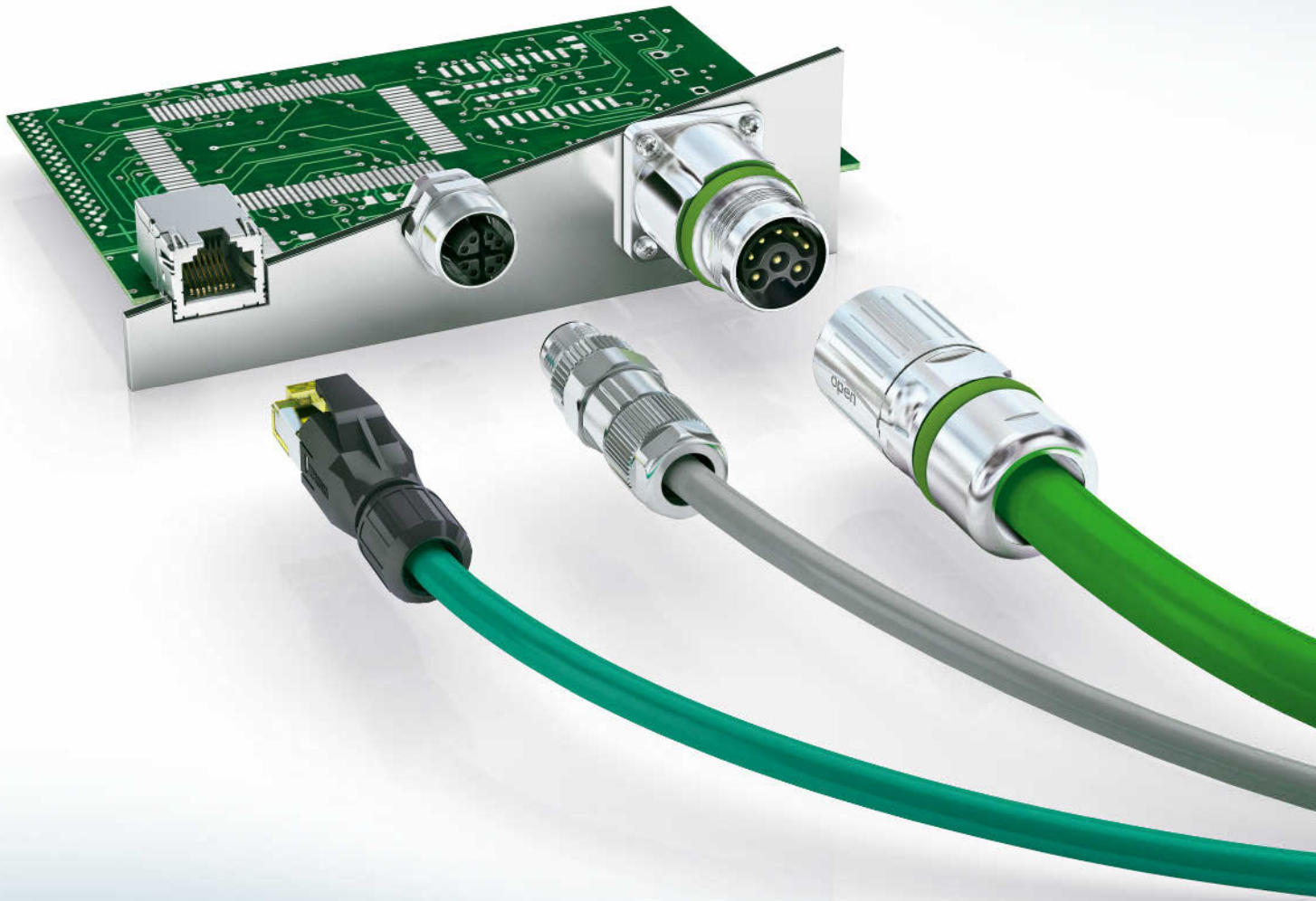
Connection Technology for Field Devices

2013 / 2014

2



PHOENIX CONTACT
INSPIRING INNOVATIONS

PCB connection technology and electronics housing
- PCB terminal blocks and plug-in connectors
- Electronics housing

Connection technology for field devices

Modular terminal blocks
- Modular terminal blocks

Sensor/actuator cabling and industrial plug-in connectors
- Sensor/actuator cabling
- Cables and connectors
- 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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M17 to M58 circular plug-in connectors PLUSCON circular 303
Flush-type plug-in connectors and plug-in connectors for assembly from M17 to M58, for signals, data, and power.

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Connection technology for field devices from Phoenix Contact

COMBICON control

Connection technology for measurement and control technology and I/O modules: PCB terminal blocks and plug-in connectors with 2.54 to 7.62 mm pitch, screw, spring-cage, and insulation displacement connection, wave soldering.

See Catalog 1

COMBICON high density & data

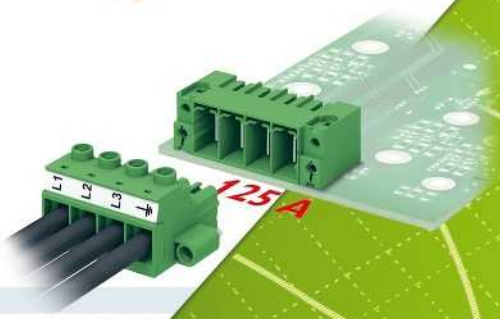
Plug-in connectors in miniature format - fast insulation displacement, spring, and pierce connection technology, T-branches for easy bus connections.

See Catalog 1

COMBICON power

Connection technology for power electronics: PCB terminal blocks and plug-in connectors for currents up to 125 A, screw and spring-cage connection, panel feed-throughs.

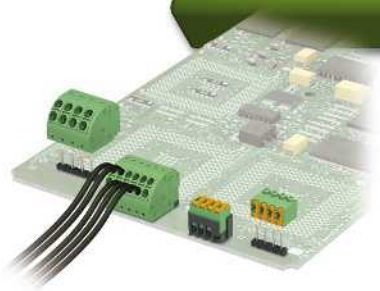
See Catalog 1



COMBICON compact

Device connections for building technology and LED applications: PCB terminal blocks and plug-in connectors with 2.5 to 7.5 mm pitch, screw and spring-cage connection as well as pin strips.

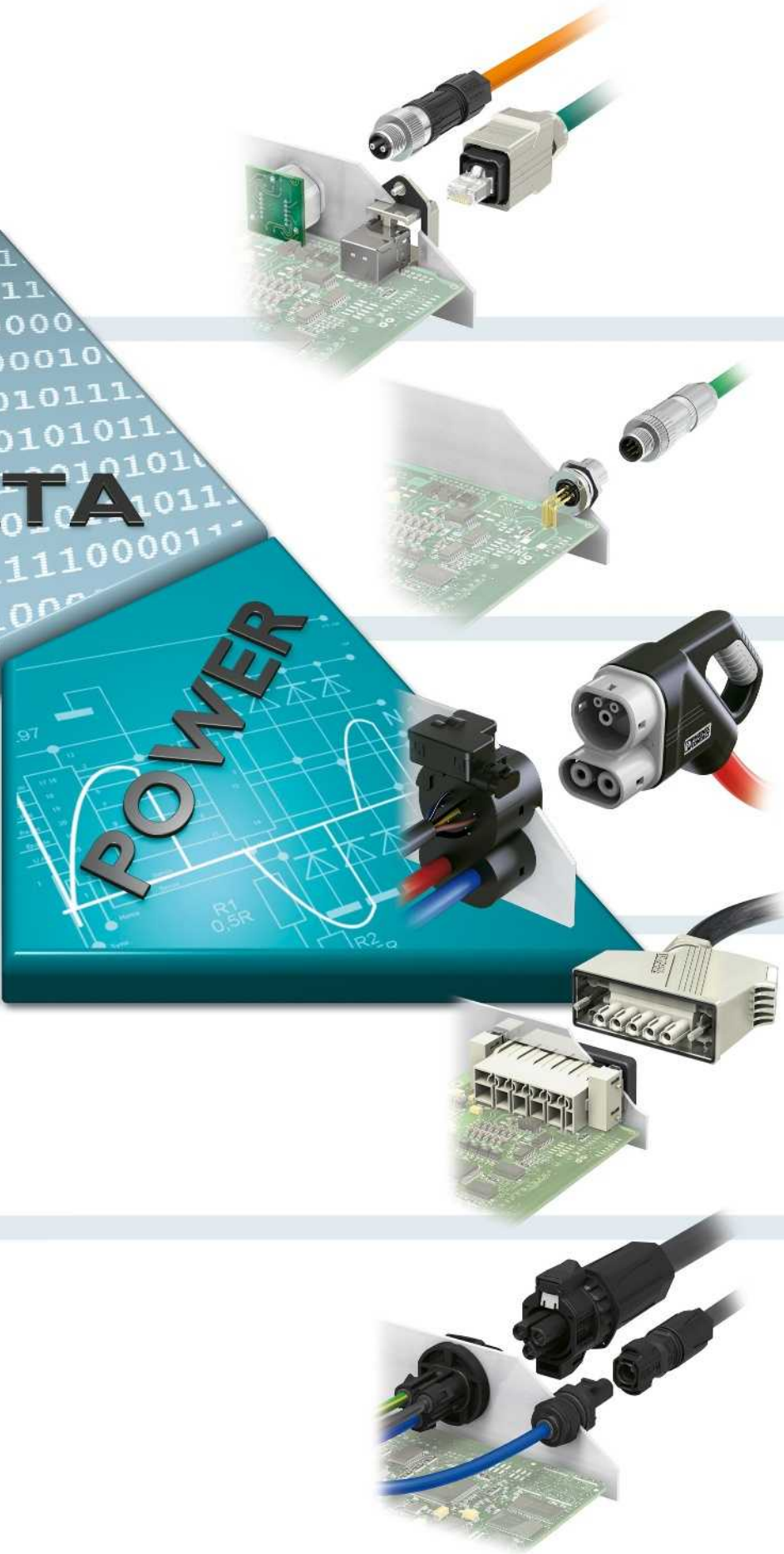
See Catalog 1



Housing

Plastic and aluminum electronics housing: component housing and panel mounting bases for industrial electronics, component housing for building installation, innovative bus connections between housing.

See Catalog 1



PLUSCON data

Plug-in connectors, panel feed-throughs, and cables for fieldbuses and networks.

See 61

PLUSCON circular

Flush-type plug-in connectors, plug-in connectors for assembly, and cables from M5 to M58 for signals, data, and power.

For M5 to M12, see 223
For M17 to M58, see 303

PLUSCON power

Plug-in charging systems for electromobility up to 400 A and plug-in connectors for power electronics up to 150 A.

See 431

PLUSCON device

Rectangular plug-in connectors with modular contact system for signals, power, and fiber optics with IP67 protection and available in various sizes.

See 19

PLUSCON solar

AC and DC connection systems for photovoltaic modules, inverters, and micro inverters.

See 417

Connection technology for field devices from Phoenix Contact

Individual connection solutions

Customer-specific adaptation of standard products

Found a product in our catalogs that meets your technical requirements, but you'd prefer a tailored solution? No problem – our Solution Center will be happy to provide you with support in implementing your requirements. Whether it's individual colors, special printing, a specific number of contacts or complete cable assembly – just let us know what you want.

Ideas transformed into innovative products

Phoenix Contact has been producing high-quality products for worldwide use for over 80 years.

Benefit from our extensive development, manufacturing, and process expertise for your individual solution. Together with you, we can transform great ideas into innovative products.

Intelligent solutions in housing and connection technology increasingly require custom concepts.

As a manufacturer, you can develop products with us that meet the requirements of today's markets, such as high quality, individual design, and great customer benefits at a reasonable price.

You will have the entire expertise of the Phoenix Contact Group at your disposal. From our own tool shop and machine building through plastic injection molding and metal production to expertise in electronics production, we offer a depth of manufacturing that enables us to implement even demanding projects and complex products within a short development period.

Our own laboratory carries out testing throughout the process, handles the necessary qualifications and, of course, international approvals.

As a manufacturer, you can focus on your core competencies and benefit from our expertise as specialists in connection and housing technology.

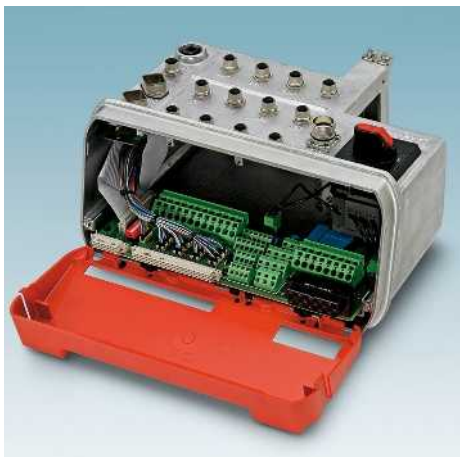
Great products need great ideas and experience. Together with the expertise of Phoenix Contact, you can implement your individual solution - right from the initial idea to cost-effective series production.

Our products and services range from customer-specific PCB connection technology with screw, spring-cage or IDC fast connection, in all conceivable designs and colors...

...through corresponding electronics housing in special designs in the color and size of your choice, together with the appropriate connection technology...

...individual field cabling, with plug-in connectors with shielding for high data transmission rates, splash-proof housing for harsh industrial environments...

...to complete solutions consisting of, for example, splash-proof housing including the appropriate connection technology for signal, data, and power transmission, plus the ideal PCB connection.



Connection technology for field devices from Phoenix Contact

Our service – added value for you

Phoenix Contact doesn't just offer the right products, it also provides a professional service for all aspects of connection technology for field devices and field cabling. Wherever you are in the world, Phoenix Contact's global network means that you can rely on our service. Being at home all over the world and speaking the language of the user is what we understand by customer proximity. Proximity that ensures the best service for our partners. We live up to this with more than 40 customer-oriented subsidiaries and around 30 representatives in other countries.

Personal consultation and support

As our customer, you are always the focus of attention at Phoenix Contact, whether during consultation or as part of after sales support. Expert and personal consultation forms the basis of this approach. Even though we live in the age of the Internet, personal interaction with our customers is of great importance to us.

Our team of highly motivated staff are available to you at locations around the world.

Reliable delivery service

It goes without saying that our products are delivered reliably and on time. In addition to our optimized delivery service, we offer numerous options for making the purchasing process more efficient and transparent.

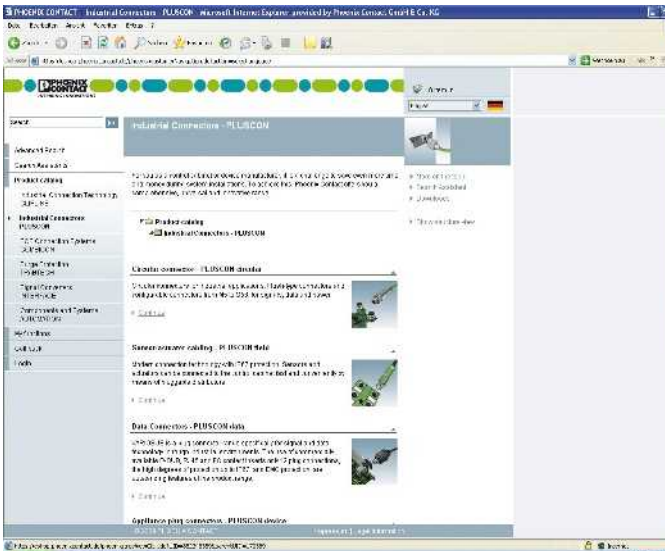
With warehouses in key industrial locations throughout the world, we ensure that you receive your products from Phoenix Contact cost-effectively and within the required delivery time.

Online catalog

The online catalog provides comprehensive, up-to-date information in 7 languages for more than 22,000 products from Phoenix Contact. Here you can find product-specific information such as technical data, notes on approvals, dimensional drawings, 3D data, etc.
At the click of the mouse, you can easily generate a product data sheet in PDF format.

In over 15 countries, e-shop functions complete the online catalog. Following successful registration, you can therefore access your prices and delivery schedules at any time and you also have the option of placing orders directly online.

www.phoenixcontact.net/products



Quickly find product-specific information in the online catalog

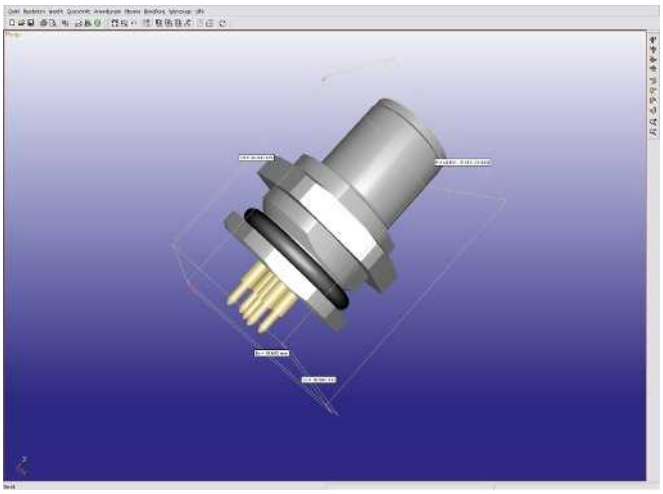
Online search assistants

Online search assistants help you to search systematically and quickly for products from our extensive range of plug-in connectors. By selecting electrical values and other product properties, you are taken directly to the products that meet your requirements.

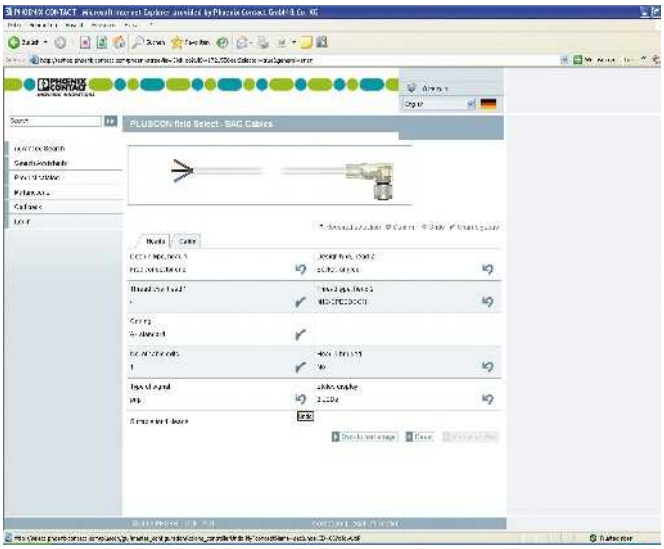
– COMBICON select
  PCB connection and electronics housing

– PLUSCON field select
  Sensor/actuator cabling

– PLUSCON data select
  Data plug-in connectors for fieldbuses and networks



Easy download of 3D data



User-friendly product search with PLUSCON field select

Fast connection technology from Phoenix Contact

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

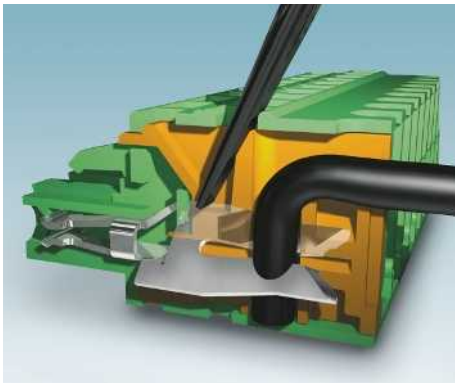
The specified cross section range must be observed.

