
-20 °C ... 80 °C

Technical data
Nickel-plated brass
NBR
-
-20 °C ... 80 °C

Technical data
Nickel-plated brass
NBR
IP68
-20 °C ... 80 °C

Ordering data		
Type	Order No.	Pcs. / Pkt.

Ordering data		
Type	Order No.	Pcs. / Pkt.

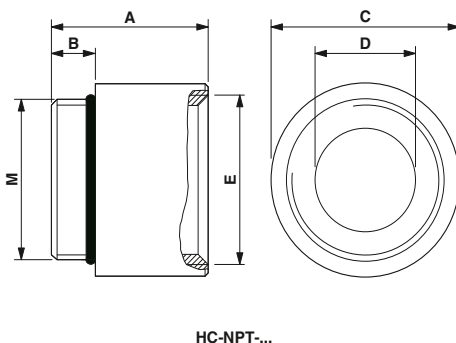
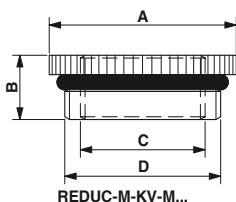
Ordering data		
Type	Order No.	Pcs. / Pkt.

REDUC-M-KV-M20/M16	1647611	10
REDUC-M-KV-M25/M20	1647624	10
REDUC-M-KV-M32/M25	1647637	10
REDUC-M-KV-M40/M32	1647640	10

HC-NPT-1/2-M20	1686847	25
HC-NPT-3/4-M25	1686850	25
HC-NPT-1/1-M32	1686863	10
HC-NPT-1 1/4-M40	1687587	10

HC-M-BS-M16	1646227	10
HC-M-BS-M20	1645846	10
HC-M-BS-M25	1645859	10
HC-M-BS-M32	1645862	10
HC-M-BS-M40	1645875	10

HC-BS-PG11	1674493	10
HC-BS-PG13	1674503	10
HC-BS-PG16	1674516	10
HC-BS-PG21	1674529	10
HC-BS-PG29	1674532	10
HC-BS-PG36	1674545	10





Tools for crimp connection

The crimp connection belongs to the group of non-releasable electrical connections.

The use of crimp profiles that are exactly tailored to the crimp sleeve and the conductor and the deliberate deformation of the crimp sleeve and the conductor (by closing the crimping pliers) establishes a reliable electrical connection between the wire and the crimp contact.

The crimping pliers are equipped with locators, which enable the exact positioning of the crimp contact and wire.



Available crimping tools

Matching pliers are available for various crimp contacts.

Crimping pliers are available for copper litz wires, coaxial contacts, and fiber optic contacts.

To guarantee a reliable crimp connection, the pliers must be closed correctly. This is achieved by means of a pressure lock. With this in place, the pliers can only be opened after the crimping process is complete.

The key advantages of crimp connections are the efficient processing of contacts using a crimping machine and the consistent crimp quality.



Crimping tools for polymer conductors

Polymer conductors are being used increasingly outside the realm of vehicles. Easy and reliable installation in the field must therefore be possible. The connection between the POF conductor and POF plug-in connection is established quickly and easily using crimping pliers.

Here, line losses (attenuation) at the junction must be as low as possible. A prerequisite for this is a set of high-quality POF crimping pliers.

The CRIMPFOX-1,6 ED-POF crimping pliers ensure:

- A precise press-in depth
- Exact positioning of the POF contacts
- Exact length positioning of the POF conductor



CF 500 crimping machine

The compact CF 500 crimping machine is characterized by its high press capacity and the easy replaceability of its dies. Thanks to the large number of dies available, the machine is a real all-rounder.

- Ferrules up to 50 mm
- TWIN ferrules up to 2 x 10 mm
- Insulated cable lugs up to 6 mm
- Uninsulated cable lugs up to 6 mm
- Tube lugs up to 10 mm
- Slip-on sleeves and flat plugs up to 6 mm
- Turned contacts up to 10 mm²

Further dies are available on request or from the Phoenix Contact e-shop. A user video can be downloaded from the Internet.

Assembly/contact removal tools

In the case of small conductor cross sections, assembly tools must occasionally be used. These are used to insert the crimp contact securely into the contact insert.

In the event of assembly errors or changes to the wiring, a snapped-in contact may have to be removed. This is performed using a contact removal tool.

Each crimp contact has a matching contact removal tool.

CK 1,6... series contacts are removed from the front of the contact inserts using the VC-EW 1,6 tool. For turned and rolled CK 1,6...ST... pin contacts and turned CK 1,6 ED...BU... socket contacts, for example, the sleeve side of the VC-EW 1,6 tool is used.

To remove rolled CK 1,6 ER-BU... socket contacts, the needle side of the VC-EW 1,6 tool must be inserted into the socket contact in order to open the socket release.

By pulling the wire, the appropriate contact can then be pulled out of the crimp chamber.

The requirements for crimp connections are described in EN 60352-2.

A key quality feature for the crimp connection is the tensile strength of the connection. This can be measured easily.



Tensile strength of the conductor from the crimp contact (according to EN 60352-2)

Conductor cross section		Tensile strength
mm ²	AWG	N
0.05	30	6
0.08	28	11
0.12	26	15
0.14		18
0.22	24	28
0.25		32
0.32	22	40
0.50	20	60
0.75		85
0.82	18	90
1.00		108
1.30	16	135
1.50		150
2.10	14	200
2.50		230
3.30	12	275
4.00		310
5.30	10	355
6.00		360
8.40	8	370
10.00		380

Accessories Crimping tools



Crimp contacts must be connected to the conductors. This is done by means of crimping. Crimping pliers are available for copper litz wires, coaxial contacts, and fiber optic contacts. The crimping pliers have locators that facilitate accurate positioning of the crimp contact and conductor. To ensure a reliable crimp connection, the pliers must be closed correctly. This is guaranteed by means of a pressure lock.

The requirements placed on crimp connections are described in EN 60352-2. A major feature of the quality of the crimp connection is the tensile strength of the connection. It is simple to measure.

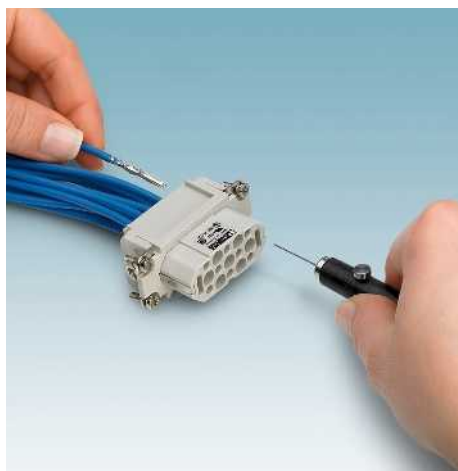


Crimping tools/stripping pliers

Description
Crimping pliers , for turned contacts with 1.6 / 2.5 / 4.0 mm pin diameters, each with locator - For CK1,6-ED ..., CK2,5-ED..., CK4.0-E D... 0.5-4 mm ² turned contacts - For CK4,0-ED... 6 - 10 mm ² turned contacts - For VS...CD turned contacts (D-SUB contacts); crimping tool with four mandrels - For CK1,6-ED ... CK2,5-ED; 0.14 - 4 mm ² turned contacts Coaxial plug-in connector, 1.69 mm, 3.25 mm, 4.52 mm, three marked die stations, pressure lock can be released, lateral entry, hex crimp
Crimping pliers - For CK1,6-ER... rolled contacts - For CK1,6-ED...POF turned fiber optic contacts
Replacement die - For CRIMPFOX 1,6/2,5-ED-4,0 - For CRIMPFOX-TC 4 - For CRIMPFOX-TC 10
Stripping tool for FO cables - Stripping pliers for individual elements
Crimping machine , with quantity counter and foot switch 230 V version 120 V version Die for turned contacts with pin diameters of 2.5 and 4.0 mm (CK 2,5...CK 4,0) 0.14 - 4 mm ² Die for (CK 4,0) 6 - 10 mm ² turned contacts Cover for insulated cable lugs (RCI..., TC4) Cover for unassigned dies for self-assembly, TC 10, among others For TWIN ferrules (AI-TWIN...)
Basic pliers , for accommodating dies for various contact types, pressure lock can be unlocked, lateral entry
Dies , for CRIMPFOX-M For turned contacts with pin diameters of 2.5 mm and 4.0 mm (CK 2,5...CK 4,0), cross section: 0.14 - 4 mm ² For turned contacts with pin diameter of 4 mm (CK 4,0...), cross section: 6 - 10 mm ²

Ordering data		
Type	Order No.	Pcs. / Pkt.
CRIMPFOX-TC 4	1212113	1
CRIMPFOX-TC 10	1212114	1
CRIMPFOX RC 2,5	1205448	1
CRIMPFOX-1,6/2,5-ED-4,0	1687419	1
CRIMPFOX-CX 4,52	1212094	1
CRIMPFOX-1,6-ER-1,50-AT	1884843	1
CRIMPFOX-1,6-ED-POF-N	1584839	1
CRIMPFOX-1,6/2,5-ED-4,0 DIE	1886948	1
CRIMPFOX-TC 4/DIE	1212295	1
CRIMPFOX-TC 10/DIE	1212296	1
PSM-FO-STRIP	2744199	1
CF 500-230V	1208348	1
CF 500-120V	1208351	1
CF 500/DIE TC 4	1212237	1
CF 500/DIE TC 10	1212260	1
CF 500/COV RCI	1212255	1
CF 500/COV	1212250	1
CF 500/COV AI TWIN	1212266	1
CRIMPFOX-M	1212072	1
CRIMPFOX-M TC 4/DIE	1212075	1
CRIMPFOX-M TC 10/DIE	1212076	1

Accessories
Assembly/removal tools



It is sometimes necessary to use assembly tools in cases of small conductor cross sections. They are used to press the crimp contact firmly into the contact insert.

If incorrect components are installed or alterations are made to the wiring, it will be necessary to remove a contact that is already engaged. This is done with the aid of a removal tool.



Assembly/removal tools

Description
Assembly tool
- For CK1,6-ED.../CK2,5-ED.../CK1,6-ER... contacts
Removal tool
- For CK1,6-ED.../CK1,6-ER.../CK1,6...POF contacts
- For CK2,5-ED... contacts
- For CK4,0-ED... contacts
- For VS-...CD... D-SUB contacts
- For HC-M-04...KOAX... coaxial contacts
- For HC-M-EMV... EMC plug-in connectors
- For locking sleeve of the HC-M-HV-MOD... module

Ordering data		
Type	Order No.	Pcs. / Pkt.
CK1,6/2,5-MWZ	1676734	1
VC-EW 1,6	1884869	1
CK2,5-EWZ	1662722	1
CK4,0-EWZ	1662735	1
EWR	1665075	1
HC-M4-KOAX-EWZ	1676747	1
HC-M-EMV-KON-EWZ	1678635	1
HC-M-AH-EWZ	1584826	1

Heavy-duty plug-in connectors

HEAVYCON crimp contacts

Accessories, crimp contacts

Crimp machines for turned/rolled contacts available on request.

Notes:
For voltages less than 5 V and currents less than 5 mA, gold-plated contacts are recommended.



Ø 1.6 mm, turned crimp contacts,
for HC-D, HC-DD-, HC-M-03/04-, HC-M-12-,
HC-M-17-, HC-M-EMV-



Ø 2.5 mm, turned crimp contacts,
for HC-A-, HC-B-, HC-BB-, HC-HV-, HC-M-06-,
HC-M-08-, HC-M-20-, HC-M-HV



	Technical data			Technical data		
	Hard silver-plated	Hard gold-plated		Hard silver-plated	Hard gold-plated	
Material data	Copper alloy	Copper alloy		Copper alloy	Copper alloy	
Contact material	8 mm (6 mm for 2.5 mm ²)	8 mm (6 mm for 2.5 mm ²)		7.5 mm (9.5 mm for HC-M-HV...)	7.5 mm (9.5 mm for HC-M-HV...)	
Stripping length of the individual wire	≥ 500	≥ 500		≥ 500	≥ 500	
Insertion/withdrawal cycles	-40 °C ... 125 °C	-40 °C ... 125 °C		-40 °C ... 125 °C	-40 °C ... 125 °C	
Ambient temperature (operation)						
Ordering data						
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Turned socket contacts , silver-plated contact surface, for conductor cross section: 0.14 mm ² ... 0.37 mm ² /26 ... 22 AWG 0.50 mm ² / AWG 20 0.75 mm ² / AWG 18 0.75 mm ² ... 1.00 mm ² / AWG 18 1.50 mm ² / AWG 16 2.50 mm ² / AWG 14 4.00 mm ² / AWG 12 6.00 mm ² / AWG 10 10 mm ² /AWG 8	CK1,6-ED-0,37BU AG CK1,6-ED-0,50BU AG CK1,6-ED-0,75BU AG CK1,6-ED-1,00BU AG CK1,6-ED-1,50BU AG CK1,6-ED-2,50BU AG	1663394 1663404 1663417 1663420 1663433 1663446	100 100 100 100 100 100	CK2,5-ED-0,50BU AG CK2,5-ED-0,75BU AG CK2,5-ED-1,00BU AG CK2,5-ED-1,50BU AG CK2,5-ED-2,50BU AG CK2,5-ED-4,00BU AG	1663640 1663653 1663666 1663679 1663682 1663705	100 100 100 100 100 100
Turned pin contacts , silver-plated contact surface, for conductor cross section: 0.14 mm ² ... 0.37 mm ² / AWG 26 ... 22 0.50 mm ² / AWG 20 0.75 mm ² / AWG 18 0.75 mm ² ... 1.00 mm ² / AWG 18 1.50 mm ² / AWG 16 2.50 mm ² / AWG 14 4.00 mm ² / AWG 12 6.00 mm ² / AWG 10 10 mm ² /AWG 8	CK1,6-ED-0,37ST AG CK1,6-ED-0,50ST AG CK1,6-ED-0,75ST AG CK1,6-ED-1,00ST AG CK1,6-ED-1,50ST AG CK1,6-ED-2,50ST AG	1663336 1663349 1663352 1663365 1663378 1663381	100 100 100 100 100 100	CK2,5-ED-0,50ST AG CK2,5-ED-0,75ST AG CK2,5-ED-1,00ST AG CK2,5-ED-1,50ST AG CK2,5-ED-2,50ST AG CK2,5-ED-4,00ST AG	1663572 1663585 1663598 1663608 1663611 1663637	100 100 100 100 100 100
Turned socket contacts , gold-plated contact surface, for conductor cross section: 0.14 mm ² ... 0.37 mm ² /26 ... 22 AWG 0.50 mm ² / AWG 20 0.75 mm ² / AWG 18 0.75 mm ² ... 1.00 mm ² / AWG 18 1.50 mm ² / AWG 16 2.50 mm ² / AWG 14 4.00 mm ² / AWG 12	CK1,6-ED-0,37BU AU CK1,6-ED-0,50BU AU CK1,6-ED-0,75BU AU CK1,6-ED-1,00BU AU CK1,6-ED-1,50BU AU CK1,6-ED-2,50BU AU	1674969 1674480 1672440 1674943 1674930 1674985	100 100 100 100 100 100	CK2,5-ED-0,50BU AU CK2,5-ED-1,00BU AU CK2,5-ED-1,50BU AU CK2,5-ED-2,50BU AU CK2,5-ED-4,00BU AU	1674859 1674833 1674820 1674862 1674846	100 100 100 100 100
Turned pin contacts , gold-plated contact surface, for conductor cross section: 0.14 mm ² ... 0.37 mm ² / AWG 26 ... 22 0.50 mm ² / AWG 20 0.75 mm ² / AWG 18 0.75 mm ² ... 1.00 mm ² / AWG 18 1.50 mm ² / AWG 16 2.50 mm ² / AWG 14 4.00 mm ² / AWG 12	CK1,6-ED-0,37ST AU CK1,6-ED-0,50ST AU CK1,6-ED-0,75ST AU CK1,6-ED-1,00ST AU CK1,6-ED-1,50ST AU CK1,6-ED-2,50ST AU	1674901 1672453 1674914 1674888 1674875 1674927	100 100 100 100 100 100	CK2,5-ED-0,50ST AU CK2,5-ED-1,00ST AU CK2,5-ED-1,50ST AU CK2,5-ED-2,50ST AU CK2,5-ED-4,00ST AU	1674804 1674781 1674778 1674817 1674794	100 100 100 100 100
Turned switch contacts , (pin, 2 mm, lagging), for HC-HV contact carriers, silver-plated contact surface, for conductor cross section: 1.00 mm ² /18 AWG 1.50 mm ² / AWG 16 2.50 mm ² / AWG 14				CK2,5-ED-1,00ST-S AG CK2,5-ED-1,50ST-S AG CK2,5-ED-2,50ST-S AG	1663857 1663860 1663873	100 100 100
Rolled pin contacts , silver-plated contact surface, for conductor cross section: 0.14 mm ² ... 0.50 mm ² / AWG 26 ... 20 0.50 mm ² ... 1.50 mm ² / AWG 20 ... 16						
Rolled socket contacts , silver-plated contact surface, for conductor cross section: 0.14 mm ² ... 0.50 mm ² / AWG 26 ... 20 0.50 mm ² ... 1.50 mm ² / AWG 20 ... 16						

Heavy-duty plug-in connectors

HEAVYCON crimp contacts

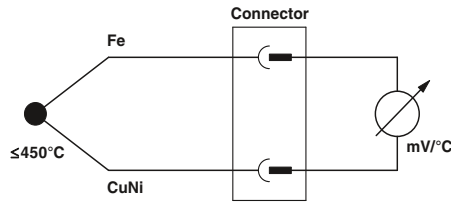
Type J iron and constantan crimp contacts

In hot-channel injection molding machines, temperatures are often measured using iron/constantan thermocouples. Iron/constantan elements are used for temperatures of up to approximately 450°C.

When measuring the temperatures using iron/constantan elements, the control system is connected with iron/constantan conductors. The connection point of the iron or constantan conductor to a brass crimp contact of a connector would result in thermoelectric voltages that can falsify the measuring result. We therefore recommend using iron/constantan crimp contacts.

Iron/constantan crimp contacts can be used in A/B/BB/HV series contact inserts and in HC-M-HV..., HC-M-06..., HC-M-08..., HC-M-20-... modules.

A combination (standard contacts/thermal contacts) of crimp contact inserts is also possible.



Turned crimp contacts, for contact inserts:
HC-M-06, HC-M-HV, HC-M-08, HC-M-20, HC-B,
HC-BB, HC-A, HC-HV

Material data	
Contact material	Iron
Contact surface material	Hard gold-plated
Stripping length of the individual wire	7.5 mm (9.5 mm for HC-M-HV...)
Temperature data	
Ambient temperature (operation)	-40 °C ... 125 °C

Technical data	
CK2,5-ED...FE	CK2,5-ED...CUNI
Contact material	Copper-nickel (constantan)
Contact surface material	-
Stripping length of the individual wire	7.5 mm (9.5 mm for HC-M-HV...)
Insertion/withdrawal cycles	≥ 500
Ambient temperature (operation)	-40 °C ... 125 °C

Description
Turned socket contacts, 0.5 mm²
Iron (Fe), Au surface
Constantan (CuNi), uncoated
Turned pin contacts, 0.5 mm²
Iron (Fe), Au surface
Constantan (CuNi), uncoated

Ordering data		
Type	Order No.	Pcs. / Pkt.
CK2,5-ED-0,5BU FE	1585773	25
CK2,5-ED-0,5BU CUNI	1585757	25
CK2,5-ED-0,5ST FE	1585760	25
CK2,5-ED-0,5ST CUNI	1585744	25

Accessories

Fiber optic crimp contacts

Fiber optic crimp contacts (980/1000 µm) are suitable for coupling fiber optic cables (polymer fiber optic cable). These can be used in the following crimp contact carriers:

- VC-D (for turned contacts)
- HC M 12... / HC-M-17... / HC-M-03/04...
- HC-D... (for turned contacts)
- HC-DD...

The optical fibers are polished, stripped, and then crimped.



Crimp contacts for fiber optic cables, polymer optical fibers (POF)

		Technical data		
Material data				
Contact material		Nickel silver		
Insertion/withdrawal cycles		≥ 500		
		Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	
POF fiber optic contact , turned, for VC-D contact carriers				
Socket	CK1,6-ED-BU-POF	1885004	50	
Plug	CK1,6-ED-ST-POF	1884995	50	
Polisher , metal, for CK1,6-...POF contacts, POF conductor diameter: 2.2 mm	POLISHER-POF	1686122	1	
Crimping pliers - For CK1,6-ED-...POF turned fiber optic contacts	CRIMPFOX-1,6-ED-POF-N	1584839	1	
Stripping tool for FO cables - Stripping pliers for individual elements	PSM-FO-STRIP	2744199	1	
Removal tool - For CK1,6-ED-.../CK1,6-ER-.../CK1,6-...POF contacts	VC-EW 1,6	1884869	1	
Polishing foil	POLFOL 1 MIC-POF	1636800	10	
Polishing paper	POLPAP 1500-POF	1636813	10	

Heavy-duty plug-in connectors

HEAVYCON accessories

Replacement locking latch, bolt, locking screw



Replacement latch



Replacement bolt/locking screw

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Replacement single locking latch, plastic, for standard housing type: B6 B10 B16 B24	HC-B 6-LB HC-B 10-LB HC-B 16-LB HC-B 24-LB	1584211 1584651 1584664 1584677	10 10 10 10			
Replacement single locking latch, plastic, for standard housing type: D7	HC-D 7-LB-KU	1584680	10			
Replacement double locking latch, plastic, for standard housing type: B10 ... B24	HC-B 10-24-QB	1637265	10			
Replacement bolt, steel, for HEAVYCON sleeve housing HC-B...-TFL... (no EMC housing), for type: B48				HC-B 48-LB ERSBOLZ	1636114	10
Replacement locking screw, stainless steel, for HEAVYCON ADVANCE housing type: B6 ... B24 HC-B..TMS...EEE	HC-B-TMS-ERSSCHR-IMB	1409244	10	HC-B-TMS-ERSSCHR	1584198	10
Replacement bearing block for housing: B/D series with plastic protective cover B series with ALU protective cover				HC-B/D-ERSLABO-SD-KU HC-B-ERSLABO-SD-AL	1408070 1408067	1 1
Replacement single locking latch, plastic, for HEAVYCON EVO plastic housing type: B6 B10 B16 B24	HC-B06-SL-PLBK HC-B10-SL-PLBK HC-B16-SL-PLBK HC-B24-SL-PLBK	1407697 1407698 1407700 1407701	1 1 1 1			
Replacement double locking latch, plastic, for HEAVYCON EVO plastic housing type: B10 ... B24	HC-B10-24-DL-PLBK	1407696	1			
Sealing screw, IP65, for standard housing type: D7				HC-D 7-DS-IP65	1686229	100

Replacement flat gaskets, profile gaskets

- Replacement seals not for EMC housing.
- Replacement profile gaskets for EMC housing.
- Profile gaskets must be stuck to the housing.



Replacement flat gasket



Replacement profile gasket



Technical data	
Material	NBR
Temperature data	
Ambient temperature (operation)	-40 °C ... 125 °C

Technical data	
Material	NBR
Temperature data	
Ambient temperature (operation)	-40 °C ... 125 °C

Ordering data			
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Ordering data			
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Description
Replacement flat gasket, self-adhesive, for HEAVYCON panel mounting base type: B6 B10 B16 B24 B32 B48 D7 D15 D25
Replacement profile gasket, for supporting base element type: B6 B10 B16 B24 D15 D25
Replacement flat gasket, self-adhesive, for HEAVYCON EVO plastic panel mounting base type: B6 B10 B16 B24
Replacement profile gasket, for HEAVYCON EVO plastic supporting base element type: B6 B10 B16 B24
Replacement profile gasket, for uneven mounting panels, for ADVANCE sleeve housing EEE type: B6 B10 B16 B24

Type	Order No.	Pcs. / Pkt.
HC-B 6-FL-DI	1663019	10
HC-B 10-FL-DI	1662146	10
HC-B 16-FL-DI	1661451	10
HC-B 24-FL-DI	1774665	10
HC-B 32-FL-DI	1687778	10
HC-B 48-FL-DI	1774678	10
HC-D 7-FL-DI	1645503	10
HC-D 15-FL-DI	1679582	10
HC-D 25-FL-DI	1679595	10
HC-B06-SG-RBK	1407702	1
HC-B10-SG-RBK	1407703	1
HC-B16-SG-RBK	1407704	1
HC-B24-SG-RBK	1407705	1

Type	Order No.	Pcs. / Pkt.
HC-B 6-PR-DI	1663022	10
HC-B 10-PR-DI	1663035	10
HC-B 16-PR-DI	1661079	10
HC-B 24-PR-DI	1663048	10
HC-D 15-PR-DI	1661189	10
HC-D 25-PR-DI	1408054	10
HC-B06-SP-RBK	1407706	1
HC-B10-SP-RBK	1407707	1
HC-B16-SP-RBK	1407708	1
HC-B24-SP-RBK	1407709	1
HC-B 6-TMS-EEE-PR-DI	1409794	10
HC-B 10-TMS-EEE-PR-DI	1409804	10
HC-B 16-TMS-EEE-PR-DI	1409817	10
HC-B 24-TMS-EEE-PR-DI	1409820	10



Partition plates with prefabricated plug-in connector cutouts are often used in modern control cabinet construction. However, not all of these cutouts are necessarily used. The unused cutouts can be closed using the HC-...AP cover plates.

The HC-ADP 24 adapter plates can be used to mount panel mounting base types B6, B10, and B16 (or other types with an identical design) on a 35 mm x 113 mm B24 standard cutout.

Adapters are also available for HC-D7-AML... and M23 circular plug-in connectors for the wall opening according to type B24.

Note:

– HC-B...ADP-B...GY adapter plates can be used for HC-B...AML housing with protective covers.



Cover plate



Material data	
Material	PA
Inflammability class according to UL 94	HB
Color	Light gray
Degree of protection	IP54
Temperature data	
Ambient temperature (operation)	-20 °C ... 100 °C

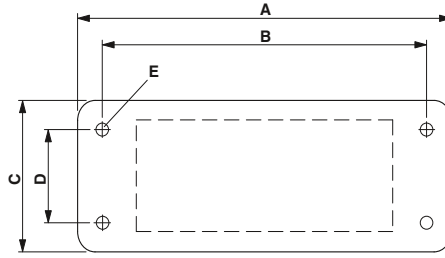
Technical data		
PA		
HB		
Light gray		
IP54		
-20 °C ... 100 °C		

Description	
<p>Cover plate, height: 3.5 mm, for HEAVYCON panel cutout type: B6 (cutout: 35 mm x 52 mm) B10, HV3 (cutout: 35 mm x 65 mm) B16, HV6 (cutout: 35 mm x 86 mm) B24, HV10/16 (cutout: 35 mm x 113 mm)</p> <p>D15 (cutout: 24 mm x 58 mm) D25 (cutout: 24 mm x 74 mm)</p> <p>Cover plate, height: 7 mm, for individual processing, for HEAVYCON panel cutout type: B16 (cutout: 35 mm x 86 mm) B24 (cutout: 35 mm x 113 mm)</p> <p>Adapter plate, for reducing HEAVYCON B24 panel cutouts to:</p> <p>B16 (cutout: 35 mm x 86 mm) B10 (cutout: 35 mm x 65 mm) B6 (cutout: 35 mm x 52 mm)</p> <p>Adapter plate, for adapting HEAVYCON B24 panel cutouts to 3 x D7 (cutout: 21.5 mm x 21.5 mm)</p> <p>Adapter plate, for adapting HEAVYCON B24 panel cutouts to 3 circular plug-in connector cutouts (Ø 21 mm)</p>	

Ordering data		
Type	Order No.	Pcs. / Pkt.
HC-B 6-AP-GY	1660368	10
HC-B 10-AP-GY	1660371	10
HC-B 16-AP-GY	1660384	10
HC-B 24-AP-GY	1660397	10
HC-D 15-AP-GY	1660342	10
HC-D 25-AP-GY	1660355	10
HC-B 16-APV-GY	1661121	10
HC-B 24-APV-GY	1661037	10



Adapter plate



Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HC-B 6-AP	86	70	52	32	4.5
HC-B 10-AP	103	83	52	32	4.5
HC-B 16-AP	123	103	52	32	4.5
HC-B 24-AP	150	130	52	32	4.5
HC-D 15-AP	87	70	40	17.5	3.5
HC-D 25-AP	103	86	45	17.5	3.5

Dimensions table: HC-...-AP...



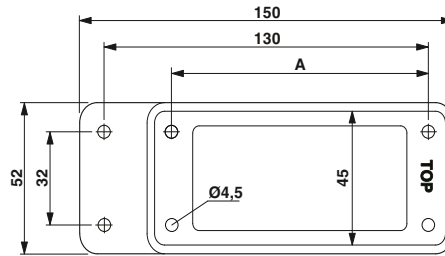
Technical data

PA
HB
Light gray
IP54

-20 °C ... 100 °C

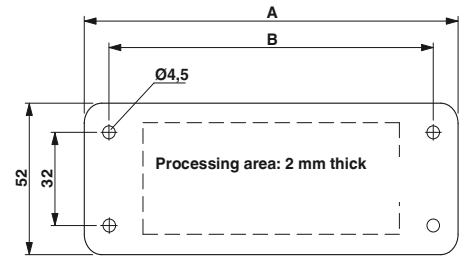
Ordering data

Type	Order No.	Pcs. / Pkt.
HC-B 24-ADP-B 16-GY	1660449	10
HC-B 24-ADP-B 10-GY	1660436	10
HC-B 24-ADP-B 6-GY	1660407	10
HC-B 24-ADP-3D 7-GY	1661448	10
HC-B 24-ADP-3RST-GY	1662175	10



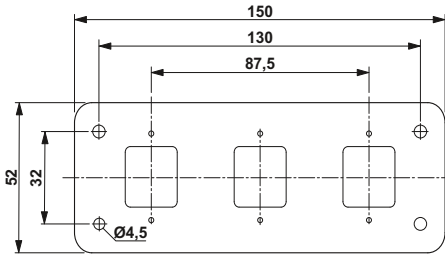
Type	A [mm]	B [mm]
HC-B 24-ADP-B 16...	103	117
HC-B 24-ADP-B 10...	83	97
HC-B 24-ADP-B 6...	70	84

Dimensions table: HC-...-ADP...

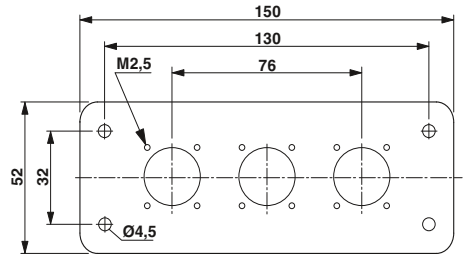


Type	A [mm]	B [mm]	Processing area [mm]
HC B 16-APV	123	103	36 x 86
HC B 24-APV	150	130	36 x 113

Dimensions table: HC-...-APV...



HC-B 24-ADP 3D 7 GY



HC-B 24-ADP 3RST GY

D-SUB adapter plates



With the HEAVYCON D-SUB adapter plates, D-SUB plug-in connectors according to IEC 60807-2/DIN 41652 can be mounted in sturdy HEAVYCON housings.

When locked, the HEAVYCON housings fulfill the requirements of IP65 protection (IP69K in the case of HC-ADVANCE). This ensures that interference such as moisture, dirt, and dust are kept away from the plug-in connectors.

Depending on the application, a single or double-row version is available with 9, 15, 25, 37 or 50 positions. The delivery includes mounting screws, but not the D-SUB plug-in connector.

Notes:

Fur D-SUB plug-in connectors with crimp or manual solder connection that can be used, see Catalog 2

D-SUB assembly in the adapter plate: front mounting



Adapter plate for one D-SUB plug-in connector



Technical data

PA
HB
gray
-20 °C ... 100 °C

Ordering data

Description
D-SUB adapter plate , for fitting HEAVYCON housing with one D-SUB plug-in connector. For housing type / D-SUB type: B6 / D-SUB 09 B6 / D-SUB 15 B10 / D-SUB 25 B16 / D-SUB 37 B16 / D-SUB 50
D-SUB adapter plate , for fitting HEAVYCON housing with two D-SUB plug-in connectors. For housing type / D-SUB type: B6 / D-SUB 09 B6 / D-SUB 15 B10 / D-SUB 25 B16 / D-SUB 37 B16 / D-SUB 50
D-SUB adapter plate , for fitting HC-D15... housing with one D-SUB plug-in connector. D-SUB type: D-SUB 09 D-SUB 15 D-SUB 25

Type	Order No.	Pcs. / Pkt.
HC-B 6-ADP/1 DSUB 9	1775457	2
HC-B 6-ADP/1 DSUB 15	1775473	2
HC-B 10-ADP/1 DSUB 25	1775499	2
HC-B 16-ADP/1 DSUB 37	1775512	2
HC-B 16-ADP/1 DSUB 50	1775538	2

HC	D-SUB	A [mm]	B [mm]	C [mm]	D[mm]
B6	9	44	51.5	34.5	27
B6	15	44	51.5	34.5	27
B10	25	57	64.5	34.5	27
B16	37	77.5	85	34.5	27
B16	50	77.5	85	34.5	27
D15	15	49.5	57	23	16
D15	25	49.5	57	23	16

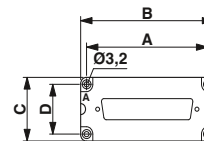
Dimensions table: D-SUB adapter plates



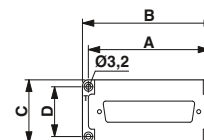
Adapter plate
for two D-SUB plug-in connectors



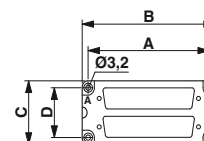
Adapter plate
for one D-SUB plug-in connector



Mounting position for panel mounting bases,
box mounting bases, and coupling housing
(identification letter A is visible)



Mounting position of sleeve housing
(identification letter T is visible)



Mounting position for panel mounting bases,
box mounting bases, and coupling housing
(identification letter A is visible)



Technical data
PA
HB
gray
-20 °C ... 100 °C

Technical data
PA
HB
gray
-20 °C ... 100 °C

Ordering data

Ordering data

Type	Order No.	Pcs. / Pkt.
HC-B 6-ADP/2 DSUB 9	1775460	2
HC-B 6-ADP/2 DSUB 15	1775486	2
HC-B 10-ADP/2 DSUB 25	1775509	2
HC-B 16-ADP/2 DSUB 37	1775525	2
HC-B 16-ADP/2 DSUB 50	1775541	2

Type	Order No.	Pcs. / Pkt.
HC-D 15-ADP/1 DSUB 9	1661312	2
HC-D 15-ADP/1 DSUB 15	1775253	2
HC-D 15-ADP/1 DSUB 25	1775266	2

Docking frames

Docking frames have been designed for use in the rear panel of control cabinet inserts, for example. The docking frames ensure that the socket insert and pin insert make contact correctly.

The docking frames enable different insert depths to be compensated for:

- X-axis ± 1.5 mm
- Y-axis ± 1.5 mm

The mounting panel must be grounded due to the floating frame.



Docking frames

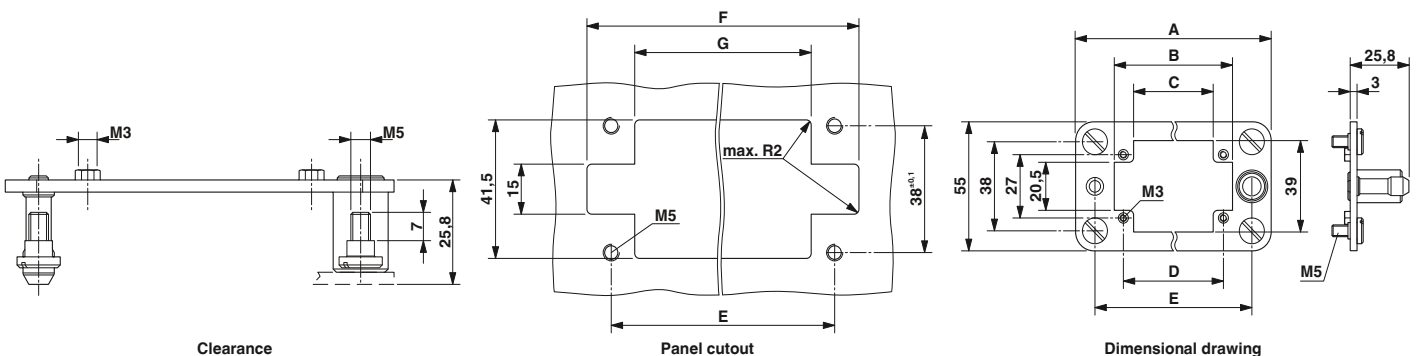
Material data
Material
Insertion/withdrawal cycles
Temperature data
Ambient temperature (operation)

Technical data	
Material	Stainless steel
Insertion/withdrawal cycles	≥ 500
Ambient temperature (operation)	-40 °C ... 125 °C

Description
Docking frame , with 4 flat headed screws with lug, for contact insert type: B6, DD24, BB10, K, M B10, DD42, BB 18, K, M B16, D40, DD72, BB32, K, M B24, D64, DD108, BB46, K, M

Ordering data		
Type	Order No.	Pcs. / Pkt.
HC-B 6-ANDOCK	1586112	1
HC-B 10-ANDOCK	1586125	1
HC-B 16-ANDOCK	1586138	1
HC-B 24-ANDOCK	1586141	1

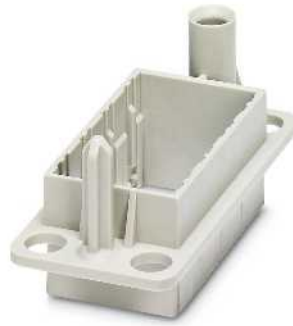
Type	A	B	C	D	E	F	G
HC-B 6-ANDOCK	86	52	35	44	69	84	54.5
HC-B 10-ANDOCK	99	65	48	57	82	97	67.5
HC-B 16-ANDOCK	119.5	85.5	68.5	77.5	102.5	117.5	88
HC-B 24-ANDOCK	146	112	95	104	129	144	114.5



Docking frames for HEAVYCON modular

- The docking frame can be used to combine a wide range of modules to create one plug-in connection (IP20).