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.

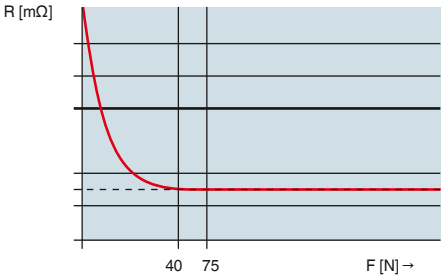
For geometric reasons, two different types of contact have emerged:



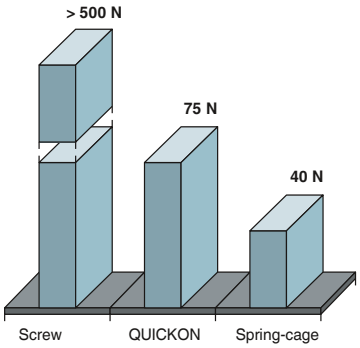
1. Flat contacts are characterized by their space-saving and cost-effective design.

2. Tube contacts cover an even greater cross section range.

Contact resistance



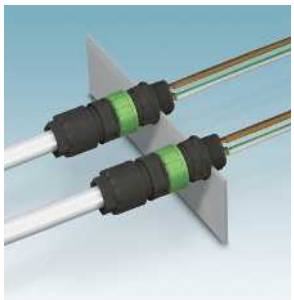
Contact force



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

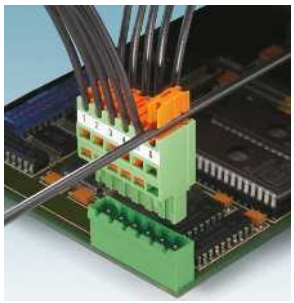
Sensor/actuator boxes



Power distributors

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

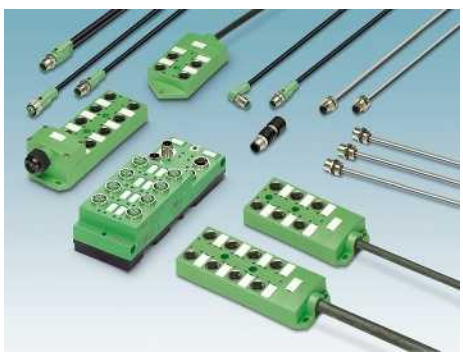
T-distributors

RJ45 plug-in connectors

Rapid interlock system from Phoenix Contact

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%.

The SPEEDCON rapid interlock system is 100% compatible with all M12 connections available on the market. It goes without saying that the SPEEDCON plug-in connectors meet all accepted standards and requirements for current M12 plug-in connector systems.



Complete product range

The following pages contain a complete range of SPEEDCON products, consisting of molded cables, plug-in connectors for assembly, flush-type plug-in connectors, adapters, and passive distributor boxes. I/O modules with SPEEDCON connection can be found in the AUTOMATION catalog.

SPEEDCON system partners

A number of well-known and international companies have been won over by the advantages and benefits of the SPEEDCON rapid interlock system and are now fully reliant on the new standard in the M12 world.

Amphenol
BERNSTEIN safe solutions
binder
BIZERBA
CONINVERS
FANUC
FESTO
INTER CONTROL
LUTZE
Leuze electronic
MATROX IMAGING
menerga
Mercedes-Benz
Miele
numatics
PEPPERL+FUCHS
pulsotronic
Rexroth Bosch Group
SCHUBERT
SEW EURODRIVE
SICK Sensor Intelligence.
SIEMENS
SMC
TRUMPF
ThyssenKrupp Fahrtreppen
ThyssenKrupp

Your advantages of using the SPEEDCON rapid interlock system

Compatibility

SPEEDCON is 100% compatible with all current M12 plug-in connector systems. The user does not have to learn anything new, since the "Plug & Turn" principle has been retained.

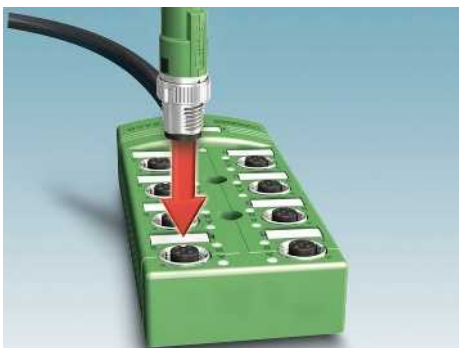
Fast assembly

Just half a turn and SPEEDCON creates a perfect plug-in connection. The assembly time is reduced by 90% as a result.

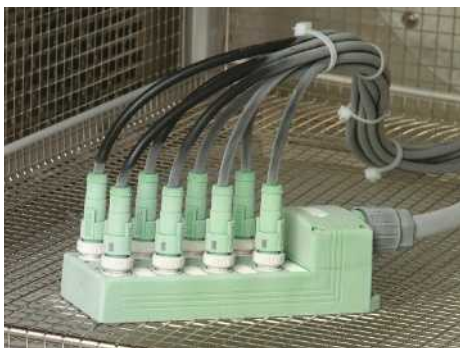
Safe operation

SPEEDCON has all the electrical and mechanical properties required of conventional M12 plug-in connector systems.

Classic – SPEEDCON



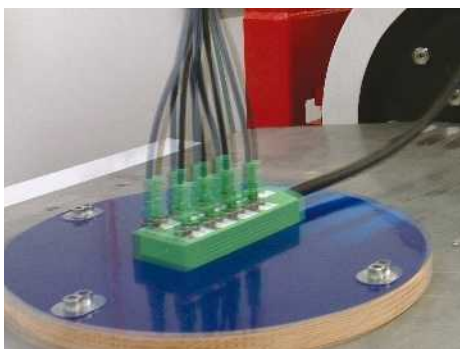
Insert



Temperature

SPEEDCON – Classic

1/2 turn



Vibration and shock

SPEEDCON – SPEEDCON

Done!

Noxious gases

- Pin assignment, requirements, and testing according to **IEC 61076-2-101**
- IP65/IP67/IP69K protection according to EN 60529
- Vibration and shock resistance according to IEC 60512-6d

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.

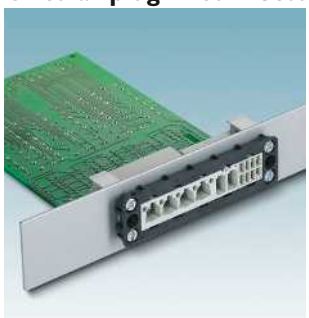
QUICKON fast connection for single wires

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.

Circular plug-in connectors – PLUSCON device



Panel mounting plug-in connectors
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Sleeve plug-in connectors
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Contact carriers and contacts
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Screw connections and accessories
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Data plug-in connectors - PLUSCON data

RJ45 plug-in connectors for Industrial Ethernet with IP20/IP67 protection
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M12 plug-in connector for Industrial Ethernet
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Assembled network cables
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Patch panels, terminal outlets
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Power plug-in connectors for network cabling
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Fiber optic network plug-in connectors
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Assembled fiber optic cables
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D-SUB-based fieldbus plug-in connectors
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M12 flush-type plug-in connectors, plugs, and cables for fieldbuses
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Cable range
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IP20/IP67 USB plug-in connector
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D-SUB-based plug-in connectors
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M5 - M12 circular plug-in connectors - PLUSCON circular

M5 device plug-in connectors
Front mounting Page 224
Rear mounting Page 224

M8 device plug-in connectors
Front mounting Page 225
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M12 device plug-in connectors with litz wire
Front mounting Page 232
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M12 device plug-in connectors with square flange
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M12 device plug-in connectors for PCB mounting, wave soldering processes
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M12 device plug-in connectors for PCB mounting, THR
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7/8" device plug-in connectors with litz wire
Front mounting Page 265
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M12 device plug-in connectors, stainless steel design
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M8 plug-in connectors for assembly with insulation displacement connection
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M8 plug-in connectors for assembly with screw and solder connection
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M12 plug-in connectors for assembly with Piercecon® connection
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M12 plug-in connectors for assembly with insulation displacement connection
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M12 plug-in connectors for assembly, screw and spring-cage connection, shielded and unshielded
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7/8" plug-in connectors for assembly with screw connection
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M12 power device plug-in connectors
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M12 power plug-in connectors and cables for assembly
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M17 - M58 circular plug-in connectors - PLUSCON circular

M17 - signal plug-in connectors
Page 308

M23 - signal plug-in connectors
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M23 - feedback plug-in connectors
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M17 - power plug-in connectors
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M23 - power plug-in connectors
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M40 - power plug-in connectors
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M58 - power plug-in connectors
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Signal/power plug-in connectors, plastic molded
Page 394

Tools and accessories
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Photovoltaic plug-in connectors - PLUSCON solar

SUNCLIX panel feed-throughs and DC plug-in connectors
Page 420

SUNCLIX assembled cables
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SUNCLIX mini - plug-in connectors and module junction boxes
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Spring-cage terminal blocks for PCB connection
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Charging plug-in connector systems - PLUSCON power

Combined AC/DC charging system
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Type 2 charging cables
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Type 2 and GB sockets
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GB charging cables
Page 440

Rectangular plug-in connectors

Direct PCB connection and elimination of a panel mounting base – these are some of the outstanding features of the modular, compact, IP67 plug-in connector system.

This range is particularly suitable for use in devices, as well as terminal boxes and control cabinets in harsh industrial environments. Thanks to the modular structure and the numerous contact inserts, from signal to power connections with 70 A, VARIOCON provides proven solutions, particularly in the field of electrical drive technology.

The modular contact inserts with screw and PCB connection form the basis of the range, in addition to fixed contact inserts with crimp connection for turned and rolled contacts. The universal screw connections feature a high degree of reliability, low contact resistance, and a compact design. The contact insert modules are consistently touch proof and can be coded to prevent incorrect connection. The direct PCB connection saves you a complete jumpering level and enables controlled and space-saving device assembly.

Sleeve housing is available in plastic and seawater-resistant die-cast aluminum. The robust screw locking prevents the plug-in connectors from being unintentionally opened and protects them against mechanical disturbances such as shock and vibration.

Note:

VDE 0100/1.97 § 411.1.3.2 and DIN EN 60 204/11.98 § 14.1.3 are applicable when combining several circuits in a cable and/or a plug-in connector.

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Product range overview

VARIOCON is suitable for use in devices, terminal boxes, and control cabinets.

Thanks to its modular structure and the variety of contact inserts from fiber optics to power connections, the range offers virtually unlimited application possibilities.

The range is based on modular contact inserts with screw and PCB connection, as well as fixed contact inserts with crimp connection for turned and rolled contacts. The variable structure enables the optimum and therefore inexpensive customization of the plug-in connector to suit individual applications.

Housing for direct wall mounting is available in various versions:

Plastic housing made of tough polyamide and aluminum housing with seawater-resistant surface and conductive seal. Together with EMC cable glands, these housings offer outstanding protection against electromagnetic interference fields.

Six good reasons to use VARIOCON device plug-in connectors in industrial applications

The advantages	Your benefits
1. Modularity of the contact inserts and housing	– Tailored solution for contact inserts by combining power up to 70 A, signal up to 40 positions, and fiber optics – Space savings thanks to compact design – Free choice of housing designs: plastic, metal, and EMC protection
2. No panel mounting base required	– Reduced assembly time – IP67 protection with just one housing seal – Outstanding EMC protection
3. Robust housing screw locking for startup and servicing	– Resistant to mechanical disturbances (vibration, shock) – Protected against unintentional opening of the plug-in connection – Space savings compared to levers
4. COMBICON screw connection technology	– High degree of reliability – Touch-proof – Low contact resistance – Compact design – Can be coded to prevent incorrect connection – Can be used universally
5. Direct PCB connection in the device	– Jumpering level eliminated – Controlled assembly by means of soldering-in – Space-saving installation
6. Power crimp connection	– Easiest means of wall mounting by snapping-in – Cost-effective as no panel mounting frame or panel mounting flange required – Controlled factory installation

The product range

Modular contact inserts

VARIOCON Modular enables power and signal transmission to be combined in a single plug-in connector.

The contact system is based on the proven COMBICON connection technology with tension sleeve principle and coding options. The panel mounting side can be supplied with screw connection or alternatively with direct PCB connection.

The connection capacity ranges from 4-pos./70 A/690 V to 40-pos./10 A/160 V.

For data transmission, additional fiber optic modules are available.

from page 24

Crimp contact carriers

The crimp contact carriers are available as pin or socket contact carriers and meet the requirements for high-position plug-in connections.

Turned and rolled crimp contacts from the proven HEAVYCON D series (EN 175301-801) are available for 15, 30, 50, and 65-pos. crimp contact carriers, plus 2 leading PE connections each.

All the advantages of crimp technology, such as machine pre-assembly or partial assembly, are available with VARIOCON Crimp.

from page 38

Sleeve housing and supporting base elements

Sleeve housing is available in plastic and seawater-resistant die-cast aluminum:

VARIOCON sleeve housing is sealed directly to the mounting panel with two locking screws. This locking method saves space, is easily accessible from above, is vibration-resistant, and meets the requirements of IP65/IP66/IP67 protection (IP68 on request).

Versions with an easy-grip knurled screw are available for tool-free attachment.

from page 31

Accessories

Half cable glands with Pg16 and Pg21 threads are available for VARIOCON housing. Alternatively, housing is also available with M20 and M25 threads.

With the VC adapter plates, VARIOCON plug-in connectors can also be easily used in standard panel cutouts for heavy-duty industrial plug-in connectors.

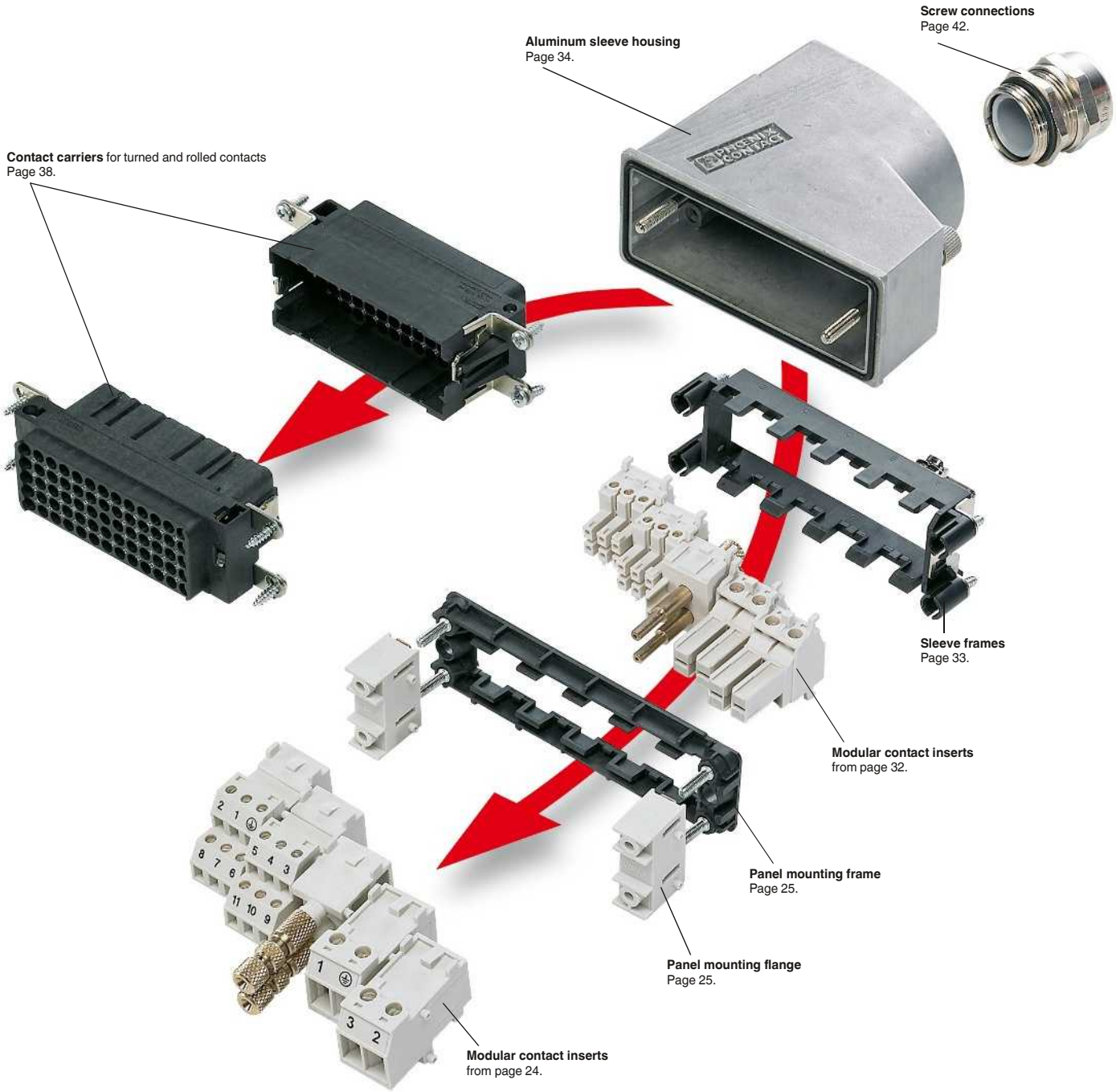
Protective covers protect the contact inserts when they are not plugged in.

from page 42

Modular plug-in connector

The key advantage of VARIOCON plug-in connectors is that a panel mounting base with mounting brackets is not required. The panel mounting plug-in connector is mounted directly on the device panel as a panel feed-through without a panel mounting base. Optional contact inserts with screw connection, crimp connection, and PCB connection are available. The PCB versions are available for parallel (180°) and perpendicular positioning (90°) of the PCB to the housing panel. The sleeve plug-in connector consists of sleeve housing, sleeve contact inserts, and sleeve frame.

Sleeve housing is available in plastic and seawater-resistant die-cast aluminum. The aluminum housings have an electrically conductive seal. In combination with the EMC cable glands, they possess outstanding shield attenuation. The easy and secure mounting principle applies to both the sleeve and housing side. The contact insert modules are snapped into the frame in the desired order and then screwed to the housing or the sleeve.



Rectangular plug-in connector configurator

The VARIOCON Select software enables rapid and targeted configuration of modular contact inserts to form a plug-in connector system. The contact inserts are available with different numbers of positions and rated data. They can also be combined in any order. The modularity of the contact inserts and housing allow you to configure tailored combinations of power up to 70 A, signal up to 40 positions, and fiber optics to form a modular plug-in connector. There is a choice of plastic and aluminum housing. In combination with EMC screw connections, the aluminum housing offers safe protection against electromagnetic interference fields.

Panel feed-through with screw connection

- One panel mounting frame and two panel mounting flanges are required for each connector
- Contact insert sets make logistics easier
- Positions are consecutively marked with PE and from 1 to n.
- On the panel mounting frame, each module position is labeled from A-E

Advantages:

- Proven COMBICON technology
- Can be coded to prevent confusion of connectors
- Suitable for universal connection
- Compact design

Notes:

- The hinged cover on the power contact inserts must be closed after assembly to maintain insulation data
- VARIOCON contact insert modules meet the requirements of DIN EN 61984 (connectors without switching capacity)
- They should, therefore, only be operated under no load condition
- All inserts are protected against finger contact according to DIN EN 60529
- They fulfil the requirements of BGV A2 accident prevention regulations
- An insertion bridge EB3-10/ST (Order No. 5020823) is available for the power contact insert modules
- The power contact inserts cannot be used in VC supporting elements for space reasons

Notes:
For dimensional drawings, refer to page 54
For drilling diagrams, see page 55
For accessories, refer to page 50

Contact insert sets

Technical data

		VC-AR...S2...	VC-AR...S6...	VC-AR...S8...
Rated voltage	[V]	400	250	160
Rated current	[A]	20	10	10
Connection cross section	[mm²]	0.2 ... 4	0.14 ... 1.5	0.14 ... 1.5
Insertion/withdrawal cycles		≥ 100	≥ 100	≥ 100

Ordering data

Description	Design	Module slots	Number of positions Incl. PE	Type	Order No.	Pcs. / Pkt.
Contact insert set, consisting of: frame, four mounting screws and pre-assembled 2-pos. modules with screw connection, six coding profiles						
	VC1	2	4	**VC-AR1/2M-S22-SET**	**1607298**	5
	VC2	3	6	**VC-AR2/3M-S222-SET**	**1607311**	5
	VC3	4	8	**VC-AR3/4M-S2222-SET**	**1607322**	5
	VC4	5	10	**VC-AR4/5M-S22222-SET**	**1607335**	5
Contact insert set, consisting of: frame, four mounting screws and pre-assembled 6-pos. modules with screw connection, six coding profiles						
	VC1	2	12	**VC-AR1/2M-S66-SET**	**1607346**	5
	VC2	3	18	**VC-AR2/3M-S666-SET**	**1607359**	5
	VC3	4	24	**VC-AR3/4M-S6666-SET**	**1607370**	5
	VC4	5	30	**VC-AR4/5M-S66666-SET**	**1607383**	5
Contact insert set, consisting of: frame, four mounting screws and pre-assembled 8-pos. modules with screw connection, six coding profiles						
	VC1	2	16	**VC-AR1/2M-S88-SET**	**1607394**	5
	VC2	3	24	**VC-AR2/3M-S888-SET**	**1607407**	5
	VC3	4	32	**VC-AR3/4M-S8888-SET**	**1607418**	5
	VC4	5	40	**VC-AR4/5M-S88888-SET**	**1607431**	5
Power contact insert module, for panel mounting frame, with screw connection						
	VC2	3	4			
	VC3	4	5			
	VC4	5	7			
Contact insert module, marking on screw connection:						
		1	2			
		1	6			
		1	8			
Contact insert module, marking on screw connection:						
PE, 2		1	2			
PE, 2 ... 6		1	6			
PE, 2 ... 8		1	8			
Panel mounting frame, for panel feed-throughs and for VARIOCON supporting base elements at voltages < 42 V						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				
EMC shield adapter, for EMC connectors						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				
Panel-mounting flange for screw locking, for wall thicknesses of 1-5 mm, 2 pcs. per panel feed-through required, not for supporting base element						

Power contact insert modules

Contact insert modules

Panel mounting frame,
panel mounting flange

Technical data

	VC-AMS 2	VC-AMS 6	VC-AMS 8
690	400	250	160
70	20	10	10
0.5 mm² ... 16 mm²	0.2 ... 4	0.14 ... 1.5	0.14 ... 1.5
≥ 500	≥ 100	≥ 100	≥ 100

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AMS 4	**1607745**	5
VC-AMS 5	**1607748**	5
VC-AMS 7	**1607751**	5

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AMS 2	**1853528**	50
VC-AMS 6	**1854019**	50
VC-AMS 8	**1854022**	50
VC-AMS 2-PE	**1583542**	50
VC-AMS 6-PE	**1583555**	50
VC-AMS 8-PE	**1583568**	50

Technical data

-
-
-
-

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AR1/2M	**1852972**	5
VC-AR2/3M	**1852985**	5
VC-AR3/4M	**1852998**	5
VC-AR4/5M	**1853007**	5
VC-AR1-EMV	**1853214**	5
VC-AR2-EMV	**1853227**	5
VC-AR3-EMV	**1853230**	5
VC-AR4-EMV	**1853243**	5
VC-AF	**1852862**	50

Panel feed-through with PCB connection

- One panel mounting frame and two panel mounting flanges are required for each connector
- Panel mounting plug-in connector for two to five contact insert modules
- Module positions are labeled from A - E

Advantages:

- Proven COMBICON technology
- Can be coded to prevent confusion of connectors
- Direct PCB connection
- Compact design

Notes:

- VARIOCON contact insert modules meet the requirements of DIN EN 61984 (connectors without switching capacity)
- They should, therefore, only be operated under no load condition
- All inserts are protected against finger contact according to DIN EN 60529
- They fulfil the requirements of BGV A2 accident prevention regulations

Notes:
For dimensional drawings, refer to page 54
For drilling diagrams, see page 55
For accessories, refer to page 50

Power contact insert modules 90°

Technical data

Rated voltage	[V]	690
Rated current	[A]	63
Insertion/withdrawal cycles		≥ 50

Ordering data

Description	Design	Module slots	Number of positions Incl. PE	Type	Order No.	Pcs. / Pkt.
Power contact insert module						
	VC2	3	4	**VC-AML 4**	**1607509**	10
	VC3	4	5	**VC-AML 5**	**1607523**	5
	VC4	5	7	**VC-AML 7**	**1607537**	5
Power contact insert module, with capacitive PE contact						
	VC2	3	4	**VC-AML 4-PEA**	**1607516**	5
	VC3/-4		5	**VC-AML 5-PEA**	**1607530**	5
	VC4		7	**VC-AML 7-PEA**	**1607544**	5
Contact insert module, marking on screw connection:						
		1	2			
		1	6			
		1	8			
Contact insert module, marking on screw connection:						
		1	2			
		1	6			
		1	8			
Panel mounting frame, for panel feed-throughs and for VARIOCON supporting base elements at voltages < 42 V						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				
EMC shield adapter, for EMC connectors						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				
Panel-mounting flange for screw locking, for wall thicknesses of 1-5 mm, 2 pcs. per panel feed-through required, not for supporting base element						

Contact insert modules 90°

Contact insert modules 180°

Panel mounting frame, panel mounting flange

Technical data

VC-AML 2	VC-AML 6	VC-AML 8
400	250	160
20	10	10
≥ 100	≥ 100	≥ 100

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AML 2	**1852859**	50
VC-AML 6	**1853531**	50
VC-AML 8	**1852833**	50

Technical data

VC-AMLV 2	VC-AMLV 6	VC-AMLV 8
400	250	160
20	10	10
≥ 100	≥ 100	≥ 100

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AMLV 2	**1884979**	50
VC-AMLV 6	**1884872**	50
VC-AMLV 8	**1884885**	50

Technical data

-
-
-

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AR1/2M	**1852972**	5
VC-AR2/3M	**1852985**	5
VC-AR3/4M	**1852998**	5
VC-AR4/5M	**1853007**	5
VC-AR1-EMV	**1853214**	5
VC-AR2-EMV	**1853227**	5
VC-AR3-EMV	**1853230**	5
VC-AR4-EMV	**1853243**	5
VC-AF	**1852862**	50

Panel feed-through with power crimp connection

Notes:
16 mm² contacts can only be crimped by machine.
For mounting cutout, see page 56
For accessories, refer to page 50

POWER crimp contact inserts

Advantages:

- No need for panel mounting frame
- No need for panel mounting flange
- Simply snap into the VC-AR... panel cutout and you're done!
- Crimp contacts are released using flat-bladed screwdriver

Typical applications

- Motors
- Inverter AC output
- Power supplies

Notes:

- VARIOCON contact insert modules meet the requirements of DIN EN 61984 (connectors without switching capacity)
- They should, therefore, only be operated under no load condition
- All inserts are protected against finger contact according to DIN EN 60529
- They fulfil the requirements of BGV A2 accident prevention regulations
- Combination with other VC modules is not possible

Technical data

Rated voltage	[V]	690
Rated current	[A]	70
Insertion/withdrawal cycles		≥ 50

Ordering data

Description	Design	Number of positions Incl. PE	Type	Order No.	Pcs. / Pkt.
Contact carriers for pin crimp contacts, for snapping into mounting panel					
	VC2	4	**VC-AMC 4**	**1583877**	5
	VC3	5	**VC-AMC 5**	**1583878**	5
Crimp contacts, for conductor cross section:					
4 mm²					
10 mm²					
16 mm²					
Crimp contacts, taped, for conductor cross section:					
4 mm²					
10 mm²					
Crimping tool, for crimp contacts					
IPCC 16-4...		1			
IPCC 16-10...		1			

Power crimp contacts

Crimping tool

Technical data			Technical data
4 mm²	10 mm²	16 mm²	
-	-	-	-
32	50	60	-
>= 25	>= 25	≥ 50	-

Ordering data			Ordering data		
Type	**Order No.**	Pcs. / Pkt.	**Type**	**Order No.**	Pcs. / Pkt.
IPCC 16- 4-MT	**1733385**	100			
IPCC 16-10-MT	**1733372**	100			
IPCC 16-16-MT	**1733367**	100			
IPCC 16- 4-MT BAND	**1761467**	3800			
IPCC 16-10-MT BAND	**1761470**	2700			
			CRIMPFOX PCC 16 CS 4QMM	**1743427**	1
			CRIMPFOX PCC 16 CS 10QMM	**1743430**	1

Supporting base elements and contact inserts with screw connection

- The panel mounting bases are designed for panel feed-throughs and create space in the interior of the device.
- Box mounting elements make it possible for the plug-in wiring to be directly on the device panel.
- Coupling housings are suitable for free-hanging connections where jumpering is necessary in the field.

Notes:
For dimensional drawings, refer to page 54
For drilling diagrams, see page 55
For accessories, refer to page 50

Contact insert modules

Panel mounting frames with PE

Technical data

		VC-AMS 2	VC-AMS 6	VC-AMS 8
Rated voltage	[V]	400	250	160
Rated current	[A]	20	10	10
Material data				
Housing material		-	-	-
Housing surface material		-	-	-
Degree of protection		-	-	-
Connection cross section	[mm²]	0.2 ... 4	0.14 ... 1.5	0.14 ... 1.5
Insertion/withdrawal cycles		≥ 100	≥ 100	≥ 100

Technical data

-
-
-
-
-
0.5 mm² ... 4 mm² (for PE conductor)
-

Ordering data

Description	Design	Module slots	Number of positions Incl. PE	Type	Order No.	Pcs. / Pkt.
Contact insert module, marking on screw connection:						
		1	2	**VC-AMS 2**	**1853528**	50
		1	6	**VC-AMS 6**	**1854019**	50
		1	8	**VC-AMS 8**	**1854022**	50
Contact insert module, marking on screw connection:						
PE, 2		1	2	**VC-AMS 2-PE**	**1583542**	50
PE, 2 ... 6		1	6	**VC-AMS 6-PE**	**1583555**	50
PE, 2 ... 8		1	8	**VC-AMS 8-PE**	**1583568**	50
Panel mounting frame, with PE, for VARIOCON supporting base elements with voltages > 42 V						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				
Housing, metal, powder-coated						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AR1/2M-PEA	**1607761**	1
VC-AR2/3M-PEA	**1607774**	1
VC-AR3/4M-PEA	**1607787**	1
VC-AR4/5M-PEA	**1607790**	1

Accessories

Marker labels, unprinted, 5-section, for individual labeling with B-STIFT or CMS system (25 labels per pack), white			

Accessories

Panel mounting base with open bottom

Box mounting base with fixing holes

Coupling housing with enclosed bottom

Technical data

VC-MP-A...
-
-

Zinc die-cast
Powder coating
IP65/IP66/IP67
-
-

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-MP-A1	**1884403**	5
VC-MP-A2	**1884416**	5
VC-MP-A3	**1884429**	5
VC-MP-A4	**1884432**	5

Accessories

VC-BZS WH	**1852875**	5

Technical data

VC-MP-S...
-
-

Zinc die-cast
Powder coating
IP65/IP66/IP67
-
-

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-MP-S1	**1884720**	5
VC-MP-S2	**1884733**	5
VC-MP-S3	**1884746**	5
VC-MP-S4	**1884759**	5

Accessories

VC-BZS WH	**1852875**	5

Technical data

VC-MP-K...
-
-

Zinc die-cast
Powder coating
IP65/IP66/IP67
-
-

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-MP-K1	**1884568**	5
VC-MP-K2	**1884571**	5
VC-MP-K3	**1884584**	5
VC-MP-K4	**1884597**	5

Accessories

VC-BZS WH	**1852875**	5

Sleeve frames and contact inserts

Notes:
For dimensional drawings, refer to page 54
For accessories, refer to page 50

Contact insert sets

- Contact insert sets make logistics easier
- Positions are consecutively marked with PE and from 1 to n.
- On the panel mounting frame, each module position is labeled from A-E

Advantages:

- Proven COMBICON technology
- Can be coded to prevent confusion of connectors
- Suitable for universal connection
- Compact design

Notes:

- The hinged cover on the power contact inserts must be closed after assembly to maintain insulation data
- VARIOCON contact insert modules meet the requirements of DIN EN 61984 (connectors without switching capacity)
- They should, therefore, only be operated under no load condition
- All inserts are protected against finger contact according to DIN EN 60529
- They fulfil the requirements of BGV A2 accident prevention regulations
- An insertion bridge EB3-10/ST (Order No. 5020823) is available for the power contact insert modules
- The power contact inserts cannot be used in VC supporting elements for space reasons

Technical data

		VC-TR...S2...	VC-TR...S6...	VC-TR...S8...
Rated voltage	[V]	400	250	160
Rated current	[A]	20	10	10
Connection cross section	[mm²]	0.2 ... 4	0.14 ... 1.5	0.14 ... 1.5
Insertion/withdrawal cycles		≥ 100	≥ 100	≥ 100

Ordering data

Description	Design	Module slots	Number of positions Incl. PE	Type	Order No.	Pcs. / Pkt.
Contact insert set, consisting of: frame, four mounting screws and pre-assembled 2-pos. modules with screw connection, six coding profiles						
	VC1	2	4	**VC-TR1/2M-PEA-S22-SET**	**1607143**	5
	VC2	3	6	**VC-TR2/3M-PEA-S222-SET**	**1607154**	5
	VC3	4	8	**VC-TR3/4M-PEA-S2222-SET**	**1607167**	5
	VC4	5	10	**VC-TR4/5M-PEA-S22222-SET**	**1607178**	5
Contact insert set, consisting of: frame, four mounting screws and pre-assembled 6-pos. modules with screw connection, six coding profiles						
	VC1	2	12	**VC-TR1/2M-PEA-S66-SET**	**1607191**	5
	VC2	3	18	**VC-TR2/3M-PEA-S666-SET**	**1607202**	5
	VC3	4	24	**VC-TR3/4M-PEA-S6666-SET**	**1607215**	5
	VC4	5	30	**VC-TR4/5M-PEA-S66666-SET**	**1607226**	5
Contact insert set, consisting of: frame, four mounting screws and pre-assembled 8-pos. modules with screw connection, six coding profiles						
	VC1	2	16	**VC-TR1/2M-PEA-S88-SET**	**1607239**	5
	VC2	3	24	**VC-TR2/3M-PEA-S888-SET**	**1607250**	5
	VC3	4	32	**VC-TR3/4M-PEA-S8888-SET**	**1607263**	5
	VC4	5	40	**VC-TR4/5M-PEA-S88888-SET**	**1607274**	5
Sleeve contact insert module, with PE conductor connection to the metal sleeve housing and integrated sleeve frame						
	VC2		4			
	VC3		5			
	VC4		7			
Sleeve contact insert module, with PE conductor connection to the metal sleeve housing						
One extra module	VC3	3	4			
Two extra modules	VC4	3	4			
One extra module	VC4	4	5			
Contact insert module, marking on screw connection:						
1 ... 2		1	2			
1 ... 6		1	6			
1 ... 8		1	8			
Contact insert module, marking on screw connection:						
PE, 2		1	2			
PE, 2 ... 6		1	6			
PE, 2 ... 8		1	8			
Sleeve frame, with PE, for contact insert modules in metal sleeves and operating voltages > 42 V						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				

Power contact insert modules

Contact insert modules

Hood frames with PE

Technical data

690
70
0.5 mm² ... 16 mm²
≥ 50

Technical data

VC-TFS 2	VC-TFS 6	VC-TFS 8
400	250	160
20	10	10
0.2 ... 4	0.14 ... 1.5	0.14 ... 1.5
≥ 100	≥ 100	≥ 100

Technical data

-
-
0.5 mm² ... 4 mm² (for PE conductor)
-

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-TFS 4-PEA	1607467	5
VC-TFS 5-PEA	1607474	5
VC-TFS 7-PEA	1607481	5
VC-TFS 4/1M-PEA	1607488	5
VC-TFS 4/2M-PEA	1607495	5
VC-TFS 5/1M-PEA	1607502	5

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-TFS 2	1852846	50
VC-TFS 6	1853476	50
VC-TFS 8	1852820	50
VC-TFS 2-PE	1583513	50
VC-TFS 6-PE	1583526	50
VC-TFS 8-PE	1583536	50

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-TR1/2M-PEA	1607059	5
VC-TR2/3M-PEA	1607062	5
VC-TR3/4M-PEA	1607075	5
VC-TR4/5M-PEA	1607088	5

Sleeve housing

- There is no need for a panel mounting base with standard panel feed-throughs.
- Seal housing directly to the wall with two attachment screws.