Notes:
Use of docking frames, e.g., in the back panel of control cabinet racks.
A metal mounting panel must be grounded separately, as the plastic frame does not have a PE connection.
Docking frames ensure correct contacting of plug and socket modules



Floating assembly, location ID A/B/C/etc.



Fixed assembly, location ID a/b/c/etc.

Material data
Material
Inflammability class according to UL 94
Insertion/withdrawal cycles
Temperature data
Ambient temperature (operation)

Technical data		
Material	PC	
Inflammability class according to UL 94	V0	
Insertion/withdrawal cycles	≥ 500	
Temperature data		
Ambient temperature (operation)	-40 °C ... 125 °C	

Technical data		
Material	PC	
Inflammability class according to UL 94	V0	
Insertion/withdrawal cycles	≥ 500	
Temperature data		
Ambient temperature (operation)	-40 °C ... 125 °C	

Description
Docking frame for:
Four module slots
Six module slots

Ordering data		
Type	Order No.	Pcs. / Pkt.
HC-B 16-ANDOCK-MOD-T	1587454	2
HC-B 24-ANDOCK-MOD-T	1587470	2

Ordering data		
Type	Order No.	Pcs. / Pkt.
HC-B 16-ANDOCK-MOD-A	1587467	2
HC-B 24-ANDOCK-MOD-A	1587483	2

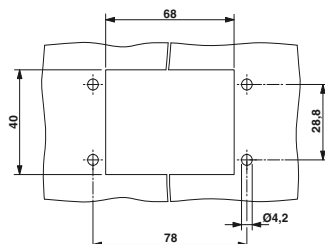
Special washer for floating assembly of docking frame, for M4 cylinder head screws

Accessories		
HC-MOD-ANDOCK-USCH	1587496	2

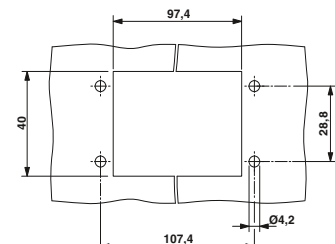
Accessories		

Note about special washer

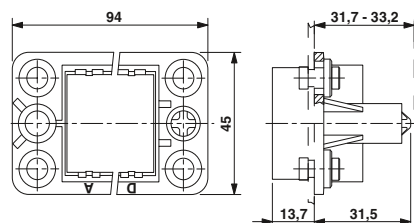
The special washer enables rack compensation of ±2 mm in the X and Y-axis for docking frames.



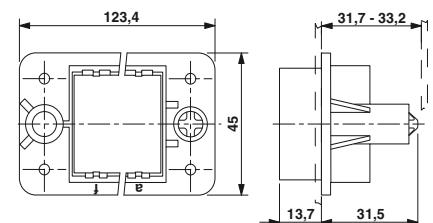
Mounting cutout for HC-B 16-ANDOCK-MOD...



Mounting cutout for HC-B 24-ANDOCK-MOD...



Dimensional drawing of HC-B 16-ANDOCK-MOD...



Dimensional drawing of HC-B 24-ANDOCK-MOD...

Heavy-duty plug-in connectors

HEAVYCON accessories

Protective cover

- HC-D7 protective cover with a seal for socket contact inserts.
- HC-D7 protective cover without a seal for pin contact inserts.
- Not for HC-B...EMC housing
- In the case of aluminum protective covers and when coding sockets, pins, and bolts are used, the guide pins of the protective cover must be removed.
- Plastic protective cover: for short-term protection



Plastic protective cover



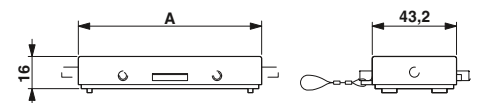
Metal protective cover

	Technical data			Technical data		
	Without latch	With latch		Without latch	With latch	
Material data	PA	PA		Al	Al	
Material, protective cover	-	Stainless steel, handle: PA-GF		-	Stainless steel, handle: PA-GF	
Locking latch material	HB	HB		-	-	
Inflammability class according to UL 94	IP54	IP54		IP65	IP65	
Degree of protection	-20 °C ... 100 °C	-20 °C ... 100 °C		-40 °C ... 125 °C	-40 °C ... 125 °C	
Ambient temperature (operation)						

	Ordering data			Ordering data			
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.	
Protective cover, for panel mounting bases, box mounting bases, and coupling housing with single locking latch, with retaining cord, without seal, for housing type: B6 B10, HV3 B16, HV6 B24, HV10/16 D7	HC-B 6-SD-FL/FS	1660180	10	HC-B 6-SD-FLU/FS-AL	1644559	10	
	HC-B 10-SD-FL/FS	1660177	10	HC-B 10-SD-FLU/FS-AL	1644562	10	
	HC-B 16-SD-FL/FS	1660151	10	HC-B 16-SD-FLU/FS-AL	1644588	10	
	HC-B 24-SD-FL/FS	1660148	10	HC-B 24-SD-FLU/FS-AL	1644601	10	
	HC-D 7-SD-FL/FS	1772573	10				
	Protective cover, plastic D7 D15 D25	HC-D 7-SD-FL/FS-MD	1644300	10			
		HC-D 15-SD-FL/FS	1660164	10			
		HC-D 25-SD-FL/FS	1660135	10			
	Protective cover, for panel mounting bases, box mounting bases, and coupling housing with double locking latch, with retaining cord, without seal, for housing type: B10, HV3 B16, HV6 B24, HV10/16 B32 D50	HC-B 10-SD-FQ/FS	1772586	10	HC-B 10-SD-FQU/FS-AL	1644575	10
		HC-B 16-SD-FQ/FS	1772599	10	HC-B 16-SD-FQU/FS-AL	1644591	10
HC-B 24-SD-FQ/FS		1772609	10	HC-B 24-SD-FQU/FS-AL	1644614	10	
HC-B 32-SD-FQU/FS		1646120	10				
HC-D 50-SD-FQ/FS		1660193	10				
Protective cover, for sleeve housing without single locking latch, with retaining cord, with seal, for housing type: B6 B10, HV3 B16, HV6 B24, HV10/16	HC-B 6-SD-ML/FS	1678282	10	HC-B 6-SD-MLT/FS-AL	1644546	10	
	HC-B 10-SD-ML/FS	1678295	10	HC-B 10-SD-MLT/FS-AL	1584512	10	
	HC-B 16-SD-ML/FS	1678318	10	HC-B 16-SD-MLT/FS-AL	1584525	10	
	HC-B 24-SD-ML/FS	1678334	10	HC-B 24-SD-MLT/FS-AL	1584538	10	
Protective cover, for sleeve housing without double locking latch, with retaining cord, with seal, for housing type: B10, HV3 B16, HV6 B24, HV10/16	HC-B 10-SD-MQ/FS	1678305	10	HC-B 10-SD-MQT/FS-AL	1584541	10	
	HC-B 16-SD-MQ/FS	1678321	10	HC-B 16-SD-MQT/FS-AL	1584554	10	
	HC-B 24-SD-MQ/FS	1678347	10	HC-B 24-SD-MQT/FS-AL	1584567	10	
Protective cover, for sleeve housing with double locking latch, with retaining cord, with seal, for housing type: B10, HV3 B16, HV6 B24, HV10/16	HC-B 10-SD-FQT/FS	1687260	10	HC-B 10-SD-FQT/FS-AL	1647750	10	
	HC-B 16-SD-FQT/FS	1687273	10	HC-B 16-SD-FQT/FS-AL	1647763	10	
	HC-B 24-SD-FQT/FS	1687286	10	HC-B 24-SD-FQT/FS-AL	1647776	10	

Type	A [mm]
HC-B 6-SD-.../FS-AL	60.2
HC-B 10-SD-.../FS-AL	73.4
HC-B 16-SD-.../FS-AL	94.0
HC-B 24-SD-.../FS-AL	120.0

Dimensions table: metal protective cover



HC-B...-SD-.../FS-AL

**Protective cover
for HEAVYCON ADVANCE**

Not for HEAVYCON modular assembled
with the following modules:

- HC-M-02-HS-70/...
- HC-M-03/04-MOD...
- HC-M-04-MOD...



Protective cover with screw locking

Material data
Seal material
Material, protective cover
Locking latch material
Inflammability class according to UL 94
Diameter of retaining cord eyelet
Color
Degree of protection
Temperature data
Ambient temperature (operation)

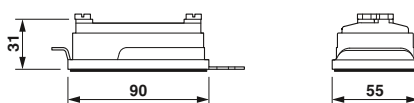
Technical data	
HC-B...TMS-SD-IP65	HC-B...TMS-SD-IP50
NBR	-
PA	PA
Stainless steel	-
V0	V0
3.5 mm	3.5 mm
gray	gray
IP65	IP50
-20 °C ... 100 °C	-20 °C ... 100 °C

Description
IP65 protective cover , for panel mounting side, with retaining cord
B6
B10
B16
B24
IP50 protective cover
B6
B10
B16
B24

Ordering data		
Type	Order No.	Pcs. / Pkt.
HC-B 6-TMS-SD-IP65	1690778	10
HC-B 10-TMS-SD-IP65	1690781	10
HC-B 16-TMS-SD-IP65	1690794	10
HC-B 24-TMS-SD-IP65	1690804	10
HC-B 6-TMS-SD-IP50	1690736	10
HC-B 10-TMS-SD-IP50	1690749	10
HC-B 16-TMS-SD-IP50	1690752	10
HC-B 24-TMS-SD-IP50	1690765	10

Type	A [mm]
HC-B 6-TM...SD-IP...	92
HC-B 10-TM...SD-IP...	105
HC-B 16-TM...SD-IP...	126
HC-B 24-TM...SD-IP...	152

Dimensions table: protective cover



HC-B...-TMS-SD-IP...

Heavy-duty plug-in connectors

HEAVYCON accessories

PE screws, PE multiplier

If more than one PE conductor is to be routed via a contact insert, additional PE connections must be made. This is achieved with additional screws or with the PE multiplier.

Note:

If the PE multiplier is used, a housing height of ≥ 72 mm is required.

HC-B-3PE cannot be used for HC-B...ZZ terminal adapters.



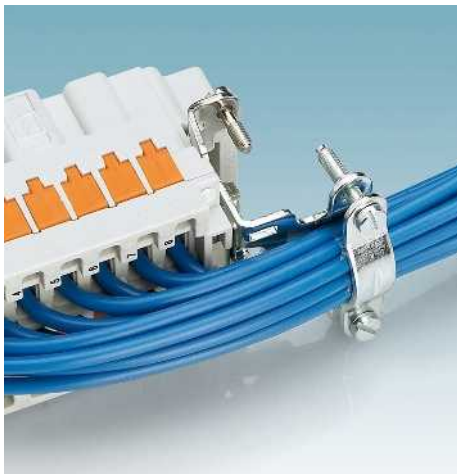
Material data
Material
Conductor cross section
Connection cross section AWG

Technical data	
HC-...PES	HC-B-3PE
Steel, galvanized	Brass, nickel-plated
-	0.5 mm ² ... 2.5 mm ²
-	20 ... 14

Description
PE screw , for contact inserts: HC-B / HC-BB / HC-DD / HC-D40 / HC-D64 HC-A... / HC-D15 / HC-D25 HC-HS 6...
PE extension , for HC-K 6/0-E... contact inserts
PE multiplier , for three PE connections, for HC-B (except for HC-B..E..ZZ) / HC-BB / HC-DD / HC-D40 / HC-D64 contact inserts

Ordering data		
Type	Order No.	Pcs. / Pkt.
HC-B-PES	1604997	10
HC-A-PES	1584868	10
HC-HS-PES	1586219	100
HC-K 6 PE 16 QMM F	1583869	25
HC-K 6 PE 16 QMM M	1583870	25
HC-B-3PE	1644326	1

Strain relief clamps



Cable trees with crimp contacts must not put a strain on the engaged contacts with their weight.

This is avoided by the use of strain relief clamps.



Material data
Material

Technical data	
Steel	

Description
Strain relief clamps , for contact inserts from the following series: B-, BB-, D40, D64, DD, and HV - Straight cable outlet - Lateral cable outlet

Ordering data		
Type	Order No.	Pcs. / Pkt.
HC-B-ZG	1685327	10
HC-B-ZS	1685330	10

Coding pin, coding socket

Up to 16 plug-in connections can be protected against mismatching with coding pins and sockets.

For coding principle, see page 583.



Coding sockets/pins are used to prevent incorrect connections when connecting identical plug-in connectors.

As far as possible, coding pins and sockets prevent the plug from being inserted or removed at an angle.

Coding pins and sockets are mandatory for HC-D... and HC-DD series contact inserts.



Material data
Material

Description
Coding sockets and pins , for coding to protect against mismatching and as a guide to prevent accidentally jamming the connector in at an angle, cannot be used with HC-Modular and HC-D7 ...
Coding pin
Coding socket

Technical data

Steel

Ordering data

Type	Order No.	Pcs. / Pkt.
HC-CST	1676857	10
HC-CBU	1676860	10

Coding pin, coding socket

For housing with modular contact inserts.

Coding pins/sockets are mandatory when using the following modules:

- HC-M-25-MOD...
- HC-M-04MOD...
- HC-M-DSUB09...

Up to 16 plug-in connections can be protected against mismatching with coding pins/sockets.

For coding principle, see page 583.



Material data
Material

Description
Coding sockets/pins , for coding to protect against mismatching and as a guide to prevent accidentally jamming the connector in at an angle, for HC-Modular
Coding pin
Coding socket

Technical data

Steel

Ordering data

Type	Order No.	Pcs. / Pkt.
HC-CST-MOD	1636127	10
HC-CBU-MOD	1636130	10

Heavy-duty plug-in connectors

HEAVYCON accessories

Coding bolt, coding profile



Material data
Material

Technical data	
HC-CB	CP-HC
Steel	PA

Description

Coding bolts prevent mismatching of up to six plug-in connectors

Coding profile, for HC-B... contact inserts with screw, crimp, QUICKON, and push-in connection. For HC-B..A-UT.../ HC-B..A-DT... series terminal adapters.

Coding profile, for coding HC-HS 2-D7-E...S contact inserts

Coding profile, prevents mismatching of similar plug-in connectors
Coding profile

Ordering data		
Type	Order No.	Pcs. / Pkt.

HC-CB	1772722	10
CP-HC	1686478	40
HC-HS 2-CP	1586280	50
CP-HCC 4	1600027	100

Dummy sockets



Material data
Material

Technical data	
CK1,6-ED-BB	CK2,5-ED-BB
Copper alloy	PA

Description

Dummy sockets, for contact carriers with turned socket contacts of type:

CK-1,6-ED...

CK-2,5-ED...

Ordering data		
Type	Order No.	Pcs. / Pkt.

CK1,6-ED-BB	1645888	50
CK2,5-ED-BB	1584693	100

Dummy sockets prevent a plug-in connection from being inserted if a pin is present at the coding position in the pin insert. Identical plug-in connectors can therefore be protected against mismatching.

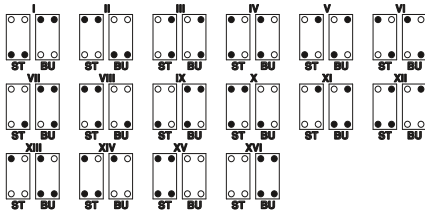


Figure 1: Coding with coding pins and sockets for housing with one contact insert

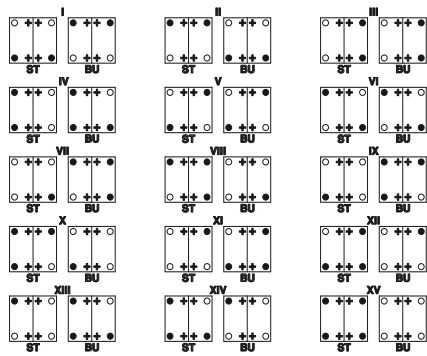


Figure 2: Coding with coding pins and sockets for housing with two contact inserts

● = Coding pin
○ = Coding socket
+ = Mounting screw

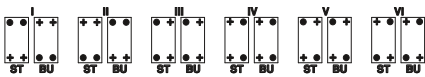


Figure 3: Coding with coding bolts for housing with one contact insert

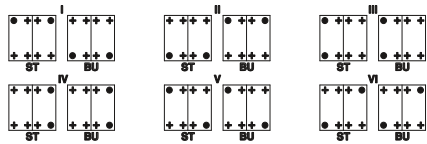


Figure 4: Coding with coding bolts for housing with two contact inserts

● = Coding bolt
+ = Mounting screw

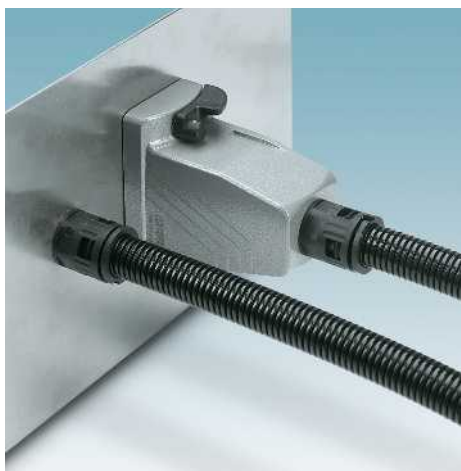


Figure 5: Use of coding pin and coding socket

Heavy-duty plug-in connectors

HEAVYCON accessories

Plastic protective hoses and corrugated pipe adapters



The plastic hose screw connection (corrugated pipe adapter) is available with IP68 protection for the protective hose and with IP66 protection for the plug thread. When used in conjunction with a sealing agent such as Loctite®, IP68 protection can also be achieved on the plug side. The corrugated pipe adapter offers the following features:

- Vibration-resistant, automatic protective hose latching
- Metric trapezoidal thread
- Resistant to oils and gasoline, as well as acids and solvents
- Free from silicone, halogen, and cadmium

The hose screw connection (corrugated pipe adapter) can be mounted without any tools. When used in conjunction with new HEAVYCON EVO and HEAVYCON ADVANCE, the hose screw connections (corrugated pipe adapters) are an ideal combination for ensuring a secure connection between the protective hose and plug.



Notes:

Pcs. / Pkt. specifies the protective hose length in [m].



Slotted, outside diameter of 21.2 - 42.5 mm



Technical data

General data	
Material	PA
Degree of protection	-
Thread type	-
Components	Free from silicone, halogen and cadmium
Inflammability class according to UL 94	HB
Temperature range	-40 ... 105 [°C]

Ordering data

Description	Color	Type	Order No.	Pcs. / Pkt.
Protective hose, slotted, for retrofitting				
Diameter [mm]	Bending radius [mm]			
Outside/inside	Static			
21.2 / 16.5	40	black	WP-PA HF-SL 21,2 BK	3240845
28.5 / 23	45	black	WP-PA HF-SL 28,5 BK	3240846
34.5 / 29	55	black	WP-PA HF-SL 34,5 BK	3240847
42.5 / 36	65	black	WP-PA HF-SL 42,5 BK	3240848
Protective hose				
Diameter [mm]	Bending radius [mm]			
Outside/inside	Static/dynamic			
10 / 6.5	13 / 35	black		
13 / 10	20 / 45	black		
15.8 / 12	35 / 55	black		
21.2 / 16.5	45 / 75	black		
28.5 / 23	55 / 100	black		
34.5 / 29	65 / 120	black		
42.5 / 36	90 / 150	black		
Protective hose				
Diameter [mm]	Bending radius [mm]			
Outside/inside	Static/dynamic			
10 / 6.5	13 / 35	black		
13 / 10	20 / 45	black		
15.8 / 12	35 / 55	black		
21.2 / 16.5	45 / 75	black		
28.5 / 23	55 / 100	black		
34.5 / 29	65 / 120	black		
42.5 / 36	90 / 150	black		
Screw connection, IP66, straight, with metric thread, for protective hose outside diameter [mm]				
21.2		black		
28.5		black		
34.5		black		
42.5		black		



PA 6.6 V0 plastic protective hose, outside diameter of 10 - 42.5 mm



PA 6.6 HB plastic protective hose, outside diameter of 10 - 42.5 mm



Corrugated pipe adapter, IP66/IP68 protection, M20 - M40 metric thread



Technical data
PA
-
-
Free from silicone, halogen and cadmium
V0
-40 ... 115

Technical data
PA
-
-
Free from silicone, halogen and cadmium
HB
-40 ... 105

Technical data
PA
IP66/IP68
metric
Free from silicone, halogen and cadmium
V0
-40 ... 115

Ordering data		
Type	Order No.	Pcs. / Pkt.
WP-PA HF 10,0 BK	3240680	50
WP-PA HF 13,0 BK	3240681	50
WP-PA HF 15,8 BK	3240682	50
WP-PA HF 21,2 BK	3240683	50
WP-PA HF 28,5 BK	3240684	50
WP-PA HF 34,5 BK	3241088	25
WP-PA HF 42,5 BK	3241089	25

Ordering data		
Type	Order No.	Pcs. / Pkt.
WP-PA HF-HB 10,0 BK	3240838	50
WP-PA HF-HB 13,0 BK	3240839	50
WP-PA HF-HB 15,8 BK	3240840	50
WP-PA HF-HB 21,2 BK	3240841	50
WP-PA HF-HB 28,5 BK	3240842	50
WP-PA HF-HB 34,5 BK	3240843	25
WP-PA HF-HB 42,5 BK	3240844	25

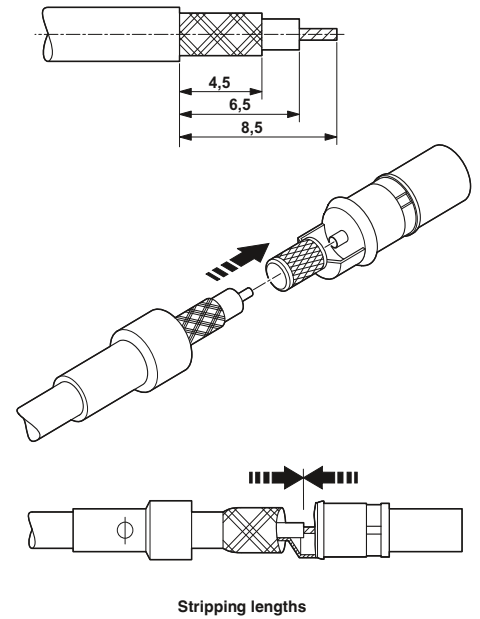
Ordering data		
Type	Order No.	Pcs. / Pkt.
WP-GR HF CTA M20 BK	3241220	20
WP-GR HF CTA M25 BK	3241221	10
WP-GR HF CTA M32 BK	3241222	10
WP-GR HF CTA M40 BK	3241223	10

Heavy-duty plug-in connectors

HEAVYCON accessories

Assembly instructions for modular contact inserts HC-M-04-MOD....

- Strip the cable (see drawing).
- Slide the sleeve over the cable.
- Solder the wires to the coaxial contact.
- Lay the braided shield over the ridges of the contact.
- Slide the sleeve over the braided shield and crimp the cable along the narrow contact collar.

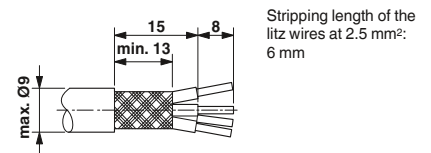


Cable designation	Wave impedance	Sheath Ø [mm]	Inner conductor Ø [mm]	Attenuation [dB/100 m] at		
				100 MHz	200 MHz	800 MHz
RG 174/U	50 Ω	2.5	0.48	29	–	84
RG 188 A/U	50 Ω	2.6	0.54	–	40	–
RG 316/U	50 Ω	2.5	0.54	–	40	–
RG 179 B/U	75 Ω	2.55	0.3	–	41	–
RG 187 A/U	75 Ω	2.7	0.3	–	41	–

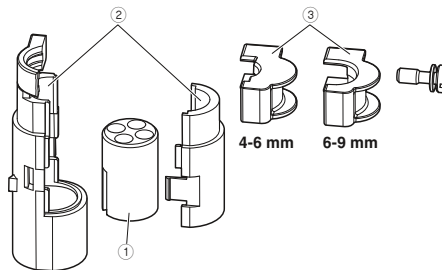
Cables that can be used for coaxial contacts

Assembly instructions for modular contact inserts HC-M-EMV-MOD....

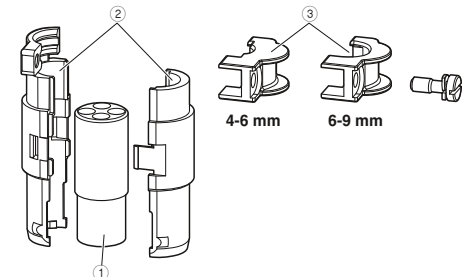
- Strip the cable as specified, lay the braided shield around the cable sheath, and secure with shrink sleeve.
- Mount the contact carrier ① in the EMC plug-in connector.
- Attach the metal half shells ②.
- Crimp the wires with crimp contacts and snap the contacts into the contact carrier ① ensuring correct position assignment.
- Mount the clamp ③.
- Snap the EMC plug-in connector into the EMC module.
- Place the module in the hinged retaining frame.



Stripping lengths for HC-M-EMV-....

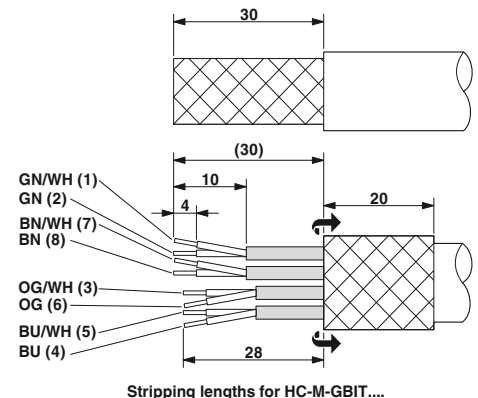


HC-M-EMV-ST/3-9,5



HC-M-EMV-BU/3-9,5

Assembly instructions for GBIT module HC-M-08-GBIT....



Stripping lengths for HC-M-GBIT....

Assembly instructions for modular contact inserts HC-M-HV-MOD....

- Insert the wire through the locking sleeve
- Strip 9.5 mm off the wire
- Crimp the wires with CK 2,5...ED crimp contact
- Snap the locking sleeve and crimp contact together with the insulating body of the module

	Cable diameter in [mm]
Pg11/13.5	7.5 - 12.5
Pg16	7.5 - 15.0
Pg21	10.0 - 19.0
Pg29	18.0 - 27.0
Pg36	24.0 - 33.0
M20	5.0 - 12.0
M25	9.0 - 18.0
M32	16.0 - 21.0
M40	23.0 - 32.0

Cable sealing range for housing with screw connection

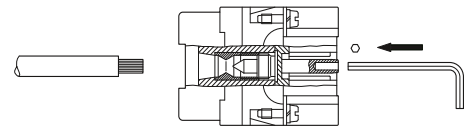
Notes on using axial screw technology

Axial connection technology can be used for stranded wires.

The conductor cross sections specified in the catalog refer to the geometric cross section of the cable used. Use of cables with a geometric cross section that differs greatly from the nominal cross section of the cable should be checked before use. The wiring space for axial screw technology is designed for fine strand cables according to VDE 0295 Class 5. Deviating cable structures (e.g., Class 6 cables) should be checked before use.

Assembly instructions:

Before assembly, ensure that the tapered screw is turned back all the way (chamber is open). The cables must not be twisted. The wires should be inserted as far as they will go into the contact chamber (until the insulation touches the contact). Hold the wires in position and use the socket wrench to tighten. The used wire end should be cut off before connecting again. The connection screw may only be retightened once to prevent the litz wires from breaking.



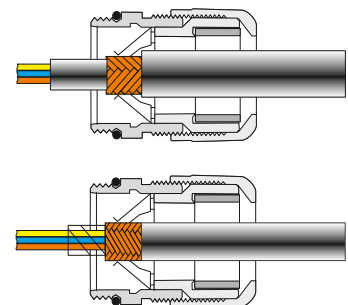
Notes on the EMC screw connection HC-EMV-KV-M...

Method 1

- Cut the outer sheath at around 15 mm, but do not remove it
- Feed the cable through the screw connection
- Remove the outer sheath
- Pull the cable back until the connection is established between the cable shield and the contact spring

Method 2

- Strip the outer sheath
- Push the braided shield back approx. 15 - 20 mm over the outer sheath
- Insert the cables into the screw connection until the connection is established between the cable shield and the contact spring



Heavy-duty plug-in connectors

DUPLICON stackable plug-in connectors

DUPLICON

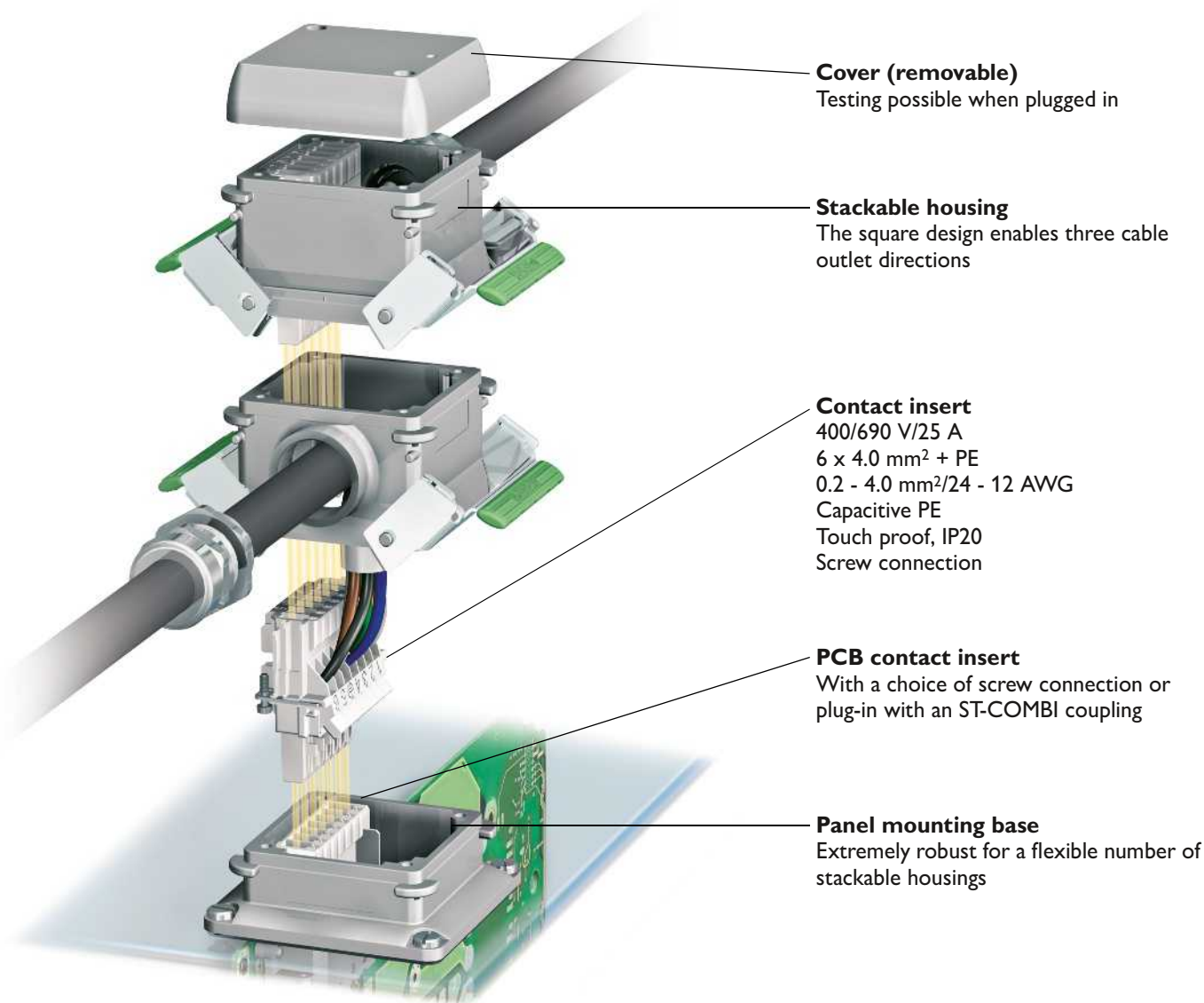


DUPLICON is a consistent power distributor system for $6 \times 4 \text{ mm}^2 + \text{PE}$ conductors (25 A/400/690 V), from the power rail to ST-COMBI in the control cabinet right up to the PCB or plug-in connection on the power load. The system has a minimum of components and handling is extremely flexible. The robust metal housing with innovative locking latches means that DUPLICON is qualified for the harshest operating conditions.

The design meets the requirements for IP67 protection. The contact inserts have a capacitive PE contact and the screw connections can be assembled using standard tools. DUPLICON acts as an interface between the control cabinet and the device or actuators/drives. With connection options of 24 V or two-wire bus cables for AS-i or

PROFIBUS, DUPLICON also provides a connection to the signal world, which opens up a broad range of possible applications.

Thanks to the plug-in design, all cables can be conveniently assembled in the workshop and quickly connected together in the system. All connections are touch proof in accordance with DIN VDE 0105 and meet the requirements of BGV A2 accident prevention regulations.



Cover (removable)

Testing possible when plugged in

Stackable housing

The square design enables three cable outlet directions

Contact insert

400/690 V/25 A
 $6 \times 4.0 \text{ mm}^2 + \text{PE}$
0.2 - 4.0 mm^2 /24 - 12 AWG
Capacitive PE
Touch proof, IP20
Screw connection

PCB contact insert

With a choice of screw connection or plug-in with an ST-COMBI coupling

Panel mounting base

Extremely robust for a flexible number of stackable housings

The product range

Plug-in connector sets

These simplify your initial order and reduce logistics expenses. Sets are available for typical DUPLICON applications, with the stackable plug, panel feed-through, cable coupling, three-way distributor, and T-box.

The housing is available with M20 or M25 threads. Please order cable glands separately.

Contact inserts

The current range of contact inserts is designed for the consistent distribution of power and 24 V or a two-wire bus system such as AS-i or PROFIBUS. The contact inserts feature screw connections in the stackable plug-in connectors, two connections per position in the T-box, and a direct PCB connection in the device.

The advantages of the screw connection technology include maximum reliability, universal use, minimal contact resistance, and a compact design. The range can, however, be

extended on request with other connection technology or numbers of positions. Contact us for more information.

When connecting motors, where signals and power are often combined in a single plug-in connector, 3 modules from the HEAVYCON range can be integrated into the module frame.

Housing

The housing range consists of flat assembly housing with closed base and panel mounting bases with open base for plug-in panel feed-throughs. The stackable housing with one or two cable entries and typical sleeve housing for accommodating modular contact inserts can be attached to these. The patented locking latches are made from stainless spring steel and provide maximum resistance to vibrations with very low operating forces. The T-box can be used to implement cost-optimized power distribution,

whereby the main power cable does not have to support plug-in capability throughout. All housings versions are made from salt-water-resistant die-cast aluminum and are suitable for EMC applications.

Accessories

A mounting bracket with two different limb lengths rounds off the DUPLICON plug-in connector range. The self-tapping mounting screws with Torx head simplify mounting. Replacement seals are available for servicing work. The dust protection cover made of ABS is simply snapped on and can be coated if necessary. The M12 adapter is used, for example, to supply small loads in

the field with 24 V and is equipped with M12-SPEEDCON.



from page 592



from page 594



from page 596

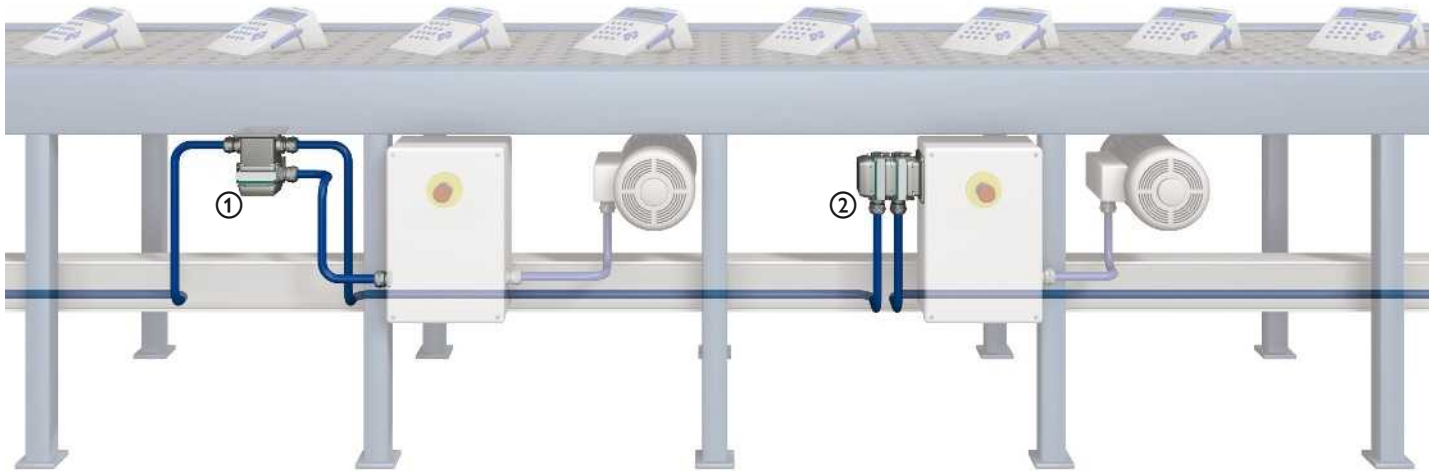


from page 600

Heavy-duty plug-in connectors

DUPLICON stackable plug-in connectors

Stationary power distribution



There are essentially two DUPLICON options for stationary power distribution:

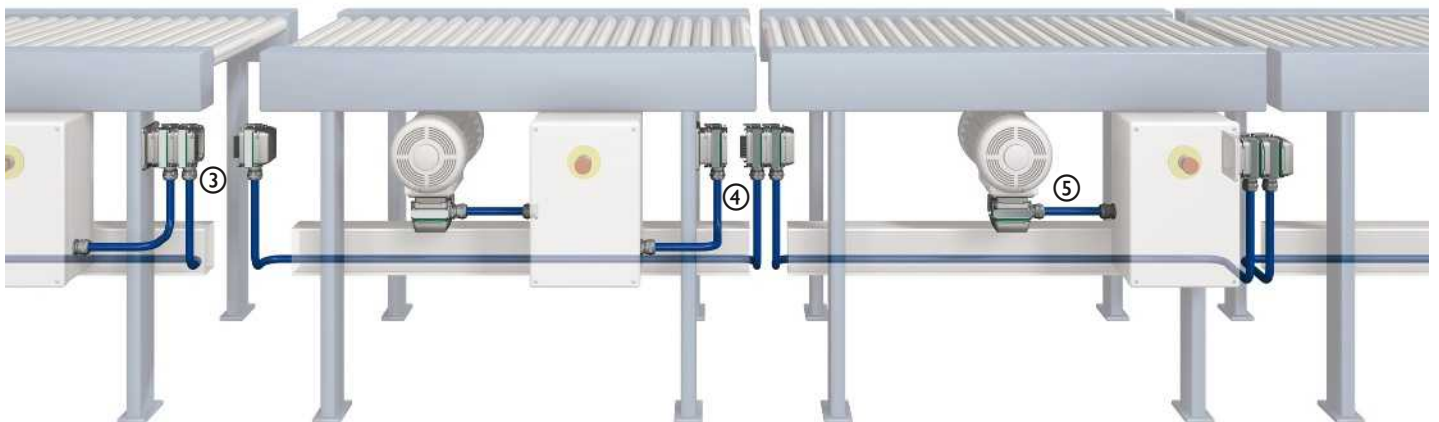
① Using the T-box, which is installed permanently next to the power load and has a plug-in cable outlet.