This screw locking is:
- Space-saving
- Easily accessible from above
- Vibration-resistant
- Conformant with requirements for protection up to IP69K
- Knurled head screw for fixing without tools
- Cylinder head screw for operation with standard bladed screwdriver

Advantages:
- Angled cable outlet so the cable can be routed as desired, from the side and straight
- Aluminum housing with extended cabling space for high-position and power contact inserts
- This allows space for M32 cable glands
- Housings with two cable inlets are available

For EMC applications:
- Conductive seals
- Mounting panel must also be conductive

Notes:

For dimensional drawings, see from page 58

For cable glands, see from page 42

Die-cast aluminum sleeve housing with metric cable outlet

Technical data

	Cylinder head locking	Knurled head locking
Degree of protection	IP65/IP68/IP69K	IP65/IP68/IP69K
Seal material	NBR, conductive	NBR, conductive

Ordering data

Description	Design	Screw connection	Order No. (Cylinder head locking)	Pcs. / Pkt.	Order No. (Knurled head locking)	Pcs. / Pkt.
Sleeve housing, with metric cable outlet and screw locking						
	VC1	M20 x 1.5	**1583597**	5	**1583610**	5
	VC1	M25 x 1.5	**1583607**	5	**1583623**	5
	VC2	M20 x 1.5	**1583636**	5	**1583652**	5
	VC2	M25 x 1.5	**1583649**	5	**1583665**	5
	VC3	M25 x 1.5	**1583678**	5	**1583704**	5
	VC3	M25/M20 x 1.5	**1583681**	5	**1583717**	5
	VC3	M32 x 1.5	**1583694**	5	**1583720**	5
	VC4	M25 x 1.5	**1583733**	5	**1583762**	5
	VC4	M25/M20 x 1.5	**1583746**	5	**1583775**	5
	VC4	M32 x 1.5	**1583759**	5	**1583788**	5
Sleeve housing, with metric cable outlet and screw locking						
	VC1	M20				
	VC2	M25				
	VC3	M25				
	VC4	M25				
Sleeve housing , with Pg screw connection gland and screw locking						
	VC1	Pg16				
	VC2	Pg21				
	VC3	Pg21				
	VC4	Pg21				
Sleeve housing, black, locking screws with Allen screw head, **housing material:**						
PA	VC2	Pg29				
PBT	VC3	Pg29				
Sleeve housing, plastic, locking screws with plus/minus head						
	VC2	6 x 20.5 mm				
	VC2	7.5 x 29.5 mm				
	VC2	6 x 24 mm				
	VC2	9 x 35 mm				

Polyamide sleeve housing with metric cable outlet

Polyamide sleeve housing, with Pg screw connection gland

Special types

Technical data		Technical data		Technical data	
Cylinder head locking	**Knurled head locking**	**Cylinder head locking**	**Knurled head locking**	**Power sleeve housing**	**Flat-ribbon cable sleeve housing**
IP65 EPDM	IP65 EPDM	IP67 EPDM	IP67 EPDM	IP65, IP67, IP68 NBR	IP54 EPDM

Ordering data				Ordering data				Ordering data			
Order No.	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
Cylinder head locking		**Knurled head locking**		**Cylinder head locking**		**Knurled head locking**		**Power sleeve housing**		**Flat-ribbon cable sleeve housing**	
1852935	5	**1855097**	5								
1852948	5	**1855107**	5								
1852961	5	**1855120**	5								
1852974	5	**1855133**	5								
				1852930	5	**1855092**	5				
				1852943	5	**1855102**	5				
				1852956	5	**1855115**	5				
				1852969	5	**1855128**	5				
								1583880	1		
								1424368	1		
										1607703	10
										1607680	10
										1607677	10
										1607693	10

FO contact insert modules with screw connection

The fiber optic modules of VARIOCON enable optical signal transmission over distances of up to 50 m by using polymer fiber optic cables.

Quick-assembly on the connector side and passive panel feed-through make assembly possible in 2 minutes, even in the field.

The single core is stripped, fixed in the ferrule with the knurled screw and then polished for the optical connection.

Coding:

The FO contact insert modules can be additionally protected against incorrect plugging with the red CP-HCC 4 coding profiles (Order No. 1600027).

Instructions for the fiber optic module

- Do not exceed the permissible bending radii for fiber optics
- Follow the instructions on the package slip when handling individual conductors
- Using a passive coupling reduces the transmission range by approx. 10 m

Notes:

Other fiber optic accessories and cables can be found from page 126

Contact insert module ferrules with F-SMA screw connection

Technical data

Material data		
Contact material		Nickel silver
Contact carrier material		PA
Inflammability class in acc. with UL 94		V0
Mechanical data		
Connection profile		F-SMA type 905, IEC 874-2
Torque value knurled screw		0.1 Nm (hand tight)
Connection data		
Stripping length	[mm]	12
Cable type		Polymer fiber (980 / 1000 µm)
Insertion/withdrawal cycles		> 100
Attenuation		< 3 dB
Temperature data		
Ambient temperature (operation)		-20 °C ... 70 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Contact insert module, for sleeve frames	**VC-TFOS 2**	**1855814**	10
Contact insert module, for panel mounting frames for accommodating VC-FSMA-M ... quick mounting connectors			
FSMA connector, for polymer fiber cable, for contact carrier module VC-AFOS 2, (2 pcs. each as set)			
FSMA connector set, with bend protection sleeve for polymer fiber cable, for contact carrier module VC-AFOS 2, (2 pcs. each as set)			

Accessories

Stripping tool for FO cables	**PSM-FO-STRIP**	**2744199**	1
Polisher, metal, for repeated preparation of VARIOCON fiber optic ferrules	**VC-POLISHER/M FSMA**	**1884982**	1
Polymer fiber polishing set for quick mounting connectors, comprising polishing pads and polishing disks	**PSM-SET-FSMA-POLISH**	**2799348**	1

Mounting contact insert

F-SMA quick mounting plug for polymer fiber cables

F-SMA quick mounting plug for polymer fiber cables

Technical data

Nickel silver	Nickel silver
PA	-
V0	-
F-SMA type 905, IEC 874-2	F-SMA type 905, IEC 874-2
0.1 Nm (hand tight)	0.1 Nm (hand tight)
12	12
Polymer fiber (980 / 1000 µm)	Polymer fiber (980 / 1000 µm)
> 100	> 100
< 3 dB	< 3 dB
-20 °C ... 70 °C	-20 °C ... 70 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AFOS 2	**1885240**	10

Accessories

Technical data

Nickel silver
-
-
F-SMA type 905, IEC 874-2
0.1 Nm (hand tight)
-
Polymer fiber (980 / 1000 µm)
> 100
< 3 dB
-20 °C ... 70 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-FSMA-M-2 SET	**1855432**	1

Accessories

PSM-FO-STRIP	**2744199**	1
VC-POLISHER/M FSMA	**1884982**	1
PSM-SET-FSMA-POLISH	**2799348**	1

Technical data

Nickel silver
-
-
F-SMA type 905, IEC 874-2
0.1 Nm (hand tight)
-
Polymer fiber (980 / 1000 µm)
> 100
< 3 dB
-20 °C ... 70 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-FSMA-M-KT-2 SET	**1855703**	1

Accessories

PSM-FO-STRIP	**2744199**	1
VC-POLISHER/M FSMA	**1884982**	1
PSM-SET-FSMA-POLISH	**2799348**	1

Contact carriers for turned and rolled crimp contacts

Pin contact carrier for turned and rolled contacts

- 15, 30, 50, and 65 positions are available, in accordance with housing sizes VC 1 - VC 4
- Pin and socket contacts can be used on both the connector and device sides
- Contact carriers additionally have two pre-mating protective ground contacts
- Connection data is 250 V/10 A and corresponds to that of the HEAVYCON DD series.
- Use of turned and even rolled contacts
- Contact types meet the requirements of IEC 60352/DIN EN 60352

Safety note:

- PE conductor must always be connected to the directly opposite positions
- Connectors may only be operated when not under load.

Technical data

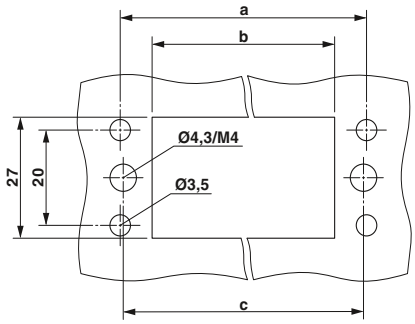
Electrical data in acc. with IEC 61076-2-101		
Rated voltage	[V]	250
Rated surge voltage	[kV]	4
Rated current	[A]	10
Surge voltage category / pollution degree		III / 2
Material data		
Contact carrier material		PA-GF
Connection data		
Stripping length	[mm]	8
Connection cross section	[mm²]	0.14 mm² ... 1.5 mm² (stranded)
Connection cross section	AWG	22 ... 16
Temperature data		
Ambient temperature (operation)		-40 °C ... 125 °C

Ordering data

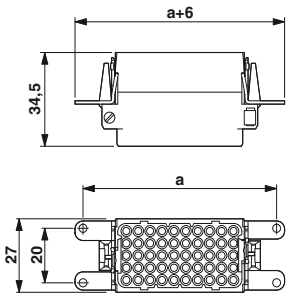
Description	Design	Number of positions Incl. PE	Type	Order No.	Pcs. / Pkt.
Contact carrier, with four ST 2,9 fastening screws					
	VC1	15	**VC-D1-ST15-PE**	**1855018**	10
	VC2	30	**VC-D2-ST30-PE**	**1855021**	10
	VC3	50	**VC-D3-ST50-PE**	**1855034**	10
	VC4	65	**VC-D4-ST65-PE**	**1855047**	10
Mounting flange, to screw the contact insert to the housing panel			**VC-D-AF**	**1855319**	20
Coding pins, with ST2,9 thread for sleeve housings, to prevent identical plug-in connectors from being confused			**VC-CB-T**	**1607884**	10
Coding pins, with M3 thread for VC panel mounting bases, to prevent identical plug-in connectors from being confused			**VC-CB-A**	**1607888**	10

Design	Number of positions	a [mm]	b [mm]	c [mm]
VC 1	15	42.8	31.5	40.0
VC 2	30	57.8	46.5	55.0
VC 3	50	72.8	61.5	70.0
VC 4	65	87.8	76.5	85.0

Dimensions table



Mounting cutout for VC-D...-PE



VC-D...-ST...-PE

Socket contact carrier, for turned contacts

Socket carrier, for rolled contacts

Technical data

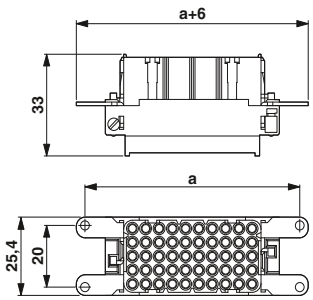
250	250
4	4
10	10
III / 2	III / 2
PA-GF	PA-GF
8	8
0.14 mm² ... 1.5 mm² (stranded)	0.14 mm² ... 1.5 mm² (stranded)
22 ... 16	22 ... 16
-40 °C ... 125 °C	-40 °C ... 125 °C

Ordering data

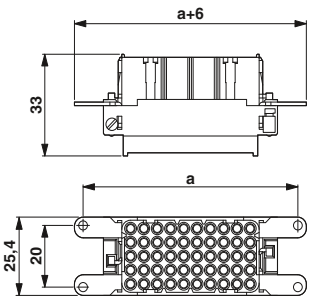
Type	Order No.	Pcs. / Pkt.
VC-D1-BU15-PE	**1855050**	10
VC-D2-BU30-PE	**1855063**	10
VC-D3-BU50-PE	**1855076**	10
VC-D4-BU65-PE	**1855089**	10
VC-D-AF	**1855319**	20
VC-CB-T	**1607884**	10
VC-CB-A	**1607888**	10

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-D1-BU15-PE-R	**1884801**	10
VC-D2-BU30-PE-R	**1884791**	10
VC-D3-BU50-PE-R	**1884788**	10
VC-D4-BU65-PE-R	**1884775**	10
VC-D-AF	**1855319**	20
VC-CB-T	**1607884**	10
VC-CB-A	**1607888**	10



VC-D...-BU-PE



VC-D...-BU...-PE-R

Crimp contacts

The quality of a crimp connection is specified in DIN EN 60352 Part 2. The single most important criterion for the reliability of a crimp connection is the holding force of the litz wires in the crimp contact.
DIN EN 60352-2 describes the extraction force of the cores from the crimp contact in relation to the conductor cross section.

Notes:

For voltages less than 5 V and currents less than 5 mA, gold-plated contacts are recommended.

Crimping pliers can be found in Catalog 4, in the "Heavy-duty plug-in connectors" section.

Turned crimp contacts, Ø 1.6 mm, for VC-D contact carriers

Rolled crimp contacts, taped, Ø 1.6 mm, for VC-D...R contact carriers, contact entry from left

	Technical data		Technical data	
Material data	Hard silver-plated	Hard gold-plated	**CK1,6-BR-0,5...**	**CK1,6-BR-1,5...**
Contact material	Copper alloy	Copper alloy	Copper alloy	Copper alloy
Stripping length of the individual wire	8 mm (6 mm in case of 2.5 mm²)	8 mm (6 mm in case of 2.5 mm²)	3 mm +1	3.5 mm +1
Insertion/withdrawal cycles	≥ 500	≥ 500	≥ 500	≥ 500
Ambient temperature (operation)	-40 °C ... 125 °C	-40 °C ... 125 °C	-40 °C ... 125 °C	-40 °C ... 125 °C

	Ordering data			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 mm² ... 0.37 mm²/26 ... 22 AWG	**CK1,6-ED-0,37BU AG**	**1663394**	100			
0.50 mm² / AWG 20	**CK1,6-ED-0,50BU AG**	**1663404**	100			
0.75 mm² / AWG 18	**CK1,6-ED-0,75BU AG**	**1663417**	100			
0.75 mm² ... 1.00 mm² / AWG 18	**CK1,6-ED-1,00BU AG**	**1663420**	100			
1.50 mm² / AWG 16	**CK1,6-ED-1,50BU AG**	**1663433**	100			
2.50 mm² / AWG 14	**CK1,6-ED-2,50BU AG**	**1663446**	100			
Turned pin contacts, silver-plated contact surface, for conductor cross section:						
0.14 mm² ... 0.37 mm² / AWG 26 ... 22	**CK1,6-ED-0,37ST AG**	**1663336**	100			
0.50 mm² / AWG 20	**CK1,6-ED-0,50ST AG**	**1663349**	100			
0.75 mm² / AWG 18	**CK1,6-ED-0,75ST AG**	**1663352**	100			
0.75 mm² ... 1.00 mm² / AWG 18	**CK1,6-ED-1,00ST AG**	**1663365**	100			
1.50 mm² / AWG 16	**CK1,6-ED-1,50ST AG**	**1663378**	100			
2.50 mm² / AWG 14	**CK1,6-ED-2,50ST AG**	**1663381**	100			
Turned socket contacts, gold-plated contact surface, for conductor cross section:						
0.14 mm² ... 0.37 mm²/26 ... 22 AWG	**CK1,6-ED-0,37BU AU**	**1674969**	100			
0.50 mm² / AWG 20	**CK1,6-ED-0,50BU AU**	**1674480**	100			
0.75 mm² / AWG 18	**CK1,6-ED-0,75BU AU**	**1672440**	100			
0.75 mm² ... 1.00 mm² / AWG 18	**CK1,6-ED-1,00BU AU**	**1674943**	100			
1.50 mm² / AWG 16	**CK1,6-ED-1,50BU AU**	**1674930**	100			
2.50 mm² / AWG 14	**CK1,6-ED-2,50BU AU**	**1674985**	100			
Turned pin contacts, gold-plated contact surface, for conductor cross section:						
0.14 mm² ... 0.37 mm² / AWG 26 ... 22	**CK1,6-ED-0,37ST AU**	**1674901**	100			
0.50 mm² / AWG 20	**CK1,6-ED-0,50ST AU**	**1672453**	100			
0.75 mm² / AWG 18	**CK1,6-ED-0,75ST AU**	**1674914**	100			
0.75 mm² ... 1.00 mm² / AWG 18	**CK1,6-ED-1,00ST AU**	**1674888**	100			
1.50 mm² / AWG 16	**CK1,6-ED-1,50ST AU**	**1674875**	100			
2.50 mm² / AWG 14	**CK1,6-ED-2,50ST AU**	**1674927**	100			
Rolled pin contacts, silver-plated contact surface, for conductor cross section:						
0.14 mm² ... 0.50 mm² / AWG 26 ... 20				**CK1,6-BR-0,50ST AG**	**1884157**	2000
0.50 mm² ... 1.50 mm² / AWG 20 ... 16				**CK1,6-BR-1,50ST AG**	**1884144**	2000
Rolled socket contacts, silver-plated contact surface, for conductor cross section:						
0.14 mm² ... 0.50 mm² / AWG 26 ... 20				**CK1,6-BR-0,50BU AG**	**1884186**	2000
0.50 mm² ... 1.50 mm² / AWG 20 ... 16				**CK1,6-BR-1,50BU AG**	**1884173**	2000
POF fiber optic contact, turned, for VC-D contact carriers						
Socket						
Plug						

Rolled crimp contacts, single contacts, Ø 1.6 mm, for VC-D...R contact carriers

Crimp contacts for fiber optic cables, polymer fibers (POF)