② Using a stackable device connection. Direct device connection is always the best

option, but this requires design-based integration.

The main advantages are separate plug-in capability of the cables during startup and uninterrupted device replacement during future servicing.

Modular power distribution



③ Your power distribution can be configured in advance, thanks the stackable design. Plug and play ensures quick and reliable startup.

④ During servicing, the main power cable is disconnected from the load without causing

any interruption and the system continues running.

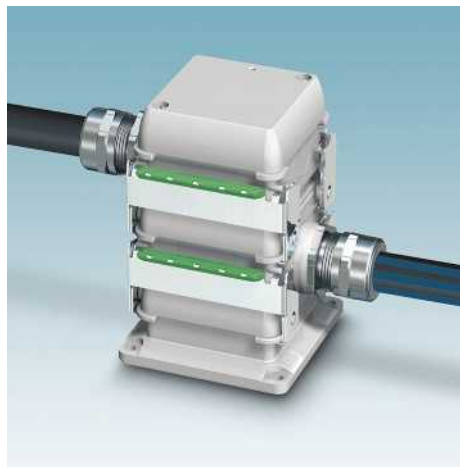
⑤ DUPLICON is also suitable for use as a motor plug-in connector. The square design enables three different cable outlet directions and the vibration-resistant locking mechanism can withstand the harshest of

operating conditions.

The modular contact inserts offer a wide range of possible applications.

Please contact us if you have any special requests relating to contact inserts.

Cable routing options



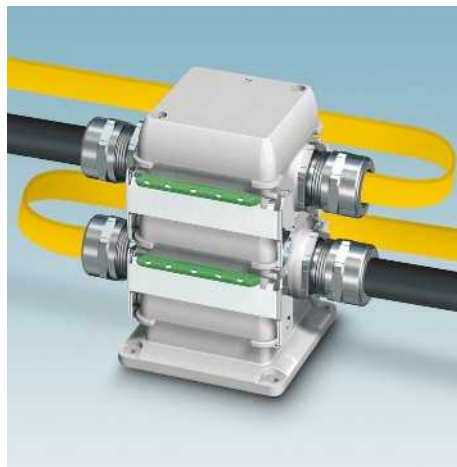
With hybrid cables

In the classic and simplest case, one cable is introduced per stackable housing. With the aid of an M25 adapter screw connection, cables with a diameter of up to 21 mm can be connected.



With separate cables

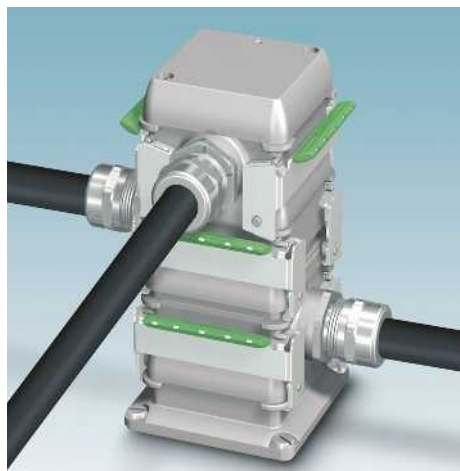
The cable glands with two holes allow thin power and 24 V cables to be routed separately into stackable housing.



With opposing cables

The housing with two cable entries allows cables with larger diameters or combinations, e.g., with AS-i cables or PROFIBUS, to be routed in.

Power distribution options



Stackable distributor

Thanks to its stackable design, DUPLICON supports a flexible number of cable outlets. The square design allows cable outlets to be implemented in 90° increments. DUPLICON is easy to retrofit into existing installations. Disconnect the power line, assemble with stackable plugs, connect together – and you're done!



T-box

For fixed installations, the DUPLICON T-box is the inexpensive and compact alternative to the stackable distributor. The contact insert has two screw connections per position for looping through the power cable. The cable outlet on the top supports connection in any of the four directions.



Device connection

As a device connection, DUPLICON is the most effective and inexpensive version of distributed power distribution. The direct PCB connection in the 90° and 180° version saves a jumpering level in the device. The contact insert is compatible with ST-COMBI (CLIPLINE) plug-in modular terminal blocks.

Heavy-duty plug-in connectors

DUPLICON stackable plug-in connectors

Plug-in connector sets

Suitable standard and EMC cable glands are listed in PLUSCON industrial plug-in connectors under HEAVYCON and VARIOCON accessories.

Notes:
For cable glands, see from page 552
For accessories, see page 600



Stackable plug set
(stackable housing, contact insert)



Panel feed-through set
(panel mounting base, stackable housing,
2 contact inserts, housing cover)



Technical data

Technical data

Technical data

Electrical data in acc. with IEC 61076-2-101

Rated voltage (III/3)	400 V (L-PE) / 690 V (L-L)
Rated surge voltage	6 kV
Rated current	25 A
Surge voltage category / pollution degree	III / 3
Volume resistance	1.5 mΩ

Material data

Housing material	Aluminum, die-cast
Housing surface material	EMC-conductive
Seal material	NBR
Locking latch material	Stainless steel
Contact material	Cu
Contact surface material	Ag
Contact carrier material	PA
Material grip body interlock	PA
Inflammability class according to UL 94	V0

Mechanical data

Degree of protection	IP65/IP66/IP67
Insertion/withdrawal cycles	≥ 100

Connection data

Connection method	Screw connection
Stripping length of the individual wire	10 mm
Conductor cross section	0.2 mm ² ... 4 mm ² (6 mm ² without ferrule)
Connection cross section AWG	24 ... 12 (AWG 10 without ferrule)
Tightening torque	0.5 Nm ... 0.6 Nm

Temperature data

Ambient temperature (operation)	-40 °C ... 100 °C
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Rated voltage (L-PE) / 690 V (L-L)	400 V (L-PE) / 690 V (L-L)
Rated surge voltage	6 kV
Rated current	25 A
Surge voltage category / pollution degree	III / 3
Volume resistance	1.5 mΩ

Housing material	Aluminum, die-cast
Housing surface material	EMC-conductive
Seal material	NBR
Locking latch material	Stainless steel
Contact material	Cu
Contact surface material	Ag
Contact carrier material	PA
Material grip body interlock	PA
Inflammability class according to UL 94	V0

Degree of protection	IP65/IP66/IP67
Insertion/withdrawal cycles	≥ 100

Connection method	Screw connection
Stripping length of the individual wire	10 mm
Conductor cross section	0.2 mm ² ... 4 mm ² (6 mm ² without ferrule)
Connection cross section AWG	24 ... 12 (AWG 10 without ferrule)
Tightening torque	0.5 Nm ... 0.6 Nm

Ambient temperature (operation)	-40 °C ... 100 °C
---------------------------------	-------------------

Ordering data

Ordering data

Description

DUPLICON sets, stackable housing
without cable gland
With M20 thread
With M25 thread

Type	Order No.	Pcs. / Pkt.
DC-B 6-SET-HD-M20-M-7X4-UT	1602216	1
DC-B 6-SET-HD-M25-M-7X4-UT	1602229	1

Type	Order No.	Pcs. / Pkt.
DC-B 6-SET-WF-M20R-M-7X4-UT	1602232	1
DC-B 6-SET-WF-M25R-M-7X4-UT	1602258	1

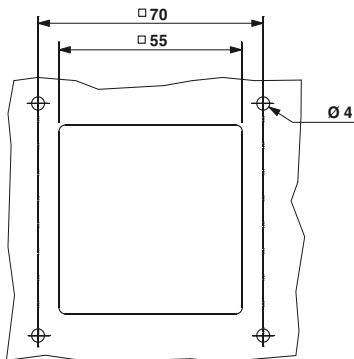
Accessories

Accessories

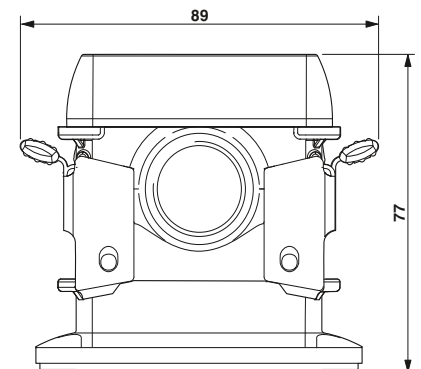
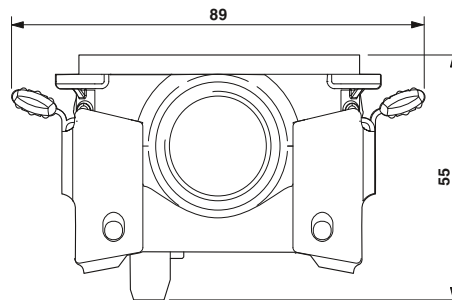
Special cable gland, M25, brass
With 10 mm and 11 mm hole

HC-M-KV-M25(1X10/1X11)	1580228	10
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HC-M-KV-M25(1X10/1X11)	1580228	10
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Panel cutout: DC-B 6-SET-WF...





Coupling set
(basic housing, 2 stackable housings,
2 contact inserts, housing cover)



Distributor set
(basic housing, 3 stackable housings,
3 contact inserts, housing cover)



T-box set
(T-box with contact insert, stackable housing
with contact insert, housing cover)



Technical data

400 V (L-PE) / 690 V (L-L)
6 kV
25 A
III / 3
1.5 mΩ
Aluminum, die-cast
EMC-conductive
NBR
Stainless steel
Cu
Ag
PA
PA
V0
IP65/IP66/IP67
≥ 100
Screw connection
10 mm
0.2 mm ² ... 4 mm ² (6 mm ² without ferrule)
24 ... 12 (AWG 10 without ferrule)
0.5 Nm ... 0.6 Nm
-40 °C ... 100 °C

Technical data

400 V (L-PE) / 690 V (L-L)
6 kV
25 A
III / 3
1.5 mΩ
Aluminum, die-cast
EMC-conductive
NBR
Stainless steel
Cu
Ag
PA
PA
V0
IP65/IP66/IP67
≥ 100
Screw connection
10 mm
0.2 mm ² ... 4 mm ² (6 mm ² without ferrule)
24 ... 12 (AWG 10 without ferrule)
0.5 Nm ... 0.6 Nm
-40 °C ... 100 °C

Technical data

400 V (L-PE) / 690 V (L-L)
6 kV
25 A
- / 3
1.5 mΩ
Aluminum, die-cast
EMC-conductive
NBR
Stainless steel
Cu
Ag
PA
PA
V0
IP65/IP66/IP67
≥ 100
Screw connection
10 mm
0.2 mm ² ... 4 mm ² (6 mm ² without ferrule)
24 ... 12
0.5 Nm ... 0.6 Nm
-40 °C ... 100 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
DC-B 6-SET-CO-M20-M-7X4-UT	1602274	1
DC-B 6-SET-CO-M25-M-7X4-UT	1602287	1

Ordering data

Type	Order No.	Pcs. / Pkt.
DC-B 6-SET-3D-M20-M-7X4-UT	1602290	1
DC-B 6-SET-3D-M25-M-7X4-UT	1602300	1

Ordering data

Type	Order No.	Pcs. / Pkt.
DC-B 6-SET-TB-M20-M-7X4-UT	1581023	1
DC-B 6-SET-TB-M25-M-7X4-UT	1581036	1

Accessories

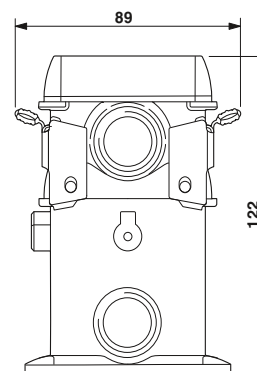
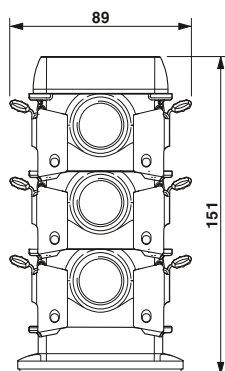
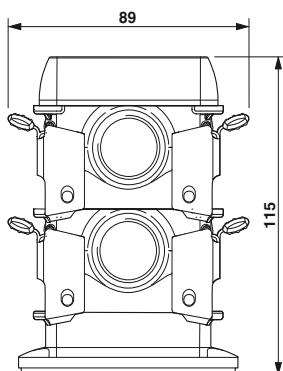
HC-M-KV-M25(1X10/1X11)	1580228	10
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Accessories

HC-M-KV-M25(1X10/1X11)	1580228	10
------------------------	---------	----

Accessories

HC-M-KV-M25(1X10/1X11)	1580228	10
------------------------	---------	----



Heavy-duty plug-in connectors

DUPLICON stackable plug-in connectors

Contact inserts



With the stackable contact inserts, the power conductors for modular mechanical and plant engineering can be pre-assembled and combined on site to form power distributors quickly, easily and reliably.

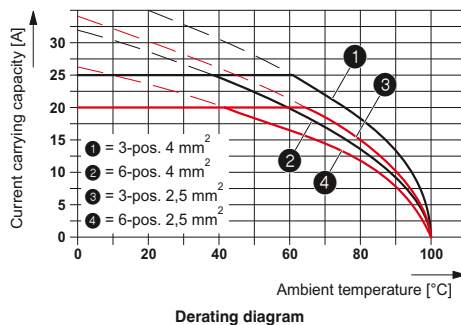
The T-box contact insert is predestined for stationary installations. With two connections per position, it is used to loop through power conductors on site. Compared to the DUPLICON 3-way distributor, the design height is reduced by 20% with T-box plug-in connectors and they also save on a complete stackable plug.

DUPLICON is the first IP67 plug-in connector that can be tested from the outside while it is plugged in. All that is necessary is to unscrew both screws in the cover, after which all the contacts will be immediately accessible to conventional testing devices. For safety reasons, all the contacts are IP20 touch proof in acc. with DIN VDE 0105.

Note:

Coding stars with 4 coding branches are available for coding several similar plug-in connectors in order to prevent mismatching, Order No. 3040588.

EB 2-6 dual insertion bridges with a 2 mm pitch (Order No. 0201155) are available for bridging two adjacent connections.



Stacked contact insert

Technical data

Technical data

Electrical data in acc. with IEC 61076-2-101

Rated voltage (III/3)
Rated surge voltage
Rated current
Surge voltage category / pollution degree
No. of pos.

400 V (L-PE) / 690 V (L-L)
6 kV
25 A
III / 3
6

Material data

Contact material
Contact surface material
Contact carrier material
Inflammability class according to UL 94

Cu
Ag
PA
V0

Mechanical data

Degree of protection
Insertion/withdrawal cycles

IP20, touch proof
≥ 100

Connection data

Connection method
Stripping length of the individual wire
Conductor cross section
Connection cross section AWG
Tightening torque

Screw connection
10 mm
0.2 mm² ... 4 mm² (6 mm² without ferrule)
24 ... 12 (AWG 10 without ferrule)
0.5 Nm ... 0.6 Nm

Temperature data

Ambient temperature (operation)

-40 °C ... 100 °C

Description

Stacked contact insert, 6 x 4 mm² + PE
Screw connection
T-box contact insert, 6 x 4 mm² + PE
With two screw connections per position
Panel mounting contact insert, 6 x 4 mm² + PE
180° PCB connection
Panel mounting contact insert, 6 x 4 mm² + PE
90° PCB connection

Coding star, with four coding branches, for coding plug-in connectors

Insertion bridge, insulated

Replacement screws

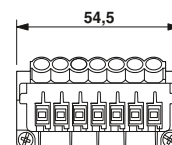
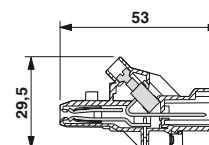
M3 screw, V2A, for fixing the contact inserts for PCB connection in the panel mounting base

Ordering data

Type	Order No.	Pcs. / Pkt.
DC-B 6-ID-7X4-UT	1602203	10

Accessories

PC	3040588	50
EB 2-6	0201155	100





T-box contact insert



Panel mounting contact insert,
180° PCB connection



Panel mounting contact insert,
90° PCB connection



Technical data

400 V (L-PE) / 690 V (L-L)
6 kV
25 A
III / 3
6

Cu
Ag
PA
V0

IP20, touch proof
≥ 100

Screw connection
10 mm
0.2 mm² ... 4 mm² (6 mm² without ferrule)
24 ... 12 (AWG 10 without ferrule)
0.5 Nm ... 0.6 Nm

-40 °C ... 100 °C

Technical data

400 V (L-PE) / 690 V (L-L)
6 kV
25 A
III / 3
6

Cu
Ag
PA
V0

IP20, touch proof
≥ 100

Solder connection
-
-
-
-

-40 °C ... 100 °C

Technical data

400 V (L-PE) / 690 V (L-L)
6 kV
25 A
III / 3
6

Cu
Ag
PA
V0

IP20, touch proof
≥ 100

Solder connection
-
-
-
-

-40 °C ... 100 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
DC-B 6-IBT-7X4-UT	1581065	10

Ordering data

Type	Order No.	Pcs. / Pkt.
DC-B 6-IB-7X4-PCB-180	1602177	10

Ordering data

Type	Order No.	Pcs. / Pkt.
DC-B 6-IB-7X4-PCB- 90	1602180	10

Accessories

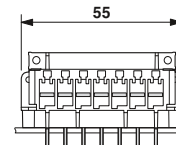
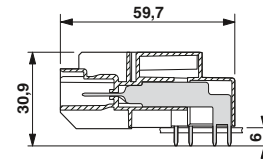
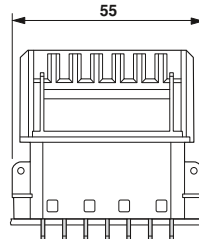
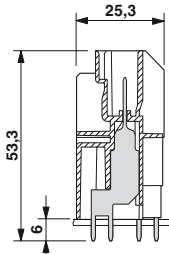
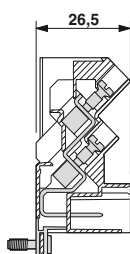
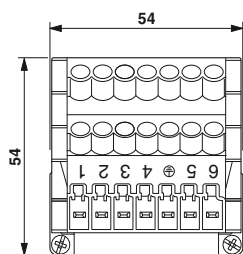
PC	3040588	50
EB 2- 6	0201155	100

Accessories

PC	3040588	50
VC-TR-S	1607826	50
DC-PCB-M3X20	1602407	100

Accessories

PC	3040588	50
VC-TR-S	1607826	50
DC-PCB-M3X20	1602407	100



Heavy-duty plug-in connectors

DUPLICON stackable plug-in connectors

Housing

Notes:
For cable glands, see from page 552



Housing cover



Panel mounting base with open bottom



Technical data	
Material data	
Housing material	Aluminum, die-cast
Housing surface material	EMC-conductive
Seal material	NBR
Locking latch material	-
Material grip body interlock	-
Mechanical data	
Degree of protection	IP65/IP66/IP67
Temperature data	
Ambient temperature (operation)	-40 °C ... 125 °C

Technical data	
Material data	
Housing material	Aluminum, die-cast
Housing surface material	EMC-conductive
Seal material	NBR
Locking latch material	-
Material grip body interlock	-
Mechanical data	
Degree of protection	IP65/IP66/IP67
Temperature data	
Ambient temperature (operation)	-40 °C ... 125 °C

Technical data	
Material data	
Housing material	Aluminum, die-cast
Housing surface material	EMC-conductive
Seal material	NBR
Locking latch material	-
Material grip body interlock	-
Mechanical data	
Degree of protection	IP65/IP66/IP67
Temperature data	
Ambient temperature (operation)	-40 °C ... 125 °C

Ordering data	
Description	
Aluminum housing cover	
Aluminum panel mounting base, with open base	
Aluminum basic housing with closed base	
Aluminum stackable housing	
With 2 x M20 thread	
With 2 x M25 thread	
With 1 x M20 thread	
With 1 x M25 thread	
T-box housing	
With 2 x M20 thread	
With 2 x M25 thread	

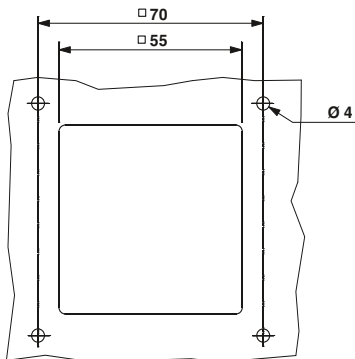
Ordering data		
Type	Order No.	Pcs. / Pkt.
DC-B 6-CT-M	1602025	10

Ordering data		
Type	Order No.	Pcs. / Pkt.
DC-B 6-HB-M	1602038	10

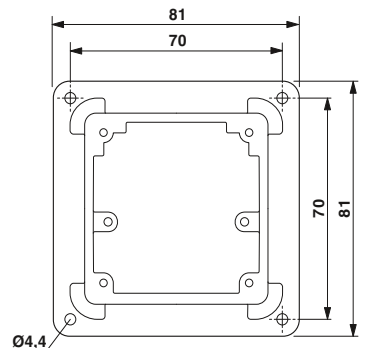
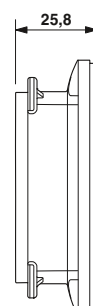
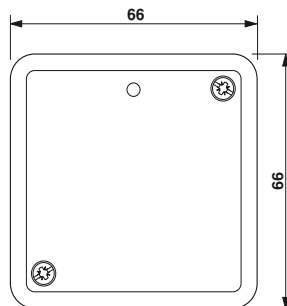
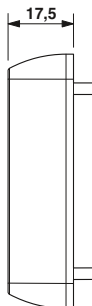
Accessories	
Special cable gland, M25, brass	
With 10 mm and 11 mm hole	

Accessories	

Accessories	



Panel cutout: DC-B 6-HB-M





Basic housing
with closed bottom



Stackable housing
without cable gland



T-box, box mounting base



Technical data

Aluminum, die-cast
EMC-conductive

-
-

IP65/IP66/IP67

-40 °C ... 125 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
DC-B 6-HM-M	1602164	10

Accessories

--	--	--



Technical data

Aluminum, die-cast
EMC-conductive

NBR
Stainless steel
PA

IP65/IP66/IP67

-40 °C ... 125 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
DC-B 6-HD-M20/M20-M	1602067	10
DC-B 6-HD-M25/M25-M	1602070	10
DC-B 6-HD-M20-M	1602041	10
DC-B 6-HD-M25-M	1602054	10

Accessories

HC-M-KV-M25(1X10/1X11)	1580228	10
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Technical data

Aluminum, die-cast
EMC-conductive

-
-

IP65/IP66/IP67

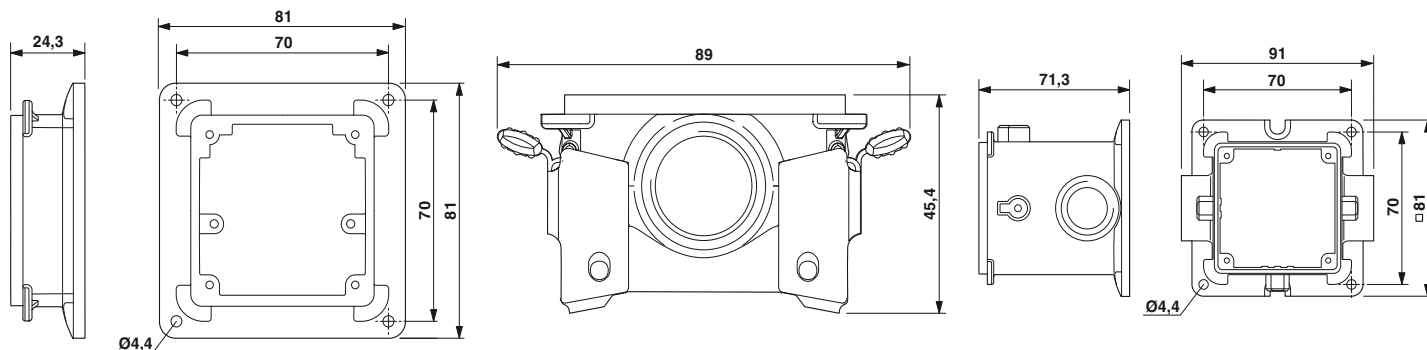
-40 °C ... 125 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
DC-B 6-HTC-M20-M20-M	1581049	10
DC-B 6-HTC-M25-M25-M	1581052	10

Accessories

HC-M-KV-M25(1X10/1X11)	1580228	10
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Heavy-duty plug-in connectors

DUPLICON stackable plug-in connectors

Sleeve housing, EMC-protected

Notes:
For cable glands, see from page 552
For accessories, see page 600



Sleeve housing, one cable entry, without cable gland



Sleeve housing, two cable entries, without cable gland

Technical data
Material data
Housing material
Housing surface material
Seal material
Locking latch material
Material grip body interlock
Mechanical data
Degree of protection
Temperature data
Ambient temperature (operation)

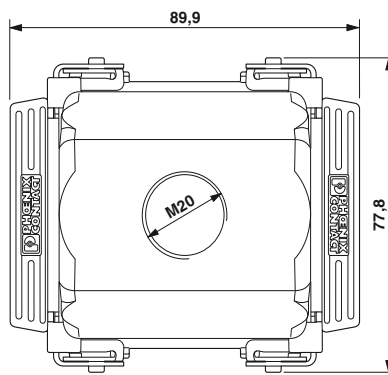
Technical data	
Housing material	Aluminum, die-cast
Housing surface material	EMC-conductive
Seal material	NBR
Locking latch material	Stainless steel
Material grip body interlock	PA
Degree of protection	IP65/IP66/IP67
Ambient temperature (operation)	-40 °C ... 125 °C

Technical data	
Housing material	Aluminum, die-cast
Housing surface material	EMC-conductive
Seal material	NBR
Locking latch material	Stainless steel
Material grip body interlock	PA
Degree of protection	IP65/IP66/IP67
Ambient temperature (operation)	-40 °C ... 125 °C

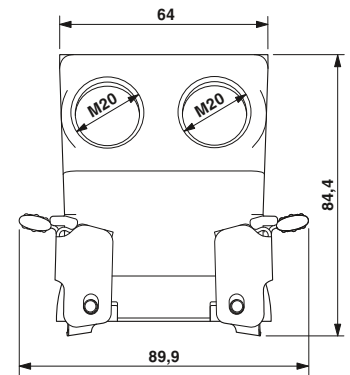
Description
Sleeve housing, with one cable entry
1 x M20, straight
1 x M20, lateral
1 x M25, straight
1 x M25, lateral
1 x M32, straight
1 x M32, lateral
Sleeve housing, with two cable entries
2 x M20, straight
2 x M20, lateral
2 x M25, straight
2 x M25, lateral

Ordering data		
Type	Order No.	Pcs. / Pkt.
DC-B 6-H-80/O1STM20G-M	1581173	10
DC-B 6-H-80/O1STM20S-M	1581117	10
DC-B 6-H-80/O1STM25G-M	1581194	10
DC-B 6-H-80/O1STM25S-M	1581138	10
DC-B 6-H-80/O1STM32G-M	1581215	10
DC-B 6-H-80/O1STM32S-M	1581159	10

Ordering data		
Type	Order No.	Pcs. / Pkt.
DC-B 6-H-80/O2STM20G-M	1581180	10
DC-B 6-H-80/O2STM20S-M	1581124	10
DC-B 6-H-80/O2STM25G-M	1581201	10
DC-B 6-H-80/O2STM25S-M	1581145	10



Dimensional drawing with straight cable outlet



Dimensional drawing with lateral cable outlet

Hinged retaining frame



Notes:
For contact insert modules, see from page 464



Hinged retaining frame

DUPLICON modular has been designed for use in drives in the power distribution field. The square-shaped housing supports flexible cable outlet directions and the absolutely vibration-free locking latch can withstand the roughest of conditions. The requirements of railway standard EN 50155 are met and even greatly exceeded.

The modularity of contact inserts from the HEAVYCON range offers numerous applications.

The hinged retaining frames have been designed with capacitive PE contacts and can accommodate up to 3 contact insert modules.

The housings have one or two conductor entries in different sizes, depending on the type of cable entry.

Material data	
Hinged retaining frame material	Die-cast zinc alloy
Connection data	
Connection cross section	[mm ²] 4 mm ² ... 6 mm ² (for PE conductor – power side)
Connection cross section	[mm ²] 1 mm ² ... 2.5 mm ² (for PE conductor – control side)
Connection cross section	AWG 12 ... 10 (for PE conductor – power side)
Connection cross section	AWG 18 ... 14 (for PE conductor – control side)
Temperature data	
Ambient temperature (operation)	-40 °C ... 125 °C

Description	
Hinged retaining frame , for sleeve housing, labeling: upper case letters (A, B, C, ...)	
Hinged retaining frame , for panel mounting base, labeling: lower case letters (a, b, c, ...)	
Cable lug	
PE extension to 16 mm ²	

Cable lug	
PE extension to 16 mm ²	
Coding elements	

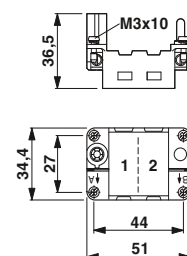
Technical data

Ordering data

Type	Order No.	Pcs. / Pkt.
DC-B 6-MHR-T3	1581285	10
DC-B 6-MHR-A3	1581287	10
HC-M-MHR-PE16	1636981	50

Accessories

HC-M-MHR-PE16	1636981	50
See from page 581		



Heavy-duty plug-in connectors

DUPLICON stackable plug-in connectors

Accessories

The DUPLICON M12 adapter can be used to tap 24 V branches for active sensor/actuator boxes on site. The 5-pos. M12 plug-in connectors have therefore only been pre-wired parallel to the plug-in connector.

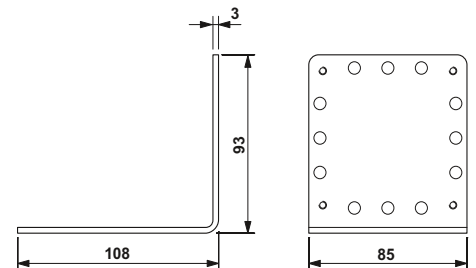
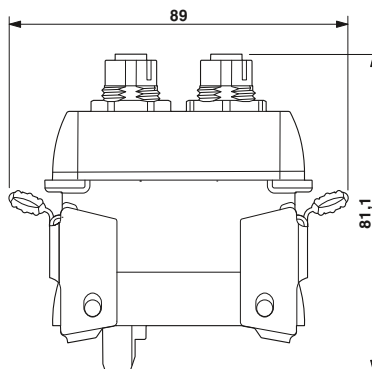
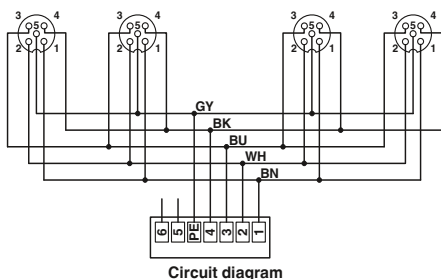


M12 adapter



Mounting bracket

	Technical data	Technical data				
Technical data						
Material data						
Material	-	Stainless steel V2A				
Housing material	Aluminum, die-cast	-				
Housing surface material	EMC-conductive	-				
Material, protective cover	-	-				
Seal material	NBR	-				
Locking latch material	Stainless steel	-				
Material grip body interlock	PA	-				
Mechanical data						
Color	pearl gray	gray				
Design	DC-B6	DC-B6				
Degree of protection	IP65/IP66/IP67	-				
Tightening torque	-	-				
Temperature data						
Ambient temperature (operation)	-40 °C ... 100 °C	-				
	Ordering data	Ordering data				
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
M12 adapter for low-voltage distribution, A-coded	DC-B 6-ADP-4M12-FS-5CON-7X4-UT	1581010	1			
Mounting bracket, made of 3 mm stainless steel plate, with predrilled holes, with long and short sides				DC-B 6-A-SA	1602313	5
M4 Torx® screw T20, 12 mm long, self-tapping, consisting of high-strength steel, anti-corrosive, for housing assembly						
Profile gasket for stackable housing						
Flat gasket for panel mounting base						
Dust protection cover, for snapping on, with retaining cord eyelet, can be painted over						





Screw

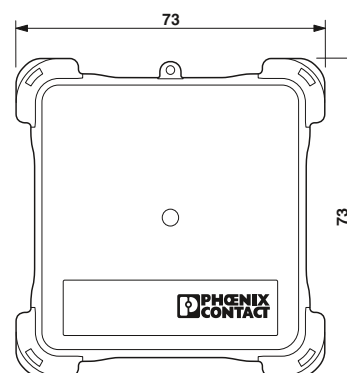


Replacement seals



Dust protection cover

Technical data			Technical data			Technical data		
Steel	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	NBR	-	-	Polyamide	-	-
-	-	-	-	-	-	-	-	-
chromated	-	-	black	-	-	black	-	-
-	-	-	DC-B6	-	-	DC-B6	-	-
-	-	-	-	-	-	IP54	-	-
1.5 Nm ... 2 Nm	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-40 °C ... 100 °C	-	-
-	-	-	-	-	-	-	-	-
Ordering data			Ordering data			Ordering data		
Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
T20-M4X12	1602410	100	DC-B 6-A-HD-G	1602326	10			
			DC-B 6-A-HB-G	1602339	10			
						DC-B 6-CT-P	1581078	10





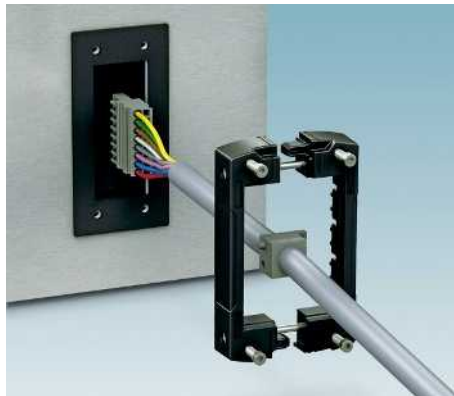
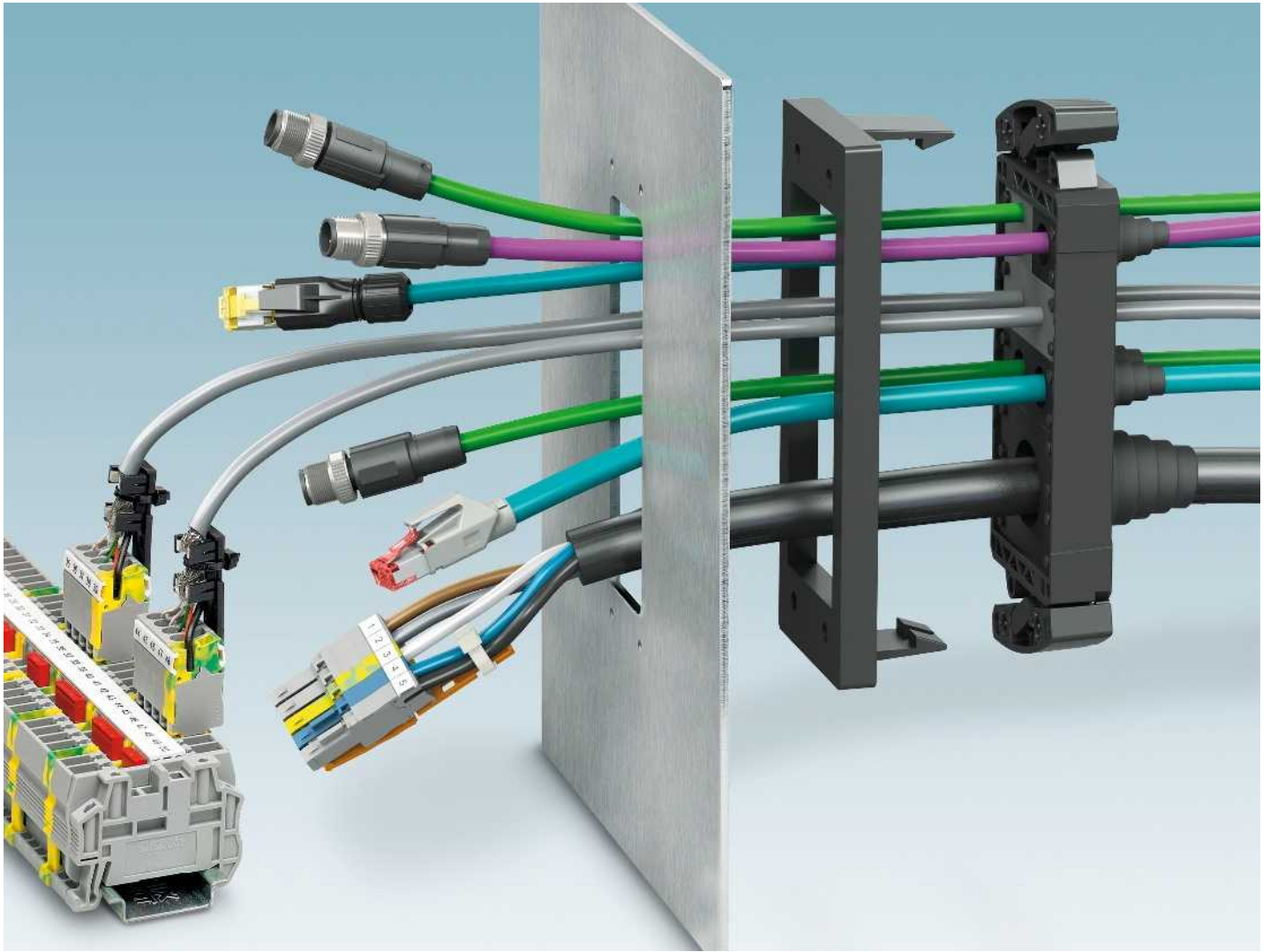
Installation and mounting material

Cable entry systems are in increasing demand as an efficient alternative to heavy-duty plug-in connectors and cable glands. They can be used to route assembled cables directly into the control cabinet, to devices, and onto DIN rails without an additional plug-in connection. With the CES cable entry system, Phoenix Contact offers a well-designed system solution from system and field cabling to the DIN rail.

Plug assembly frames from Phoenix Contact can be easily mounted on standard DIN rails and so save entire jumpering levels in the control cabinet. They accommodate pre-assembled contact inserts and can be combined with HEAVYCON standard sleeve housing. Thanks to the robust, conductive die-cast aluminum design, capacitive PE contact is ensured.

Clear and permanent marking of all cables and distributor boxes considerably improves transparency in control cabinets and systems. It makes assembly and maintenance work easier and assists in rectifying faults. Phoenix Contact cable marking systems provide the ideal marking option for any application. Just select an assembly method. The markers can be threaded on, clipped on, adhered in place or secured with cable binders.

CES cable entry system	604
Sealing frames	606
Rubber cable sleeves	608
Plastic cable sleeves	610
Accessories	612
Cable feed-throughs	614
Cable glands	615
Plug assembly frames	616
Service interfaces	618
Marking systems, tools, and mounting material	624



Saves space and costs

The cable entry system (CES) allows water and dust-proof insertion of a variety of cables and protective hoses into areas with limited space in control cabinets, distributor boxes or devices.

– For protective hoses, see page 584

Sealing frames with metal reinforcement

Because the sealing frames can be split, it is possible to guide pre-assembled plug-in connectors through panel cutouts and subsequently seal with a high degree of protection and reduce the strain according to DIN EN 50262. Thanks to the integrated metal reinforcement, only two locking elements are required on the front.

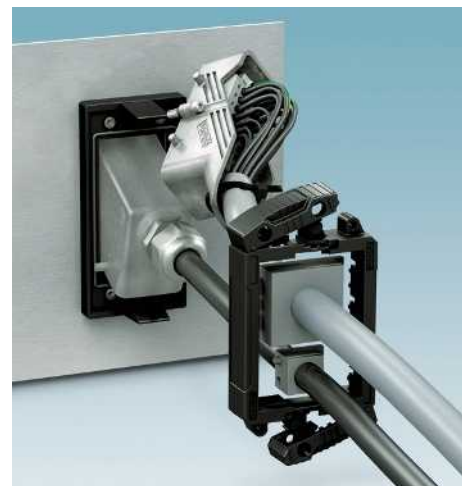
Variable mounting options

The CES sealing frames can be directly mounted on standard panel cutouts (e.g., Rittal) for industrial plug-in connectors. Snap-on frames are available to simplify on-site installation.



Optional locking

Sealing frames with screw locking and locking latches are available. The locking latch does not require any tools, which makes it really quick and easy to use, even in places that are difficult to access.



Also for industrial plug-in connectors

Due to a widening of the standard Rittal cutouts from 35 to 51 mm, even wide rectangular industrial plug-in connectors for double locking latches and plug assembly frames can be swiveled through mounting panels and sealed and provided with strain relief using the CES.



Plastic vs. rubber sleeves

The gray thermoplastic sleeves exhibit a low level of flammability according to UL 94 V0 and are highly resistant to acids and lyes. The black rubber sleeves (NBR) perform significantly better in the long term, particularly in the event of temperature fluctuations. They are also resistant to oil, fuels, and grease. All cable sleeves are halogen-free.



Faster installation and a reliable seal

It only takes two coned sleeves to seal any cable diameter ranging from 2 to 24 mm. The coned sleeves are cut to the relevant length and pushed on before the cables are assembled. There is no longer any need to select corresponding slotted rubber seals on site, which can be a time-consuming process, and the reliability of the seal has been improved for ratings up to IP65.



Sealing frame with locking latch

- Sealing frame with integrated metal reinforcement to protect against deformation
- Only two locking elements are required (screws or latch)
- Suitable for standard panel cutouts (e.g., Rittal)
- Snap-on frame for simplifying on-site installation
- Sealing frame with convenient locking latch for tool-free actuation
- Marking for cable sleeve location on the underside of the frame

Notes:
 For dimensional drawings, see page 613
 If the panel cutout width is 51 mm, HC industrial plug-in connectors and CIF plug assembly frames can also be fed through the panel using the cable entry system (CES).

General data	
Material	PA
Degree of protection	IP54
Torque	-
Inflammability class according to UL 94	V0
Temperature range	-40 ... 120 [°C]

Technical data	
Material	PA
Degree of protection	IP54
Torque	-
Inflammability class according to UL 94	V0
Temperature range	-40 ... 120 [°C]

Description
Sealing frame , including flat gasket, for accommodating cable sleeves, for standard cutout: B10 (cutout: 35 mm x 65 mm), for up to 6 cable sleeves B16 (cutout: 35 mm x 86 mm), for up to 8 cable sleeves B24 (cutout: 35 mm x 113 mm), for up to 10 cable sleeves
Snap-on frame , including integrated seal for mounting panel, for accommodating sealing frames, for standard cutouts: B10 (cutout: 35 mm x 65 mm) B16 (cutout: 35 mm x 86 mm) B24 (cutout: 35 mm x 113 mm)
Locking plate , metal, locks an unused snap-on frame, transport protection, for standard cutouts: B10 B16 B24

Ordering data		
Type	Order No.	Pcs. / Pkt.
CES-B10-HFFS-PLBK	0801663	1
CES-B16-HFFS-PLBK	0801662	1
CES-B24-HFFS-PLBK	0801661	1

Replacement flat gasket , for sealing frame with standard cutout: B10 (cutout: 35 mm x 65 mm) B16 (cutout: 35 mm x 86 mm) B24 (cutout: 35 mm x 113 mm) M4 replacement screw , with 4 mm Allen screw head, for sealing frame with screw locking
Bit screwdriver , with 1/4" quick-action chuck, suitable for bits according to DIN 3126-C 6.3 and E 6.3/ISO 1173, magnetic
Screw bit , hexagonal, E6.3-1/4" drive, hardened, suitable for holder according to DIN 3126-F6.3/ISO 1173
Size: hex 3 x 50 mm

Accessories		
Type	Order No.	Pcs. / Pkt.
CES-B10-WRG-BK	0801725	10
CES-B16-WRG-BK	0801726	10
CES-B24-WRG-BK	0801727	10



Sealing frame with screw locking



Snap-on frame



Locking plates

Technical data
PA IP55 / IP65 (when using a CES-SRC../CES-LRC.. cone sleeve and a cable binder)
2 Nm ... 4 Nm (Locking screw) V0 -40 ... 120

Technical data
PA IP54 / IP55 (when using a CES-B...-SFFS-PLBK sealing frame with screw locking) IP65 (when using a CES-B...-SFFS-PLBK sealing frame with screw locking and a cone sleeve with cable binder)
- V0 -20 ... 80

Technical data
Steel, galvanized
- - -

Ordering data		
Type	Order No.	Pcs. / Pkt.
CES-B10-SFFS-PLBK	0801660	1
CES-B16-SFFS-PLBK	0801659	1
CES-B24-SFFS-PLBK	0801658	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
CES-B10-SF-PLBK	0801655	10
CES-B16-SF-PLBK	0801651	10
CES-B24-SF-PLBK	0801647	10

Ordering data		
Type	Order No.	Pcs. / Pkt.
CES-B10-SFC-M	0801645	10
CES-B16-SFC-M	0801642	10
CES-B24-SFC-M	0801641	10

Accessories		
Type	Order No.	Pcs. / Pkt.
CES-B10-WRG-BK	0801725	10
CES-B16-WRG-BK	0801726	10
CES-B24-WRG-BK	0801727	10
CES-SFFS-H	0801728	10
SF-M BH	1212070	1
SF-BIT-HEX 3-50	1212647	5

Accessories		
Type	Order No.	Pcs. / Pkt.

Accessories		
Type	Order No.	Pcs. / Pkt.

Installation and mounting material

CES cable entry system

Cable sleeves, rubber

- Significantly improved long-term performance
- Resistant to oil, fuels, and grease
- Halogen-free

Notes:
The CES cable entry system was developed according to DIN EN 50262 (Cable glands for electrical installations).
The cable sleeves must be mounted in accordance with the mounting instructions provided.



Cable sleeves, small

Cable sleeves, large

General data			Technical data			Technical data		
Material			NBR			NBR		
Degree of protection			IP54 / IP55 (when using a CES-B...-SFFS-PLBK sealing frame with screw locking)			IP54 / IP55 (when using a CES-B...-SFFS-PLBK sealing frame with screw locking)		
Temperature range		[°C]	-40 ... 80			-40 ... 80		
Description			Ordering data			Ordering data		
Cone-shaped cable sleeves , IP65 in sealing frames with screw locking and cable binders, IP54 in sealing frames with locking latch. For cables with a diameter of:	Color		Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
2 - 11 mm	black		CES-SRC-BK	0801718	10	CES-LRC-BK	0801719	10
7 - 24 mm	black							
Cable sleeves, IP65, without bore hole , can be used in sealing frames with locking latch and screw locking	black		CES-SRG-BK	0801670	10	CES-LRG-BK	0801671	10
Cable sleeves, small, slotted , can be used in sealing frames with locking latch and screw locking, for cable diameter of:								
1 - 2 mm	black		CES-SRG-BK-2	0801635	10			
2 - 3 mm	black		CES-SRG-BK-3	0801633	10			
3 - 4 mm	black		CES-SRG-BK-4	0801632	10			
4 - 5 mm	black		CES-SRG-BK-5	0801630	10			
5 - 6 mm	black		CES-SRG-BK-6	0801628	10			
6 - 7 mm	black		CES-SRG-BK-7	0801627	10			
7 - 8 mm	black		CES-SRG-BK-8	0801625	10			
8 - 9 mm	black		CES-SRG-BK-9	0801622	10			
9 - 10 mm	black		CES-SRG-BK-10	0801620	10			
10 - 11 mm	black		CES-SRG-BK-11	0801618	10			
11 - 12 mm	black		CES-SRG-BK-12	0801617	10			
12 - 13 mm	black		CES-SRG-BK-13	0801616	10			
13 - 14 mm	black		CES-SRG-BK-14	0801615	10			
14 - 15 mm	black		CES-SRG-BK-15	1410563	10			
15 - 16 mm	black		CES-SRG-BK-16	1410576	10			
16 - 17 mm	black		CES-SRG-BK-17	1410589	10			
Cable sleeves, large, slotted , can be used in sealing frames with locking latch and screw locking, for cable diameter of:								
14 - 15 mm	black					CES-LRG-BK-15	0801619	10
15 - 16 mm	black					CES-LRG-BK-16	0801621	10
16 - 17 mm	black					CES-LRG-BK-17	0801624	10
17 - 18 mm	black					CES-LRG-BK-18	0801626	10
18 - 19 mm	black					CES-LRG-BK-19	0801629	10
19 - 20 mm	black					CES-LRG-BK-20	0801631	10
20 - 21 mm	black					CES-LRG-BK-21	0801634	10
21 - 22 mm	black					CES-LRG-BK-22	0801637	10
22 - 23 mm	black					CES-LRG-BK-23	0801638	10
23 - 24 mm	black					CES-LRG-BK-24	0801639	10
24 - 25 mm	black					CES-LRG-BK-25	0801640	10
25 - 26 mm	black					CES-LRG-BK-26	0801643	10
26 - 27 mm	black					CES-LRG-BK-27	0801644	10
27 - 28 mm	black					CES-LRG-BK-28	0801646	10
28 - 29 mm	black					CES-LRG-BK-29	0801648	10
29 - 30 mm	black					CES-LRG-BK-30	0801650	10
30 - 31 mm	black					CES-LRG-BK-31	0801653	10
31 - 32 mm	black					CES-LRG-BK-32	0801654	10
32 - 33 mm	black					CES-LRG-BK-33	0801656	10

Cable sleeves, rubber, special formats

- Significantly improved long-term performance
- Resistant to oil, fuels, and grease
- Halogen-free

Notes:
The CES cable entry system was developed according to DIN EN 50262 (Cable glands for electrical installations).
The cable sleeves must be mounted in accordance with the mounting instructions provided.



Cable sleeves, small, with several bore holes



Cable sleeves, small, for AS-Interface cables

General data		Technical data			Technical data		
Material		NBR		NBR			
Degree of protection		IP54 / IP55 (when using a CES-B...-SFFS-PLBK sealing frame with screw locking)		IP54			
Temperature range	[°C]	-40 ... 80		-40 ... 80			
Description		Ordering data			Ordering data		
	Color	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Cable sleeves, with 2 bore holes, small, slotted , can be used in sealing frames with locking latch and screw locking, for cable diameter of:							
2 x 2 mm ... 3 mm	black	CES-SRG-BK-2X3	1410398	10			
2 x 3 mm ... 4 mm	black	CES-SRG-BK-2X4	1410408	10			
2 x 4 mm ... 5 mm	black	CES-SRG-BK-2X5	0801657	10			
2 x 5 mm ... 6 mm	black	CES-SRG-BK-2X6	0801664	10			
2 x 6 mm ... 7 mm	black	CES-SRG-BK-2X7	1410084	10			
2 x 7 mm ... 8 mm	black	CES-SRG-BK-2X8	1410097	10			
2 x 8 mm ... 9 mm	black	CES-SRG-BK-2X9	1410411	10			
Cable sleeves, with 4 bore holes, small, slotted , can be used in sealing frames with locking latch and screw locking, for cable diameter of:							
4 x 2 mm ... 3 mm	black	CES-SRG-BK-4X3	0801665	10			
4 x 3 mm ... 4 mm	black	CES-SRG-BK-4X4	0801666	10			
4 x 4 mm ... 5 mm	black	CES-SRG-BK-4X5	1410107	1			
4 x 5 mm ... 6 mm	black	CES-SRG-BK-4X6	1410152	1			
Cable sleeve, IP54, slotted, for one AS-Interface cable, cable arrangement:							
L	black				CES-SRG-BK-1ASI-L	1410042	10
R	black				CES-SRG-BK-1ASI-R	0801667	10
Cable sleeve, IP54, slotted, for two AS-Interface cables, cable arrangement:							
LL	black				CES-SRG-BK-2ASI-LL	1410055	10
RR	black				CES-SRG-BK-2ASI-RR	0801668	10
LR	black				CES-SRG-BK-2ASI-LR	0801669	10

Installation and mounting material

CES cable entry system

Cable sleeves, thermoplastics

- Thermoplastic sleeves exhibit a low level of flammability according to UL 94 V0
- They have a high level of resistance to acids and lyes

Notes:
The CES cable entry system was developed according to DIN EN 50262 (Cable glands for electrical installations).
The cable sleeves must be mounted in accordance with the mounting instructions provided.



Cable sleeves, small



Cable sleeves, large

			Technical data			Technical data		
General data								
Material			SEBS			SEBS		
Degree of protection			IP54 / IP55 (when using a CES-B...SFFS-PLBK sealing frame with screw locking)			IP54 / IP55 (when using a CES-B...SFFS-PLBK sealing frame with screw locking)		
Inflammability class according to UL 94			V0			V0		
Temperature range		[°C]	-40 ... 80			-40 ... 80		
			Ordering data			Ordering data		
Description	Color		Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Cable sleeves, small, slotted , can be used in sealing frames with locking latch and screw locking, for cable diameter of:								
1 - 2 mm	gray		CES-STPG-GY-2	0801672	10			
2 - 3 mm	gray		CES-STPG-GY-3	0801673	10			
3 - 4 mm	gray		CES-STPG-GY-4	0801674	10			
4 - 5 mm	gray		CES-STPG-GY-5	0801675	10			
5 - 6 mm	gray		CES-STPG-GY-6	0801676	10			
6 - 7 mm	gray		CES-STPG-GY-7	0801677	10			
7 - 8 mm	gray		CES-STPG-GY-8	0801679	10			
8 - 9 mm	gray		CES-STPG-GY-9	0801680	10			
9 - 10 mm	gray		CES-STPG-GY-10	0801682	10			
10 - 11 mm	gray		CES-STPG-GY-11	0801683	10			
11 - 12 mm	gray		CES-STPG-GY-12	0801684	10			
12 - 13 mm	gray		CES-STPG-GY-13	0801685	10			
13 - 14 mm	gray		CES-STPG-GY-14	0801686	10			
14 - 15 mm	gray		CES-STPG-GY-15	1410521	10			
15 - 16 mm	gray		CES-STPG-GY-16	1410534	10			
16 - 17 mm	gray		CES-STPG-GY-17	1410547	10			
Cable sleeves, large, slotted , can be used in sealing frames with locking latch and screw locking, for cable diameter of:								
14 - 15 mm	gray					CES-LTPG-GY-15	0801687	10
15 - 16 mm	gray					CES-LTPG-GY-16	0801688	10
16 - 17 mm	gray					CES-LTPG-GY-17	0801689	10
17 - 18 mm	gray					CES-LTPG-GY-18	0801690	10
18 - 19 mm	gray					CES-LTPG-GY-19	0801691	10
19 - 20 mm	gray					CES-LTPG-GY-20	0801692	10
20 - 21 mm	gray					CES-LTPG-GY-21	0801693	10
21 - 22 mm	gray					CES-LTPG-GY-22	0801695	10
22 - 23 mm	gray					CES-LTPG-GY-23	0801696	10
23 - 24 mm	gray					CES-LTPG-GY-24	0801697	10
24 - 25 mm	gray					CES-LTPG-GY-25	0801698	10
25 - 26 mm	gray					CES-LTPG-GY-26	0801699	10
26 - 27 mm	gray					CES-LTPG-GY-27	0801700	10
27 - 28 mm	gray					CES-LTPG-GY-28	0801701	10
28 - 29 mm	gray					CES-LTPG-GY-29	0801702	10
29 - 30 mm	gray					CES-LTPG-GY-30	0801703	10
30 - 31 mm	gray					CES-LTPG-GY-31	0801705	10
31 - 32 mm	gray					CES-LTPG-GY-32	0801706	10
32 - 33 mm	gray					CES-LTPG-GY-33	0801707	10
Cable sleeves, IP65, without bore hole , can be used in sealing frames with locking latch and screw locking								
	gray		CES-STPG-GY	0801715	10	CES-LTPG-GY	0801716	10

Cable sleeves, thermoplastics, special formats

- Thermoplastic sleeves exhibit a low level of flammability according to UL 94 V0
- They have a high level of resistance to acids and lyes

Notes:
The CES cable entry system was developed according to DIN EN 50262 (Cable glands for electrical installations).
The cable sleeves must be mounted in accordance with the mounting instructions provided.



Cable sleeves, small, with several bore holes



Cable sleeves, small, for AS-Interface cables

General data		Technical data			Technical data		
Material		SEBS		SEBS			
Degree of protection		IP54 / IP55 (when using a CES-B...-SFFS-PLBK sealing frame with screw locking)		IP54			
Inflammability class according to UL 94		V0		V0			
Temperature range	[°C]	-40 ... 80		-40 ... 80			
Description		Ordering data			Ordering data		
	Color	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Cable sleeves, with 2 bore holes, small, slotted , can be used in sealing frames with locking latch and screw locking, for cable diameter of:							
2 x 2 mm ... 3 mm	gray	CES-STPG-GY-2X3	1410424	10			
2 x 3 mm ... 4 mm	gray	CES-STPG-GY-2X4	1410438	10			
2 x 4 mm ... 5 mm	gray	CES-STPG-GY-2X5	0801708	10			
2 x 5 mm ... 6 mm	gray	CES-STPG-GY-2X6	0801709	10			
2 x 6 mm ... 7 mm	gray	CES-STPG-GY-2X7	1410110	10			
2 x 7 mm ... 8 mm	gray	CES-STPG-GY-2X8	1410123	10			
2 x 8 mm ... 9 mm	gray	CES-STPG-GY-2X9	1410440	10			
Cable sleeves, with 4 bore holes, small, slotted , can be used in sealing frames with locking latch and screw locking, for cable diameter of:							
4 x 2 mm ... 3 mm	gray	CES-STPG-GY-4X3	0801710	10			
4 x 3 mm ... 4 mm	gray	CES-STPG-GY-4X4	0801711	10			
4 x 4 mm ... 5 mm	gray	CES-STPG-GY-4X5	1410136	10			
4 x 5 mm ... 6 mm	gray	CES-STPG-GY-4X6	1410149	10			
Cable sleeve, IP54, slotted, for one AS-Interface cable, cable arrangement:							
L	gray				CES-STPG-GY-1ASI-L	1410068	10
R	gray				CES-STPG-GY-1ASI-R	0801712	10
Cable sleeve, IP54, slotted, for two AS-Interface cables, cable arrangement:							
LL	gray				CES-STPG-GY-2ASI-LL	1410071	10
RR	gray				CES-STPG-GY-2ASI-RR	0801713	10
LR	gray				CES-STPG-GY-2ASI-LR	0801714	10

Installation and mounting material

CES cable entry system

Accessories, filler plugs, seals, replacement screws



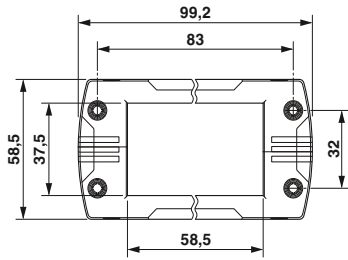
Diameter of 3 to 17 mm



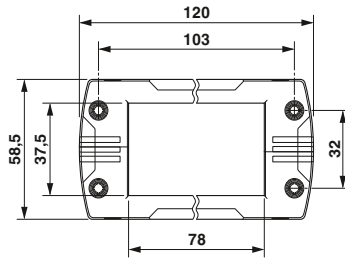
For mounting on CES sealing frames

		Technical data			Technical data		
General data							
Material		PA			Stainless steel		
Degree of protection		IP54 / IP55 (when using a CES-B...-SFFS-PLBK sealing frame with screw locking)			-		
Inflammability class according to UL 94		V0			-		
Temperature range	[°C]	-20 ... 80			-		
		Ordering data			Ordering data		
Description	Color	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Plugs , for closing unoccupied cable sleeves with a diameter of:							
2 mm	white	KDT-ST 2	1410220	25			
3 mm	white	KDT-ST 3	3063921	25			
4 mm	white	KDT-ST 4	3063934	25			
5 mm	white	KDT-ST 5	3063947	25			
6 mm	white	KDT-ST 6	3063950	25			
7 mm	white	KDT-ST 7	3063963	25			
8 mm	white	KDT-ST 8	3063976	25			
9 mm	white	KDT-ST 9	3063989	25			
10 mm	white	KDT-ST 10	3063992	25			
11 mm	white	KDT-ST 11	3064001	25			
12 mm	white	KDT-ST 12	3062016	25			
13 mm	white	KDT-ST 13	3062029	25			
14 mm	white	KDT-ST 14	3062032	25			
15 mm	white	KDT-ST 15	3062045	25			
16 mm	white	KDT-ST 16	3062058	25			
17 mm	white	KDT-ST 17	3062061	25			
EMC cable catch rail , for mounting on the longitudinal side of CES sealing frame CES-B16...					KEL-EMV 16-4	3063507	5
EMC cable catch rail , for mounting on the longitudinal side of CES sealing frame CES-B24...					KEL-EMV 24-5	3063510	5
EMC cable catch rail , for mounting on the diagonal side of CES sealing frames CES-B16... and CES-24...					KEL-EMV-F	3063523	5

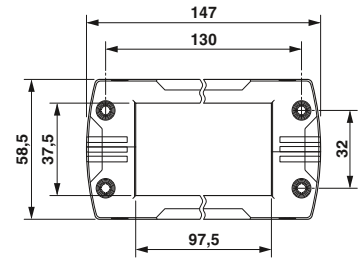
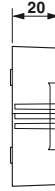
**Dimensional drawings
CES... sealing frame**



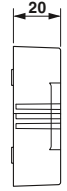
CES-B10-HFFS-PLBK
CES-B10-SFFS-PLBK



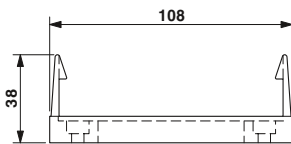
CES-B16-HFFS-PLBK
CES-B16-SFFS-PLBK



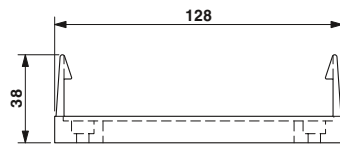
CES-B24-HFFS-PLBK
CES-B24-SFFS-PLBK



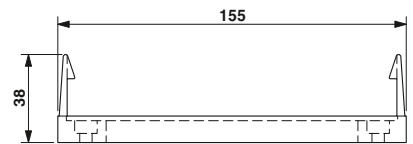
**Dimensional drawings
CES... snap-on frame**



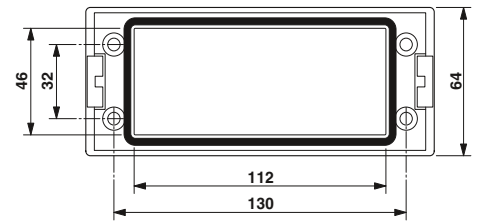
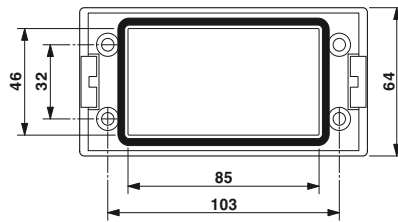
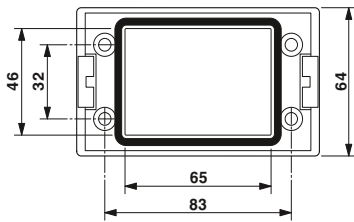
CES-B10-SF-PLBK



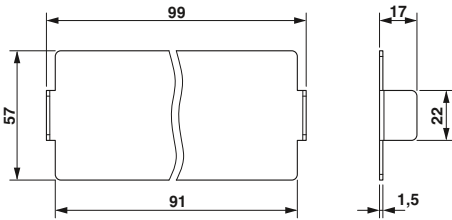
CES-B16-SF-PLBK



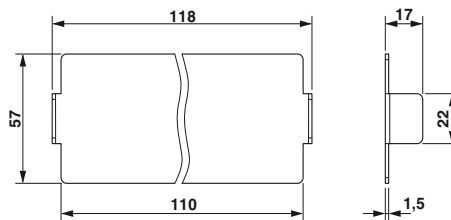
CES-B24-SF-PLBK



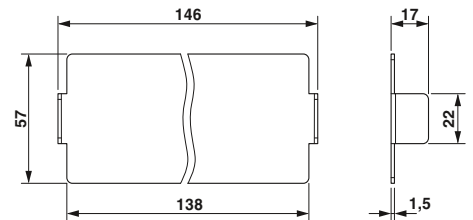
**Dimensional drawings
CES... locking plate**



CES-B10-SFC-M



CES-B16-SFC-M



CES-B24-SFC-M

Installation and mounting material

Cable feed-throughs

Cable feed-throughs



The cable feed-throughs enable IP54-rated sealing when leading pre-assembled cables into the control cabinet.

This is done by pushing the slotted sleeves over the cable, positioning them, and placing them in the cable feed-through housing.

Unused feed-through positions are filled with filler plugs.



Cable feed-throughs/cable

Material data	
Material	PC; gray similar to RAL 7044
Inflammability class according to UL 94	V0
Degree of protection	IP54
Temperature data	
Ambient temperature (operation)	-40 °C ... 125 °C

Technical data	
Material	Thermoplastic rubber
Inflammability class according to UL 94	HB
Degree of protection	IP54
Temperature data	
Ambient temperature (operation)	-40 °C ... 125 °C

Description

Cable feed-through, for plug-in connector housing:

HC-B16-AMQ (Order No. 1771587)

HC-B24-AMQ (Order No. 1771927)

Cable feed-through sleeves, for insertion in the cable feed-through, for cable diameters:

3 mm - 4 mm
 4 mm - 5 mm
 5 mm - 6 mm
 6 mm - 7 mm
 7 mm - 8 mm
 8 mm - 9 mm
 9 mm - 10 mm

Cable feed-through sleeves, for insertion in the cable feed-through, in addition to the strain relief, a cable binder can be used, for cable diameters:

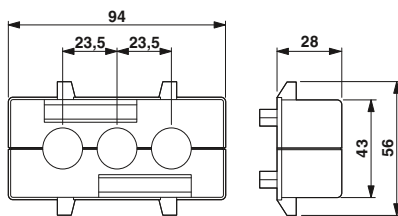
10 mm - 11 mm
 11 mm - 12 mm
 12 mm - 13 mm
 13 mm - 14 mm
 14 mm - 15 mm
 15 mm - 16 mm

Filler plug, to close the unused openings of the HC-KD/SG-... cable feed-through

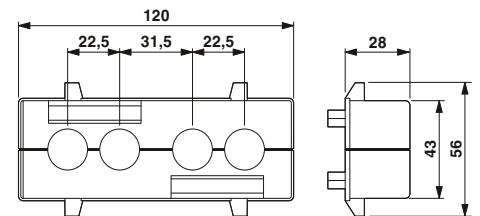
Marker tags, 5-section, unprinted, labeling with X-PEN, M-PEN, plotter or BKMT 20 x 8 label

Ordering data

Type	Order No.	Pcs. / Pkt.
HC-KD/SG 16/ 3	1644012	1
HC-KD/SG 24/ 4	1644025	1
HC-KDT 3-4	1644038	10
HC-KDT 4-5	1644041	10
HC-KDT 5-6	1644054	10
HC-KDT 6-7	1644067	10
HC-KDT 7-8	1644070	10
HC-KDT 8-9	1644083	10
HC-KDT 9-10	1644093	10
HC-KDT 10-11	1644106	10
HC-KDT 11-12	1644119	10
HC-KDT 12-13	1644122	10
HC-KDT 13-14	1644135	10
HC-KDT 14-15	1644148	10
HC-KDT 15-16	1644151	10
HC-KDG-B	1644164	10



HC-KD/SG 16/ 3



HC-KD/SG 24/ 4

Cable glands for data plug-in connectors



In plant and mechanical engineering, it is often necessary to route cables with pre-assembled data plug-in connectors through a control cabinet panel. The HEAVYCON HC-KD/... cable feed-throughs use the standard panel cutout of the heavy-duty plug-in connectors. An alternative to this is the use of the classical screw connection principle. With the KV-M-M50-GD... cable gland, data plug-in connectors with diameters of up to 42 mm (inside diameter of screw connection) can be routed through the control cabinet panel.

Assembly is quick and easy:

- Screw M50 screw connection gland into the control cabinet panel
- Thread the plug-in connector with the cable through the gland and union nut (Ø plug-in connector ≤ inside diameter)
- Fit the two halves of the seal around the cable
- Screw the union nut tight
- And you're done!

Screw connections for other cable diameters are available on request.

The seal is divided along the axis of the hole.



Cable gland with divided seal

Material data	
Cable gland material	Nickel-plated brass
Seal material	TPE
Material, O-ring	NBR
Material, pressure screw	Nickel-plated brass
Degree of protection	IP65
Temperature data	
Ambient temperature (operation)	-40 °C ... 125 °C

Technical data

Cable gland material	Nickel-plated brass
Seal material	TPE
Material, O-ring	NBR
Material, pressure screw	Nickel-plated brass
Degree of protection	IP65
Temperature data	
Ambient temperature (operation)	-40 °C ... 125 °C

Description

Cable gland, panel feed-through for data plug-in connectors, M50 thread, with divided seal, for 1 cable, hole diameter: 8 mm, inside diameter: 37 mm

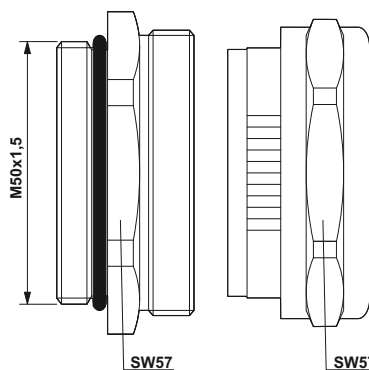
Cable gland, panel feed-through for data plug-in connectors, M50 thread, with divided seal, for 1 cable, hole diameter: 10 mm, inside diameter: 37 mm

Cable gland, panel feed-through for data plug-in connectors, M50 thread, with divided seal, for 2 cables, hole diameter: 6 mm, inside diameter: 37 mm

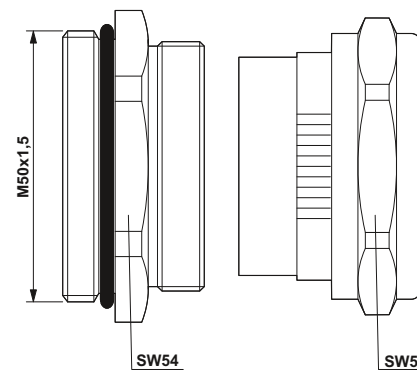
Cable gland, panel feed-through for data plug-in connectors, M50 thread, with divided seal, for 2 cables, hole diameter: 6 mm, inside diameter: 42 mm

Ordering data

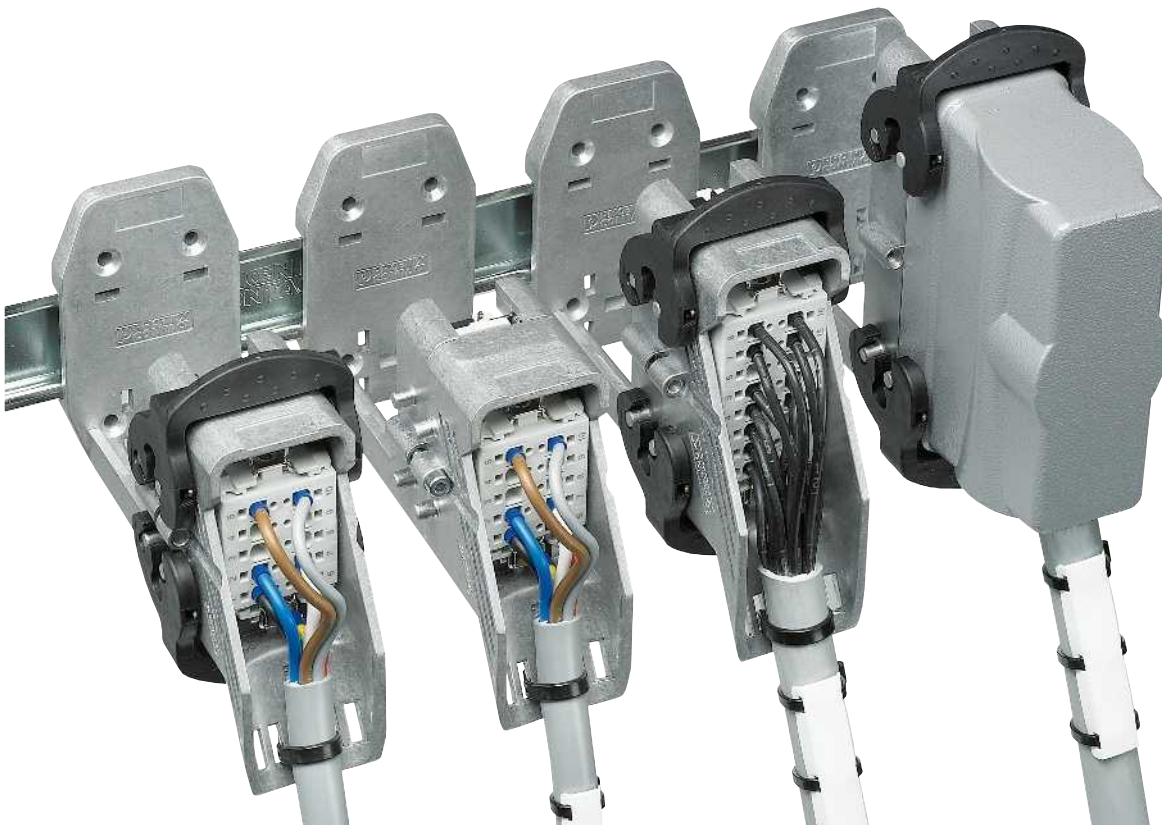
Type	Order No.	Pcs. / Pkt.
KV-M-M50-GD-(8)	1636509	5
KV-M-M50-GD-(10)	1636512	5
KV-M-M50-GD-(2X6)	1636525	5
KV-M-M50-GD-(2X9)	1636538	5



KV-M-M50-GD-(2x9)



KV-M-M50-GD-(8); ...-GD-(10); ...-GD-(2x6)



Base frame for screw locking



Base frame with locking latch



Compatible with standard HEAVYCON housing



The open base frame enables easy mounting of pre-assembled contact inserts



The U-shaped side profile can be used as a cable duct



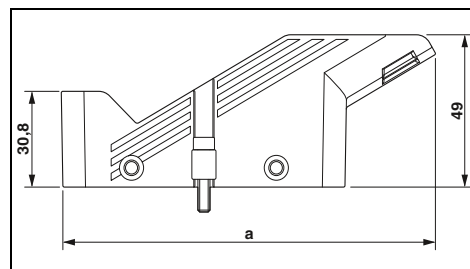
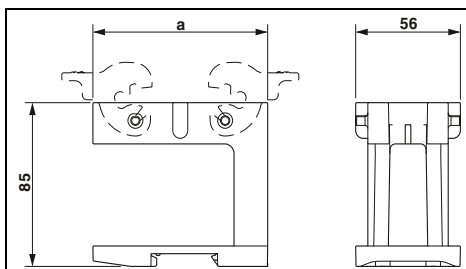
The usual coding and guide elements can be used with the standard IP65 housing

Advantages:

- For standard HEAVYCON contact inserts on NS35/7,5 DIN rail
- Robust die-cast aluminum housing
- Base frame for pre-assembled contact inserts
- Cable duct function
- Grounding for DIN rail
- Coding function



Notes:
The bridging function of the aluminum design ensures that there is a capacitive PE.
Stainless steel locking latch, handle: PA-GF
On delivery, there is no pre-assembled bracket (HC-CIF..BF-WD..). The bracket is assembled after the contact insert.