Technical data

CK1,6-ER-0,5...	CK1,6-ER-1,5...
Copper alloy	Copper alloy
3 mm +0.5	3.5 mm +1
≥ 500	≥ 500
-40 °C ... 125 °C	-40 °C ... 125 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
CK1,6-ER-0,50ST AG	1884092	100
CK1,6-ER-1,50ST AG	1884089	100
CK1,6-ER-0,50BU AG	1884128	100
CK1,6-ER-1,50BU AG	1884115	100

Technical data

Nickel silver
-
≥ 500
-

Ordering data

Type	Order No.	Pcs. / Pkt.
CK1,6-ED-BU-POF	1885004	50
CK1,6-ED-ST-POF	1884995	50

Full cable glands

Plastic gland

Plastic cable screw connections 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

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, 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]:				
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
Metal gland, for conductor diameter [mm]:				
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			
EMC screw connection, for conductor diameter [mm]:				
7 mm ... 12.5 mm	M20			
9 mm ... 16.5 mm	M25			
11 mm ... 21 mm	M32			
Metal gland, for AS-Interface flat-ribbon conductor				
Thread type: M20	M20			
Thread type: M25	M25			
Special cable screw connection M25, brass				
With 10 mm and 11 mm hole	M25			

Metal gland

EMC gland

Technical data

Nickel-plated brass	Nickel-plated brass
PA	PA
Neoprene	TPE
NBR	NBR
-	-
IP68, to 5 bar	IP65
-20 °C ... 100 °C	-20 °C ... 100 °C

Technical data

Nickel-plated brass
PA
Neoprene
NBR
-
IP68, to 5 bar
-20 °C ... 100 °C

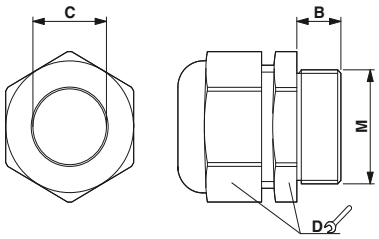
Ordering data

Type	Order No.	Pcs. / Pkt.
HC-M-KV-M20(9-13)	**1690561**	25
HC-M-KV-M20(11-16)	**1645998**	25
HC-M-KV-M25(11-16)	**1690574**	25
HC-M-KV-M25(14-21)	**1646007**	25
HC-M-KV-M32(14-21)	**1690587**	10
HC-M-KV-M32(19-27)	**1646010**	10
HC-M-KV-M20(1ASI)	**1584017**	10
HC-M-KV-M25(1ASI)	**1584020**	10
HC-M-KV-M25(1X10/1X11)	**1580228**	10

Ordering data

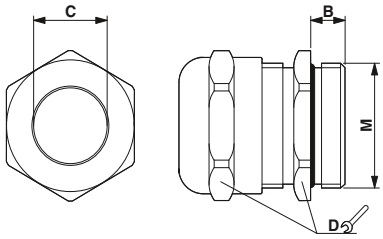
Type	Order No.	Pcs. / Pkt.
HC-EMV-KV-M20(7-12,5)	**1690503**	25
HC-EMV-KV-M25(9-16,5)	**1690516**	25
HC-EMV-KV-M32(11-21)	**1690529**	25

Type	Dimensions [mm] B	C	Thread M	D
HC-K-KV-M20...	8	13.5	20	24
HC-K-KV-M25...	8	17.5	25	29
HC-K-KV-M32...	10	21.5	32	36



Dimensional drawing: HC-K-KV-M...

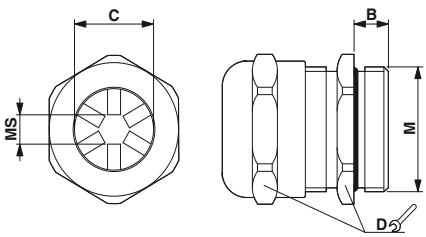
Type	Dimensions [mm] B	C	Thread M	D
HC-M-KV-M20(9-13)	6	13.3	20	22
HC-M-KV-M20(11-16	6	16.2	20	27
HC-M-KV-M25(11-16)	7	17.3	25	27
HC-M-KV-M25(14-21)	7	21.2	25	34
HC-M-KV-M32(14-21)	8	21.3	32	34
HC-M-KV-M32(19-27)	8	27.5	32	43
HC-M-KV-M20(1ASI)	6	-	20	22
HC-M-KV-M25(1ASI)	7	-	25	27
HC-M-KV-M25(1X10X11)	7	-	25	34



Dimensional drawing: HC-M-KV-M...

Type	Dimensions [mm] B	C	M	MS[1)]	D
HC-EMV-KV-M20...	8	12.5	20	5	24
HC-EMV-KV-M25...	8	16.5	25	7.5	29
HC-EMV-KV-M32...	9	21.0	32	9	36

[1)] Minimum shield diameter



Dimensional drawing: HC-EMV-KV-M...

Screw connections and accessories

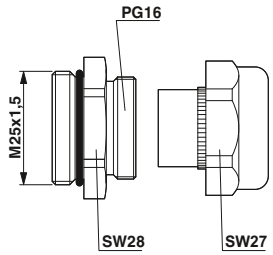
Pg16 cable glands for one cable

Screw connection with plastic pressure screw

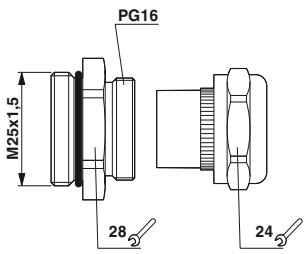
Screw connection with brass pressure screw, EMC screw connections with iris spring

		Technical data	Technical data
Material data			
Sealing material		TPE	TPE
Cable gland material		-	-
Material, pressure screw		Polyamide	Nickel-plated brass
Degree of protection		IP67	IP67
Torque	[Nm]	5.00	7.50
Ambient temperature (operation)		-20 °C ... 100 °C	-40 °C ... 125 °C

Description	Cable Ø [mm]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Cable screw connection gland, for adapting the Pg half screw connections to metric cable entry, M25							
		VC-M-KV-PG16/M25 ST	**1644407**	10	**VC-M-KV-PG16/M25 ST**	**1644407**	10
Half screw connection Pg16, consisting of rubber seal with a hole and a pressure screw, for type VC1 housing							
	4 ... 6.5	**VC-K-KV-PG16(4- 6,5)**	**1854459**	5	**VC-M-KV-PG16(4- 6,5)**	**1853942**	5
	5 ... 8	**VC-K-KV-PG16(5- 8)**	**1853735**	5	**VC-M-KV-PG16(5- 8)**	**1853955**	5
	6,5 ... 9.5	**VC-K-KV-PG16(6,5- 9,5)**	**1853748**	5	**VC-M-KV-PG16(6,5- 9,5)**	**1853968**	5
	7 ... 10.5	**VC-K-KV-PG16(7-10,5)**	**1853751**	5	**VC-M-KV-PG16(7-10,5)**	**1853971**	5
	9 ... 13	**VC-K-KV-PG16(9-13)**	**1853764**	5	**VC-M-KV-PG16(9-13)**	**1853984**	5
	11,5 ... 15.5	**VC-K-KV-PG16(11,5-15,5)**	**1854844**	5	**VC-M-KV-PG16(11,5-15,5)**	**1854857**	5
Elongated hole	7 x 14	**VC-K-KV-PG16 7/14**	**1607664**	5	**VC-M-KV-PG16 2X6/1X7**	**1885512**	5
	3 x 7	**VC-K-KV-PG16 3X7**	**1885444**	5	**VC-M-KV-PG16 3X7**	**1885525**	5
EMC half screw connection Pg16, for metal housing, consisting of rubber seal, iris spring, cone disc and pressure screw, for type VC1 housing, shield diameter:							
6.5 mm	6.5 ... 9.5				**VC-EMV-KV-PG16(6,5- 9,5/ 6,5)**	**1854132**	1
8.5 mm	7 ... 10.5				**VC-EMV-KV-PG16(7-10,5/ 8,5)**	**1854161**	1
10.5 mm	9 ... 13				**VC-EMV-KV-PG16(9-13/10,5)**	**1854174**	1
Closing cap, for closing unused bore holes in multiple seals and cable glands							
Ø 3 mm		**SEALING PLUG 3X12 RD**	**1400238**	10	**SEALING PLUG 3X12 RD**	**1400238**	10
Ø 5 mm		**SEALING PLUG 5X12 RD**	**1400253**	10	**SEALING PLUG 5X12 RD**	**1400253**	10
Ø 6 mm		**SEALING PLUG 6X16 RD**	**1400254**	10	**SEALING PLUG 6X16 RD**	**1400254**	10
Ø 7 mm		**SEALING PLUG 7X16 RD**	**1400255**	10	**SEALING PLUG 7X16 RD**	**1400255**	10
Ø 8 mm		**SEALING PLUG 8X16 RD**	**1400257**	10	**SEALING PLUG 8X16 RD**	**1400257**	10
Ø 12 mm		**SEALING PLUG 12X22 RD**	**1400260**	10	**SEALING PLUG 12X22 RD**	**1400260**	10



VC-M-KV-PG16/M25 ST / VC-K-KV-PG16...



VC-M-KV-PG16/M25 ST / VC-M-KV-PG16...

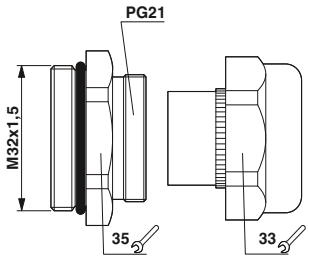
Pg21 cable glands for one cable

Screw connection with plastic pressure screw

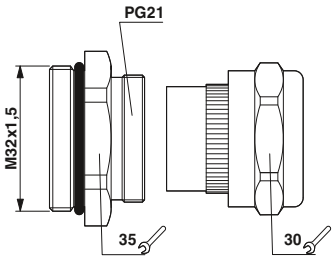
Screw connection with brass pressure screw, EMC screw connections with iris spring

	Technical data	Technical data
Material data		
Sealing material	TPE	TPE
Cable gland material	-	-
Material, pressure screw	Polyamide	Nickel-plated brass
Degree of protection	IP67	IP67
Torque [Nm]	7.50	10.00
Ambient temperature (operation)	-20 °C ... 100 °C	-40 °C ... 125 °C

Description	Cable Ø [mm]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Cable screw connection gland, for adapting the Pg half screw connections to metric cable entry, M32							
		VC-M-KV-PG21/M32 ST	**1644397**	10	**VC-M-KV-PG21/M32 ST**	**1644397**	10
Half screw connection Pg21, consisting of rubber seal with a hole and a pressure screw, for type VC2 ... VC4 housing							
	7 ... 10.5	**VC-K-KV-PG21(7-10,5)**	**1853890**	5	**VC-M-KV-PG21(7-10,5)**	**1853997**	5
	9 ... 13	**VC-K-KV-PG21(9-13)**	**1853900**	5	**VC-M-KV-PG21(9-13)**	**1854006**	5
	11.5 ... 15.5	**VC-K-KV-PG21(11,5-15,5)**	**1853913**	5	**VC-M-KV-PG21(11,5-15,5)**	**1854035**	5
	14 ... 18	**VC-K-KV-PG21(14-18)**	**1853926**	5	**VC-M-KV-PG21(14-18)**	**1854048**	5
	17 ... 20.5	**VC-K-KV-PG21(17-20,5)**	**1853939**	5	**VC-M-KV-PG21(17-20,5)**	**1854051**	5
Elongated hole	20 x 7	**VC-K-KV-PG21(20X7)**	**1885198**	5	**VC-M-KV-PG21(20X 7)**	**1885305**	5
EMC half screw connection Pg21, for metal housing, consisting of rubber seal, iris spring, cone disc and pressure screw, for type VC2 ... VC4 housing, shield diameter:							
9.5 mm	9 ... 13				**VC-EMV-KV-PG21(9-13/ 9,5)**	**1854200**	1
12 mm	9 ... 13				**VC-EMV-KV-PG21(9-13/12)**	**1854213**	1
13.5 mm	11.5 ... 15.5				**VC-EMV-KV-PG21(11,5-15,5/13,5)**	**1854242**	1
14.5 mm	14 ... 18				**VC-EMV-KV-PG21(14-18/14,5)**	**1854255**	1
Dummy screw connection, rubber seal without hole							
		VC-K-KV-PG21-O	**1885363**	5	**VC-M-KV-PG21- 0**	**1854983**	5
Closing cap, for closing unused bore holes in multiple seals and cable glands							
Ø 3 mm		**SEALING PLUG 3X12 RD**	**1400238**	10	**SEALING PLUG 3X12 RD**	**1400238**	10
Ø 5 mm		**SEALING PLUG 5X12 RD**	**1400253**	10	**SEALING PLUG 5X12 RD**	**1400253**	10
Ø 6 mm		**SEALING PLUG 6X16 RD**	**1400254**	10	**SEALING PLUG 6X16 RD**	**1400254**	10
Ø 7 mm		**SEALING PLUG 7X16 RD**	**1400255**	10	**SEALING PLUG 7X16 RD**	**1400255**	10
Ø 8 mm		**SEALING PLUG 8X16 RD**	**1400257**	10	**SEALING PLUG 8X16 RD**	**1400257**	10
Ø 12 mm		**SEALING PLUG 12X22 RD**	**1400260**	10	**SEALING PLUG 12X22 RD**	**1400260**	10
Ø 13 mm		**SEALING PLUG 13X22 RD**	**1400265**	10	**SEALING PLUG 13X22 RD**	**1400265**	10



VC-M-KV-PG21/M32 ST / VC-K-KV-PG21...



VC-M-KV-PG21/M32 ST / VC-M-KV-PG21...

Pg16 cable glands for several cables

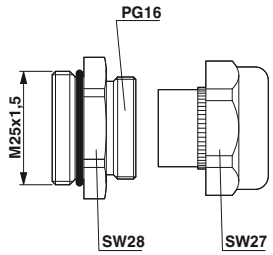
The screw connection glands allow multiple grommets to be used.

Screw connection with plastic pressure screw

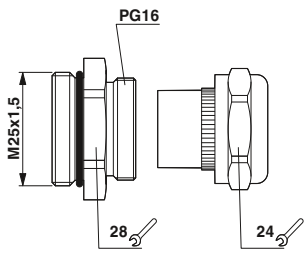
Screw connection with brass pressure screw

	Technical data		Technical data	
	VC-K-KV.../...	VC-M-KV...ST	VC-M-KV.../...	VC-M-KV...ST
Material data				
Material	-	Brass, nickel-plated	Brass, nickel-plated	Brass, nickel-plated
Sealing material	TPE	-	TPE	-
Material, O-ring	-	NBR	-	NBR
Degree of protection	IP65	-	IP65	-
Temperature data				
Ambient temperature (operation)	-20 °C ... 100 °C	-	-40 °C ... 125 °C	-

		Ordering data			Ordering data		
Description	Cable Ø [mm]	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Cable screw connection gland, for adapting the Pg half screw connections to metric cable entry, M25							
		VC-M-KV-PG16/M25 ST	1644407	10	VC-M-KV-PG16/M25 ST	1644407	10
Half screw connection Pg16, consisting of rubber seal with several holes and a pressure screw, for type VC1 housing and HEAVYCON, further types upon request							
	1 x 3 / 1 x 8	VC-K-KV-PG16 1X3/1X8	1885376	5	VC-M-KV-PG16 1X3/1X8	1885457	5
	1 x 3 / 1 x 9	VC-K-KV-PG16 1X3/1X9	1885389	5	VC-M-KV-PG16 1X3/1X9	1885460	5
	1 x 6 / 1 x 8	VC-K-KV-PG16 1X6/1X8	1885392	5	VC-M-KV-PG16 1X6/1X8	1885473	5
	1 x 5 / 1 x 9	VC-K-KV-PG16 1X5/1X9	1885402	5	VC-M-KV-PG16 1X5/1X9	1885486	5
	1 x 3 / 2 x 8	VC-K-KV-PG16 1X3/2X8	1885415	5	VC-M-KV-PG16 1X3/2X8	1885499	5
	1 x 5 / 2 x 6	VC-K-KV-PG16 1X5/2X6	1885428	5	VC-M-KV-PG16 1X5/2X6	1885509	5
	2 x 6 / 1 x 7	VC-K-KV-PG16 2X6/1X7	1885431	5	VC-M-KV-PG16 2X6/1X7	1885512	5
	3 x 7	VC-K-KV-PG16 3X7	1885444	5	VC-M-KV-PG16 3X7	1885525	5
Closing cap, for closing unused bore holes in multiple seals and cable glands							
Ø 3 mm		SEALING PLUG 3X12 RD	1400238	10	SEALING PLUG 3X12 RD	1400238	10
Ø 5 mm		SEALING PLUG 5X12 RD	1400253	10	SEALING PLUG 5X12 RD	1400253	10
Ø 6 mm		SEALING PLUG 6X16 RD	1400254	10	SEALING PLUG 6X16 RD	1400254	10
Ø 7 mm		SEALING PLUG 7X16 RD	1400255	10	SEALING PLUG 7X16 RD	1400255	10
Ø 8 mm		SEALING PLUG 8X16 RD	1400257	10	SEALING PLUG 8X16 RD	1400257	10
Ø 12 mm		SEALING PLUG 12X22 RD	1400260	10	SEALING PLUG 12X22 RD	1400260	10
Ø 13 mm		SEALING PLUG 13X22 RD	1400265	10	SEALING PLUG 13X22 RD	1400265	10



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

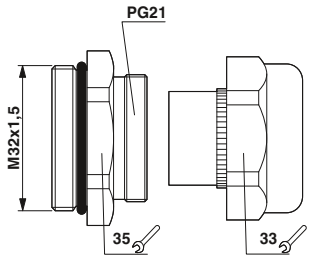
The screw connection glands allow multiple grommets to be used.