Material data
Material
Tightening torque
Temperature data
Ambient temperature (operation)

Technical data
Die-cast aluminum, uncoated
-
-40 °C ... 125 °C

Technical data
Die-cast aluminum, uncoated
2 Nm (Locking screw)
-40 °C ... 125 °C

Description	Design
Base frame, with double locking latch	
a = 93.5 mm	For B10
a = 93.5 mm	For B16
a = 120.0 mm	For B24
Base frame, without double locking latch, for screw locking	
a = 120.0 mm	For 2 x B6
a = 93.5 mm	For B10
a = 93.5 mm	For B16
a = 120.0 mm	For B24
Top frame, for double locking latch and with locking screws as an option, Allen screw, WAF 3	
a = 150.2 mm	For 2 x B6
a = 103.2 mm	For B10
a = 123.7 mm	For B16
a = 150.2 mm	For B24

Ordering data		
Type	Order No.	Pcs. / Pkt.
HC-CIF-B10-BFWD-FH-AL	1404220	1
HC-CIF-B16-BFWD-FH-AL	1404217	1
HC-CIF-B24-BFWD-FH-AL	1404212	1
HC-CIF-2B6-BFFD-FH-AL	1404214	1
HC-CIF-B10-BFFD-FH-AL	1404219	1
HC-CIF-B16-BFFD-FH-AL	1404216	1
HC-CIF-B24-BFFD-FH-AL	1404211	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
HC-CIF-2B6-HFFD-WH-AL	1404215	1
HC-CIF-B10-HFFD-WH-AL	1404221	1
HC-CIF-B16-HFFD-WH-AL	1404218	1
HC-CIF-B24-HFFD-WH-AL	1404213	1

Bit screwdriver, with 1/4" quick-action chuck, suitable for bits according to DIN 3126-C 6.3 and E 6.3/ISO 1173, magnetic
Screw bit, hexagonal, E6.3-1/4" drive, hardened, suitable for holder according to DIN 3126-F6.3/ISO 1173
Size: hex 3 x 50 mm

Accessories		
Type	Order No.	Pcs. / Pkt.
SF-M BH	1212070	1
SF-BIT-HEX 3-50	1212647	5

Accessories		
Type	Order No.	Pcs. / Pkt.

Installation and mounting material

Service interfaces

Mounting frame, front plates and socket inserts

Notes:
For RJ45 socket inserts, see page 622

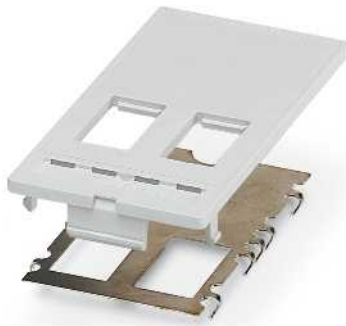


EMC mounting frame for front plates



Mounting frame for front plates

	Technical data			Technical data		
Electrical data	VS-SI-EB-EMV-...			SI-M...		
Rated voltage	-			-		
Rated current	-			-		
Housing material	Zinc alloy			PBT		
Inflammability class according to UL 94	V0			V0		
Degree of protection	IP65			IP65		
Connection method	-			-		
Conductor cross section	-			-		
Connection cross section AWG	-			-		
Ambient temperature (operation)	-10 °C ... 60 °C			-30 °C ... 70 °C		
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Mounting frame , metal frame, matt nickel-plated, electrically conductive, transparent cover						
Single	VS-SI-EB-EMV-1	1656482	1	SI-M1A	1404493	1
Double	VS-SI-EB-EMV-2	1656495	1	SI-M1B	1404494	1
Mounting frame , black, transparent PC plastic cover, closed with 3 mm two-way key bit						
Single				SI-M1A-T	1407586	1
Double				SI-M1B-T	1407587	1
Mounting frame , black, transparent PC plastic cover, closed with turn knob						
Single				SI-M1A-ML	1407588	1
Double				SI-M1B-ML	1407589	1
Mounting frame , black, metallic ABS plastic cover, closed with 3 mm two-way key bit						
Single				SI-M1A-MT	1407590	1
Double				SI-M1B-MT	1407591	1
Mounting frame , black, metallic ABS plastic cover, closed with turn knob						
Single				SI-M1A-GL	1407592	1
Double				SI-M1B-GL	1407593	1
Mounting frame , black, gray PBT plastic cover, closed with 3 mm two-way key bit						
Single				SI-M1A-GT	1407594	1
Double				SI-M1B-GT	1407595	1
Mounting frame , black, gray PBT plastic cover, closed with turn knob						
Single						
Double						
Front plate						
2 x RJ (with shroud)						
2 x D-SUB 09						
1 x D-SUB 09, 1 x D-SUB 15						
1 x D-SUB 09, 1 x D-SUB 25						
2 x D-SUB 15						
1 x D-SUB 15, 1 x D-SUB 25						
2 x D-SUB 25						
Socket inserts						
Germany						
Germany, yellow						
USA						
France						
Great Britain						
Italy						
	Accessories			Accessories		
Marker labels , for identifying mounting frames and front plates, one sheet of 20 labels	VS-SI-BZ	1656660	1	VS-SI-BZ	1656660	1
Dummy plate , plastic				VS-SI-FP-BP	1656657	1



Front plate,
without contact inserts



Data front plate with contact inserts
RJ45 (socket to socket),
D-SUB (socket to plug)



Socket inserts

Technical data	
VS-SI-FP-2RJ-MOD	
-	
-	
PBT	
V0	
-	
-	
-	
-10 °C ... 60 °C	

Technical data	
VS-SI-FP...RJ45...	VS-SI-FP...DSUB...
50 V	125 V
1 A	3 A
PBT	PBT
V0	V0
IP20	IP20
-	-
-	-
-10 °C ... 60 °C	-10 °C ... 60 °C

Technical data	
VS-SI-SD-DE	VS-SI-SD-USA
250 V	125 V
16 A	15 A
PA	PA
V0	V0
IP20	IP20
Screw connection	Spade connection
2.5 mm ²	2.5 mm ²
14	14
-10 °C ... 60 °C	-10 °C ... 60 °C

Ordering data		
Type	Order No.	Pcs. / Pkt.
VS-SI-FP-2RJ-MOD	1656631	1
VS-SI-FP-2DSUB9	1656563	1
VS-SI-FP-DSUB9-DSUB15	1656576	1
VS-SI-FP-DSUB9-DSUB25	1656589	1
VS-SI-FP-2DSUB15	1656592	1
VS-SI-FP-DSUB15-DSUB25	1656602	1
VS-SI-FP-2DSUB25	1656615	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
VS-SI-FP-2RJ45-5-MOD-BU/BU	1657766	1
VS-SI-FP-2DSUB9-GC-BU/ST	1657708	1
VS-SI-FP-DSUB9-DSUB15-GC-BU/ST	1657711	1
VS-SI-FP-DSUB9-DSUB25-GC-BU/ST	1657724	1
VS-SI-FP-2DSUB15-GC-BU/ST	1657737	1
VS-SI-FP-DSUB15DSUB25-GC-BU/ST	1657740	1
VS-SI-FP-2DSUB25-GC-BU/ST	1657753	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
VS-SI-SD-DE	1656505	1
VS-SI-SD-DE-G	1656518	1
VS-SI-SD-USA	1656521	1
VS-SI-SD-FR	1656534	1
VS-SI-SD-GB	1656547	1
VS-SI-SD-IT	1656550	1

Accessories		

Accessories		

Accessories		

Installation and mounting material

Service interfaces

Data front plates, service sockets, and programming interfaces



Front plates



Service sockets

	Technical data			Technical data		
Material data						
Housing material	PBT			PA		
Mechanical data						
Degree of protection	IP20			IP65		
Temperature data						
Ambient temperature (operation)	-10 °C ... 60 °C			-25 °C ... 70 °C		
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Front plate , with the following contact inserts:						
D-SUB9	SI-FP-D1A	1404501	1			
D-SUB9, D-SUB9-BP	SI-FP-D1D-D1E	1404509	1			
2 x D-SUB9	SI-FP-2D1D	1404510	1			
D-SUB9, D-SUB9, RJ45	SI-FP-R1A-D1A-D1C	1404507	1			
D-SUB9, RJ45	SI-FP-R1A-D1A	1404496	1			
D-SUB9, D-SUB25, RJ45	SI-FP-R1A-D1B-D3B	1404502	1			
D-SUB9, RJ45, USB with 0.7 m cable	SI-FP-R1A-D1B-U1A/0,7	1404504	1			
D-SUB9 BP, RJ45	SI-FP-R1A-D1E	1404500	1			
RJ45, RJ12, 2 x USB	SI-FP-R1A-R2A-2U1A	1404503	1			
RJ45, USB	SI-FP-R1A-U1A	1404499	1			
RJ45, USB with 0.7 m cable	SI-FP-R1A-U1A/0,7	1404512	1			
D-SUB9, RJ45, USB	SI-FP-R1A-U1A-D1A	1404497	1			
D-SUB9, RJ45, USB	SI-FP-R1A-U1A-D1B	1404495	1			
2 x RJ45, USB	SI-FP-2R1A-U1A	1404506	1			
USB	SI-FP-U1A	1404505	1			
Service sockets						
RJ45				SI-SES-R1A	1404513	1
USB with 0.6 m cable				SI-SES-U1A/0,6	1404514	1
USB with 1.0 m cable				SI-SES-U1A/1	1404515	1
Programming interface for HEAVYCON panel mounting base, with:						
2 x RJ45 gender changers						
2 x USB (A), D-SUB15						
RJ45						
RJ45, RJ11						
RJ45, socket insert USA						
RJ45, socket insert USA 3A						
USB (A)						



Programming interfaces

Technical data

Aluminum, die-cast

IP54

-35 °C ... 65 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
SI-PP-2R1A	1404520	1
SI-PP-2U1A-D2A	1404519	1
SI-PP-R1A	1404517	1
SI-PP-R1A-R3A	1404521	1
SI-PP-R1A-S0A	1404516	1
SI-PP-R1A-S0B	1404518	1
SI-PP-U1A	1404522	1

Service interfaces

Front plate and socket inserts (Freenet system)



Front plate
with two Freenet slots

Ethernet



RJ45 socket inserts,
Freenet system

	Technical data			Technical data		
	VS-SI-FP-2F			VS-08-BU/BU-RJ45-F	VS-08-BU-RJ45-6-F/PK	
Electrical data						
Rated voltage	-			50 V	50 V	
Rated current	-			1 A	1 A	
Transmission speed	-			1 Gbps	-	
Transmission characteristics (category)	-			CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT6	
Material data						
Housing material	PBT			-	-	
Contact material	-			Copper alloy	Copper alloy	
Contact surface material	-			Gold over nickel	Gold over nickel	
Contact carrier material	-			PC	PC	
Ferrule material	-			-	-	
Inflammability class according to UL 94	V0			V0	V0	
Mechanical data						
No. of pos.	-			8	8	
Pollution degree	-			1	1	
Degree of protection	IP20			IP20	IP20	
Connection method	-			IDC	IDC	
Conductor cross section	-			0.2 mm ² ... 0.32 mm ² (solid)	0.14 mm ² ... 0.35 mm ²	
Connection cross section AWG	-			24 ... 22 (solid)	26 ... 22 (7-wire)	
Fiber type	-			-	-	
Insertion/withdrawal cycles	-			≥ 750	≥ 750	
Temperature data						
Ambient temperature (operation)	-10 °C ... 60 °C			-20 °C ... 70 °C	-20 °C ... 70 °C	
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Front plate						
RJ45 Freenet socket insert , 8-pos., shielded, socket to socket	VS-SI-FP-2F	1658532	1			
1 Gbps, CAT5				VS-08-BU/BU-RJ45-F	1405617	1
RJ45 Freenet socket insert , 8-pos., shielded, with cable connection						
1 Gbps, CAT5				VS-08-BU-RJ45-5-F/PK	1652936	1
SCRJ coupling , for VS-TO-... terminal outlets and VS-PP-19-1HE-16-F 19" patch panels and VS-SI-FP-2F front plate						
USB socket insert , 4-pos., USB socket type A to USB socket type B, can be plugged in both directions						
USB socket insert , 4-pos., socket to flat-ribbon cable terminal strip, 2.54 pitch						
Socket, type A						
Socket, type B						
	Accessories			Accessories		
Marker labels , for identifying mounting frames and front plates, one sheet of 20 labels	VS-SI-BZ	1656660	1			

Ethernet



SCRJ coupling



USB socket insert,
Freenet system

Technical data

VS-SCRJ-GOF-KU
-
-
-
-
PBT
-
-
-
Zirconia ceramics
V0
2
-
IP20
Coupling
-
-
GOF, HCS, POF
≥ 500
-25 °C ... 70 °C

Technical data

VS-04-BUA-BUB-F/IP67	VS-04-BUA-FK-F/IP67
30 V	30 V
1 A	1 A
480 Mbps	480 Mbps
USB 2.0	USB 2.0
PC	PC
Copper alloy	Copper alloy
Gold over nickel	Gold over nickel
Thermoplastic	PET
-	-
V0	V0
4	4
-	-
IP20	IP20
Socket, type B	Flat-ribbon cable connection, pitch 2.54 mm
-	-
-	-
-	-
≥ 1000	≥ 1000
-15 °C ... 65 °C	-15 °C ... 65 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-SCRJ-GOF-KU	1654358	1

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-04-BUA-BUB-F/IP67	1653838	1
VS-04-BUA-FK-F/IP67	1653854	1
VS-04-BUB-FK-F/IP67	1653867	1

Accessories

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Accessories

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Detailed information on marking systems, tools, and mounting material can be found in Catalog 5 or at www.phoenixcontact.net/products



Cable marking

The cables are supplied with marked marking collars. Suitable marking materials are available for each marking system.



Distributor box marking

High-quality marking materials for individual marking of distributor boxes are available for each marking system.



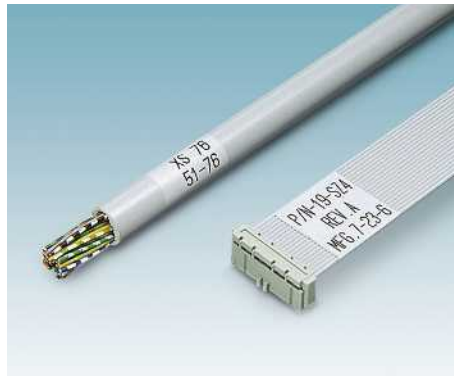
Plug-in connector marking

Marking materials ranging from adhesive labels to high-quality engraved labels are available for marking heavy-duty plug-in connectors.



Cable markers

Markers can be fitted using cable binders almost regardless of cable diameter. The large marking area provides enough space for comprehensive marking.



Cable marker labels

Cable marker labels consist of a marking field and a transparent film that protects the marking against abrasion and dirt.



Plastic cable markers

Plastic cable markers are suitable for bundling and marking cables. The marking is protected against dirt and can be replaced.



Protective hoses

Plastic hoses are resistant to oils, acids, and solvents, are free from silicone, halogen, and cadmium, and feature up to IP69K protection and inflammability class V0.



Highly flexible metal hoses

Highly flexible metal hoses can be used to protect cables against mechanical influences. Metal hoses with plastic coating are watertight and weatherproof.



Protective hose screw connections

Protective hose screw connections can be used to route any cables or single wires to a plug-in connector.

Quality in quantity



Integrated management system

The aim of the Phoenix Contact integrated management system is to coordinate all the requirements regarding products, processes, and organization.

Statutory and regulatory requirements, as well as those of international standards and our customers, are met and, in some cases, even exceeded in all phases of the product life cycle.

The Phoenix Contact management system is monitored by internationally recognized independent bodies each year to ensure that quality, environmental protection, and safety at the workplace have been integrated in conformity with the relevant requirements. Certification in accordance with international standards ISO 9001, ISO 14001, and BS OHSAS 18001 is the result of our corporate philosophy of meeting the needs of our customers, staff, and environment as fully as possible. They serve as the basis for innovative products with the familiar high Phoenix quality standard, actively practiced environmental protection, and responsibility in the field of occupational health and safety. Of course, we integrate all further requirements of standards, international approvals or special customer requirements into company processes.

This system provides a building block for the success of the Phoenix Contact Group and its products and services.

CE marking

The CE marking was introduced as an important instrument for the free movement of goods and services within the single European market. By attaching the mark to a product, the manufacturer confirms that it complies with all applicable European Union (EU) directives. EC directives describe the product properties with regard to device safety and avoiding danger. These are legally binding regulations of the European Union (EU). In other words, compliance with the requirements is a **statutory condition for marketing the**

product within the EU.

Where applicable, the products that our company currently manufactures fall within the scope of the following directives:

- 2006/95/EC
Electrical equipment designed for use within certain voltage limits (Low-Voltage Directive)
- 2004/108/EC
Electromagnetic compatibility (EMC Directive)
- 2006/42/EC
Safety of machinery (Machinery Directive)
- 94/9/EC
Equipment and protective systems intended for use in potentially explosive areas (ATEX Directive 100a)
- 1999/5/EC
Radio and telecommunications terminal equipment (R&TTE)

The standards upon which the specified directives are based, have been part of our standard of development for a long time. This guarantees conformance with European directives. The numbers of the directives indicate their version at the time of publication. In the event of changes to directives and/or standards, our products will undergo conformity assessment again in good time and a new declaration of conformity will be issued promptly. The current declarations for each product can also be found in our Download Center.

The EMC Directive occupies a special place among the European directives listed. It defines electromagnetic compatibility as a fundamental property of devices based on mandatory guidelines. European Law therefore acknowledges the electromagnetic compatibility of devices and systems as an important condition for error-free operation of machinery and systems. Phoenix Contact is one of the leading international companies in surge protection, and therefore possesses broad expertise in EMC. This expertise and the experience gained over years of developing and applying industrial interface and communication technology have resulted in our products having an extremely high standard of quality with regard to electromagnetic compatibility. It was with a view to providing other companies with this expertise that our associate company, Phoenix Testlab, was founded. Phoenix Testlab GmbH is an independent, accredited service provider offering EMC testing that conforms to European standards. At Phoenix Testlab, devices are also tested with regard to their electrical safety, mechanical influences, and their behavior in relation to environmental influences. Furthermore, Phoenix Testlab is a “Notified Body” in accordance with EMC Directive 2004/108/EC and according to R&TTE

Directive 1999/5/EC for radio and telecommunications terminal equipment. As a “Telecom Certification Body” (TCB), Phoenix Testlab may also approve these products for markets in the USA, Canada, and Japan.

Standards and regulations

All relevant standards and regulations are used as the basis for the development and maintenance of our products.

International standards are subject to continuous changes as a result of harmonization and new developments. In line with this process, the current version of all standards that are relevant to our products is documented in the product area on our website at www.phoenixcontact.net/products.

Online product information service on the web

Phoenix Contact's product range is growing constantly.

Due to our commitment to product monitoring, all products are subject to improvement.

The Internet is an ideal platform to quickly communicate new product developments and improvements to the market.

You can quickly access the relevant Phoenix Contact website for your region via www.phoenixcontact.com. Here, you will always find the latest overview of products, solutions, and services from Phoenix Contact. This includes technical documents, such as data sheets and user manuals, the latest driver and demo software, plus a means of contacting the appropriate contact person directly.

Note:

Subject to changes that serve the purpose of technical progress.

Connection cross section

The rated cross sections of modular terminal blocks must be specified by the manufacturer in accordance with IEC 60947-7-1. This refers to the conductor cross section that can be connected in single, multi or fine-strand versions. Specific thermal, mechanical, and electrical requirements relate to this cross section.

The manufacturer must also specify the **rated connection capacity**, i.e., the area of the conductor that can be connected, as well as the number of conductors that can be connected simultaneously and the necessary preparation of the conductor ends. The conductors can be **solid (single or multi-strand)** or **stranded (fine-strand)**.

These values can be found in the product-specific technical data.

The rated connection capacity of Phoenix Contact modular terminal blocks usually exceeds standard requirements, which specify that it must only be possible to connect one conductor with one of the two next smallest cross sections, excluding the rated cross section, (standardized for the cross section range from 0.2 to 35 mm²).

In addition, conductors with a rated cross section can usually be wired with ferrules with plastic sleeve.

Phoenix Contact modular terminal blocks are designed to allow copper cables to be connected to them untreated. "Special

treatment" or the use of ferrules – both permitted according to IEC 60947-7-1 – is not required. If ferrules are nevertheless used to protect stranded conductors against splicing, the connection capacity of the stranded conductor is generally reduced by one level.

Structure and dimensions of connecting cables													
Cross section [mm ²]	Single-strand		Multi-strand		Fine-strand		Gauge No.	American Wire Gauge [AWG]					
	Diameter Max. dimension	Number of wires	Diameter Max. dimension	Number of wires (minimum number)	Diameter Max. dimension	Number of wires (guide value)		AWG	[Ø mm]	Solid wires [circ. mils]	[mm ²]	[Ø mm]	Stranded wires [circ. mils]
0.2	0.5	1	-	-	-	-	24	0.51	404	0.21	-	-	-
0.5	0.9	1	1.1	7	1.1	16	20	0.81	1022	0.52	0.97	1111	0.56
0.75	1.0	1	1.2	7	1.3	24	18	1.02	1620	0.82	1.16	1600	0.82
1	1.2	1	1.4	7	1.5	32	(17)	1.15	2050	1.04	-	-	-
-	-	-	-	-	-	-	16	1.29	2580	1.31	1.50	2580	1.32
1.5	1.5	1	1.7	7	1.8	30	(15)	1.45	3260	1.65	-	-	-
-	-	-	-	-	-	-	14	1.63	4110	2.08	1.85	4100	2.09
2.5	1.9	1	2.2	7	2.3	50	(13)	1.83	5180	2.63	-	-	-
-	-	-	-	-	-	-	12	2.05	6530	3.31	2.41	6500	3.32
4	2.4	1	2.7	7	2.9	56	(11)	2.30	8230	4.17	-	-	-
-	-	-	-	-	-	-	10	2.59	10380	5.26	2.95	10530	5.37
6	2.9	1	3.3	7	3.9	84	(9)	2.91	13100	6.63	-	-	-
-	-	-	-	-	-	-	8	3.26	16510	8.37	3.73	16625	8.48
10	3.7	1	4.2	7	5.1	80	(7)	3.67	20800	10.56	4.15	20820	10.55
-	-	-	-	-	-	-	6	4.12	26240	13.30	4.67	26250	13.39
16	4.6	1	5.3	7	6.3	126	(5)	4.62	33100	16.77	5.24	33100	16.77
-	-	-	-	-	-	-	4	5.19	41740	21.15	5.90	41650	21.24
25	-	-	6.6	7	7.8	196	3	5.83	52600	26.67	6.61	52630	26.67
35	-	-	7.9	7	9.2	276	2	6.54	66360	33.62	7.42	66150	33.74
-	-	-	-	-	-	-	1	7.35	83690	42.41	8.33	83706	42.69
50	-	-	9.1	19	11	396	0	8.25	105600	53.51	9.35	104640	53.36
70	-	-	11	19	13.1	360	00	9.27	133100	67.44	10.52	132300	67.47

Tightening torque of terminal block screws

IEC 60947-1/EN 60947-1, modified, Table 4 specifies tightening torques for screw connections based on the type and size of screw for electrical and mechanical type tests. Tightening Phoenix Contact terminal blocks to this torque guarantees the reliable connection of the connected conductors. Other than this value, the technical product data in this catalog provides a practical range for the tightening torque, ensuring gas-tight and long-term reliable electrical contacts.

Extract from IEC 60947-1/EN 60947, Table 4

The torque according to IEC/EN and the recommended tightening torque for Phoenix Contact terminal blocks are specified.

Head screw with slot

Thread	Torque [Nm]	Recommended tightening torque	
		CuZn or CuSn screw [Nm]	Steel screw [Nm]
M2.5 (M2.6)	0.4	0.6	0.8
M3	0.5	0.8	1.0
M3.5	0.8	1.2	-
M4	1.2	1.8	2.0
M5	2.0	3	4.5
M6	2.5	4	8

Degrees of protection according to DIN EN 60529

Definition:

IP (Ingress Protection) protection according to DIN EN 60529 is defined by two digits (e.g., IP54), the meaning of which is explained in the following tables.

Degree of protection against access to dangerous parts and against solid foreign objects

First digit	Short description	Example	Definition
0	Not protected		
1	Protected against solid foreign objects		Protected against touching dangerous parts with the back of the hand. Protection against ingress of solid foreign objects with $\varnothing > 50$ mm.
2	Protected against solid foreign objects with $\varnothing 12.5$ mm or more		Protected against touching dangerous parts with a finger. Protection against ingress of solid foreign objects with $\varnothing > 12.5$ mm.
3	Protected against solid foreign objects with $\varnothing 2.5$ mm or more		Protected against touching dangerous parts with a tool. Protection against ingress of solid foreign objects with $\varnothing > 2.5$ mm.
4	Protected against solid foreign objects with $\varnothing 1$ mm or more		Protected against touching dangerous parts with a wire. Protection against ingress of solid foreign objects with $\varnothing > 1$ mm.
5	Protected against dust		Protected against touching dangerous parts with a wire. The ingress of dust is not completely prevented, but dust may not enter in such an amount that the satisfactory operation of the device or its safety is impaired.
6	Dust-proof		Protected against touching dangerous parts with a wire. No ingress of dust.

Degree of protection against water

Second digit	Short description	Example	Definition
0	Not protected		
1	Protected against dripping water		Vertically falling drops shall have no effect.
2	Protected against dripping water if the housing is inclined at an angle of up to 15°		Vertically falling drops shall have no effect if the housing is inclined at an angle of up to 15° either side of the perpendicular.
3	Protected against spray water		Water that is sprayed at an angle of up to 60° either side of the perpendicular shall have no harmful effect.
4	Protected against splash water		Water that splashes against the housing from any direction shall have no harmful effect.
5	Protected against jet water		Water that is directed as a jet against the housing from every direction shall have no harmful effect.
6	Protected against powerful jet water		Water that is directed as a strong jet against the housing from every direction shall have no harmful effect.
7	Protected against the effect of temporary submersion in water		Water may not penetrate in a harmful quantity when the housing is temporarily submerged in water under standard pressure and time conditions.
8	Protected against the effect of continuous submersion in water		Water may not penetrate in a harmful quantity when the housing is submerged in water continuously under conditions to be agreed between the manufacturer and user.
9K	Protected against water during high-pressure and jet-stream cleaning		Water that is directed against the housing under extremely high pressure from every direction shall have no harmful effect. (Example: IP69K according to DIN 40050 Part 9)

For safety reasons, electrical equipment must be protected against external influences. This is the job of the housing, which protects electrical equipment against contact, ingress of solid objects, dust, and moisture.

The following table contains possible combinations of degrees of protection according to DIN EN 60529 which can be practically applied to housing.

		Protection against water												
		No protection	Protection against vertically falling dripping water	Protection against dripping water if the housing is inclined at an angle of up to 15°	Protection against spray water from all directions, even when inclined at an angle of up to 60°	Protection against splash water from all directions	Protection against jet water from all directions	Protection against powerful jet water from all directions	Protection against temporary submersion	Protection against the effects of continuous submersion in water	Protected against water during high-pressure and jet-stream cleaning (DIN 40050-9)			
Shock protection	Foreign object protection	IP0x	IPx0	IPx1	IPx2	IPx3	IPx4	IPx5	IPx6	IPx7	IPx8	IPx9K		
No shock protection	No protection against solid foreign objects	IP0x	IP00											
Back of hand safe	Protection against solid foreign objects > 50 mm Ø	IP1x	IP10	IP11	IP12									
Touch proof	Protection against solid foreign objects > 12.5 mm Ø	IP2x	IP20	IP21	IP22	IP23								
Protection against touching with tools, wires, etc. > 2.5 mm Ø	Protection against solid foreign objects > 2.5 mm Ø	IP3x	IP30	IP31	IP32	IP33								
Protection against touching with tools, wires, etc. > 1 mm Ø	Protection against solid foreign objects > 1.5 mm Ø	IP4x	IP40	IP41	IP42	IP43	IP44							
Protection against touching with tools, wires, etc. > 1 mm Ø	Protection against harmful dust accumulations inside the device	IP5x	IP50				IP54	IP55						
Protection against touching with tools, wires, etc. > 1 mm Ø	No ingress of dust	IP6x	IP60					IP65	IP66	IP67	IP68	IP69K		

Example: DUPLICON power distribution with IP67 protection according to DIN EN 60529

Dust-proof (IP6x)

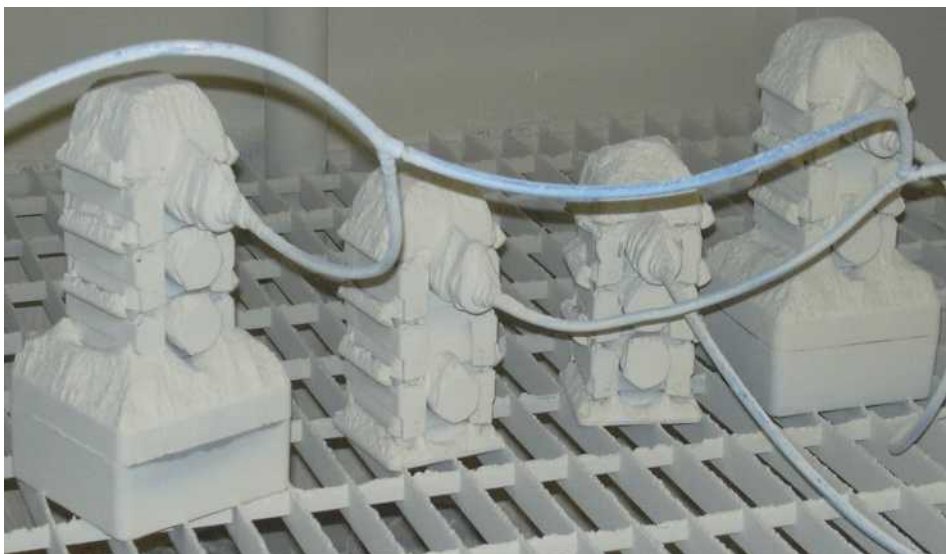


Photo shows DUPLICON test sample during the IP6x dust test

Protected against temporary submersion (IPx7)



Information

Our insulation housing is made from various thermoplastic materials. Depending on the application, the best-suited material is selected based on its electrical and mechanical properties.

All plastics used by Phoenix Contact are RoHS-compliant.

All plastics used at Phoenix Contact have been listed with UL (Underwriters Laboratories Inc.) in the USA.

Behavior of plastics under the influence of temperature (operating temperatures)

All plastics undergo thermal aging when they are subjected to heat over long periods. This process causes changes in the mechanical and electrical properties of the material. External influences, e.g., radiation, additional mechanical, chemical or electrical stresses, amplify this effect. All characteristic data included in the table has been determined using samples and thus provides a good means of drawing comparisons between different plastics. However, applying these characteristics to an evaluation of molded plastic parts is only possible to a limited extent, and can only give the designer a rough guide when it comes to selecting a plastic material. This catalog uses RTI Elec. according to UL746B as an assessment criterion for temperature resistance.

Insulation materials

Polyamide: PA and PA-GF

Polyamide has excellent electrical, mechanical, and chemical properties even at high operating temperatures. Brief peak temperatures of up to approximately 200°C are permitted as a result of heat aging stabilization. The absorption of water makes the plastic flexible and resistant to breakage, even at low temperatures.

Fiber-reinforced polyamides feature greater rigidity and hardness as well as operating temperatures higher than those of non-reinforced materials.

Polyamide for high-temperature applications: PA HT and PA-GF HT

Special high-temperature-resistant types of polyamide are used in non-reinforced or glass-fiber-reinforced versions for reflow applications. These high-temperature polyamides combine the excellent electrical properties of polyamide and the requirements of the reflow soldering process for temperature resistance.

Liquid crystal polymers: LCP GF

LCP combines high temperature stability with excellent dimensional stability and creeping resistance for products used in reflow processes. LCP has exceptional mechanical properties across a wide temperature range and a very low thermal expansion.

Polyester: PBT and PBT-GF

We use thermoplastic polyester in non-reinforced and glass-fiber-reinforced versions for special applications which require increased dimensional and form stability.

In addition to the high operating temperature, the material is characterized by excellent mechanical stability, hardness, and excellent notched impact strength. PBT does not absorb moisture from its surroundings. PBT is therefore particularly suitable for strips, for example, which are soldered onto PCBs.

Polycarbonate: PC

Polycarbonate combines many advantages such as rigidity, impact strength, transparency, dimensional stability, good insulation properties, and resistance to heat.

The amorphous material only absorbs moisture to a very limited degree, and is used for items such as large, rigid electronic component housing.

In its transparent form, polycarbonate is particularly suitable for use as a material for cover profiles or marking materials.

Acrylonitrile butadiene styrene: ABS

We use ABS for products which must have good impact and notched impact properties in addition to high mechanical stability and rigidity. The products are also characterized by their special surface quality and hardness.

ABS is suitable for coating metal surfaces, e.g., nickel.

Polyvinyl chloride: PVC

While most thermoplastic materials are processed with injection molding using ready-to-use molding and extrusion material, PVC is processed as a powder in the extruder. This is why it is used in our profile products. PVC is also self-extinguishing without flame protection and has high mechanical strength but is notch-sensitive.

Polyoxymethylene: POM

Polyoxymethylene is a technical material that combines high rigidity with mechanical stability, excellent elastic properties, high tenacity, dimensional accuracy, and exceptional sliding friction behavior.

Polyethylene: PE

Polyethylene is characterized by excellent chemical resistance and electrical insulation properties. PE is thermoplastic and can thus be processed using almost all procedures. Furthermore, PE has excellent tenacity even at low temperatures and a good elongation at break.

Polypropylene: PP

PP has higher rigidity, hardness, and stability and is more heat-resistant than PE. PP is not as tough at low temperatures, however.

Thermoplastic polyurethane: TPU and TPU-GF

TPU is characterized by excellent electrical properties, a good surface feel, a high degree of flexibility over a wide temperature range, and high resistance to wear. Thermoplastic polyurethanes are also elastic and low-temperature impact resistant.

In contrast to non-reinforced materials, glass-fiber-reinforced TPU is characterized by high rigidity and hardness.

Cross-linked ethylene-propylene-diene polymer/polypropylene: EPDM-PP

EPDM-PP is a polymer blend of PP and cross-linked EPDM. EPDM-PP is a rubber-like material which can be processed using thermoplastic procedures. EPDM-PP combines high temperature resistance, a low compression set, and excellent resistance to abrasion and chemicals.

Acrylonitrile butadiene styrene rubber: NBR

NBR is a rubber with excellent resistance to aging. It also features excellent resistance to abrasion and low plastic flow. Its elasticity is lower than other rubbers.

Fluorinated rubber: FPM

FPM rubbers are characterized by very high temperature resistance, but behave less favorably at low temperatures than other rubbers.

Chlorine-butadiene rubber: CR

CR rubber stands out against other rubbers with its excellent resistance to weather and ozone.

Properties	Standard	Unit	PA	PA GF	PA HT	PA GF HT	PBT	PBT GF	LCP GF	PC	ABS	PVC	POM	PP	PE
RTI Elec.	UL 746B	°C	≥ 105	≥ 105	≥ 105	≥ 105	≥ 105	≥ 105	≥ 130	≥ 105	≥ 80	≥ 50	≥ 105	65	50
Minimum temperature for use (without mechanical load)		°C	- 40	- 40	- 40	- 40	- 40	- 40	- 40	- 40	- 40	- 15	- 40	- 40	- 40
Dielectric strength	IEC 60243-1/DIN VDE 0303-21	kV/cm	600	400		> 200	400	400		> 300	850		850		
Creep resistance CTI...	IEC 60112/DIN VDE 0303-1		600	400	≥ 250	225	600	225	175	175	600	600	600		
Creep resistance CTI...M	IEC 60112/DIN VDE 0303-1		550	250			600	225		175	600	600	600		
Inflammability class	UL 94	HB – V0	V2, V0	HB, V0	V0	V0	V0	V0	V0	V2, V0		V0	HB	HB	HB
Tropical and termite resistance			Good	Good			Good			Good					

Properties	Standard	Unit	TPU	TPU GF	EPDM/PP
RTI Elec.	UL 746B	°C	50	50	100
Minimum temperature for use (without mechanical load)		°C	- 40	- 40	- 40
Dielectric strength	IEC 60243-1/DIN VDE 0303-21	kV/cm	35	35	
Creep resistance CTI...	IEC 60112/DIN VDE 0303-1		600	600	600
Creep resistance CTI...M	IEC 60112/DIN VDE 0303-1		600		
Inflammability class	UL 94	HB – V0	V2	HB	HB
Chemical resistance	See chemical resistance table				

Properties	Standard	Unit	NBR	FPM	CR
Operating temperature		°C	≤ 100	≤ 200	≤ 100
Minimum temperature for use (without mechanical load)		°C	- 40	- 25	- 40
Dielectric strength	IEC 60243-1/DIN VDE 0303-21	kV/cm	Not relevant as these are sealing materials		
Creep resistance CTI...	IEC 60112/DIN VDE 0303-1				
Creep resistance CTI...M	IEC 60112/DIN VDE 0303-1				
Inflammability class	UL 94	HB – V0			

Chemicals	Plastics																	
	Concentration In %	Temperature In °C	PA 66/PA 6	PA 66 GF	PA 46 GF	PC GF	POM	NBR	PP	EPDM	PBT	PUR	PUR irradiated*	PVC-P (soft)	PE-LD	TPU	FPM (Viton)	CR (neoprene)
Acetaldehyde			0	0	0	-	0	-	-	0		+	+	+	0	0	-	0
Acetone		20	+	+	+	0	0	-	+	0	0	+	0	-	+	-	-	0
Acetate			+	+	+	0	0	-	+	0	0	+	+	-	-	-	-	-
Acetophenone			+	+	+	0	0	-	+	0	0	+	+	-	-	-	-	-
Aldehyde			0	0	0	-	0	-	-	0		+	+	+	0	0	0	0
Formic acid			-	-	0	0	+	-	+	+	+	0	0	-	+	0	0	+
Amines			+	+	+	-	0	-	-	0	+	+	+	+	0	-	-	-
Alcohols			0	0	0	0	+	0	+	+	+	+	+	-	+	+	0	+
Ammonia	10	20	+				+	0	+	+	+	+	+	0	+	0	-	+
Benzaldehyde			0	0	0	-	0	-	-	0		+	+	+	0	0	-	0
Gasoline		20	+	+	+	0	+	0	0	-	+	+	+	-	-	-	-	-
Benzol		50	+	+	+	+	0	-	0	-	+	0	0	-	0	-	0	-
Benzophenone		20	+	+	+	0	0	-	+	0	0	+	+	-	-	-	+	-
Boracic acid		100	20	0			0	+		+	+	0	0	0	+	+	+	+
Brake fluid		100	+				+	-		+	+	-	-	0	+	-	-	-
Butyric acid			-	-	0	0	+	0	+	+	+	0	0	+	+	-	0	0
Cyclohexanone			+	+	+	0	0	-	+	0	0	+	+	-	-	-	-	-
Diesel oil			+				+	+	-	-	+	+	+	-	+	-	+	-
Diethylamine			+	+	+	-	0	-	-	0	+	+	+	+	-	-	-	-
Dimethylamine			+	+	+	-	0	-	-	0	+	+	+	+	0		-	-
Glacial acetic acid		50	-	-	-	-	-	0	+	-	-	-	-	-	+	-	-	-
Acetic acid		20	-	-	0	0	-	-	+	+	+	0	0	0	+	-	-	0
Ester			+	+	+	0	-	-	-	0	+			-	+	-	-	-
Ethanol			0	0	0	0	+	0	+	+	+	+	+	-	+	+	+	+
Ether			+	+	+	-	0	-	0	0	+	+	+	-	0	+	-	-
Greases			+	+	+	+	+	0	0	0				0	+	-	+	0
Formaldehyde			0	0	0	-	0	-	-	0		+	+	+	0	0	+	0
Gear oil		100	+				+	+		-	+	+	+	+	+	+	-	+
Halogens (fluorine, chlorine, bromine, iodine)			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Hydraulic oil		20	+				0	+		-	+	+	+	-	+	-	+	-
Potassium hydroxide solution			+	+	+	-	+	0	+		-	+	+	+	+	0	+	-
Kerosene		20	+				+				+	+	+	-	0	-	-	-
Ketones			+	+	+	0	0	-	+	0	0	+	+	-	-	-	-	-
Hydrocarbons, aliphatic			+	+	+	+	+	+	0	0	+	+	+	-	+	+	+	-
Hydrocarbons, aromatic			+	+	+	-	0	-	0	0	0	+	+	-	-	-	-	+
Hydrocarbons, chlorinated			0	0	0	-	+	-	-	-	0	-	-	-	-	-	+	-
Hydrocarbons, unsaturated chlorinated			0	0	0	-	+	-	-	-	0	0	0	-	-	-	+	-
Fuels			+	+	+	0	+	0	0	-	+	+	+	-	-	-	+	-
Alkalis, weak			+	+	+	-	+	0	+	+	+	+	+	+	+	0	+	0
Alkalis, strong			0	-	-	-	+	-	+	+	+	-	-	+	0	0	-	-
Inorganic salt solutions			+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
Machine oil			+				+				+	+	+	0	+	-	+	-
Metal chloride			+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
Metal sulfate			+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
Metal nitrate			+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
Methanol			0	0	0	0	+	0	+	+	+	+	+	-	+	+	+	+
Methylamine			+	+	+	-	0	-	-	0	+	+	+	+	+	0	0	-
Lactic acid	10	20	+				+	+	+	+	+	+	+	-	+	+	+	+
Mineral oil			+	+	+		+	+	+	-	+	+	+	-	+	-	+	-
Motor oil		120	+	+	+	0	+	+	+	-	+	+	+	-	+	-	+	-
Sodium hydroxide solution		50	0	0	+	-	+	+	+	+	-	+	+	+	+	0	0	0
Nitrobenzene			0				0	-		0	+	-	-	-	0	+	0	-
Ozone			0	0	0	-	0	-	+	+	+	0	0	+	+	0	+	-
Propyl alcohol			0	0	0	0	+	0	+	+	+	+	+	-	+	+	+	+
Nitric acid		30	20	-	0	-	0	-	-	+	0	0	0	-	+	-	+	-
Hydrochloric acid			20	-			-	0	+	0	0	-	-	-	+	0	+	0
Sulfuric acid		50	50	-	0	-	0	-	-	+	+	-	0	0	+	+	0	+
Salt water			20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Turpentine			0	0	0	+	-	+	-	-	+	0	0	-	-	-	+	-
UV resistance			+	+	+	0	0	-	-	-	+	+	+	0	0	+	+	+
Detergent alkalis	2	100	0				+	+		+	+	+	+	-	+	+	+	0
Water (dist.)		20												+				
Water, cold			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Water, hot			-	-	-	-	+	+	+	+	-	+	+	+	+	0	+	0
Citric acid		10	+				+	+	+	+	+	+	+	+	+	+	+	+

- Not resistant
0 Moderately resistant
+ Resistant

* The irradiated PUR type is generally more resistant than the non-irradiated type. This cannot be quantified and must be checked in individual cases.

The information in the table has been gathered from the recommendations of our plastic suppliers.

Since individual operating conditions can also affect the usability of each product, this information should be used as a guide only.

In cases where there has been no previous experience of using the products, we recommend that the user undertakes preliminary tests in order to minimize risks.

Insulation coordination for electrical equipment in low-voltage systems

Dimensioning of air and creepage distances according to DIN EN 60664-1/VDE 0110-1.

This part of the standard, based on IEC 60664, contains specifications for the insulation coordination of items of equipment in low-voltage systems. This part is applicable for items to be used at a height of up to 2000 m above sea level. This basic safety standard is primarily aimed at technical committees, and if suitable product directives are not available for an item, it can be used at one's own responsibility. International and European product standards cited in this catalog contain specifications for insulation coordination in accordance with DIN EN 60664/VDE 0110-1.

Insulation coordination

Insulation coordination includes the selection of electrical insulation properties for items as regards intended applications and ambient conditions. Separate requirements must be applied for air and creepage distances and for rigid insulation. The surge voltages to be expected, characteristics of surge protective devices, and pollution at the intended site must be considered when dimensioning clearances. Clearances are then dimensioned according to the external or internal surge voltages to be expected. Different surge voltages, grouped into categories, i.e., a value that determines an impulse withstand voltage, determine the required clearance directly. These surge voltage categories (I to IV) are mainly based on a statistical study, and are used for the items that are directly supplied by low-voltage networks. Definitions of the individual categories are provided below as an extract of DIN EN 60664/VDE 0110-1.

The clearances can be calculated according to Table 2 (minimum clearances) depending on the homogeneity level of the field between the electrodes (case A – non-homogeneous field, case B – homogeneous field).

Clearances according to case A are capable of withstanding the assigned surge voltages under all conditions. Items that are dimensioned according to case A can therefore be used without any further testing. Clearance values according to case B are based on ideal conditions. Clearance values which fall between case A and case B must be proven by means of a surge voltage test.

The voltages present, the properties of insulation materials, the pollution to be expected, and safety measures against pollution are considered when dimensioning creepage distances.

The effect of pollution is considered when determining the air and creepage distances according to three intensity levels (pollution degree 1 to 3).

The creepage distance is based on the rated voltage that is derived from the working voltage or nominal mains voltage. The minimum creepage distances are assigned to the rated voltages according to the pollution degree in Table 4.

If the respective product descriptions do not contain any additional specifications, the products presented in this catalog are dimensioned for surge voltage category III and pollution degree 3 according to this regulation (DIN EN 60664-1/VDE 0110-1).

Surge voltage categories I to IV

– Items in **surge voltage category IV** can be used at the terminal point of the installation.

Note: examples of such items include electricity meters and primary devices for overcurrent protection.

– Items in **surge voltage category III** can be used in fixed installations and are intended for such cases where there are special requirements for the reliability and availability of the items.

Note: examples of such items include switches in fixed installations and items for industrial use with permanent connection to the fixed installation.

– Items in **surge voltage category II** are power-consuming items that are supplied by the fixed installation.

Note: examples of such items include household appliances, portable tools, other domestic appliances, and similar devices.

– Items in **surge voltage category I** can be connected to circuits where measures have been taken to limit the surge voltages to a suitable lower value.

Pollution degrees 1 to 4

The following four pollution degrees have been defined for the micro-environment in order to determine air and creepage distances:

– Pollution degree 1

No contamination or only dry, non-conductive contamination is present. The contamination has no influence.

– Pollution degree 2

Only non-conductive contamination is present. Temporary conductivity due to condensation must occasionally be taken into consideration, however.

– Pollution degree 3

Conductive contamination or dry, non-conductive contamination is present which becomes conductive, since condensation is expected.

– Pollution degree 4

Permanent conductivity is present, caused by conductive dust, rain or moisture.

Insulation material

DIN EN 60664/VDE 0110-1 classifies insulation materials into four groups depending on their CTI values that were obtained using solution A in accordance with IEC 60112. These are:

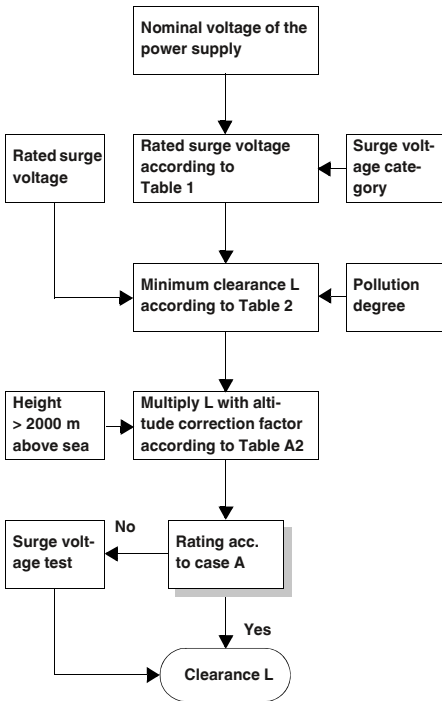
Insulation material group I: $600 \leq CTI$
 Insulation material group II: $400 \leq CTI < 600$
 Insulation material group IIIa: $175 \leq CTI < 400$
 Insulation material group IIIb: $100 \leq CTI < 175$

The comparative tracking index of the creepage distance must have been determined based on suitable samples using test solution A as specified in DIN IEC 60112.

The proof tracking index of the creepage distance (PTI) is used as proof of the creepage current properties of insulation materials.

Dimensioning of clearances

Schematic for determining clearances



Altitude correction factors (extract from Table A.2)

Height in m	Normal air pressure in kPa	Multiplication factor for gaps
2000	80.0	1.00
3000	70.0	1.14
4000	62.0	1.29
5000	54.0	1.48
6000	47.0	1.70
7000	41.0	1.95
8000	35.5	2.25
9000	30.5	2.62
10000	26.5	3.02
15000	12.0	6.67
20000	5.5	14.50

Rated surge voltages for items that are directly supplied by the low-voltage network (extract from Table 1)

Nominal voltage of the power supply system ¹⁾ (mains acc. to IEC 60038 ³⁾) [V]		Conductor-neutral conductor voltage derived from the total nominal AC voltage or nominal DC voltage	Rated surge voltage ²⁾ [V] Surge voltage category ⁴⁾			
Three-phase	Single-phase		I	II	III	IV
	120 to 240	50	330	500	800	1500
		100	500	800	1500	2500
		150	800	1500	2500	4000
230/400 277/480		300	1500	2500	4000	6000
400/690		600	2500	4000	6000	8000
1000		1000	4000	6000	8000	12000

¹⁾ Refer to Appendix B for application in existing deviating low-voltage networks and their nominal voltages.

²⁾ Items with this rated surge voltage may be used in systems in accordance with IEC 60364-4-443.

³⁾ The slash, i.e., /, indicates a three-phase 4-conductor system. The lower value is the conductor-to-neutral conductor voltage, whereas the higher value is the conductor-to-conductor voltage. When only one value is specified, it refers to a three-phase 3-conductor system, and indicates the conductor-to-conductor voltage.

⁴⁾ Refer to 2.2.2.1.1 for an explanation of surge voltage categories.

Minimum clearances for surge voltages (extract from Table 2)

Required impulse withstand voltage ¹⁾ ⁵⁾	Condition A Non-homogeneous field (refer to 1.3.15)			Condition B Homogeneous field (refer to 1.3.14)		
	Pollution degree ⁶⁾			Pollution degree ⁶⁾		
	1 [mm]	2 [mm]	3 [mm]	1 [mm]	2 [mm]	3 [mm]
0.33 ²⁾	0.01			0.01		
0.40	0.02			0.02		
0.5 ²⁾	0.04	0.2 ^{3) 4)}		0.04	0.2 ^{3) 4)}	
0.60	0.06			0.06		
0.80 ²⁾	0.10			0.10		
1.0	0.15		0.8 ⁴⁾	0.15		0.8 ⁴⁾
1.2	0.25	0.25		0.2		
1.5 ²⁾	0.5	0.5		0.3	0.3	
2.0	1.0	1.0	1.0	0.45	0.45	
2.5 ²⁾	1.5	1.5	1.5	0.6	0.6	
3.0	2.0	2.0	2.0	0.8	0.8	
4.0 ²⁾	3	3	3	1.2	1.2	1.2
5.0	4	4	4	1.5	1.5	1.5
6.0 ²⁾	5.5	5.5	5.5	2	2	2
8.0 ²⁾	8	8	8	3	3	3
10	11	11	11	3.5	3.5	3.5
12 ²⁾	14	14	14	4.5	4.5	4.5
15	18	18	18	5.5	5.5	5.5
20	25	25	25	8	8	8
25	33	33	33	10	10	10
30	40	40	40	12.5	12.5	12.5
40	60	60	60	17	17	17
50	75	75	75	22	22	22
60	90	90	90	27	27	27
80	130	130	130	35	35	35
100	170	170	170	45	45	45

¹⁾ This voltage is:

- For function insulation: the highest surge voltage expected for the clearance
- For basic insulation, if influenced directly or considerably by surge voltages from the low-voltage network: the item's rated surge voltage
- For a different basic insulation: the highest surge voltage possible in the circuit

²⁾ Preferred values

³⁾ For PCBs, the values of pollution degree 1 are applicable, except that no deviation below the value of 0.04 mm is permitted, as specified in Table 4.

⁴⁾ Minimum clearances for pollution degrees 2 and 3 are based on the corresponding creepage distances. This resistance is reduced due to the effects of humidity.

⁵⁾ Values can be interpolated for parts or circuits within items that are subjected to surge voltages.

⁶⁾ The distances for pollution degree 4 are equal to those for pollution degree 3, except that the minimum clearance is 1.6 mm.

Current carrying capacity

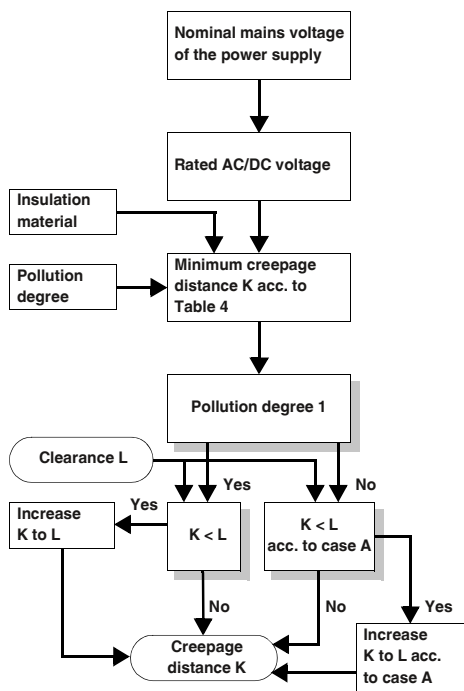
Standard IEC 60947-7-1/
EN 60947-7-1/DIN VDE 0611-1 specifies the test currents for the individual conductor cross sections listed in the adjacent table. The corresponding currents are listed with the connection data for the individual terminal blocks. The type tests for modular terminal blocks are based on this data.

Test currents according to IEC 60947-7-1/EN 60947-7-1, Table 5

Rated cross section	[mm ²]	0.2	0.5	0.75	1.0	1.5	2.5	4	6	10	16
Test current	[A]	4	6	9	13.5	17.5	24	32	41	57	76
Rated cross section	[mm ²]	25	35	50	70	95	120	150	185	240	300
Test current	[A]	101	125	150	192	232	269	309	353	415	520

Dimensioning of creepage distances

Schematic for determining creepage distances



Single-phase 3 or 2-conductor AC or DC voltage systems (extract from Table 3a)

Nominal voltage of the power supply system (mains) *)	Voltages for Table 4	
	for conductor-conductor insulation 1)	for conductor-ground insulation 1)
	All systems	3-cond. systems center point grounded
[V]	[V]	[V]
12.5	12.5	-
24	25	-
25		
30	32	-
42		
48	50	-
50 **)		
60	63	-
30 - 60	63	32
100 **)	100	-
110	125	-
120		
150 **)	160	-
220	250	-
110 - 220	250	125
220 - 240		
300 **)	320	-
220 - 440	500	250
600 **)	630	-
480 - 960	1000	500
1000 **)	1000	-

1) Conductor-ground insulation levels for non-grounded systems or those grounded through impedance correspond to conductor-conductor insulation levels as the operating voltage of every conductor to ground can, in practice, reach the conductor-conductor voltage. This is due to the fact that the actual voltage to ground is determined by the insulation resistance and the capacitive reactance of each conductor to ground. A low (but permissible) insulation resistance of one conductor can thereby practically ground it and increase the other two to conductor-conductor voltage to ground.

*) Refer to 2.2.1 for correlation with the rated voltage.

**) These values correspond to the values in Table 1.

Three-phase 4 or 3-conductor AC voltage systems (extract from Table 3b)

Nominal voltage of the power supply system (mains) *)	Voltages for Table 4		
	for conductor-conductor insulation	Insulation for conductor-ground	
	All systems	Three-phase 4-cond. systems with grounded neutral conductor 2)	Three-phase 3-cond. systems non-grounded 1) or conductor grounded
[V]	[V]	[V]	[V]
60	63	32	63
110/120/127	125	80	125
150 **)	160	-	160
208	200	125	200
220/230/240	250	160	250
300 **)	320	-	320
380/400/415	400	250	400
440	500	250	400
480/500	500	320	500
575	630	400	630
600 **)	630	-	630
660/690	630	400	630
720/830	800	500	800
960	1000	630	1000
1000 **)	1000	-	1000

1) Conductor-ground insulation levels for non-grounded systems or those grounded through impedance correspond to conductor-conductor insulation levels as the operating voltage of every conductor to ground can, in practice, reach the conductor-conductor voltage. This is due to the fact that the actual voltage to ground is determined by the insulation resistance and the capacitive reactance of each conductor to ground. A low (but permissible) insulation resistance of one conductor can thereby practically ground it and increase the other two to conductor-conductor voltage to ground.

2) For items designed for use in three-phase 4-conductor and three-phase 3-conductor systems, grounded as well as non-grounded, only the values for 3-conductor systems may be used.

*) Refer to 2.2.1 for correlation with the rated voltage.

**) These values correspond to the values in Table 1.

Creepage distances to prevent failures occurring due to creepage (extract from Table 4)

Voltage 1) r.m.s. value [V]	Minimum creepage distances									
	Printed circuits Pollution degree		Pollution degree							
	1 All insulation material groups	2 All insulation material groups except IIIb	1 All insulation material groups	2 Insulation material group			3 Insulation material group			
				I [mm]	II [mm]	III [mm]	I [mm]	II [mm]	III 2) [mm]	
10	0.025	0.04	0.08	0.40	0.40	0.40	1.00	1.00	1.00	
12.5	0.025	0.04	0.09	0.42	0.42	0.42	1.05	1.05	1.05	
16	0.025	0.04	0.10	0.45	0.45	0.45	1.10	1.10	1.10	
20	0.025	0.04	0.11	0.48	0.48	0.48	1.20	1.20	1.20	
25	0.025	0.04	0.125	0.50	0.50	0.50	1.25	1.25	1.25	
32	0.025	0.04	0.14	0.53	0.53	0.53	1.30	1.30	1.30	
40	0.025	0.04	0.16	0.56	0.80	1.10	1.4	1.6	1.8	
50	0.025	0.04	0.18	0.60	0.85	1.20	1.5	1.7	1.9	
63	0.040	0.063	0.20	0.63	0.90	1.25	1.6	1.8	2.0	
80	0.063	0.10	0.22	0.67	0.95	1.3	1.7	1.9	2.1	
100	0.10	0.16	0.25	0.71	1.00	1.4	1.8	2.0	2.2	
125	0.16	0.25	0.28	0.75	1.05	1.5	1.9	2.1	2.4	
160	0.25	0.40	0.32	0.80	1.1	1.6	2.0	2.2	2.5	
200	0.40	0.63	0.42	1.00	1.4	2.0	2.5	2.8	3.2	
250	0.56	1.00	0.56	1.25	1.8	2.5	3.2	3.6	4.0	
320	0.75	1.60	0.75	1.60	2.2	3.2	4.0	4.5	5.0	
400	1.00	2.00	1.00	2.00	2.8	4.0	5.0	5.6	6.3	
500	1.30	2.50	1.30	2.50	3.6	5.0	6.3	7.1	8.0	
630	1.80	3.20	1.8	3.2	4.5	6.3	8.0	9	10.0	
800	2.40	4.00	2.4	4.0	5.6	8.0	10.0	11	12.5	
1000	3.20	5.00	3.2	5.0	7.1	10	12.5	14	16.0	
1250			4.2	6.3	9	12.5	16	18	20	
1600			5.6	8	11	16	20	22	25	
2000			7.5	10	14	20	25	28	32	
2500			10	12.5	18	25	32	36	40	
3200			12.5	16	22	32	40	45	50	
4000			16	20	28	40	50	56	63	
5000			20	25	36	50	63	71	80	
6300			25	32	45	63	80	90	100	
8000			32	40	56	80	100	110	125	
10000			40	50	71	100	125	140	160	

1) This voltage is:
a) For function insulation: the working voltage
b) For basic and additional insulation of a circuit supplied directly by the low-voltage network: either the voltage selected from Table 3a or 3b on the basis of the rated voltage of the equipment or the rated insulation voltage
c) For basic and additional insulation of systems, equipment and internal circuits which are not supplied directly from the mains: the highest r.m.s. value of the voltage that, within the bounds of the rated data, can occur in the system, the equipment or the internal circuit, when supplied with rated voltage and in the case of the most unfavorable combination of operating conditions.

2) With pollution degree 3, insulation material group IIIb is not recommended for use if voltages are greater than 630 V.

Overview of approval bodies and safety marks

Certification bodies and approvals		Country code
	IECEE CB Scheme (in combination with certifying body)	International
CCA	CENELEC Certification Agreement (CCA inspection report) (in combination with certifying body)	EU
	Canadian Standards Association (CSA)	CA
 	Underwriters Laboratories Inc. (UL)	US
 	Underwriters Laboratories Inc. (UL) - UL approval for Canada -	CA
 	Underwriters Laboratories Inc. (UL) Combined logo - UL approval for the USA and Canada -	US CA
	INSIEME PER LA QUALITA'E LA SICUREZZA	IT
	Gosudarstvennoe Komitet Standartov (GOST)	RU
	DEKRA Certification B.V.	NL
	Österreichischer Verband für Elektrotechnik	AT
	South African Bureau of Standards	ZA
	electrosuisse SEV Verband für Elektro-, Energie- und Informationstechnik	CH
 	Verband Deutscher Elektrotechniker e.V. (VDE) - Approval of drawings - Reports with production monitoring	DE
 	Berufsgenossenschaft (BG) GS - Geprüfte Sicherheit (tested safety)	DE
	TÜV Rheinland Industrie Service GmbH	DE

Explosion protection		Country code
	FM Approvals	US
	DEKRA Certification B.V.	NL
	Physikalisch-Technische Bundesanstalt	DE
	QS Schaffhausen	CH
	VTT Expert Services Oy	FI
	IBExU Institut für Sicherheitstechnik GmbH	DE
	TÜV Rheinland do Brasil	BR
 	Underwriters Laboratories Inc. (UL)	US
	TÜV Nord	DE
	DEKRA EXAM GmbH	DE

Ship classification societies		Country code
	Bureau Veritas	FR
	Germanischer Lloyd AG	DE
	Lloyd's Register EMEA	GB
	Nippon Kaiji Kyokai	JP
	Det Norske Veritas	NO
	Polski Rejestr Statków	PL
	Russian Maritime Register of Shipping	RU
	Korean Register of Shipping	KR
	American Bureau of Shipping	US

EMC: Class A product:

In accordance with statutory regulations, our products are indicated with this footnote if they are intended for use in industrial environments. This means that the permissible limit values for residential applications may be exceeded in the event of conducted and emitted interference. In such cases, the operator may have to take additional safety measures in order to ensure electromagnetic compatibility in residential applications.

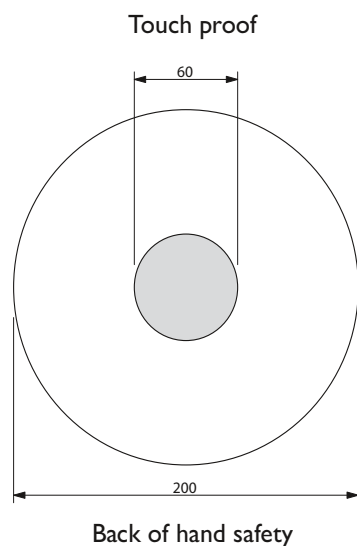
Color designations

Color	Code
White	WH
Red	RD
Blue	BU
Green	GN
Yellow	YE
Gray	GY
Brown	BN
Orange	OG
Black	BK
Turquoise	TQ
Ivory	IV
Beige	BE
Olive	OL
Violet	VT
Pink	PK
Gold	GD
Silver	SR

Note:

Subject to changes that serve the purpose of technical progress.

Shock protection



Example: pressure actuation

The accident prevention regulations BGV A 2 issued by the German employer's liability insurance association for precision mechanics and electrical engineering apply to the operators of electrical systems and are aimed at the prevention of electrical accidents by means of special safety requirements.

These regulations contain specifications regarding the safety distances for work, operation, and occasional handling in the proximity of "live parts" in low-voltage systems up to 1000 V ~ or 1500 V –.

Work with live parts is only permitted once they are in the de-energized state. Operational activities are only permitted in the vicinity of live parts if these parts are de-energized or are protected against direct contact (§ 6). The following safety measures apply when working in the vicinity of live parts:

- Ensure that the system remains de-energized for the duration of the work or
- Ensure shock protection is in place in the form of covers or barriers during the work, or
- Ensure that the minimum permissible clearances are observed (§ 7)

The term "occasional handling" has been introduced for the operation of elements such as pushbuttons, rocker arms or rotary buttons in the proximity of live parts.

In VDE 0105-1, this is called "operation with partial protection against direct contact".

Detailed specifications for "occasional handling" can be found in DIN EN 50274. This specifies to what degree live parts in the proximity of operating elements are to be protected against contact. The basis for this is the definition of a "protection area

for occasional handling"; this is the area into which the user must reach in order to handle the machine.

The most important thing is that an area formed by an even envelope curve 30 mm in radius must surround the live parts. This area must be **touch proof**, i.e., the live parts of the electrical device must not be within reach of the VDE test finger in accordance with IEC 60529/DIN VDE 0470-1 (test finger).

Back of hand safety is specified for the "rest of the area" up to 100 mm around the operating element. **Back of hand safety** means that when a force of 50 N is applied

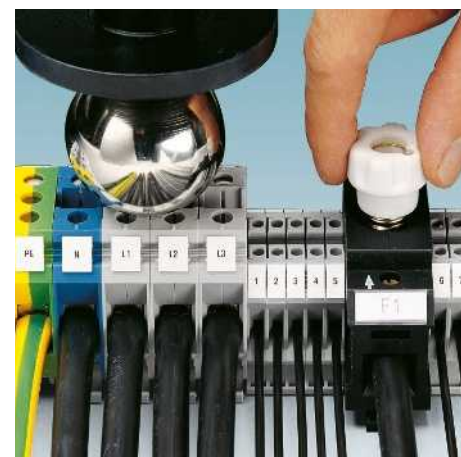


to a ball with a diameter of 50 mm, this does not come into contact with the live parts of the equipment. No special measures for ensuring contact safety are stipulated outside this area.

Note: systems and equipment that are operated with SELV up to 25 V ~ or 60 V – are considered to be protected against direct contact.

According to BGV A 2, the state of the system does not have to be tested prior to initial startup if the company has confirmation from the manufacturer or installer that the electrical systems and items meet BGV A 2 regulations. The confirmation required refers to the installed systems and items which are ready for operation and this can only be issued by the installer or installation company. The manufacturer of the electrical equipment can only issue a confirmation that products have been produced in accordance with the relevant electrotechnical regulations stipulated in BGV A 2. The installer must bear this in mind when selecting the equipment to be used.

In the field of connection technology, Phoenix Contact offers a wide range of products which are touch-proof or can be protected against contact by means of cov-



ers. Depending on the conditions, all of this must be taken into account when selecting the individual types of terminal block and accessories.

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CES-LRG-BK-31	0801653	608	CES-STPG-GY-3	0801673	610	CK2,5-ED-2,50ST-S AG	1663873	453	DC-B 6-ID-7X4-UT	1602203	594	
CES-LRG-BK-32	0801654	608	CES-STPG-GY-4	0801674	610	CK2,5-ED-4,00BU AG	1663705	409	DC-B 6-SET-3D-M20-M-7X4-UT	1602290	593	
CES-LRG-BK-33	0801656	608	CES-STPG-GY-4X3	0801710	611	CK2,5-ED-4,00BU AU	1674846	415	DC-B 6-SET-3D-M25-M-7X4-UT	1602300	593	
CES-LTPG-GY	0801716	610	CES-STPG-GY-4X4	0801711	611	CK2,5-ED-4,00ST AG	1663637	409	DC-B 6-SET-CO-M20-M-7X4-UT	1602274	593	
CES-LTPG-GY-15	0801687	610	CES-STPG-GY-4X5	1410136	611	CK2,5-ED-4,00ST AU	1674794	415	DC-B 6-SET-CO-M25-M-7X4-UT	1602287	593	
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CES-LTPG-GY-17	0801689	610	CES-STPG-GY-5	0801675	610	CK2,5-EWZ	1662722	563	DC-B 6-SET-HD-M25-M-7X4-UT	1602229	592	
CES-LTPG-GY-18	0801690	610	CES-STPG-GY-6	0801676	610	CK4,0-ED-1,50BU AG	1663271	463	DC-B 6-SET-TB-M20-M-7X4-UT	1581023	593	
CES-LTPG-GY-19	0801691	610	CES-STPG-GY-7	0801677	610	CK4,0-ED-1,50ST AG	1663239	463	DC-B 6-SET-TB-M25-M-7X4-UT	1581036	593	
CES-LTPG-GY-20	0801692	610	CES-STPG-GY-8	0801679	610	CK4,0-ED-10,00BU AG	1586183	463	DC-B 6-SET-WF-M20R-M-7X4-UT	1602232	592	
CES-LTPG-GY-21	0801693	610	CES-STPG-GY-9	0801680	610	CK4,0-ED-10,00ST AG	1586198	463	DC-B 6-SET-WF-M25R-M-7X4-UT	1602258	592	
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CES-LTPG-GY-26	0801699	610	CF 500/COV RCI	1212255	562	CK4,0-ED-6,00BU AG	1663307	463				
CES-LTPG-GY-27	0801700	610	CF 500/DIE TC 4	1212237	562	CK4,0-ED-6,00ST AG	1663268	463				
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HC-B 6-TMS-100/O1STM25G-GSTA	1604117	482	HC-B 10-SMLD-74/O1PG29	1677681	496	HC-B 16-AFZ	1584622	523	HC-B 16-SMQ-67/O1PG21	1673740	516
HC-B 6-TMS-100/O1STM25S-EEE	1460356	483	HC-B 10-SMLD-74/O2M25	1646450	496	HC-B 16-AML	1771590	512	HC-B 16-SMQ-67/O1PG29	1678428	516
HC-B 6-TMS-100/O1STM25S-EUA	1604133	484	HC-B 10-SMLD-74/O2M32	1646476	496	HC-B 16-AMLD	1771613	512	HC-B 16-SMQ-67/O2M25	1604790	516
HC-B 6-TMS-100/O1STM25S-GSTA	1604146	482	HC-B 10-SMLD-74/O2PG21	1677694	496	HC-B 16-AMLD-AL	1645480	512	HC-B 16-SMQ-67/O2M32	1604791	516
HC-B 6-TMS-100/O1STM32G-EEE	1580477	483	HC-B 10-SMLD-74/O2PG29	1677704	496	HC-B 16-AMQ	1771587	516	HC-B 16-SMQ-67/O2PG21	1673753	516
HC-B 6-TMS-SD-IP50	1690736	482	HC-B 10-SMQ-52/O1M20	1604752	500	HC-B 16-ANDOCK	1586138	576	HC-B 16-SMQ-67/O2PG29	1678457	516
HC-B 6-TMS-SD-IP65	1690778	482	HC-B 10-SMQ-52/O1PG16	1673481	500	HC-B 16-ANDOCK-MOD-A	1587467	577	HC-B 16-SMQ-84/O1M32	1604793	516
HC-B 06-I-PT-F	1407727	437	HC-B 10-SMQ-52/O2M20	1604753	500	HC-B 16-ANDOCK-MOD-T	1587454	577	HC-B 16-SMQ-84/O1PG21	1677924	516
HC-B 06-I-PT-M	1407728	437	HC-B 10-SMQ-52/O2M25	1604754	500	HC-B 16-AP-GY	1660384	572	HC-B 16-SMQ-84/O2M32	1604794	516
HC-B 10-24-QB	1673265	570	HC-B 10-SMQ-52/O2PG16	1673494	500	HC-B 16-APV-GY	1661121	572	HC-B 16-SMQ-84/O2PG21	1677937	516
HC-B 10-A-DT-PEL-F	1648393	447	HC-B 10-SMQ-74/O1M25	1604755	500	HC-B 16-EBUQ-2.5	1605572	441	HC-B 16-TFL-H-O1PG21G	1460118	510
HC-B 10-A-DT-PEL-M	1648403	447	HC-B 10-SMQ-74/O1M32	1604756	500	HC-B 16-EBUQ-2.5-32	1605598	441	HC-B 16-TFL-H-O1PG21S	1460119	510
HC-B 10-A-DT-PER-F	1648416	447	HC-B 10-SMQ-74/O1PG21	1677717	500	HC-B 16-ESTQ-2.5	1605637	441	HC-B 16-TFL-H-O1PG29G	1460120	510
HC-B 10-A-DT-PER-M	1648429	447	HC-B 10-SMQ-74/O1PG29	1677845	500	HC-B 16-ESTQ-2.5-32	1605653	441	HC-B 16-TFL-H-O1PG29S	1460121	510
HC-B 10-A-UT-PEL-F	1648030	445	HC-B 10-SMQ-74/O2M25	1604757	500	HC-B 16-FL-DI	1661451	571	HC-B 16-TFL-H-O1STM32G	1460124	510
HC-B 10-A-UT-PEL-M	1648036	445	HC-B 10-SMQ-74/O2M32	1645820	500	HC-B 16-I-CT-F	1648283	441	HC-B 16-TFL-H-O1STM32S	1460125	510
HC-B 10-A-UT-PER-F	1648078	445	HC-B 10-SMQ-74/O2PG21	1677720	500	HC-B 16-I-CT-F-32	1584923	441	HC-B 16-TFL-H-O1STM40G	1460126	510
HC-B 10-A-UT-PER-M	1648084	445	HC-B 10-SMQ-74/O2PG29	1678444	500	HC-B 16-I-CT-M	1648270	441	HC-B 16-TFL-H		