Screw connection with plastic pressure screw

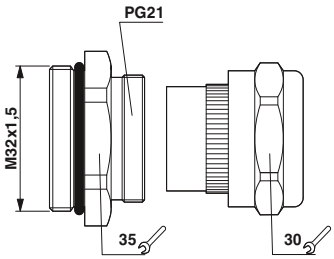
Screw connection with brass pressure screw

	Technical data		Technical data	
	VC-K-KV.../...	**VC-M-KV...ST**	**VC-M-KV.../...**	**VC-M-KV...ST**
Material data				
Material	PA	Brass, nickel-plated	Brass, nickel-plated	Brass, nickel-plated
Sealing material	TPE	-	TPE	-
Material, O-ring	-	NBR	-	NBR
Degree of protection	IP65	-	IP65	-
Temperature data				
Ambient temperature (operation)	-20 °C ... 100 °C	-	-40 °C ... 125 °C	-

		Ordering data			Ordering data		
Description	Cable Ø [mm]	**Type**	**Order No.**	Pcs. / Pkt.	**Type**	**Order No.**	Pcs. / Pkt.
Cable screw connection gland, for adapting the Pg half screw connections to metric cable entry, M32		**VC-M-KV-PG21/M32 ST**	**1644397**	10	**VC-M-KV-PG21/M32 ST**	**1644397**	10
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	**VC-K-KV-PG21 1X6/2X9**	**1885538**	5	**VC-M-KV-PG21 1X6/2X9**	**1885619**	5
	1 x 8.5 / 1 x 12	**VC-K-KV-PG21-1X8,5/1X12**	**1885279**	5	**VC-M-KV-PG21- 1X8,5/1X12**	**1854970**	5
	2 x 4.5 / 1 x 13	**VC-K-KV-PG21-2X4,5/1X13**	**1885282**	5			
	2 x 6 / 2 x 8	**VC-K-KV-PG21 2X6/2X8**	**1885554**	5	**VC-M-KV-PG21 2X6/2X8**	**1885635**	5
	2 x 7.2 / 1 x 10.5	**VC-K-KV-PG21 2X7,2/1X10,5**	**1885567**	5	**VC-M-KV-PG21 2X7,2/1X10,5**	**1885648**	5
	3 x 7	**VC-K-KV-PG21 3X7**	**1885570**	5	**VC-M-KV-PG21 3X7**	**1885651**	5
	3 x 9	**VC-K-KV-PG21 3X9**	**1885583**	5	**VC-M-KV-PG21 3X9**	**1885664**	5
	4 x 6.5	**VC-K-KV-PG21 4X6,5**	**1885596**	5	**VC-M-KV-PG21 4X6,5**	**1885677**	5
	4 x 8	**VC-K-KV-PG21 4X8**	**1885606**	5	**VC-M-KV-PG21 4X8**	**1885680**	5
Closing cap, for closing unused bore holes in multiple seals and cable glands							
Ø 3 mm		**SEALING PLUG 3X12 RD**	**1400238**	10	**SEALING PLUG 3X12 RD**	**1400238**	10
Ø 5 mm		**SEALING PLUG 5X12 RD**	**1400253**	10	**SEALING PLUG 5X12 RD**	**1400253**	10
Ø 6 mm		**SEALING PLUG 6X16 RD**	**1400254**	10	**SEALING PLUG 6X16 RD**	**1400254**	10
Ø 7 mm		**SEALING PLUG 7X16 RD**	**1400255**	10	**SEALING PLUG 7X16 RD**	**1400255**	10
Ø 8 mm		**SEALING PLUG 8X16 RD**	**1400257**	10	**SEALING PLUG 8X16 RD**	**1400257**	10
Ø 12 mm		**SEALING PLUG 12X22 RD**	**1400260**	10	**SEALING PLUG 12X22 RD**	**1400260**	10
Ø 13 mm		**SEALING PLUG 13X22 RD**	**1400265**	10	**SEALING PLUG 13X22 RD**	**1400265**	10



VC-M-KV-PG21/M32 ST / VC-K-KV-PG21...



VC-M-KV-PG21/M32 ST / VC-M-KV-PG21...

Protective covers

- Easy to assemble
- Contact inserts are protected when not plugged in

Protective cover for panel mounting bases and sleeve housings

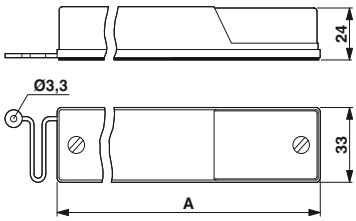
Protective cover for panel mounting frame

	Technical data	Technical data
Material	PA	PA
Inflammability class in acc. with UL 94	V0	V0
Degree of protection	IP50	IP40
Temperature data		
Ambient temperature (operation)	-40 °C ... 80 °C	-40 °C ... 80 °C

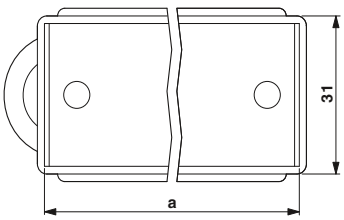
Description	Design	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Protective covers, for sleeve housings							
	VC1	**VC-SD-T1**	**1886728**	5			
	VC2	**VC-SD-T2**	**1886731**	5			
	VC3	**VC-SD-T3**	**1886744**	5			
	VC4	**VC-SD-T4**	**1886757**	5			
Protective cover, for the panel mounting side							
	VC1	**VC-SD-A1**	**1886760**	5			
	VC2	**VC-SD-A2**	**1886773**	5			
	VC3	**VC-SD-A3**	**1886786**	5			
	VC4	**VC-SD-A4**	**1886799**	5			
Protective cover, for panel mounting frame							
	VC1				**VC-SD1**	**1853670**	5
	VC2				**VC-SD2**	**1853683**	5
	VC3				**VC-SD3**	**1853696**	5
	VC4				**VC-SD4**	**1853706**	5

Type	A [mm]	a [mm]
VC-SD…1	59	53.5
VC-SD…2	74	68.5
VC-SD…3	89	83.5
VC-SD…4	104	98.5

Dimensions table



VC-SD-T...



VC-SD

Adapter plates for modular contact inserts

The adapter plates can be used to mount VARIOCON plug-in connectors on the popular panel cutouts of the HEAVYCON B series.

Notes:

For dimensional drawings, refer to page 58

Adapter plates for modular contact inserts

Technical data

Material	V2A
Sealing material	NBR
Degree of protection	IP65

Ordering data

Description	Design	Type	Order No.	Pcs. / Pkt.
Adapter plates, 2 mm thick, for HEAVYCON-B16 panel cutouts, incl. flat gasket				
	VC1	**HC-B 16-ADP-VC-1**	**1885758**	5
	VC2	**HC-B 16-ADP-VC-2**	**1885761**	5
	VC3	**HC-B 16-ADP-VC-3**	**1885774**	5
Adapter plates, 2 mm thick, for HEAVYCON-B24 panel cutouts, incl. flat gasket				
	VC1	**HC-B 24-ADP-VC-1**	**1885813**	5
	VC2	**HC-B 24-ADP-VC-2**	**1885826**	5
	VC3	**HC-B 24-ADP-VC-3**	**1885839**	5
	VC4	**HC-B 24-ADP-VC-4**	**1885842**	5

Adapter plates for crimp contact carriers

Notes:

For dimensional drawings, refer to page 58

Adapter plates for crimp inserts

Technical data

Material	V2A
Sealing material	NBR
Degree of protection	IP65

Ordering data

Description	Design	Type	Order No.	Pcs. / Pkt.
Adapter plates, 2 mm thick, for HEAVYCON-B16 panel cutouts, incl. flat gasket				
	VC1	**HC-B 16-ADP-VC-C1**	**1885787**	5
	VC2	**HC-B 16-ADP-VC-C2**	**1885790**	5
	VC3	**HC-B 16-ADP-VC-C3**	**1885800**	10
Adapter plates, 2 mm thick, for HEAVYCON-B24 panel cutouts, incl. flat gasket				
	VC1	**HC-B 24-ADP-VC-C1**	**1885855**	5
	VC2	**HC-B 24-ADP-VC-C2**	**1885868**	5
	VC3	**HC-B 24-ADP-VC-C3**	**1885871**	5
	VC4	**HC-B 24-ADP-VC-C4**	**1885884**	5

Accessories

Description		Ordering data		
		Type	Order No.	Pcs. / Pkt.
Dummy modules	①			
for panel mounting connectors		**VC-A 2-BM**	**1607815**	50
for sleeve connectors		**VC-T 2-BM**	**1607813**	50
Replacement profile gasket, for sleeve housings and supporting base elements of type:	②			
VC1		**VC-T1-PR-D1**	**1607832**	50
VC2		**VC-T2-PR-D1**	**1607835**	50
VC3		**VC-T3-PR-D1**	**1607838**	50
VC4		**VC-T4-PR-D1**	**1607841**	50
FSMA connector set, with bend protection sleeve for polymer fiber cable, for contact carrier module VC-AFOS 2, (2 pcs. each as set)	③	**VC-FSMA-M-KT-2 SET**	**1855703**	1
FSMA connector, for polymer fiber cable, for contact carrier module VC-AFOS 2, (2 pcs. each as set)	④	**VC-FSMA-M-2 SET**	**1855432**	1
Polisher, metal, for repeated preparation of VARIOCON fiber optic ferrules	⑤	**VC-POLISHER/M FSMA**	**1884982**	1
Polymer fiber polishing set for quick mounting connectors, comprising polishing pads and polishing disks - For F-SMA connectors	⑥	**PSM-SET-FSMA-POLISH**	**2799348**	1
Stripping tool for FO cables	⑦			
- **stripping tool** for individual elements		**PSM-FO-STRIP**	**2744199**	1
Electronic diagonal cutter, round head, with chamfer, with opening spring	⑧	**MICROFOX-SB**	**1212489**	1
Replacement screws	⑨			
for panel mounting frames		**VC-AR-S**	**1607829**	50
for sleeve frames		**VC-TR-S**	**1607826**	50
Coding pins, to prevent identical connectors from being confused	⑩			
Coding bolts with ST 2.9 thread for sleeve housings		**VC-CB-T**	**1607884**	10
Coding bolts with M3 thread for panel mounting bases		**VC-CB-A**	**1607888**	10
Coding profile, for VC-...6 and VC...-8		**CP-MSTB**	**1734634**	100
Coding profile		**CP-HCC 4**	**1600027**	100
Marker labels, unprinted, 5-section, for individual labeling with B-STIFT or CMS system (25 labels per pack), white	⑪	**VC-BZS WH**	**1852875**	5
Plastic label sheet, self-adhesive double-layer plastic labels, material thickness: 0.8 mm, with rounded corners, radius: 2 mm 1 sheet = 32 labels	⑫	**GPE 22X22 SR/R**	**0806628**	10

Corrugated pipe, corrugated pipe screw connections

Using the Corrugated pipe screw connection, any number of wires or single cores can be led to one plug-in connector.

To disassemble the Corrugated pipe screw connection, the matching WR-OEF... Corrugated pipe opener is necessary.

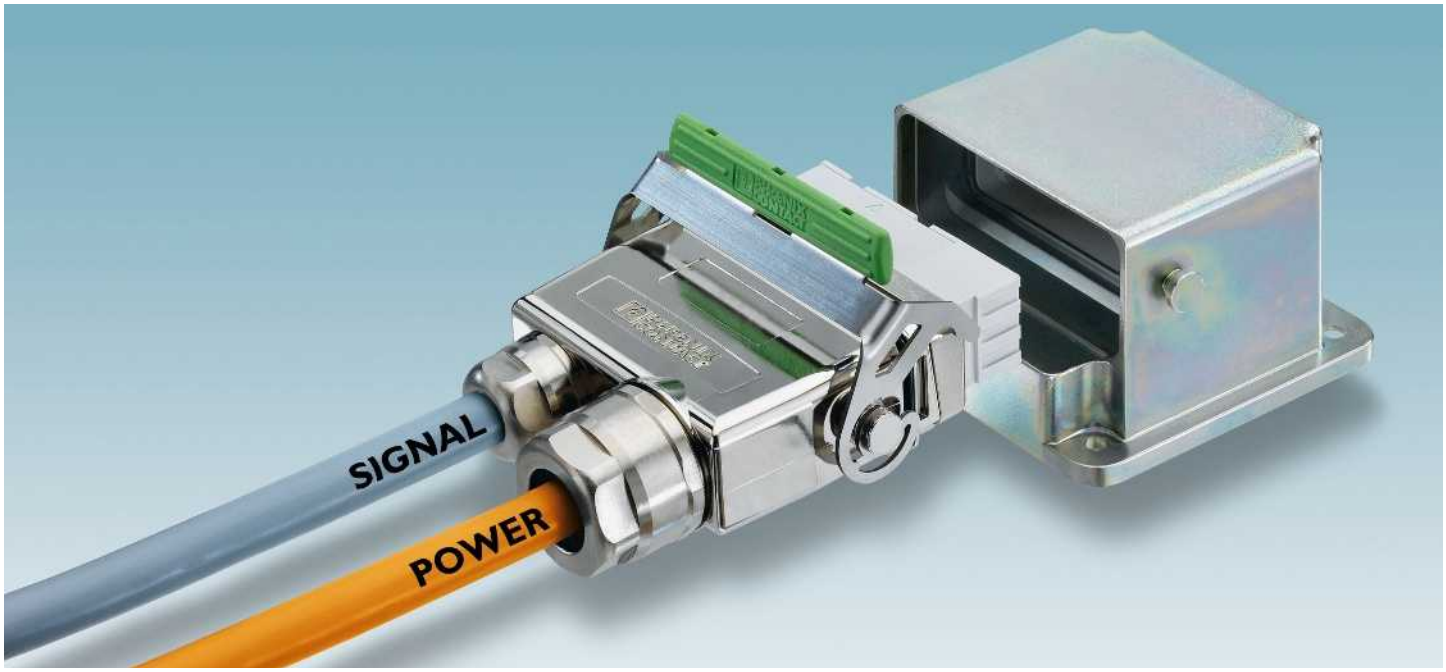
Corrugated pipe

Corrugated pipe screw connections, seals, and N/C contacts

	Technical data	Technical data
Material	PA	PA
Inflammability class according to UL 94	HB	HB
Degree of protection	-	IP65
Temperature data		
Ambient temperature (operation)	-40 °C ... 110 °C	-40 °C ... 110 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Corrugated pipe, design:						
Pg16, bending radius: 35 mm	**WR/PG16-50M**	**1666841**	1			
Pg21 / M25, bending radius: 40 mm	**WR/PG21-50M**	**1666867**	1			
Pg29 / M32, bending radius: 55 mm	**WR/PG29-25M**	**1666854**	1			
M40, bending radius: 60 mm	**WR/M40-25M**	**1644889**	1			
Pg Corrugated pipe screw connection, for Corrugated pipes to lead individual conductors and wires into the housings of HEAVYCON industrial connectors, Design:						
Pg16				**HC-WRV-PG16**	**1666812**	10
Pg21				**HC-WRV-PG21**	**1666825**	10
Pg29				**HC-WRV-PG29**	**1666838**	10
Metric Corrugated pipe screw connection, for insertion of individual conductors and wires in the housings of the HEAVYCON industrial connectors, Design:						
M25				**HC-WRV-M25**	**1644902**	10
M32				**HC-WRV-M32**	**1644915**	10
M40				**HC-WRV-M40**	**1644850**	10
Seal, outside, to increase protection type to IP66, Design:						
Pg16				**WR-DA-PG16**	**1686685**	5
Pg21 / M25				**WR-DA-PG21**	**1686698**	5
Pg29 / M32				**WR-DA-M32/PG29**	**1644847**	5
M40				**WR-DA-M40**	**1644876**	5
Opener for Corrugated pipe, to corrugated pipe screw connection, design:						
Pg16				**WR-OEF-PG16**	**1853638**	5
Pg21 / M25				**WR-OEF-PG21**	**1853612**	5
Pg29 / M32				**WR-OEF-PG29**	**1853641**	5
M40				**WR-OEF-M40**	**1644892**	5

Hybrid plug-in connector for motor connection



Are motor terminal boxes the cheapest option?

Not always! When considered as a whole, a sophisticated connector concept is quite capable of replacing the motor terminal box.

The increasing automation of machines and systems, the demand for the best possible system availability and the need for a quick, uncomplicated startup are calling for new connector concepts.

The motor connectors from the DUPLICON series can save a huge amount of time:

The new hybrid plug-in connector combines signals and power in parallel in the same housing. The two cables are connected to the contact insert using the push-in connection method without tools, quickly, and above all, reliably.

The housing on the motor side has an M12 thread for an external brake cable gland.

Thanks to the robust locking latch, the motor connection can be isolated in seconds. There is no need to call out a skilled electrical engineer.

With a motor connector, the star-delta bridge of the motor is located in the sleeve housing. In the event of changes to the wiring, the motor does not need to be opened in order to replace the bridges of the terminal board. Now, only the sleeve needs to be lifted and the star-delta bridge piece rotated.
The rewiring is complete.

Protection against mismating - the coding of the connector - is implemented by plastic profiles. Laborious and time-consuming coding using metal bolts is thus eliminated. coding is performed in a matter of moments by the simple placement of plastic profiles.