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HC-B 16-TFQ-H-O1STM32G	1460155	514	HC-B 24-KMQ-H-O1PG29	1460030	534	HC-B 24-TFQ-N-O1PG21S	1460224	532
HC-B 16-TFQ-H-O1STM40G	1460157	514	HC-B 24-KMQ-H-O1STM32	1460035	534	HC-B 24-TFQ-N-O1PG29G	1460332	532
HC-B 16-TFQ-H-O1STM40S	1460158	514	HC-B 24-KMQ-H-O1STM40	1460036	534	HC-B 24-TFQ-N-O1STM25G	1460218	532
HC-B 16-TFQ-H-O1STM32S	1409354	514	HC-B 24-LB	1584677	570	HC-B 24-TFQ-N-O1STM25S	1460219	532
HC-B 16-TFQ-N-O1PG21G	1460129	514	HC-B 24-PR-DI	1663048	571	HC-B 24-TFQ-N-O1STM32G	1460222	532
HC-B 16-TFQ-N-O1PG21S	1460131	514	HC-B 24-SD-FL/FS	1660148	578	HC-B 24-TFQ-N-O1STM32S	1460223	532
HC-B 16-TFQ-N-O1STM25G	1460128	514	HC-B 24-SD-FLU/FS-AL	1644601	578	HC-B 24-TMQ-H-M1PG21G	1460255	536
HC-B 16-TFQ-N-O1STM25S	1460130	514	HC-B 24-SD-FQ/FS	1772609	578	HC-B 24-TMQ-H-M1PG21S	1460256	536
HC-B 16-TFQ-N-O1STM32G	1460134	514	HC-B 24-SD-FQT/FS	1687286	578	HC-B 24-TMQ-H-M1PG29G	1460257	536
HC-B 16-TFQ-N-O1STM32S	1460160	514	HC-B 24-SD-FQT/FS-AL	1646776	578	HC-B 24-TMQ-H-M1PG29S	1460259	536
HC-B 16-TMQ-H-M1PG21G	1460170	518	HC-B 24-SD-FQU/FS-AL	1644614	578	HC-B 24-TMQ-H-O1STM32G	1460269	536
HC-B 16-TMQ-H-M1PG21S	1460171	518	HC-B 24-SD-ML/FS	1678334	578	HC-B 24-TMQ-H-O1STM32S	1460270	536
HC-B 16-TMQ-H-M1PG29G	1460173	518	HC-B 24-SD-MLT/FS-AL	1584538	578	HC-B 24-TMQ-H-O1STM40G	1460271	536
HC-B 16-TMQ-H-M1PG29S	1460175	518	HC-B 24-SD-MQ/FS	1678347	578	HC-B 24-TMQ-H-O1STM40S	1460272	536
HC-B 16-TMQ-H-O1STM25S	1460182	518	HC-B 24-SD-MQT/FS-AL	1584567	578	HC-B 24-TMS-100/O1STM32G-EEE	1580504	525
HC-B 16-TMQ-H-O1STM32S	1460184	518	HC-B 24-SFQD-67/O1M25	1604830	538	HC-B 24-TMS-100/O1STM32G-EUA	1690354	526
HC-B 16-TMS-100/O1STM25G-STA	1644630	506	HC-B 24-SFQD-67/O1PG21	1674118	538	HC-B 24-TMS-100/O1STM32G-STA	1690367	524
HC-B 16-TMS-100/O1STM25S-STA	1644643	506	HC-B 24-SFQD-67/O2M25	1604831	538	HC-B 24-TMS-100/O1STM32S-EEE	1587687	525
HC-B 16-TMS-100/O1STM32G-EEE	1587661	507	HC-B 24-SFQD-67/O2PG21	1674121	538	HC-B 24-TMS-100/O1STM32S-EUA	1690396	526
HC-B 16-TMS-100/O1STM32G-EUA	1690192	508	HC-B 24-SFQD-84/O1M32	1645736	538	HC-B 24-TMS-100/O1STM32S-STA	1690406	524
HC-B 16-TMS-100/O1STM32G-STA	1690202	506	HC-B 24-SFQD-84/O2M32	1645749	538	HC-B 24-TMS-100/O1STM40G-EEE	1460359	525
HC-B 16-TMS-100/O1STM32S-EEE	1587674	507	HC-B 24-SFZ-84/O1M32	1584570	541	HC-B 24-TMS-100/O1STM40S-EUA	1690435	526
HC-B 16-TMS-100/O1STM32S-EUA	1690231	508	HC-B 24-SML-67/O1PG21	1674134	530	HC-B 24-TMS-100/O1STM40G-STA	1690448	524
HC-B 16-TMS-100/O1STM32S-STA	1690244	506	HC-B 24-SML-68/O1M25	1646337	530	HC-B 24-TMS-100/O1STM40S-EEE	1460360	525
HC-B 16-TMS-100/O1STM40G-EEE	1580507	507	HC-B 24-SML-84/O1M32	1646340	530	HC-B 24-TMS-100/O1STM40S-EUA	1690477	526
HC-B 16-TMS-100/O1STM40G-EUA	1690273	508	HC-B 24-SML-84/O1M40	1645752	530	HC-B 24-TMS-100/O1STM40S-STA	1690480	524
HC-B 16-TMS-100/O1STM40S-STA	1690286	506	HC-B 24-SML-84/O1PG21	1645765	530	HC-B 24-TMS-EEE-PR-DI	1409820	571
HC-B 16-TMS-100/O1STM40S-EEE	1460358	507	HC-B 24-SML-84/O2PG21	1677966	530	HC-B 24-TMS-SD-IP50	1690765	524
HC-B 16-TMS-100/O1STM40S-EUA	1690312	508	HC-B 24-SML-84/O1PG29	1677979	530	HC-B 24-TMS-SD-IP65	1690804	524
HC-B 16-TMS-100/O1STM40S-STA	1690325	506	HC-B 24-SML-84/O2M32	1604832	530	HC-B 24-TMZ-76/O1STM32G	1584596	540
HC-B 16-TMS-EEE-PR-DI	1409817	571	HC-B 24-SML-84/O2M40	1645778	530	HC-B 24-TMZ-76/O1STM32S	1584606	540
HC-B 16-TMS-SD-IP50	1690752	506	HC-B 24-SML-84/O2PG21	1677982	530	HC-B 32-AMQ	1775693	545
HC-B 16-TMS-SD-IP65	1690794	506	HC-B 24-SML-84/O2PG29	1677995	530	HC-B 32-FL-DI	1687778	571
HC-B 16-TMZ-76/O1STM32G	1584635	522	HC-B 24-SMLD-67/O1M25	1604833	530	HC-B 32-KMQ-82/O1PG21	1675010	545
HC-B 16-TMZ-76/O1STM32S	1584648	522	HC-B 24-SMLD-67/O1PG21	1674150	530	HC-B 32-KMQ-82/O1PG29	1675023	545
HC-B 24-A-DT-PEL-F	1648474	447	HC-B 24-SMLD-67/O2M25	1604834	530	HC-B 32-KMQ-82/O1STM2	1647284	545
HC-B 24-A-DT-PEL-M	1648487	447	HC-B 24-SMLD-67/O2PG21	1674163	530	HC-B 32-KMQ-82/O1STM40	1647297	545
HC-B 24-A-DT-PER-F	1648490	447	HC-B 24-SMLD-84/O1M32	1645781	530	HC-B 32-SD-FQU/FS	1646120	578
HC-B 24-A-DT-PER-M	1648500	447	HC-B 24-SMLD-84/O1PG21	1678004	530	HC-B 32-SFS-72-O1M32-EEE	1580526	542
HC-B 24-A-UT-PEL-F	1648054	445	HC-B 24-SMLD-84/O1PG29	1678017	530	HC-B 32-SFS-72-O1M40-EEE	1580528	542
HC-B 24-A-UT-PEL-M	1648060	445	HC-B 24-SMLD-84/O2M32	1645794	530	HC-B 32-SFS-72-O1M50-EEE	1580530	542
HC-B 24-A-UT-PER-F	1648102	445	HC-B 24-SMLD-84/O2M40	1645817	530	HC-B 32-SFS-72-O2M32-EEE	1580527	542
HC-B 24-A-UT-PER-M	1648108	445	HC-B 24-SMLD-84/O2PG21	1678020	530	HC-B 32-SMQ-72/O1M32	1604867	545
HC-B 24-ADP-3D 7-GY	1661448	573	HC-B 24-SMLD-84/O2PG29	1678033	530	HC-B 32-SMQ-72/O1PG29	1675036	545
HC-B 24-ADP-3RST-GY	1662175	573	HC-B 24-SMQ-67/O1M25	1604835	534	HC-B 32-SMQ-72/O2M32	1604868	545
HC-B 24-ADP-B 6-GY	1660407	573	HC-B 24-SMQ-67/O1PG21	1674176	534	HC-B 32-SMQ-72/O2M40	1604869	545
HC-B 24-ADP-B 10-GY	1660436	573	HC-B 24-SMQ-67/O2PG21	1674189	534	HC-B 32-SMQ-72/O2PG29	1675049	545
HC-B 24-ADP-B 16-GY	1660449	573	HC-B 24-SMQ-68/O2M25	1646353	534	HC-B 32-TFQ-80/O1PG29G	1675081	544
HC-B 24-AFQD	1771956	538	HC-B 24-SMQ-84/O1M32	1604836	534	HC-B 32-TFQ-80/O1PG29S	1675094	544
HC-B 24-AFZ	1584583	541	HC-B 24-SMQ-84/O1M40	1645419	534	HC-B 32-TFQ-80/O1PG36S	1644818	544
HC-B 24-AML	1771930	530	HC-B 24-SMQ-84/O1PG21	1678046	534	HC-B 32-TFQ-80/O1STM32G	1645383	544
HC-B 24-AMLD	1771943	530	HC-B 24-SMQ-84/O1PG29	1678402	534	HC-B 32-TFQ-80/O1STM32S	1645150	544
HC-B 24-AMLD-AL	1645493	530	HC-B 24-SMQ-84/O2M32	1604837	534	HC-B 32-TFQ-80/O1STM40G	1647307	544
HC-B 24-AMQ	1771927	534	HC-B 24-SMQ-84/O2M40	1645723	534	HC-B 32-TFQ-80/O1STM40S	1645451	544
HC-B 24-ANDOCK	1586141	576	HC-B 24-SMQ-84/O2PG21	1678059	534	HC-B 32-TFQ-80/O1STM50S	1585980	544
HC-B 24-ANDOCK-MOD-A	1587483	577	HC-B 24-SMQ-84/O2PG29	1678431	534	HC-B 32-TMS-100/O1STM32G-EEE	1580516	542
HC-B 24-ANDOCK-MOD-T	1587470	577	HC-B 24-TFL-H-O1PG21G	1460342	528	HC-B 32-TMS-100/O1STM32S-EEE	1580517	542
HC-B 24-AP-GY	1660397	572	HC-B 24-TFL-H-O1PG21S	1460206	528	HC-B 32-TMS-100/O1STM40G-EEE	1580518	542
HC-B 24-APV-GY	1661037	572	HC-B 24-TFL-H-O1PG29G	1460207	528	HC-B 32-TMS-100/O1STM40S-EEE	1580519	542
HC-B 24-EBUQ-2.5	1605585	443	HC-B 24-TFL-H-O1PG29S	1460208	528	HC-B 32-TMS-100/O1STM50G-EEE	1580522	542
HC-B 24-EBUQ-2.5-48	1605608	443	HC-B 24-TFL-H-O1STM32G	1460212	528	HC-B 32-TMS-100/O1STM50S-EEE	1580521	542
HC-B 24-ESTQ-2.5	1605640	443	HC-B 24-TFL-H-O1STM32S	1460213	528	HC-B 32-TMS-SD-IP65	1580539	542
HC-B 24-ESTQ-2.5-48	1605666	443	HC-B 24-TFL-H-O1STM40G	1460214	528	HC-B 32/48-AF	1580524	542
HC-B 24-FL-DI	1774665	571	HC-B 24-TFL-H-O1STM40S	1460215	528	HC-B 32/48-AF-SET	1580523	542
HC-B 24-I-CT-F	1648348	443	HC-B 24-TFL-N-O1PG21G	1460190	528	HC-B 48-AML	1772175	547
HC-B 24-I-CT-F-48	1584981	443	HC-B 24-TFL-N-O1PG21S	1460193	528	HC-B 48-AMLD	1772188	547
HC-B 24-I-CT-M	1648335	443	HC-B 24-TFL-N-O1PG29G	1460293	528	HC-B 48-FL-DI	1774678	571
HC-B 24-I-CT-M-48	1584978	443	HC-B 24-TFL-N-O1PG29S	1460194	528	HC-B 48-LB-ERSBOLZ	1636114	570
HC-B 24-I-PT-F	1407735	443	HC-B 24-TFL-N-O1STM25G	1460189	528	HC-B 48-SML-100/O1M32	1604875	547
HC-B 24-I-PT-F-48	1407737	443	HC-B 24-TFL-N-O1STM25S	1460191	528	HC-B 48-SML-100/O1PG29	1675117	547
HC-B 24-I-PT-M	1407736	443	HC-B 24-TFL-N-O1STM32G	1460297	528	HC-B 48-SML-100/O2M40	1604876	547
HC-B 24-I-PT-M-48	1407738	443	HC-B 24-TFL-N-O1STM32S	1460192	528	HC-B 48-SML-100/O2PG29	1675120	547
HC-B 24-I-UT-F	1648306	443	HC-B 24-TFQ-H-O1PG21G	1460350	532	HC-B 48-SMLD-100/O2M40	1604878	547
HC-B 24-I-UT-F-48	1584949	443	HC-B 24-TFQ-H-O1PG21S	1460238	532	HC-B 48-TFL-96/O1PG29G	1675159	546
HC-B 24-I-UT-M	1648296	443	HC-B 24-TFQ-H-O1PG29G	1460239	532	HC-B 48-TFL-96/O1PG29S	1675162	546
HC-B 24-I-UT-M-48	1584936	443	HC-B 24-TFQ-H-O1PG29S	1460240	532	HC-B 48-TFL-96/O1PG36G	1675175	546
HC-B 24-KML-H-O1PG29	1460250	530	HC-B 24-TFQ-H-O1STM32G	1460243	532	HC-B 48-TFL-96/O1PG36S	1675188	546
HC-B 24-KML-H-O1STM32	1460325	530	HC-B 24-TFQ-H-O1STM32S	1409367	532	HC-B 48-TFL-96/O1STM32G	1647349	546
HC-B 24-KML-H-O1STM40	1460326	530	HC-B 24-TFQ-H-O1STM40G	1460245	532	HC-B 48-TFL-96/O1STM32S	1647336	546
HC-B 24-KMQ-H-O1PG21	1460329	534	HC-B 24-TFQ-H-O1STM40S	1460246	532	HC-B 48-TFL-96/O1STM40G	1647310	546
HC-B 48-TFL-96/O1STM40S	1647323	546	HC-B 6-KML-N-O1PG13.5	1460168	488	HC-B 6-TFL-H-O1PG21G	1460022	486
HC-B 6-KML-N-O1PG13.5	1460168	488	HC-B 6-KML-N-O1STM20	1460137	488	HC-B 6-TFL-H-O1PG21S	1460021	486
HC-B 6-KML-N-O1STM20	1460137	488	HC-B 6-LB	1584211	570	HC-B 6-TFL-H-O1PG29G	1460023	486
HC-B 6-LB	1584211	570	HC-B 6-SML-74/O2M25	1460195	488	HC-B 6-TFL-H-O1PG29S	1460024	486
HC-B 6-SML-74/O2M25	1460195	488	HC-B 6-TFL-H-O1STM25G	1460029	486	HC-B 6-TFL-H-O1STM25S	1460028	486
HC-B 6-TFL-H-O1PG21G	1460022	486	HC-B 6-TFL-H-O1STM25S	1460028	486	HC-B 6-TFL-H-O1STM32G	1460029	486
HC-B 6-TFL-H-O1PG21S	1460021	486	HC-B 6-TFL-H-O1PG29G	1460023	486	HC-B 6-TFL-H-O1PG29S	1460024	486
HC-B 6-TFL-H-O1PG29G	1460023	486	HC-B 6-TFL-H-O1PG29S	1460024	486	HC-B 6-TFL-N-O1STM20G	1460339	486
HC-B 6-TFL-H-O1PG29S	1460024	486	HC-B 6-TFL-N-O1STM20S	1460346	486	HC-B 6-TFL-N-O1STM25G	1460258	486
HC-B 6-TFL-N-O1STM20G	1460339	486	HC-B 6-TFL-N-O1STM25G	1460258	486	HC-B 6-TFL-N-O1STM25S	1460347	486
HC-B 6-TFL-N-O1STM20S	1460346	486	HC-B 6-TFL-N-O1STM25S	1460347	486	HC-B 6-TMS-EEE-PR-DI	1409794	571
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HC-M-02-MOD-BU	1679359	467	HC-M-KV-T-M25	1646191	557	K-17 - OE/2.0-E01/M17 F8	1624780	77	K-5E-M40 M9/5.0-C04/M40 F8	1620349	84
HC-M-02-MOD-BUC	1587519	469	HC-M-KV-T-M32	1646201	557	K-17 - OE/2.0-E01/M23 F8	1619277	77	K-5E-M40 M9/5.0-C05/M40 F8	1620377	84
HC-M-02-MOD-ST	1679346	467	HC-M-KV-Z-M20	1646146	557	K-17 - OE/2.0-E01/M23 FK	1619286	77	K-5E-M40 M9/5.0-C06/M40 F8	1620380	85
HC-M-02-MOD-STC	1587506	469	HC-M-KV-Z-M25	1646159	557	K-17 - OE/5.0-E01/M17 F8	1624781	76	K-7E - OE/010-D01/M17 F8	1619315	79
HC-M-03-MOD-BUC	1645972	469	HC-M-KV-Z-M32	1646162	557	K-17 - OE/5.0-E01/M23 F8	1619278	77	K-7E - OE/010-D02/M23 F8	1620401	82
HC-M-03-MOD-STC	1645969	469	HC-M-KV-Z-M40	1646175	557	K-17 - OE/5.0-E01/M23 FK	1619287	77	K-7E - OE/010-D02/M23 FK	1620423	82
HC-M-03/04-MOD-BUC	1585786	469	HC-M-MHMZ	1676831	481	K-17-M17 M9/010-E01/M17 F8	1624784	76	K-7E - OE/010-D03/M23 F8	1620405	82
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SAC-12P-MS/10,0-PUR SCO	1430569	64	SAC-2P-M12MSB/0,3-910/M12FSB	1507340	341	SAC-3P-3,0-PUR/B-1L-V	1443158	90	SAC-3P-10,0-961/M12FR VA	1419089	342
SAC-12P-MS/10,0-PVC SCO	1554801	65	SAC-2P-M12MSB/0,5-910/M12FSB	1507353	341	SAC-3P-3,0-PUR/B-1L-Z	1435399	90	SAC-3P-10,0-961/M12FS VA	1419084	342
SAC-12P-MS/2,0-35T/M23FS SHSCO	1437342	66	SAC-2P-M12MSB/1,0-910/M12FSB	1507366	341	SAC-3P-3,0-PUR/BI-1L-V	1443190	92	SAC-3P-10,0-PUR/A	1400732	87
SAC-12P-MS/5,0-35T/M23FS SHSCO	1437355	66	SAC-2P-M12MSB/2,0-910	1507243	341	SAC-3P-3,0-PUR/BI-1L-Z	1435247	92	SAC-3P-10,0-PUR/A-1L-R	1400799	87
SAC-14P-5,0-PUR/M16FR	1693746	177	SAC-2P-M12MSB/2,0-910/M12FSB	1507379	341	SAC-3P-3,0-PUR/C-1L-V	1443239	96	SAC-3P-10,0-PUR/A-1L-V	1443132	86
SAC-14P-10,0-PUR/M16FR	1693759	177	SAC-2P-M12MSB/5,0-910	1507256	341	SAC-3P-3,0-PUR/C-1L-Z	1435548	96	SAC-3P-10,0-PUR/A-1L-V 230V	1402986	87
SAC-17P-1,5-35T/FR SH SCO	1430323	67	SAC-2P-M12MSB/5,0-910/M12FSB	1507382	341	SAC-3P-3,0-PUR/CI-1L-V	1443271	98	SAC-3P-10,0-PUR/A-1L-Z	1435014	86
SAC-17P-1,5-35T/FS SH SCO	1430284	67	SAC-2P-M12MSB/10,0-910	1507269	341	SAC-3P-3,0-PUR/CI-1L-Z	1435690	98	SAC-3P-10,0-PUR/B-1L-V	1443174	90
SAC-17P-1,5-PUR/FR SCO	1430815	64	SAC-2P-M12MSB/10,0-910/M12FSB	1507395	341	SAC-3P-3,0-PUR/FR SCO	1536379	38	SAC-3P-10,0-PUR/B-1L-Z	1435412	90
SAC-17P-1,5-PUR/FS SCO	1430776	64	SAC-2P-M12MSB/15,0-910	1507272	341	SAC-3P-3,0-PUR/FR-2L SCO	1407775	38	SAC-3P-10,0-PUR/BI	1438862	93
SAC-17P-1,5-PVC/FR SCO	1555389	65	SAC-2P-M12MSB/15,0-910/M12FSB	1507405	341	SAC-3P-3,0-PUR/FS SCO	1536256	38	SAC-3P-10,0-PUR/BI-1L-V	1443213	92
SAC-17P-1,5-PVC/FS SCO	1555347	65	SAC-2P-M12MSB/910/...	1538047	341	SAC-3P-3,0-PUR/M 8FR	1669741	38	SAC-3P-10,0-PUR/BI-1L-Z	1435263	92
SAC-17P-3,0-35T/FR SH SCO	1430336	67	SAC-2P-MRB SCO/910/...	1433236	341	SAC-3P-3,0-PUR/M 8FR SH	1521779	43	SAC-3P-10,0-PUR/C	1400641	97
SAC-17P-3,0-35T/FS SH SCO	1430297	67	SAC-2P-MRB-FRB SCO/910/...	1433278	341	SAC-3P-3,0-PUR/M 8FR-2L	1671072	38	SAC-3P-10,0-PUR/CI-1L-V	1443255	96
SAC-17P-3,0-PUR/FR SCO	1430828	64	SAC-2P-MRB-FSB SCO/910/...	1433265	341	SAC-3P-3,0-PUR/M 8FS	1669725	38	SAC-3P-10,0-PUR/CI-1L-Z	1435564	96
SAC-17P-3,0-PUR/FS SCO	1430789	64	SAC-2P-MSB SCO/910/...	1538050	341	SAC-3P-3,0-PUR/M 8FS SH	1521724	43	SAC-3P-10,0-PUR/CI-1L-V	1443297	98
SAC-17P-3,0-PVC/FR SCO	1555392	65	SAC-2P-MSB-FRB SCO/910/...	1433252	341	SAC-3P-3,0-PUR/M12FR	1694512	40	SAC-3P-10,0-PUR/CI-1L-Z	1435713	98
SAC-17P-3,0-PVC/FS SCO	1555350	65	SAC-2P-MSB-FSB SCO/910/...	1538092	341	SAC-3P-3,0-PUR/M12FR B	1668205	40	SAC-3P-10,0-PUR/FR SCO	1536395	38
SAC-17P-5,0-35T/FR SH SCO	1430349	67	SAC-2P-MSB/0,3-910/FSB SCO	1518106	341	SAC-3P-3,0-PUR/M12FR SH	1682825	43	SAC-3P-10,0-PUR/FR-2L SCO	1407777	38
SAC-17P-5,0-35T/FS SH SCO	1430307	67	SAC-2P-MSB/0,5-910/FSB SCO	1518119	341	SAC-3P-3,0-PUR/M12FR-2L	1694402	40	SAC-3P-10,0-PUR/FS SCO	1536272	38
SAC-17P-5,0-PUR/FR SCO	1430831	64	SAC-2P-MSB/1,0-910/FSB SCO	1518122	341	SAC-3P-3					

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SAC-3P-10,0-PUR/M12FS-2L	1694790	40	SAC-3P-M 8MR/0,3-PUR/M12FS	1682388	40	SAC-3P-M 8MS/3,0-PUR/M12FR	1682375	40	SAC-3P-M12MS-M 8FS	1519752	108
SAC-3P-10,0-PUR/M5FR	1530537	34	SAC-3P-M 8MR/0,6-PUR/M 8FR-2L	1682113	38	SAC-3P-M 8MS/3,0-PUR/M12FS	1682333	40	SAC-3P-M12MS-M 8FS/.....	1696840	40
SAC-3P-10,0-PUR/M5FS	1530456	34	SAC-3P-M 8MR/1,0,6-PUR/M 8FS	1682032	38	SAC-3P-M 8MS/5,0-PUR	1681680	38	SAC-3P-M12MS-M 8SIFR-2L/.....	1515675	36
SAC-3P-100,0-116/0,75	1457416	169	SAC-3P-M 8MR/0,6-PUR/M12FR	1682430	40	SAC-3P-M 8SIFR-2L/.....	1513402	36	SAC-3P-M12MS-M 8SIFR/.....	1696882	36
SAC-3P-100,0-534/0,75	1457432	169	SAC-3P-M 8MR/1,5-PUR	1682391	40	SAC-3P-M 8SIFR/.....	1697629	36	SAC-3P-M12MS-M 8SIFS	1519781	108
SAC-3P-100,0-PUR/0,25	1501689	168	SAC-3P-M 8MR/1,5-PUR	1681693	38	SAC-3P-M 8SIFS/.....	1697593	36	SAC-3P-M12MS-M 8SIFS/.....	1696853	36
SAC-3P-100,0-PUR/0,34	1501650	168	SAC-3P-M 8MR/1,5-PUR/M 8FR-2L	1682126	38	SAC-3P-M 8Y/2XM 8FS	1696183	106	SAC-3P-M12MS-M12FR B/.....	1696785	40
SAC-3P-100,0-PUR/0,5	1457393	169	SAC-3P-M 8MR/1,5-PUR/M 8FS	1682045	38	SAC-3P-M 8Y/2XM 8FS VP	1696222	107	SAC-3P-M12MS-M12FR SH/.....	1536052	43
SAC-3P-100,0-PUR/SH-0,25	1526525	168	SAC-3P-M 8MR/1,5-PUR/M12FR	1682443	40	SAC-3P-M12FR B/.....	1696727	40	SAC-3P-M12MS-M12FR-2L/.....	1696798	40
SAC-3P-100,0-PUR/SH-0,34	1501702	168	SAC-3P-M 8MR/1,5-PUR/M12FS	1682401	40	SAC-3P-M12FR SH/.....	1697454	43	SAC-3P-M12MS-M12FR-2L/.....	1696808	40
SAC-3P-100,0-PVC/0,25	1501854	168	SAC-3P-M 8MR/10,0-600 FB	1406476	140	SAC-3P-M12FR-2L/.....	1696730	40	SAC-3P-M12MS-M12FR/.....	1696772	40
SAC-3P-100,0-PVC/0,34	1501825	168	SAC-3P-M 8MR/10,0-PUR	1694114	38	SAC-3P-M12FR-2LB/.....	1696743	40	SAC-3P-M12MS-M12FS B/.....	1696769	40
SAC-3P-100,0-PVC/SH-0,34	1526656	168	SAC-3P-M 8MR/10,0-PUR SH	1521698	43	SAC-3P-M12FR/.....	1696714	40	SAC-3P-M12MS-M12FS SH/.....	1536049	43
SAC-3P-15,0-961/M12FR VA	1419090	342	SAC-3P-M 8MR/3,0-PUR	1681703	38	SAC-3P-M12FR B/.....	1696691	40	SAC-3P-M12MS-M12FS-2L/.....	1511802	40
SAC-3P-15,0-961/M12FS VA	1419085	342	SAC-3P-M 8MR/3,0-PUR/M 8FR-2L	1682139	38	SAC-3P-M12FS SH/.....	1697441	43	SAC-3P-M12MS-M12FS/.....	1696756	40
SAC-3P-20,0-961/M12FR VA	1419091	342	SAC-3P-M 8MR/3,0-PUR/M 8FS	1682058	38	SAC-3P-M12FS-2L/.....	1696701	40	SAC-3P-M12MS/0,3-800/M12FR	1456815	164
SAC-3P-20,0-961/M12FS VA	1419086	342	SAC-3P-M 8MR/3,0-PUR/M12FR	1682456	40	SAC-3P-M12FS/.....	1696688	40	SAC-3P-M12MS/0,3-800/M12FR-2L	1456857	164
SAC-3P-3,0-PUR/A-1L-R	1400588	87	SAC-3P-M 8MR/3,0-PUR/M12FS	1682414	40	SAC-3P-M12MR SH/.....	1697438	43	SAC-3P-M12MS/0,3-800/M12FR	1456776	164
SAC-3P-5,0-PUR/A-1L-V 230V	1400648	87	SAC-3P-M 8MR/5,0-PUR	1681716	38	SAC-3P-M12MR-M 8FR-2L/.....	1696918	40	SAC-3P-M12MS/0,3-961/M12FR VA	1419118	342
SAC-3P-5,0-PUR/C	1400814	97	SAC-3P-M 8MS SH/.....	1521656	43	SAC-3P-M12MR-M 8FR/.....	1696905	40	SAC-3P-M12MS/0,3-961/M12FS VA	1419102	342
SAC-3P-A-1L-V/.....	1400876	86	SAC-3P-M 8MS-FR SCO/.....	1541924	38	SAC-3P-M12MR-M 8FS/.....	1696895	40	SAC-3P-M12MS/0,3-PUR/M12FR	1681541	40
SAC-3P-A-1L-Z/.....	1400582	87	SAC-3P-M 8MS-FR-2L SCO/.....	1541937	38	SAC-3P-M12MR-M12FR B/.....	1696824	40	SAC-3P-M12MS/0,3-PUR/M12FR B	1668399	40
SAC-3P-A/.....	1400897	87	SAC-3P-M 8MS-FS SCO/.....	1541911	38	SAC-3P-M12MR-M12FR SH/.....	1536078	43	SAC-3P-M12MS/0,3-PUR/M12FR SH	1500923	43
SAC-3P-B-1L-V/.....	1400882	90	SAC-3P-M 8MS-FS-2L SCO/.....	1541843	38	SAC-3P-M12MR-M12FR-2LB/.....	1696837	40	SAC-3P-M12MS/0,3-PUR/M12FR-2L	1694554	40
SAC-3P-B-1L-Z/.....	1435425	90	SAC-3P-M 8MS-M 8FR SH/.....	1552065	43	SAC-3P-M12MR-M12FS B/.....	1696811	40	SAC-3P-M12MS/0,3-PUR/M12FS SH	1500800	43
SAC-3P-B/.....	1400909	91	SAC-3P-M 8MS-M 8FR-2L/.....	1697658	38	SAC-3P-M12MR-M12FS SH/.....	1536065	43	SAC-3P-M12MS/0,5-961/M12FR VA	1419119	342
SAC-3P-BI-1L-V/.....	1400879	92	SAC-3P-M 8MS-M 8FR/.....	1697645	38	SAC-3P-M12MR-M12FS-2L/.....	1524763	40	SAC-3P-M12MS/0,5-961/M12FS VA	1419103	342
SAC-3P-BI-1L-Z/.....	1435276	92	SAC-3P-M 8MS-M 8FS SH/.....	1552052	43	SAC-3P-M12MR/0,3-961/M12FR VA	1419126	342	SAC-3P-M12MS/0,6-800/M12FR	1456828	164
SAC-3P-BV/.....	1400902	93	SAC-3P-M 8MS-M 8FS/.....	1697632	38	SAC-3P-M12MR/0,3-961/M12FS VA	1419110	342	SAC-3P-M12MS/0,6-800/M12FR-2L	1456860	164
SAC-3P-C-1L-V/.....	1400894	96	SAC-3P-M 8MS-M12FR-2L/.....	1697713	40	SAC-3P-M12MR/0,5-961/M12FR VA	1419127	342	SAC-3P-M12MS/0,6-800/M12FS	1456789	164
SAC-3P-C-1L-Z/.....	1435726	96	SAC-3P-M 8MS-M12FR/.....	1697700	40	SAC-3P-M12MR/0,5-961/M12FS VA	1419111	342	SAC-3P-M12MS/0,6-PUR/M12FR	1681554	40
SAC-3P-C/.....	1400921	97	SAC-3P-M 8MS-M12FS	1519749	108	SAC-3P-M12MR/1,0-961/M12FR VA	1419128	342	SAC-3P-M12MS/0,6-PUR/M12FR B	1668409	40
SAC-3P-CI-1L-V/.....	1400891	98	SAC-3P-M 8MS-M12FS-2L/.....	1514197	40	SAC-3P-M12MR/1,0-961/M12FS VA	1419112	342	SAC-3P-M12MS/0,6-PUR/M12FR SH	1500936	43
SAC-3P-CI-1L-Z/.....	1435577	98	SAC-3P-M 8MS-M12FS/.....	1697690	40	SAC-3P-M12MR/1,5-800	1456889	164	SAC-3P-M12MS/0,6-PUR/M12FR-2L	1694567	40
SAC-3P-CV/.....	1400918	99	SAC-3P-M 8MS/0,3-600/M 8FR FB	1406494	140	SAC-3P-M12MR/1,5-PUR SH	1682689	43	SAC-3P-M12MS/0,6-PUR/M12FS SH	1500813	43
SAC-3P-FR B SCO/.....	1542075	38	SAC-3P-M 8MS/0,3-600/M 8FS FB	1406490	140	SAC-3P-M12MR/2,0-961 VA	1419097	342	SAC-3P-M12MS/0,6-PUR/M12FR VA	1419120	342
SAC-3P-FR SCO/.....	1536492	38	SAC-3P-M 8MS/0,3-PUR/M 8FS	1681907	38	SAC-3P-M12MR/2,0-961/M12FR VA	1419129	342	SAC-3P-M12MS/1,0-961/M12FS VA	1419104	342
SAC-3P-FR SH SCO/.....	1536557	42	SAC-3P-M 8MS/0,3-PUR/M 8FS SH	1456310	43	SAC-3P-M12MR/2,0-961/M12FS VA	1419113	342	SAC-3P-M12MS/1,5-800	1456734	164
SAC-3P-FR-2L B SCO/.....	1542088	38	SAC-3P-M 8MS/0,3-PUR/M12FR-2L	1693351	40	SAC-3P-M12MR/3,0-800	1456909	164	SAC-3P-M12MS/1,5-800/M12FR	1456831	164
SAC-3P-FR-2L SCO/.....	1535752	38	SAC-3P-M 8MS/0,6-600/M 8FR FB	1406495	140	SAC-3P-M12MR/3,0-PUR SH	1682692	43	SAC-3P-M12MS/1,5-800/M12FR-2L	1456873	164
SAC-3P-FS B SCO/.....	1542046	38	SAC-3P-M 8MS/0,6-600/M 8FS FB	1406491	140	SAC-3P-M12MR/5,0-800	1456912	164	SAC-3P-M12MS/1,5-800/M12FS	1456792	164
SAC-3P-FS SCO/.....	1535778	38	SAC-3P-M 8MS/0,6-PUR/M 8FS	1681910	38	SAC-3P-M12MR/5,0-961 VA	1419098	342	SAC-3P-M12MS/1,5-PUR SH	1682650	43
SAC-3P-FS SH SCO/.....	1536528	42	SAC-3P-M 8MS/0,6-PUR/M 8FS SH	1456323	43	SAC-3P-M12MR/5,0-961/M12FR VA	1419130	342	SAC-3P-M12MS/1,5-PUR/M12FR	1681562	40
SAC-3P-FS-2L SCO/.....	1542059	38	SAC-3P-M 8MS/0,6-PUR/M12FR-2L	1693364	40	SAC-3P-M12MR/5,0-961/M12FS VA	1419114	342	SAC-3P-M12MS/1,5-PUR/M12FR B	1668412	40
SAC-3P-M 8FR SH/.....	1521805	43	SAC-3P-M 8MS/1,5-600 FB	1406469	140	SAC-3P-M12MR/5,0-PUR SH	1682702	43	SAC-3P-M12MS/1,5-PUR/M12FR SH	1500949	43
SAC-3P-M 8FR-2L/.....	1697616	38	SAC-3P-M 8MS/1,5-600/M 8FR FB	1406496	140	SAC-3P-M12MR/.....	1696675	40	SAC-3P-M12MS/1,5-PUR/M12FR-2L	1694570	40
SAC-3P-M 8FR/.....	1697603	38	SAC-3P-M 8MS/1,5-600/M 8FS FB	1406492	140	SAC-3P-M12MR/0,3-PUR/M 8FR	1668917	40	SAC-3P-M12MS/1,5-PUR/M12FS SH	1500826	43
SAC-3P-M 8FS SH/.....	1521753	43	SAC-3P-M 8MS/1,5-PUR SH	1521614	43	SAC-3P-M12MR/0,3-PUR/M 8FS	1668878	40	SAC-3P-M12MS/2,0-961 VA	1419092	342
SAC-3P-M 8FS/.....	1697580	38	SAC-3P-M 8MS/1,5-PUR/M 8FS	1681923	38	SAC-3P-M12MR/0,3-PUR/M12FR B	1668632	40	SAC-3P-M12MS/2,0-961/M12FR VA	1419121	342
SAC-3P-M 8MR SH/.....	1521708	43	SAC-3P-M 8MS/1,5-PUR/M 8FS SH	1455285	43	SAC-3P-M12MR/0,3-PUR/M12FS B	1668551	40	SAC-3P-M12MS/2,0-961/M12FS VA	1419105	342
SAC-3P-M 8MR-FR SCO/.....	1541953	38	SAC-3P-M 8MS/1,5-PUR/M12FR-2L	1693380	40	SAC-3P-M12MR/0,6-PUR/M 8FR	1668920	40	SAC-3P-M12MS/3,0-800	1456747	164
SAC-3P-M 8MR-FR-2L SCO/.....	1541966	38	SAC-3P-M 8MS/3,0-600 FB	1406470	140	SAC-3P-M12MR/0,6-PUR/M 8FS	1668881	40	SAC-3P-M12MS/3,0-800/M12FR	1456844	164
SAC-3P-M 8MR-FS SCO/.....	1541940	38	SAC-3P-M 8MS/3,0-600/M 8FR FB	1406497	140	SAC-3P-M12MR/0,6-PUR/M12FR B	1668645	40	SAC-3P-M12MS/3,0-800/M12FR-2L	1456886	164
SAC-3P-M 8MR-FS-2L SCO/.....	1553501	38	SAC-3P-M 8MS/3,0-600/M 8FS FB	1406493	140	SAC-3P-M12MR/0,6-PUR/M12FS B	1668564	40	SAC-3P-M12MS/3,0-800/M12FS	1456802	164
SAC-3P-M 8MR-M 8FR SH/.....	1520081	43	SAC-3P-M 8MS/3,0-PUR SH	1521527	43	SAC-3P-M12MR/1,5-PUR	1668137	40	SAC-3P-M12MS/3,0-PUR SH	1682663	40
SAC-3P-M 8MR-M 8FR-2L/.....	1697687	38	SAC-3P-M 8MS/3,0-PUR/M 8FS	1681936	38	SAC-3P-M12MR/1,5-PUR/M 8FR	1668933	40	SAC-3P-M12MS/3,0-PUR/M12FR	1681570	40
SAC-3P-M 8MR-M 8FR/.....	1697674	38	SAC-3P-M 8MS/3,0-PUR/M 8FS SH	1455298	43	SAC-3P-M12MR/1,5-PUR/M 8FS	1668894	40	SAC-3P-M12MS/3,0-PUR/M12FR B	1668425	40
SAC-3P-M 8MR-M 8FS SH/.....	1552078	43	SAC-3P-M 8MS/3,0-PUR/M12FR-2L	1693403	40	SAC-3P-M12MR/1,5-PUR/M12FR B	1668658	40	SAC-3P-M12MS/3,0-PUR/M12FR SH	1500952	43
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SAC-4P-5,0-961/MINFS VAL	1433799	349	SAC-4P-100,0-PVC/0,34	1501838	168	SAC-4P-M 8MR/10,0-PUR	1694156	44	SAC-4P-M12MR/0,3-PUR/M12FR	1668713	46
SAC-4P-5,0-PUR/FR SCO	1536421	44	SAC-4P-100,0-PVC/SH/0,34	1550669	168	SAC-4P-M 8MR/10,0-PUR SH	1521892	50	SAC-4P-M12MR/0,3-PUR/M12FR-3L	1668755	46
SAC-4P-5,0-PUR/FR SH SCO	1407798	48	SAC-4P-15,0-186/FS SCO	1555677	356	SAC-4P-M 8MR/3,0-PUR	1681826	44	SAC-4P-M12MR/0,3-PUR/M12FS	1668593	46
SAC-4P-5,0-PUR/FR-3L SCO	1407780	44	SAC-4P-15,0-960/M12FS VA	1431241	350	SAC-4P-M 8MR/3,0-PUR/M 8FR	1682294	44	SAC-4P-M12MR/0,6-PUR/M 8FR	1671564	46
SAC-4P-5,0-PUR/FRS PE SCO	1408853	68	SAC-4P-15,0-960/MINFR VA	1429295	350	SAC-4P-M 8MR/3,0-PUR/M 8FS	1682252	44	SAC-4P-M12MR/0,6-PUR/M12FR	1668726	46
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SAC-4P-M12MS/0,3-600/M12FS FB	1404023	144	SAC-4P-MINMR/2,0-961 VA	1434057	349	SAC-4P-MINMS/50,0-960/MINFRVAL	1429897	350	SAC-4P-MS/10,0-PUR SH SCO	1407803	48
SAC-4P-M12MS/0,3-600/M12FS HD	1403968	142	SAC-4P-MINMR/2,0-961/MINFRVA	1434536	349	SAC-4P-MINMS/50,0-960/MINFSVAL	1429651	350	SAC-4P-MS/10,0-186 SCO	1555635	356
SAC-4P-M12MS/0,3-PUR/M 8FS	1694923	46	SAC-4P-MINMR/2,0-961/MINFSVAL	1434293	349	SAC-4P-MR SCO/.....	1523573	44	SAC-4P-MS/15,0-186/FS SCO	1555745	356
SAC-4P-M12MS/0,3-PUR/M12FR-3L	1668519	46	SAC-4P-MINMR/5,0-960 VA	1429457	350	SAC-4P-MR SH SCO/.....	1523777	48	SAC-4P-MS/2,0-28R/FS SCO RAIL	1407323	131
SAC-4P-M12MS/0,6-600/FS SH HD	1403991	142	SAC-4P-MINMR/5,0-960/MINFRVA	1429949	350	SAC-4P-MR-FR SCO/.....	1537828	44	SAC-4P-MS/3,0-600/M 8FR-2L FB	1406869	141
SAC-4P-M12MS/0,6-600/M12FR FB	1404028	144	SAC-4P-MINMR/5,0-960/MINFSVAL	1429703	350	SAC-4P-MR-FR SH SCO/.....	1542211	48	SAC-4P-MS/3,0-600/M12FR-3L FB	1404036	144
SAC-4P-M12MS/0,6-600/M12FR HD	1403973	142	SAC-4P-MINMR/5,0-961 VA	1434060	349	SAC-4P-MR-FR-3L SCO/.....	1542334	44	SAC-4P-MS/3,0-600/M12FR-3L HD	1403979	142
SAC-4P-M12MS/0,6-600/M12FS FB	1404024	144	SAC-4P-MINMR/5,0-961/MINFRVA	1434549	349	SAC-4P-MR-FS SCO/.....	1523599	44	SAC-4P-MS/5,0-28R/FS SCO RAIL	1407324	131
SAC-4P-M12MS/0,6-600/M12FS HD	1403969	142	SAC-4P-MINMR/5,0-961/MINFSVAL	1434303	349	SAC-4P-MR-FS SH SCO/.....	1542208	48	SAC-4P-MS/A-1L-Z D SCO	1458583	111
SAC-4P-M12MS/0,6-600/M12FR-3L	1567173	165	SAC-4P-MINMR/10,0-960 VA	1429460	350	SAC-4P-MR-M8FS SCO/.....	1542253	44	SAC-4P-MS/3,0-600/M12FR-3L FB	1406835	68
SAC-4P-M12MS/0,6-PUR/M 8FS	1693076	46	SAC-4P-MINMR/10,0-960/MINFRVA	1429952	350	SAC-4P-MR/0,3-PUR/FS SCO	1518928	44	SAC-4P-MSS/1,5-PUR PE SH SCO	1424104	69
SAC-4P-M12MS/0,6-PUR/M12FR-3L	1668522	46	SAC-4P-MINMR/10,0-960/MINFSVAL	1429716	350	SAC-4P-MR/0,6-PUR/FS SCO	1518931	44	SAC-4P-MSS/2,0-PUR PE SCO	1408836	68
SAC-4P-M12MS/1,5-600 FB	1404002	144	SAC-4P-MINMR/10,0-961 VA	1434073	349	SAC-4P-MR/1,5-PUR SCO	1518847	44	SAC-4P-MSS/3,0-PUR PE SH SCO	1424105	69
SAC-4P-M12MS/1,5-600 HD	1403947	142	SAC-4P-MINMR/10,0-961/MINFRVA	1434552	349	SAC-4P-MR/1,5-PUR/FS SCO	1518944	44	SAC-4P-MSS/5,0-PUR PE SCO	1408837	68
SAC-4P-M12MS/1,5-600 SH HD	1403981	142	SAC-4P-MINMR/10,0-961/MINFSVAL	1434316	349	SAC-4P-MR/2,0-28R SCO RAIL	1407314	131	SAC-4P-MSS/5,0-PUR PE SH SCO	1424245	69
SAC-4P-M12MS/1,5-600/FS SH HD	1403992	142	SAC-4P-MINMR/15,0-960 VA	1429473	350	SAC-4P-MR/2,0-28R SCO RAIL	1518850	44	SAC-4P-MSS/10,0-PUR PE SCO	1408838	68
SAC-4P-M12MS/1,5-600/M12FR FB	1404030	144	SAC-4P-MINMR/15,0-960/MINFRVA	1429965	350	SAC-4P-MR/3,0-PUR/FS SCO	1518957	44	SAC-4P-MSS/10,0-PUR PE SH SCO	1424107	69
SAC-4P-M12MS/1,5-600/M12FR HD	1403974	142	SAC-4P-MINMR/15,0-960/MINFSVAL	1429729	350	SAC-4P-MR/5,0-28R SCO RAIL	1407315	131	SAC-4P-MST/1,0-PUR SCO	1408812	70
SAC-4P-M12MS/1,5-600/M12FS FB	1404025	144	SAC-4P-MINMR/20,0-960 VA	1429486	350	SAC-4P-MR/5,0-PUR SCO	1518863	44	SAC-4P-MST/1,0-PUR/FST SCO	1408808	70
SAC-4P-M12MS/1,5-600/M12FS HD	1403970	142	SAC-4P-MINMR/20,0-960/MINFRVA	1429178	350	SAC-4P-MR/10,0-28R SCO RAIL	1407316	131	SAC-4P-MST/1,5-PUR SH SCO	1424120	71
SAC-4P-M12MS/1,5-800/M12FR-3L	1567199	165	SAC-4P-MINMR/20,0-960/MINFSVAL	1429732	350	SAC-4P-MR/10,0-PUR SCO	1518876	44	SAC-4P-MST/2,0-PUR SCO	1408813	70
SAC-4P-M12MS/1,5-PUR/M 8FS	1693089	46	SAC-4P-MINMR/25,0-960 VA	1429499	350	SAC-4P-MRS/1,0-PUR PE SCO	1408839	68	SAC-4P-MST/2,0-PUR/FST SCO	1408809	70
SAC-4P-M12MS/1,5-PUR/M12FR	1668496	46	SAC-4P-MINMR/25,0-960/MINFRVA	1429981	350	SAC-4P-MRS/1,5-PUR PE SH SCO	1424108	69	SAC-4P-MST/3,0-PUR SH SCO	1424121	71
SAC-4P-M12MS/1,5-PUR/M12FR-3L	1668535	46	SAC-4P-MINMR/25,0-960/MINFSVAL	1429745	350	SAC-4P-MRS/2,0-PUR PE SCO	1408840	68	SAC-4P-MST/3,0-PUR SH SCO	1408814	70
SAC-4P-M12MS/10,0-28X OD	1454066	153	SAC-4P-MINMR/30,0-960 VA	1429509	350	SAC-4P-MRS/3,0-PUR PE SH SCO	1424109	69	SAC-4P-MST/5,0-PUR SH SCO	1424122	71
SAC-4P-M12MS/10,0-28X SH OD	1454147	154	SAC-4P-MINMR/30,0-960/MINFRVA	1429994	350	SAC-4P-MRS/5,0-PUR PE SCO	1408841	68	SAC-4P-MST/7,0-PUR/FST SCO	1408810	70
SAC-4P-M12MS/10,0-600 FB	1404005	144	SAC-4P-MINMR/30,0-960/MINFSVAL	1429758	350	SAC-4P-MRS/5,0-PUR PE SH SCO	1424110	69	SAC-4P-MST/10,0-PUR SCO	1408815	70
SAC-4P-M12MS/10,0-600 HD	1403951	142	SAC-4P-MINMR/40,0-960 VA	1429512	350	SAC-4P-MRS/10,0-PUR PE SCO	1408842	68	SAC-4P-MST/10,0-PUR SH SCO	1424123	71
SAC-4P-M12MS/10,0-600 SH HD	1403984	142	SAC-4P-MINMR/40,0-960/MINFRVA	1430006	350	SAC-4P-MRS/10,0-PUR PE SH SCO	1424111	69	SAC-4P-MST/10,0-PUR/FST SCO	1408811	70
SAC-4P-M12MS/10,0-800	1457047	165	SAC-4P-MINMR/40,0-960/MINFSVAL	1429761	350	SAC-4P-MRT/1,0-PUR SCO	1408816	70	SAC-4PY-1,5-PUR/2XF	1436165	103
SAC-4P-M12MS/10,0-960 VA	1431199	350	SAC-4P-MINMR/50,0-960 VA	1429525	350	SAC-4P-MRT/1,5-PUR SH SCO	1424124	71	SAC-4PY-3,0-PUR/2XF	1436178	103
SAC-4P-M12MS/10,0-960/M12FS VA	1431306	350	SAC-4P-MINMR/50,0-960/MINFRVA	1430019	350	SAC-4P-MRT/2,0-PUR SCO	1408819	70	SAC-4PY-5,0-PUR/2XF	1436181	103
SAC-4P-M12MS/10,0-PUR	1682993	46	SAC-4P-MINMR/50,0-960/MINFSVAL	1429774	350	SAC-4P-MRT/3,0-PUR SH SCO	1424125	71	SAC-4PY-10,0-PUR/2XF	1436194	103
SAC-4P-M12MS/10,0-PUR SH	1694389	50	SAC-4P-MINMS FF-TR VA	1430023	353	SAC-4P-MRT/5,0-PUR SCO	1408820	70	SAC-4PY-MS-0,3-PUR/2XF	1436204	103
SAC-4P-M12MS/15,0-960 VA	1431209	350	SAC-4P-MINMS/0,3-960/MINFRVA	1429978	350	SAC-4P-MRT/5,0-PUR SH SCO	1424126	71	SAC-4PY-MS-0,6-PUR/2XF	1436217	103
SAC-4P-M12MS/15,0-960/M12FS VA	1431319	350	SAC-4P-MINMS/0,3-960/MINFSVAL	1429538	350	SAC-4P-MRT/10,0-PUR SCO	1408822	70	SAC-4PY-MS-1,5-PUR/2XF	1436220	103
SAC-4P-M12MS/2,0-28X/M12FS OD	1454105	153	SAC-4P-MINMS/0,3-961/MINFRVAL	1434387	349	SAC-4P-MRT/10,0-PUR SH SCO	1424127	71	SAC-4PY-MS-3,0-PUR/2XF	1436233	103
SAC-4P-M12MS/2,0-28X/M12FSSHOD	1454189	154	SAC-4P-MINMS/0,3-961/MINFSVAL	1434141	349	SAC-4P-MS SCO/.....	1523660	44	SAC-5P-1,5-115/M 8FRB	1404475	51
SAC-4P-M12MS/3,0-600 FB	1404003	144	SAC-4P-MINMS/0,5-960/MINFRVA	1429790	350	SAC-4P-MS SH SCO/.....	1523764	48	SAC-5P-1,5-115/M 8FSB	1404470	51
SAC-4P-M12MS/3,0-600 HD	1403948	142	SAC-4P-MINMS/0,5-960/MINFSVAL	1429554	350	SAC-4P-MS-AD SCO/.....	1400898	100	SAC-5P-1,5-430/MINFR PWR	1443352	74
SAC-4P-M12MS/3,0-600 SH HD	1403982	142	SAC-4P-MINMS/0,5-961/MINFRVAL	1434390	349	SAC-4P-MS-FR SCO/.....	1537747	44	SAC-5P-1,5-431/MINFR PWR	1443307	74
SAC-4P-M12MS/3,0-600/FS SH HD	1403993	142	SAC-4P-MINMS/0,5-961/MINFSVAL	1434154	349	SAC-4P-MS-FR SH SCO/.....	1523816	48	SAC-5P-1,5-431/MINFR PWR	1443501	75
SAC-4P-M12MS/3,0-600/M12FR FB	1404031	144	SAC-4P-MINMS/1,0-960/MINFRVA	1429800	350	SAC-4P-MS-FR-3L SCO/.....	1535707	44	SAC-5P-1,5-440/MINFR PWR	1443750	72
SAC-4P-M12MS/3,0-600/M12FR HD	1403975	142	SAC-4P-MINMS/1,0-960/MINFSVAL	1429567	350	SAC-4P-MS-FS SCO/.....	1523586	44	SAC-5P-1,5-440/MINFS PWR	1443705	72
SAC-4P-M12MS/3,0-600/M12FS FB	1404026	144	SAC-4P-MINMS/1,0-961/MINFRVAL	1434400	349	SAC-4P-MS-FS SH SCO/.....	1523803	48	SAC-5P-1,5-441/MINFR PWR	1443954	73
SAC-4P-M12MS/3,0-600/M12FS HD	1403971	142	SAC-4P-MINMS/1,0-961/MINFSVAL	1434167	349	SAC-4P-MS-M8FR SCO/.....	1542279	44	SAC-5P-1,5-441/MINFS PWR	1443954	73
SAC-4P-M12MS/3,0-PUR/M 8FS	1694936	46	SAC-4P-MINMS/2,0-960 VAL	1429350	350	SAC-4P-MS-M8FR-2L SCO/.....	1535723	44	SAC-5P-1,5-441/MINFS PWR	1443909	73
SAC-4P-M12MS/3,0-PUR/M12FR	1668506	46	SAC-4P-MINMS/2,0-960/MINFRVAL	1429813	350	SAC-4P-MS-M8FS SCO/.....	1535749	44	SAC-5P-1,5-802/M12FR	1457173	166
SAC-4P-M12MS/3,0-PUR/M12FR-3L	1668548	46	SAC-4P-MINMS/2,0-960/MINFSVAL	1429570	350	SAC-4P-MS/0,3-186/FS SCO	1555680	356	SAC-5P-1,5-802/M12FR-3L	1454367	166
SAC-4P-M12											

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SAC-5P-2,0-900/FSB SCO	1517916	340	SAC-5P-1,5-600/M12FR FB	1404088	145	SAC-5P-3,0-600/M12FS HD	1404050	143	SAC-5P-M12MR/5,0-600 FB	1404081	145
SAC-5P-2,0-900/M12FS	1507117	340	SAC-5P-1,5-600/M12FR HD	1404053	143	SAC-5P-5,0-600/M12FR FB	1404091	145	SAC-5P-M12MR/5,0-600 HD	1404047	143
SAC-5P-2,0-920/FS SCO	1518216	345	SAC-5P-1,5-600/M12FR-3L FB	1404093	145	SAC-5P-5,0-600/M12FR HD	1404055	143	SAC-5P-M12MR/5,0-PUR	1669819	55
SAC-5P-2,0-920/M 8FS	1575770	344	SAC-5P-1,5-600/M12FR-3L HD	1404057	143	SAC-5P-5,0-600/M12FR-3L FB	1404095	145	SAC-5P-M12MS CAN TR	1507816	353
SAC-5P-2,0-920/M12FS	1507476	345	SAC-5P-1,5-600/M12FS FB	1404083	145	SAC-5P-5,0-600/M12FR-3L HD	1404060	143	SAC-5P-M12MS PB TR	1507803	353
SAC-5P-2,0-923/FR CAN SCO	1419034	343	SAC-5P-1,5-600/M12FS HD	1404049	143	SAC-5P-5,0-600/M12FS FB	1404085	145	SAC-5P-M12MS SH/...	1697506	55
SAC-5P-2,0-923/FS CAN SCO	1419081	343	SAC-5P-10,0-115/M 8FRB	1404478	51	SAC-5P-5,0-600/M12FS HD	1404051	143	SAC-5P-M12MS-M12FR SH/...	1536133	55
SAC-5P-2,0-923/MINFR DN	1418471	346	SAC-5P-10,0-115/M 8FSB	1404474	51	SAC-5P-920/...	1511504	345	SAC-5P-M12MS-M12FR-3L/...	1697166	53
SAC-5P-2,0-923/MINFS DN	1418426	346	SAC-5P-10,0-28R/FR SCO RAIL	1407336	132	SAC-5P-AD-2L/...	1435124	100	SAC-5P-M12MS-M12FR/...	1697153	53
SAC-5P-2,0-928/MINFR DN	1417508	347	SAC-5P-10,0-28R/FS SCO RAIL	1407333	132	SAC-5P-FR SCO/...	1536515	52	SAC-5P-M12MS-M12FS SH/...	1536120	55
SAC-5P-2,0-928/MINFS DN	1417456	347	SAC-5P-10,0-28X/M12FS OD	1407260	155	SAC-5P-FR SCO/920/...	1433294	345	SAC-5P-M12MS-M12FS/...	1697140	53
SAC-5P-3,0-115/M 8FRB	1404476	51	SAC-5P-10,0-28X/M12FS SH OD	1407268	156	SAC-5P-FR SH SCO/...	1536573	54	SAC-5P-M12MS-M12FS/920/...	1538144	345
SAC-5P-3,0-115/M 8FSB	1404471	51	SAC-5P-10,0-430/MINFR PWR	1443394	74	SAC-5P-FR-3L SCO/...	1542428	52	SAC-5P-M12MS/0,3-802/M12FR	1457283	166
SAC-5P-3,0-430/MINFR PWR	1443365	74	SAC-5P-10,0-430/MINFS PWR	1443349	74	SAC-5P-FRB SCO/900/...	1433197	340	SAC-5P-M12MS/0,3-802/M12FR-3L	1457306	166
SAC-5P-3,0-430/MINFS PWR	1443310	74	SAC-5P-10,0-431/MINFR PWR	1443598	75	SAC-5P-FS SCO/...	1536489	52	SAC-5P-M12MS/0,3-802/M12FS	1457267	166
SAC-5P-3,0-431/MINFR PWR	1443569	75	SAC-5P-10,0-431/MINFS PWR	1443543	75	SAC-5P-FS SCO/920/...	1538131	345	SAC-5P-M12MS/0,3-920/M12FS	1507528	345
SAC-5P-3,0-431/MINFS PWR	1443514	75	SAC-5P-10,0-440/MINFR PWR	1443792	72	SAC-5P-FS SH SCO/...	1536544	54	SAC-5P-M12MS/0,3-PUR/M12FR SH	1501003	55
SAC-5P-3,0-440/MINFR PWR	1443763	72	SAC-5P-10,0-440/MINFS PWR	1443747	72	SAC-5P-M 8MR/0,3-920/M 8FS	1538018	340	SAC-5P-M12MS/0,5-920/M12FS	1507531	345
SAC-5P-3,0-440/MINFS PWR	1443718	72	SAC-5P-10,0-441/MINFR PWR	1419810	73	SAC-5P-M 8FR/920/...	1575916	344	SAC-5P-M12MS/0,6-802/M12FR	1454516	166
SAC-5P-3,0-441/MINFR PWR	1443967	73	SAC-5P-10,0-441/MINFS PWR	1443941	73	SAC-5P-M 8FS/920/...	1575819	344	SAC-5P-M12MS/0,6-802/M12FR-3L	1454464	166
SAC-5P-3,0-441/MINFS PWR	1443912	73	SAC-5P-10,0-600/M12FR FB	1404092	145	SAC-5P-M 8MR-M 8FR/920/...	1575945	344	SAC-5P-M12MS/0,6-802/M12FS	1500884	55
SAC-5P-3,0-802/M12FR	1443786	166	SAC-5P-10,0-600/M12FR HD	1404056	143	SAC-5P-M 8MR-M 8FS/920/...	1575932	344	SAC-5P-M12MS/0,6-PUR/M12FR SH	1501029	55
SAC-5P-3,0-802/M12FR-3L	1457212	166	SAC-5P-10,0-600/M12FR-3L FB	1404096	145	SAC-5P-M 8MR/920/...	1575903	344	SAC-5P-M12MS/0,6-PUR/M12FS SH	1500897	55
SAC-5P-3,0-802/M12FS	1457160	166	SAC-5P-10,0-600/M12FR-3L HD	1404062	143	SAC-5P-M 8MRB/1,5-115	1404465	51	SAC-5P-M12MS/1,5-802/M12FR	1454580	166
SAC-5P-3,0-PUR/AD-2L	1435098	100	SAC-5P-10,0-600/M12FS FB	1404086	145	SAC-5P-M 8MRB/3,0-115	1404466	51	SAC-5P-M12MS/1,5-802/M12FS	1457225	166
SAC-5P-3,0-PUR/FR SCO	1536450	52	SAC-5P-10,0-600/M12FS HD	1404052	143	SAC-5P-M 8MRB/5,0-115	1404467	51	SAC-5P-M12MS/1,5-802/M12FR-3L	1454542	166
SAC-5P-3,0-PUR/FR SH SCO	1407809	54	SAC-5P-10,0-802/M12FR	1452709	166	SAC-5P-M 8MRB/10,0-115	1404468	51	SAC-5P-M12MS/1,5-802/M12FR	1454532	166
SAC-5P-3,0-PUR/FS SCO	1536337	52	SAC-5P-10,0-802/M12FR-3L	1454396	166	SAC-5P-M 8MS DN TR	1439588	353	SAC-5P-M12MS/1,5-802/M12FS	1454587	166
SAC-5P-3,0-PUR/FS SH SCO	1407788	54	SAC-5P-10,0-802/M12FS	1454448	166	SAC-5P-M 8MS-M 8FS/920/...	1575893	344	SAC-5P-M12MS/1,5-PUR SH	1682728	55
SAC-5P-3,0-PUR/M12FR	1669864	53	SAC-5P-10,0-900/FSB SCO	1517932	340	SAC-5P-M 8MS/0,3-920/M 8FS	1575822	344	SAC-5P-M12MS/1,5-PUR/M12FR SH	1501045	55
SAC-5P-3,0-PUR/M12FR SH	1682977	55	SAC-5P-10,0-900/M12FS	1507133	340	SAC-5P-M 8MS/0,5-920/M 8FS	1575835	344	SAC-5P-M12MS/1,5-PUR/M12FS SH	1500907	55
SAC-5P-3,0-PUR/M12FR-3L	1669893	53	SAC-5P-10,0-920/FS SCO	1518232	345	SAC-5P-M 8MS/1,0-920/M 8FS	1575848	344	SAC-5P-M12MS/2,0-28X OD	1407255	155
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SAC-5P-5,0-28X/M12FS SH OD	1407267	156	SAC-5P-10,0-928/MINFS DN	1417472	347	SAC-5P-M 8MS/15,0-920/M 8FS	1575880	344	SAC-5P-M12MS/3,0-802/M12FS	1457270	166
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SACB-4/8-L-SC SCO P	1452990	118	SACB-8/8-L-5,0PUR SCO P NPN	1405737	118	SACB-C-H180-4/4 SCO P PUR/	1401391	119	SACC-FS-4CON-PG 7-M SCO	1543029	22
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SACC-M12FR-5CON-PG 7-VA	1553297	23	SACC-M12MS-4CON-PG 7-M	1662528	23	SACC-MR-5CON-PG 7-M SCO	1542994	22	SACCBP-M12MS-5CON-M16/5,0-920	1534452	338
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SI-FP-R1A-D1E	1404500	620				VS-08-ST-H21-RJ45	1652729	230
SI-FP-R1A-R2A-2U1A	1404503	620				VS-08-ST-H21P-RJ45	1404388	230
SI-FP-R1A-U1A	1404499	620				VS-08-T-H-RJ45/IP67	1652732	230
SI-FP-R1A-U1A-D1A	1404497	620				VS-08-T-H-RJ45/IP67-BK	1658671	230
SI-FP-R1A-U1A-D1B	1404495	620				VS-09-A	1688366	332
SI-FP-R1A-U1A/0,7	1404512	620				VS-09-A-EMV-S	1688463	332
SI-FP-U1A	1404505	620				VS-09-A-GC-BU/BU	1689695	333
SI-M1A	1404493	618				VS-09-A-GC-ST/ST	1689705	333
SI-M1A-GL	1407592	618				VS-09-A-BU-DSUB/9-MPT-0,5	1688395	333
SI-M1A-GT	1407594	618				VS-09-CAN	1689307	332
SI-M1A-ML	1407588	618				VS-09-IBS-BU	1689284	332
SI-M1A-MT	1407590	618				VS-09-IBS-ST	1689271	332
SI-M1A-T	1407586	618				VS-09-KU-BU/BU	1689637	333
SI-M1B	1404494	618				VS-09-KU-ST/ST	1689640	333
SI-M1B-GL	1407593	618				VS-09-PROFIBUS-SC	1654549	332
SI-M1B-GT	1407595	618				VS-09-PROFIBUS-SP	1654345	332
SI-M1B-ML	1407589	618				VS-09-SET-EMV	1689158	332
SI-M1B-MT	1407591	618				VS-09-ST-DSUB/10-MPT-0,5	1688379	333
SI-M1B-T	1407587	618				VS-93A/...	1416486	251
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SI-PP-2U1A-D2A	1404519	621				VS-94D/...	1416444	242
SI-PP-R1A	1404517	621				VS-94E/...	1416460	242
SI-PP-R1A-R3A	1404521	621				VS-A-F-IP67	1653744	231
SI-PP-R1A-S0A	1404516	621				VS-A-F-IP67-BK	1658668	231
SI-PP-R1A-S0B	1404518	621				VS-ASI-FC-EPDM-BK 1000M	1434659	354
SI-PP-U1A	1404522	621				VS-ASI-FC-EPDM-BK 100M	1432415	354
SI-SES-R1A	1404513	620				VS-ASI-FC-EPDM-YE 1000M	1434646	354
SI-SES-U1A/0,6	1404514	620				VS-ASI-FC-EPDM-YE 100M	1432402	354
SI-SES-U1A/1	1404515	620				VS-ASI-FC-PUR-BK 100M	1404896	354
SS-ZB 17,5 WH	0804963	178				VS-ASI-FC-PUR-BK/1000	1404854	354
SS-ZB 17,5 WH CUS	0824468	178				VS-ASI-FC-PUR-YE 100M	1404883	354
SS-ZB 17,5 YE	0804976	178				VS-ASI-FC-PUR-YE/1000	1404841	354
SS-ZB 17,5 YE CUS	0824469	178				VS-ASI-FC-PVC-UL-BK 100M	1404919	354
SS-ZB WH	5031171	614				VS-ASI-FC-PVC-UL-BK/1000	1404870	354
SZK PZ1 VDE	1206450	179				VS-ASI-FC-PVC-UL-YE 100M	1404906	354
SZK PZ2 VDE	1206463	176				VS-ASI-FC-PVC-UL-YE/1000	1404867	354
SZS 0,4X2,0	1205202	178				VS-ASI-FC-TPE-UL-BK 1000M	1434675	354
						VS-ASI-FC-TPE-UL-BK 100M	1404935	354
						VS-ASI-FC-TPE-UL-YE 1000M	1434662	354
						VS-ASI-FC-TPE-UL-YE 1000M	1404922	354
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TSD 02 SAC	1208487	172				VS-BH-M12FSD-RJ45/180	1657494	240
TSD 04 SAC	1208429	172				VS-BH-M12FSD-RJ45/90	1657261	240
TSD 08 SAC	1212597	173				VS-BH-M12FSX-10G-RJ45/180	1404549	240
TSD 20 SAC	1212020	181				VS-BH-M12FSX-10G-RJ45/90	1404548	240
TSD 25 SAC	1212315	176				VS-BU-CD-1,0/14,4/0,2	1688997	475
TSD-M 1,2NM	1212224	173				VS-BU-CD-1,0/14,4/0,5	1688984	475
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						VS-04-2X2X26C7/7-67A/SDB/2,0	1653896	371
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						VS-04-2X2X26C7/7-SDA/OE/5,0	1655797	371
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						VS-04-2X2X26C7/7-SDA/SDB/2,0	1653935	371
						VS-04-2X2X26C7/7-SDA/SDB/5,0	1653948	371
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						VS-04-C-SDA/SDB/1,8	1405578	372
						VS-04-C-SDB/PH/0,3	1405565	372
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VS-PP-F-SCRJ	1658121	262	VS-SCRJ-HCS-FA-IP67	1657012	278	WP-PA HF-HB 28,5 BK	3240842	585
VS-PPC-C1-MNNA-4Q5-EMC	1403366	228	VS-SCRJ-PC	1653757	275	WP-PA HF-HB 34,5 BK	3240843	585
VS-PPC-C1-MNNA-8Q5-EMC	1403367	228	VS-SCRJ-POF-FA-IP20	1654879	275	WP-PA HF-HB 42,5 BK	3240844	585
VS-PPC-C1-PC-ROBK-L	1405293	231	VS-SCRJ-POF-FA-IP67	1657009	275	WP-PA HF-SL 21,2 BK	3240845	584
VS-PPC-C1-RJ45-MNNA-8I10G	1422108	228	VS-SCRJ-POF-KONFTOOL-POLISH	1658820	318	WP-PA HF-SL 28,5 BK	3240846	584
VS-PPC-C1-RJ45-MNNA-PG9-4Q5	1608100	228	VS-SCRJ-POF-POLISH	1656673	318	WP-PA HF-SL 34,5 BK	3240847	584
VS-PPC-C1-RJ45-MNNA-PG9-8Q5	1608016	228	VS-SI-BZ	1656660	618	WP-PA HF-SL 42,5 BK	3240848	584
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VS-PPC-C1-RJ45-POBK-PG9-4Q5	1608126	228	VS-SI-EB-EMV-2	1656495	618			
VS-PPC-C1-RJ45-POBK-PG9-8Q5	1657834	228	VS-SI-FP-2DSUB15	1656592	619			
VS-PPC-C1-SCRJ-MNNA-PG9-A3C-C	1608045	279	VS-SI-FP-2DSUB15-GC-BU/ST	1657737	619			
VS-PPC-C1-SCRJ-MNNA-PG9-A4D-C	1608032	276	VS-SI-FP-2DSUB25	1656615	619	ZBF 8:UNBEDRUCKT	0808781	357
VS-PPC-C1-SCRJ-POBK-PG9-A3C-C	1657863	279	VS-SI-FP-2DSUB25-GC-BU/ST	1657753	619	ZBF10 CUS	0825031	176
VS-PPC-C1-SCRJ-POBK-PG9-A4D-C	1657850	276	VS-SI-FP-2DSUB9	1656563	619	ZBF10:UNBEDRUCKT	0809997	176
VS-PPC-C2-MSTB-MNNA-P13-A5-SP	1608074	270	VS-SI-FP-2DSUB9-GC-BU/ST	1657708	619	ZBN 18 CUS	0825059	180
VS-PPC-C2-MSTB-POBK-P13-A5-SP	1657892	270	VS-SI-FP-2F	1658532	622	ZBN 18 YE CUS	0825058	180
VS-PPC-C2-MSTB-POBK-P13-B5-SP	1608236	270	VS-SI-FP-2RJ-MOD	1656631	619	ZBN 18:UNBEDRUCKT	2809128	180
VS-PPC-C2-PC-ROBK	1405125	270	VS-SI-FP-2RJ45-5-MOD-BU/BU	1657766	619			
VS-PPC-C2-PC-ROBK-L	1405303	270	VS-SI-FP-BP	1656657	618			
VS-PPC-C2-PC67-MNNA	1404045	270	VS-SI-FP-DSUB15-DSUB25	1656602	619			
VS-PPC-F1-PC-POBK	1405316	228	VS-SI-FP-DSUB15DSUB25-GC-BU/ST	1657740	619			
VS-PPC-F1-RJ45-MNNA-1C-F	1405222	231	VS-SI-FP-DSUB9-DSUB15	1656576	619			
VS-PPC-F1-RJ45-MNNA-1R-F	1405358	231	VS-SI-FP-DSUB9-DSUB15-GC-BU/ST	1657711	619			
VS-PPC-F1-RJ45-MNNA-1R-PHA	1608029	233	VS-SI-FP-DSUB9-DSUB25	1656589	619			
VS-PPC-F1-RJ45-POBK-1R-PHA	1657847	233	VS-SI-FP-DSUB9-DSUB25-GC-BU/ST	1657724	619			
VS-PPC-F1-RJ45-POBK-1R-F	1608197	231	VS-SI-SD-DE	1656505	619			
VS-PPC-F1-SCRJ-MNNA-1C-F	1405235	276	VS-SI-SD-DE-G	1656518	619			
VS-PPC-F1-SCRJ-MNNA-1RF	1405374	276	VS-SI-SD-FR	1656534	619			
VS-PPC-F1-SCRJ-MNNA-1RP	1608061	276	VS-SI-SD-GB	1656547	619			
VS-PPC-F1-SCRJ-POBK-1RF	1608210	276	VS-SI-SD-IT	1656550	619			
VS-PPC-F1-SCRJ-POBK-1RP	1657889	276	VS-SI-SD-USA	1656521	619			
VS-PPC-F2-MSTB-MNNA-1C-SPSA5	1405248	270	VS-ST-CD-1,0/14,8/0,2	1688971	475			
VS-PPC-F2-MSTB-MNNA-1C-SPSB5	1405167	270	VS-ST-CD-1,0/14,8/0,5	1688968	475			
VS-PPC-F2-MSTB-MNNA-1R-P	1608087	270	VS-TO-0W-6-F-9010	1653029	282			
VS-PPC-F2-MSTB-MNNA-1R-SPSA5	1608249	270	VS-TO-IW-2-F-9010	1653016	268			
VS-PPC-F2-MSTB-MNNA-1R-SPSB5	1608252	270	VS-TO-OW-2-F-9010	1653003	268			
VS-PPC-F2-MSTB-POBK-1R-P	1608281	270	VS-TO-RO-MCBK-F1411/1411	1404281	264			
VS-PPC-F2-MSTB-POBK-1R-SPSA5	1608294	270	VS-TO-RO-MCBK-F1411/1413	1404333	264			
VS-PPC-F2-MSTB-POBK-1R-SPSB5	1608304	270	VS-TO-RO-MCBK-F1417/1413	1404346	282			
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VS-PPC-J-1-SCRJ-MNBK	1405206	284	VS-TO-RO-MCBK-F1418/1418	1404278	264			
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VS-PPC-J-1226-1227-1021-0,2	1404812	271	VS-V1-C-LC-MNNA-PG9-B1-G	1419191	281			
VS-PPC-J-4X-1227	1405387	271	VS-V1-C-PC-POBK	1419183	230			
VS-PPC-J-M	1405390	271	VS-V1-C-RJ45-MNNA-PG9-8-I-5-S	1419182	230			
VS-PPC/ME-IP20-93B-LI/5,0	1416138	252	VS-V1-C-SCRJ-MNNA-PG9-A1-G	1419187	281			
VS-PPC/ME-IP20-93E-LI/5,0	1405992	244	VS-V1-C-SCRJ-MNNA-PG9-A4A-G	1419189	277			
VS-PPC/ME-IP20-94B-LI/5,0	1407990	246	VS-V1-C-SCRJ-MNNA-PG9-B1-G	1419188	281			
VS-PPC/ME-OE-93E-LI/5,0	1405743	244	VS-V1-F-LC-MNNA-PG9-C-S-A1	1420210	281			
VS-PPC/ME-OE-94B-LI/5,0	1407783	246	VS-V1-F-LC-MNNA-PG9-C-S-B1	1420223	281			
VS-PPC/PL-IP20-93B-LI/5,0	1416141	253	VS-V1-F-PC-POBK	1419186	234			
VS-PPC/PL-IP20-93E-LI/5,0	1406030	245	VS-V1-F-RJ45-MNNA-1-C-S-JI-S	1419185	234			
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