Hybrid plug-in connector for motor connection

- Panel mounting base also available with third-party logo
- Other flange dimensions on request
- Crimp contacts can be removed without tool

Notes:
Connectors may only be operated when not under load.
For dimensional drawings, connector pin assignments, and flange drawing, see page 59

Sleeve connector, 3-pos. + PE power contacts / 4-pos. control contacts

Panel mounting base, 6-pos. + PE power contacts / 4-pos. control contacts

Technical data

Electrical data according to DIN EN 61984:2001	Power contacts	Control contacts	Power contacts	Control contacts
Rated voltage	400/800 V	250 V	400/800 V	250 V
Rated current	16.5 A	2.5 A	16.5 A	2.5 A
Surge voltage category / pollution degree	III / 3		III / 3	
Material data				
Housing material	GD-Zn		GD-Zn	
Locking latch material	Stainless steel		-	
Contact material	Copper alloy	Copper alloy	Copper alloy	Copper alloy
Contact surface material	Ag	Au	Au	Au
Contact carrier material	PA	PA	PA	PA
Inflammability class according to UL 94	V0	V0	V0	V0
External cable diameter	7 mm ... 14.5 mm (Unshielded cable)	4 mm ... 8.3 mm (Unshielded cable)		
External cable diameter	9 mm ... 14.5 mm (Shielded cable)	4 mm ... 8.3 mm (Shielded cable, 4 mm min. shield diameter)		
Mechanical data				
Conductor cross section	0.5 mm² ... 2.5 mm²	0.5 mm² ... 1.5 mm²	0.35 mm² ... 2.5 mm²	0.14 mm² ... 1 mm²
Connection cross section AWG	20 ... 14	20 ... 16	20 ... 14	26 ... 18
Insertion/withdrawal cycles	≥ 100		≥ 100	
Degree of protection	IP67		IP67	
Temperature data				
Ambient temperature (operation)	-30 °C ... 100 °C	-30 °C ... 100 °C	-30 °C ... 100 °C	-30 °C ... 100 °C

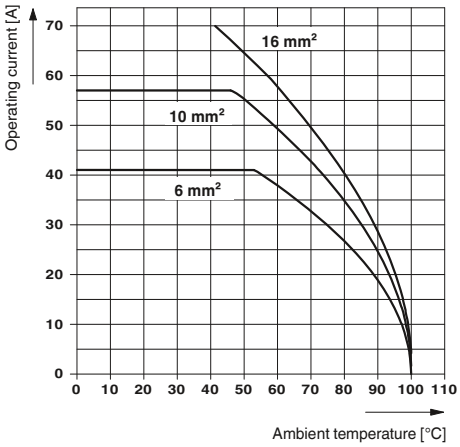
Ordering data

Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Motor connector for three-phase drive, metal housing with EMC sleeves incl. push-in contact insert, with screw connections (power and control circuit), with filler plugs in the control cable screw connection, 4-pos. control circuit, with star-delta bridge, with IP54 protective cover	**HC-MOT-TML-SET**	**1409066**	1			
Plug-in connector on motor side, EMC metal housing attachment incl. crimp contact insert, with flat gasket and coated protective cover, without crimp contacts, housing with coatable thick-layer passivation				**HC-MOT-AFL-SET**	**1409053**	1

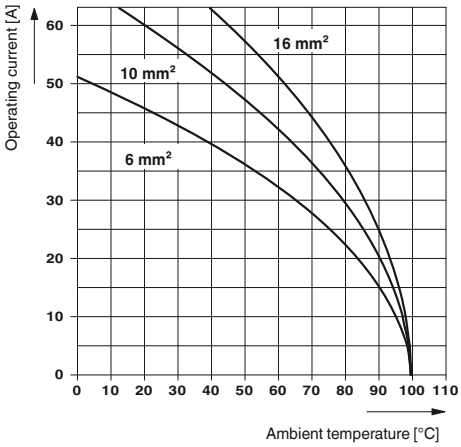
Accessories

Protective cover for the sleeve housing, IP54	**HC-MOT-SD-FLT-KU-IP54**	**1409134**	10			
Coated protective cover for the housing on the motor side				**HC-MOT-SD-L-KU**	**1409147**	10
Star-delta replacement bridge	**HC-MOT-ST/DR-BR**	**1409150**	10			
Turned power crimp contacts, for connection cross section:						
0.25 - 1.0 mm², pin				**CK2,0-ED-1,0ST AU**	**1409118**	100
1.0 - 2.5 mm², pin				**CK2,0-ED-2,5ST AU**	**1409095**	100
Turned signal crimp contacts, for connection cross section:						
0.14 - 0.5 mm², pin				**CK1,0-ED-0,5ST AU**	**1409121**	100
0.50 - 1.0 mm², pin				**CK1,0-ED-1,0ST AU**	**1409082**	100
Crimping pliers				**CRIMPFOX-TC MP-1**	**1212620**	1
Coding profile, prevents similar connectors from being mixed up	**CP-HCC 4**	**1600027**	100	**CP-HCC 4**	**1600027**	100

Power inserts
Derating diagrams

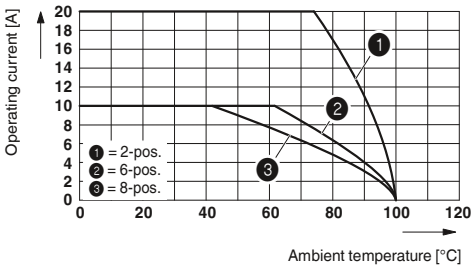


Derating diagram: VC-AMS 4



Derating diagram: VC-AML 4

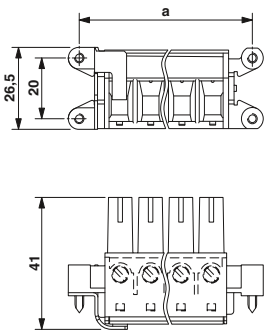
Contact inserts
Derating diagrams



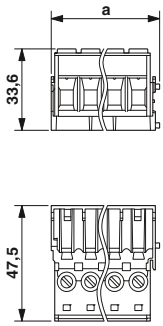
Derating diagram

Dimensional drawings of power contact inserts

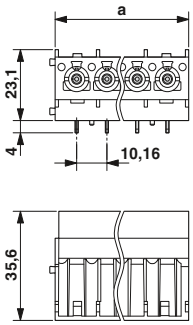
Type	Dimension a [mm]	Type	Dimension a [mm]	Type	Dimension a [mm]
VS-TFS 4...	57.8	VS-AMS 4...	45	VS-AML 4...	45
VS-TFS 5...	72.8	VS-AMS 5...	60	VS-AML 5...	60
VS-TFS 7...	87.5	VS-AMS 7...	75	VS-AML 7...	75



Dimensional drawing: VC-TFS...



Dimensional drawing: VC-AMS...

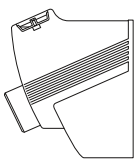


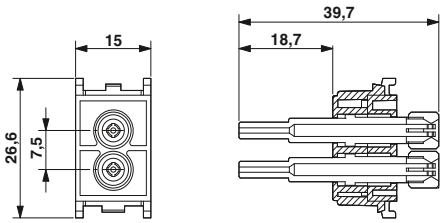
Dimensional drawing: VC-AML...

Fiber optic contact insert modules with screw connection

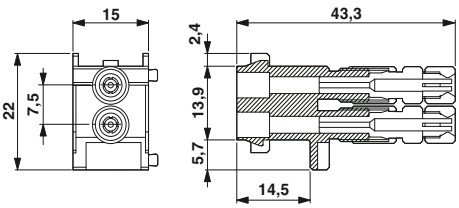
Recommended slots in the sleeve frame

Sleeve frame size	VC-TFOS 2 module at position
1	1
2	1
3	1 and/or 2
4	2



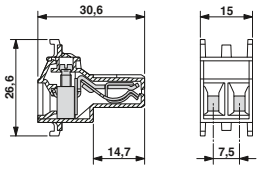


Dimensional drawing: VC-TFOS 2

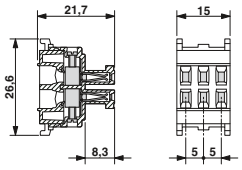


Dimensional drawing: VC-AFOS 2

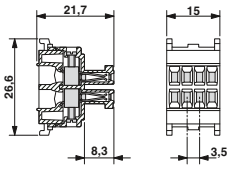
Dimensional drawings of contact inserts



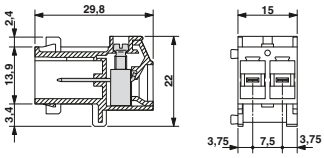
VC-TFS 2



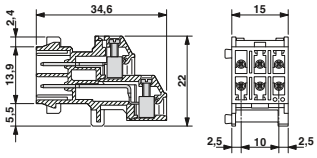
VC-TFS 6



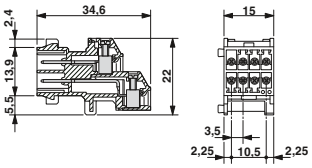
VC-TFS 8



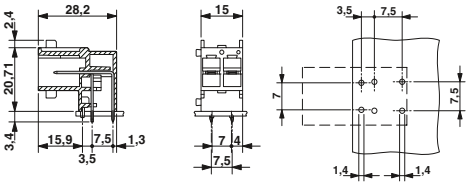
VC-AMS 2



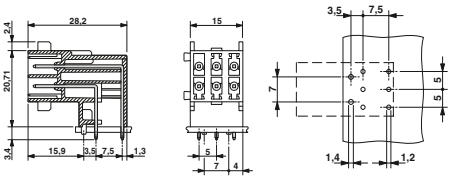
VC-AMS 6



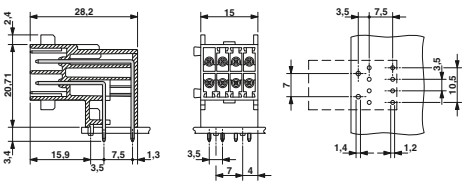
VC-AMS 8



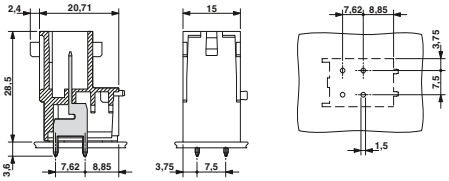
VC-AML 2



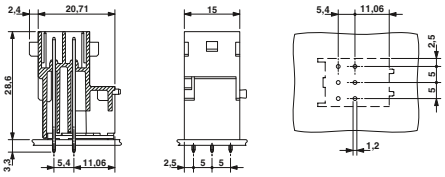
VC-AML 6



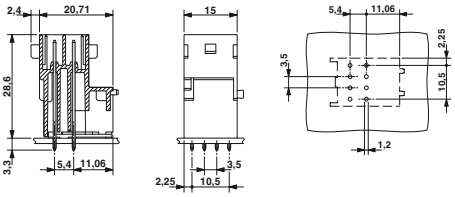
VC-AML 8



VC-AMLV 2



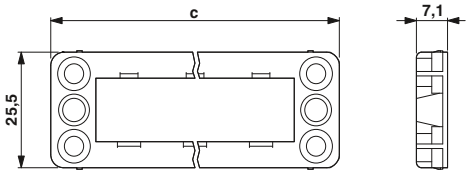
VC-AMLV 6



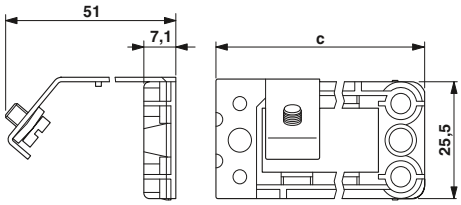
VC-AMLV 8

Panel mounting frame

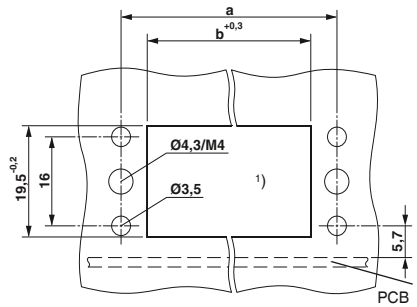
Panel mounting frame type	Dimensions [mm]		
	a	b	c
VC-AR1/2M...	40.0	32.4	50.6
VC-AR2/3M...	55.0	47.4	65.6
VC-AR3/4M...	70.0	62.4	80.6
VC-AR4/5M...	85.0	77.4	95.6



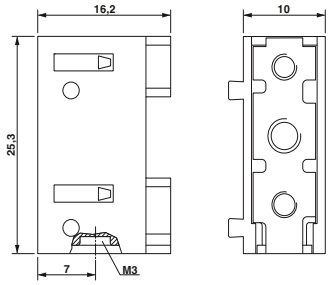
Dimensional drawing: VC-AR...M



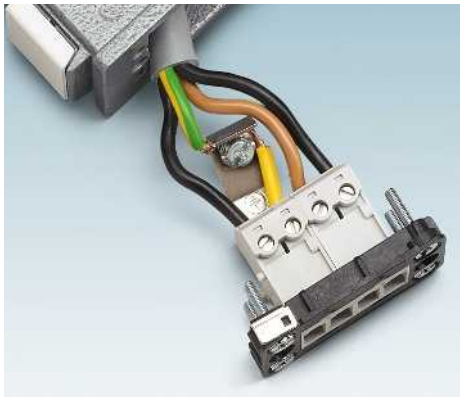
Dimensional drawing: VC-AR...M PEA



Mounting cutout: VC-AR...
1) M3 and M4, if VC-AF is not needed.

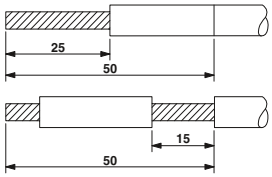


Dimensional drawing: VC-AF panel mounting flange



Assembly instructions:

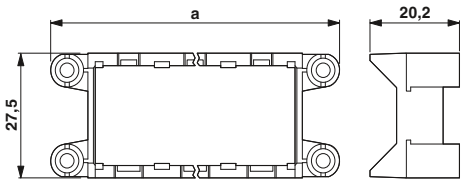
Supporting base elements must be grounded at operating voltages > 42 V. The VC-AR...M-PEA frame has a PE sheet with a PE connection for this purpose.
Strip 25 mm off the PE conductor and cut the insulation at 50 mm. Push the cut insulation forward by 15 mm. Connect the PE conductor to the contact of the module and clamp it to the PE sheet under the PE screw (see photo).



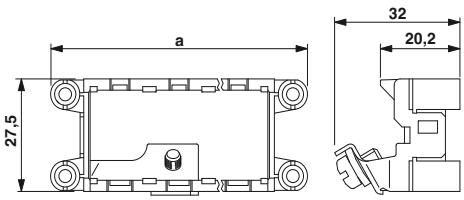
Stripping length of the PE conductor

Sleeve frames

Sleeve frame type	Design	a [mm]
VC-TR1/2M...	VC 1	50.2
VC-TR2/3M...	VC 2	65.2
VC-TR3/4M...	VC 3	80.2
VC-TR4/5M...	VC 4	95.2



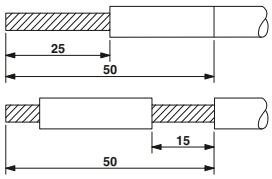
Dimensional drawing: VC-TR...M



Dimensional drawing: VC-TR...M PEA

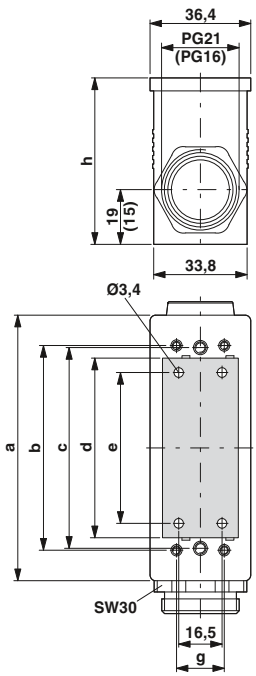
Assembly instructions:

Metal sleeves must be grounded at operating voltages > 42 V. The VC-TR...M-PEA frame has a PE sheet with a PE connection for this purpose. Strip 25 mm off the PE conductor and cut the insulation at 50 mm. Push the cut insulation forward by 15 mm. Connect the PE conductor to the contact of the module and clamp it to the PE sheet under the PE screw (see photo).

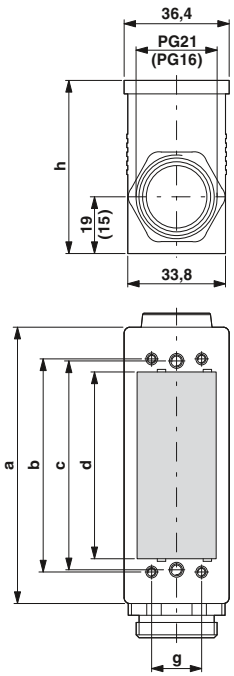


Stripping length of the PE conductor

Supporting base element



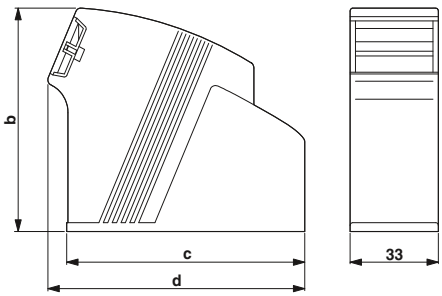
Box mounting base
Base with 4 fixing holes



Coupling housing
Enclosed base

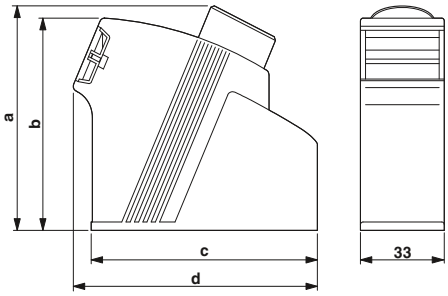
Dimensions VC-M...	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	g [mm]	h [mm]	Cable gland
Size 1	62.6	42.8	40	33	22.6	16	49	Pg16
Size 2	77.6	57.8	55	48	37.6	16	55	Pg21
Size 3	92.6	72.8	70	63	52.6	16	58	Pg21
Size 4	107.6	87.8	85	78	67.6	16	61	Pg21

Sleeve housing with metric cable entry

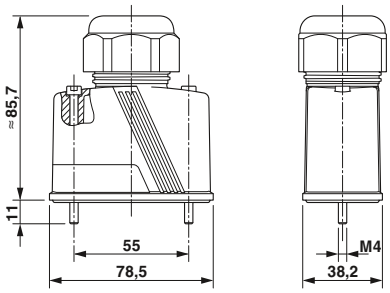


Sleeve housing		Dimensions [mm]			
Design	Width [mm]	a	b	c	d
VC 1	33	71	65	59	66
VC 2	33	73	65	74	81
VC 3	33	79	75	89	96
VC 4	33	79	75	104	111

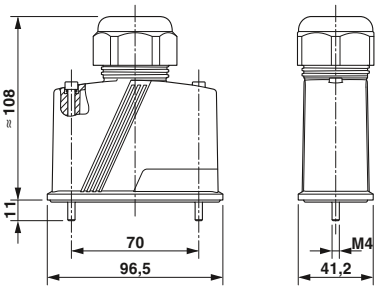
Sleeve housing with Pg cable outlet



Sleeve housing special designs

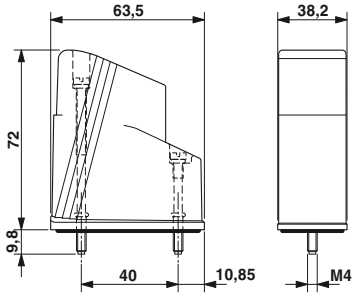


Power sleeve housing, VC2 design

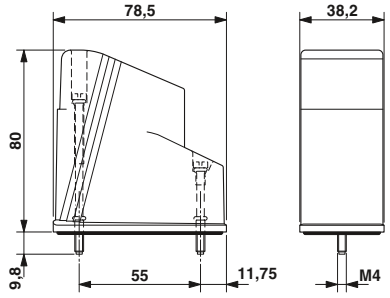


Power sleeve housing, VC3 design

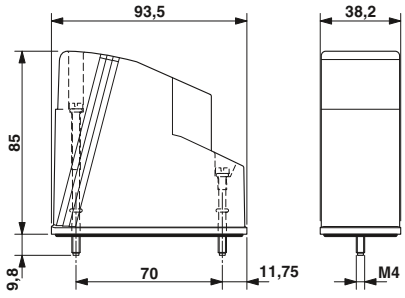
Sleeve housing, with metric cable entry, EMC-compatible



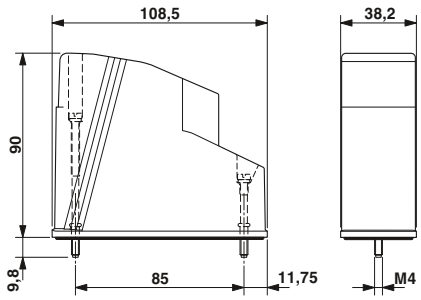
Dimensional drawing: VC1 design



Dimensional drawing: VC2 design



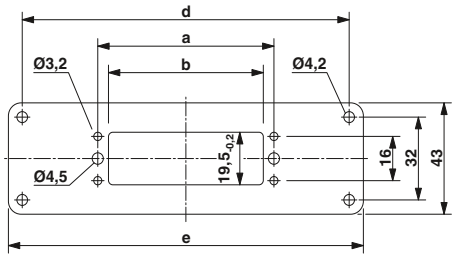
Dimensional drawing: VC3 design



Dimensional drawing: VC4 design

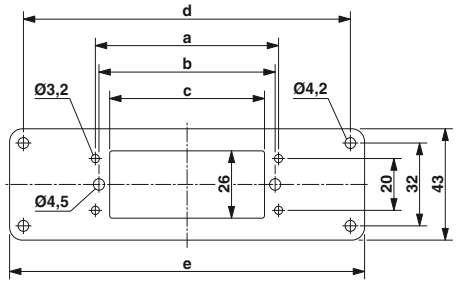
Dimensional drawings of adapter plates

Type	a [mm]	b [mm]	d [mm]	e [mm]
HC-B 16-ADP-VC-1	40.0	32.0	114	103
HC-B 16-ADP-VC-2	55.0	47.0	114	103
HC-B 16-ADP-VC-3	70.0	62.0	114	103
HC-B 24-ADP-VC-1	40.0	32.0	141	130
HC-B 24-ADP-VC-2	55.0	47.0	141	130
HC-B 24-ADP-VC-3	70.0	62.0	141	130
HC-B 24-ADP-VC-4	85.0	77.0	141	130



HC-B...-ADP-VC-...

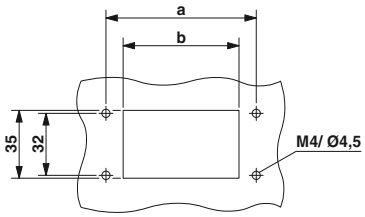
Type	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]
HC-B 16-ADP-VC-C1	42.8	40.0	31.5	114	103
HC-B 16-ADP-VC-C2	57.8	55.0	46.5	114	103
HC-B 16-ADP-VC-C3	72.8	70.0	61.5	114	103
HC-B 24-ADP-VC-C1	42.8	40.0	31.5	141	130
HC-B 24-ADP-VC-C2	57.8	55.0	46.5	141	130
HC-B 24-ADP-VC-C3	72.8	70.0	61.5	141	130
HC-B 24-ADP-VC-C4	87.8	85.0	76.5	141	130



HC-B...-ADP-VC-C...

Type	a [mm]	b [mm]
VC-B 6-ADP...	70.0	52.0
VC-B 10-ADP...	83.0	65.0
VC-B 16-ADP...	103.0	86.0

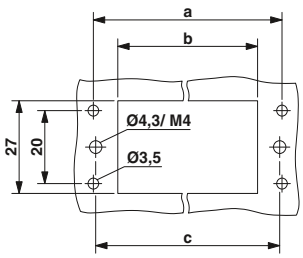
Dimension table: VC-B…-ADP/2DSUB...



Dimensional drawing: VC-B…-ADP/2DSUB...

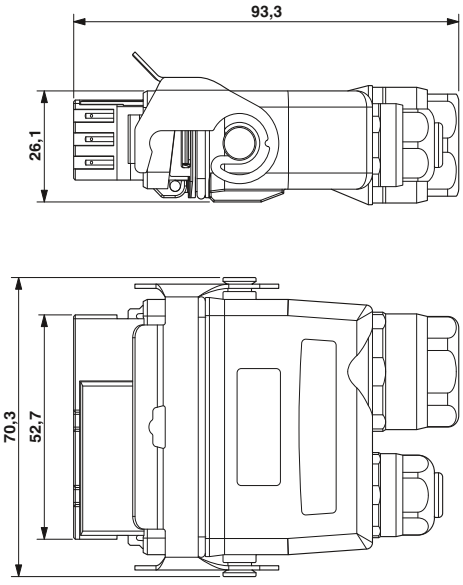
Type	a [mm]	b [mm]	c [mm]
VC-C1-ADP...	42.8	32.4	40.0
VC-C2-ADP...	57.8	47.4	55.0
VC-C3-ADP...	72.8	62.4	70.0

Dimension table: VC-C…-ADP/2DSUB...

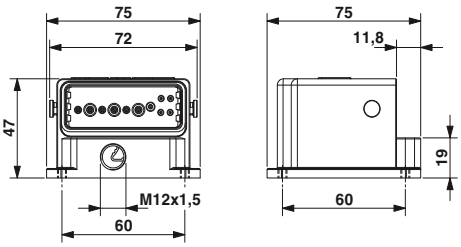


Dimensional drawing: VC-C…-ADP/2DSUB...

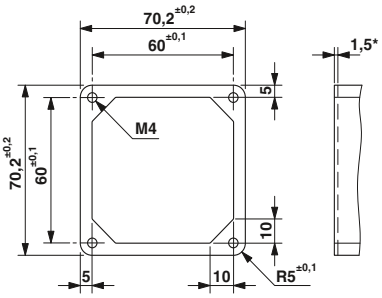
Hybrid plug-in connectors



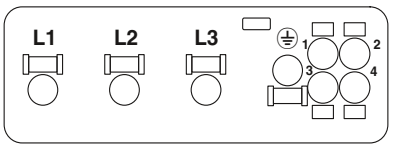
Dimensional drawing: sleeve plug-in connector



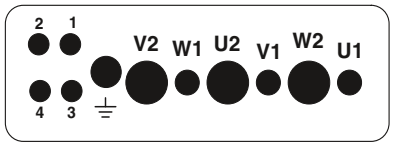
Dimensional drawing: panel mounting base



Dimensional drawing: flange
(1.5* = min. interface dimensions up to this height).



Pin assignment: socket
(connection side)



Pin assignment: pin
(connection side)

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. With PLUSCON data, 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. PLUSCON data is suitable for use in field and industrial hall cabling inside the control cabinet and for integration in devices with a high degree of protection.

Easy field assembly

User-friendly fast connection technologies are available for plug-in connector assembly, even under the harshest industrial conditions. RJ45, M12 QUICKON, and M12 Piercecon® can be assembled for Ethernet and PROFINET cabling without the need for special tools.

Copper and fiber optic

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.

System overview - network 62

System overview - fieldbuses 64

Network components

Topologies 66
RJ45 plug-in connectors 78
M12 plug-in connectors 88
Assembled cables 96
Patch panels, terminal outlets 114
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Fiber optic plug-in connectors 126
Assembled fiber optic cables 138
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Cable range 194

USB plug-in connectors 205

D-SUB-based plug-in connectors 206

	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

Signal des.	Plug-in connector RJ45	Plug-in connector M8
TD+	1	1
TD-	2	4
RD+	3	2
RD-	6	3

Signal des.	Plug-in connector RJ45	Plug-in connector M12
TD+	1	1
TD-	2	3
RD+	3	2
RD-	6	4

Signal des.	Plug-in connector RJ45	Plug-in connector M12
D1+	1	6
D1-	2	4
D3-	5	1
D3+	4	7
D2+	3	5
D2-	6	8
D4+	7	2
D4-	8	3

Signal des.	Plug-in connector RJ45	Plug-in connector M12
D1+	1	1
D1-	2	2
D3-	5	7
D3+	4	8
D2+	3	3
D2-	6	4
D4+	7	5
D4-	8	6

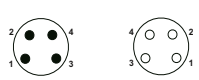
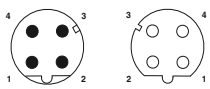
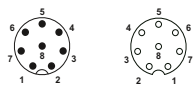
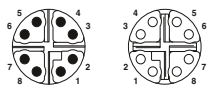
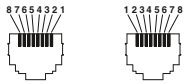
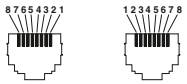
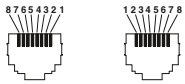
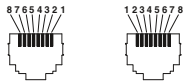
Signal designation, wire assignment

Wire color	Signal
YE	TD+
OG	TD-
WH	RD+
BU	RD-

Wire color	Signal
WHOG	TD+
OG	TD-
WHGN	RD+
GN	RD-

Wire color	Signal
WHOG	D1+
OG	D1-
WHBU	D3-
BU	D3+
WHGN	D2+
GN	D2-
WHBN	D4+
BN	D4-

Wire color	Signal
WHOG	D1+
OG	D1-
WHBU	D3-
BU	D3+
WHGN	D2+
GN	D2-
WHBN	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
User organization				
Standardization of cabling	ISO/IEC 24702	ISO/IEC 24702	ISO/IEC 24702	ISO/IEC 24702
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 page 66	See page 66	See page 66	See page 68

	EtherNet/IP™	PROFINET	EtherCAT	sercos III	VARAN
Ethernet	EtherNet/IP	PROFINET	EtherCAT Technology Group	sercos the automation bus	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 M12
TD+	1
TD-	2
RD+	3
RD-	4

Signal des.	Plug-in connector RJ45	Plug-in connector M12
TD+	1	1
TD-	2	3
RD+	3	2
RD-	6	4

Signal des.	Plug-in connector RJ45	Plug-in connector M12
TD+	1	1
TD-	2	3
RD+	3	2
RD-	6	4

Signal des.	Plug-in connector RJ45	Plug-in connector M12
TD+	1	1
TD-	2	3
RD+	3	2
RD-	6	4

Signal des.	Plug-in connector RJ45	Plug-in connector M12
TD+	1	1
TD-	2	3
RD+	3	2
RD-	6	4

Signal des.	Plug-in connector RJ45	Plug-in connector M12
TD+	2	3
TD-	1	2
RD+	3	5
RD-	6	8

Wire color	Signal
WHOG	TD+
OG	TD-
WHGN	RD+
GN	RD-
BU	
WH	
BN	
BK	

Wire color	Signal
WHOG	TD+
OG	TD-
WHBU	
BU	
WHGN	RD+
GN	RD-
WHBN	
BN	

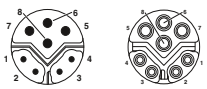
Wire color	Signal
YE	TD+
OG	TD-
WH	RD+
BU	RD-

Wire color	Signal
YE	TD+
OG	TD-
WH	RD+
BU	RD-

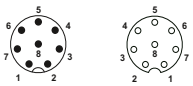
Wire color	Signal
YE	TD+
OG	TD-
WH	RD+
BU	RD-

Wire color	Signal
n. c.	
OG	TD-
WHOG	TD+
n. c.	
WHGN	RD+
BU	
BN	
GN	RD-

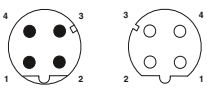
Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device
	www.odva.org	www.profibus.com	www.ethercat.org	www.sercos.de	www.varan-bus.net
	IEC 61784-5-2	IEC 61784-5-3	IEC 61784-5-12	IEC 61784-5-16	



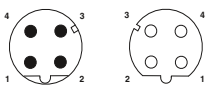
Plug	Socket
M12, hybrid, 8-pos., Y-coded	



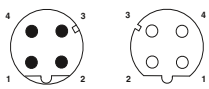
Plug	Socket
M12, 8-pos., A-coded	



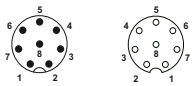
Plug	Socket
M12, 4-pos., D-coded	



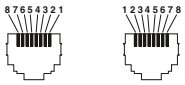
Plug	Socket
M12, 4-pos., D-coded	



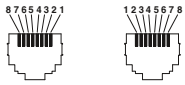
Plug	Socket
M12, 4-pos., D-coded	



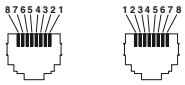
Plug	Socket
M12, 8-pos., A-coded	



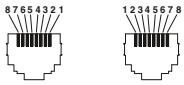
Plug	Socket
RJ45, 8-pos.	



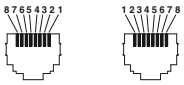
Plug	Socket
RJ45, 8-pos.	



Plug	Socket
RJ45, 8-pos.	



Plug	Socket
RJ45, 8-pos.	



Plug	Socket
RJ45, 8-pos.	

See page 66 | See page 72 | See page 74 | See page 76 | See phoenixcontact.net/products | See phoenixcontact.net/products

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

Signal designation	Plug-in connector D-SUB 9	Plug-in connector M12
DO	1	1
DO	6	2
DI	2	3
DI	7	4
COM	3	5

Signal designation	Plug-in connector D-SUB 9	Plug-in connector M12
A cable	8	2
B cable	3	4

Signal designation	Plug-in connector M12
DATA+	1
DATA-	3
Shield	4

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

Signal designation, wire assignment

Wire color	Signal
YE	DO
GN	DO
GY	DI
PK	DI
BN	COM
WH	NC

Shield on housing

Wire color	Signal
GN	A cable
RD	B cable

Shield on housing

Wire color	Signal
OG	DATA+
BU	DATA-

Filler litz wire

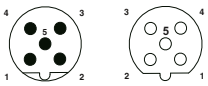
Shield on pin

Wire color	Signal
BU	CAN_L
WH	CAN_H
RD	V+
BK	V-

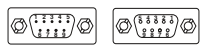
Shield on pin

	INTERBUS	PROFIBUS DP	PROFIBUS PA	DeviceNet™
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

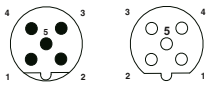
Plug-in connector pin assignments



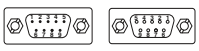
Plug	Socket
M12, 5-pos., B-coded	



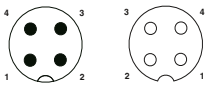
Plug	Socket
D-SUB 9	



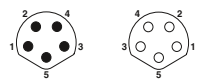
Plug	Socket
M12, 5-pos., B-coded	



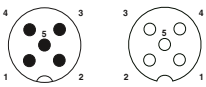
Plug	Socket
D-SUB 9	



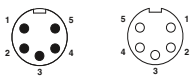
Plug	Socket
M12, 3-pos., A-coded	



Plug	Socket
M8, 5-pos., B-coded	



Plug	Socket
M12, 5-pos., A-coded	



Plug	Socket
7/8" 16UNF, 5-pos.	

	INTERBUS	PROFIBUS DP	PROFIBUS PA	DeviceNet™
Topology	See page 172	See page 174	See page 175	See page 178

CANopen®

Automation technology and for networking within complex devices

Line or tree (when using repeaters)

10 kbaud to 1 Mbaud

Signal designation	Plug-in connector COMBICON	D-SUB 9	M12	RJ45	7/8"
CAN_L	2	2	5	2	5
CAN_H	4	7	4	1	4
V+	5	9	2	8	2
V-	1	3	3	3	3
Drain	3	4	1	6	1

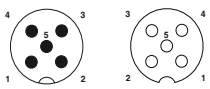
Wire color	Signal
BU	CAN_L
WH	CAN_H
RD	V+
BK	V-

Shield on pin

Up to 1000 m depending on the transmission speed; can be increased by using repeaters

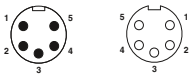
www.can-cia.de

EN 50325-4



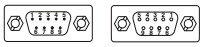
Plug | Socket

M12, 5-pos., A-coded



Plug | Socket

7/8" 16UNF, 5-pos.



Plug | Socket

D-SUB 9

See page 176

AS-Interface

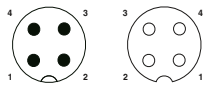
Sensor/actuator level

Bus, star, ring, and tree structures

167 kbps

Signal designation	Plug-in connector M12
AS-i+	1
AS-i-	3

Wire color	Signal
BN	AS-i-
WH	
BU	AS-i+
BK	



Plug | Socket

M12, 4-pos., A-coded

See page 180

FOUNDATION Fieldbus

Process automation

Point-to-point line (with branch lines), tree structure, combination of all topologies

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

Signal designation	Plug-in connector M12	7/8"
DATA+	2	1
DATA-	1	4
Shield	3	3

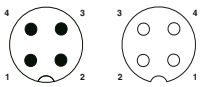
Wire color	Signal
OG	DATA+
BU	DATA-
Filler litz wire	

Shield on pin 3

Max. 1900 m; max. 9500 m when using repeaters depending on the selected cable

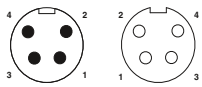
www.fieldbus.org

IEC 1158, IEC 61158



Plug | Socket

M12, 4-pos., A-coded



Plug | Socket

7/8" 16UNF, 4-pos.

See page 182

USB

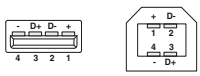
All industrial environments

Star topology, the connection is established at the star nodes via hubs

Up to 480 Mbps

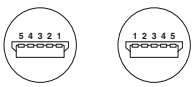
Signal designation	Plug-in connector M12, MINI - USB	USB
V_{BUS}	1	1
D-	2	2
D+	3	3
ID	4	
GND	5	4

Wire color	Signal
WHOG	D-
WH	V_{BUS}
OG	D+
n.c.	ID
BK	GND



Plug, type A | Socket, type B

USB, 4-pos.



Plug | Socket

M12 mini-USB, 5-pos.

See page 204

CC-Link

Production level applications

Bus, multi-drop, T-branching, star

Up to 10 Mbps

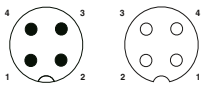
Signal designation	Plug-in connector M12
SLD	1
DS	2
DG	3
DA	4

Wire color	Signal
Shield	SLD
WH	DS
YE	DG
BU	DA

Max. 1200 m; max. 13.2 km with repeaters

www.clpa-europe.com

IEC 61784-1 CPF 8

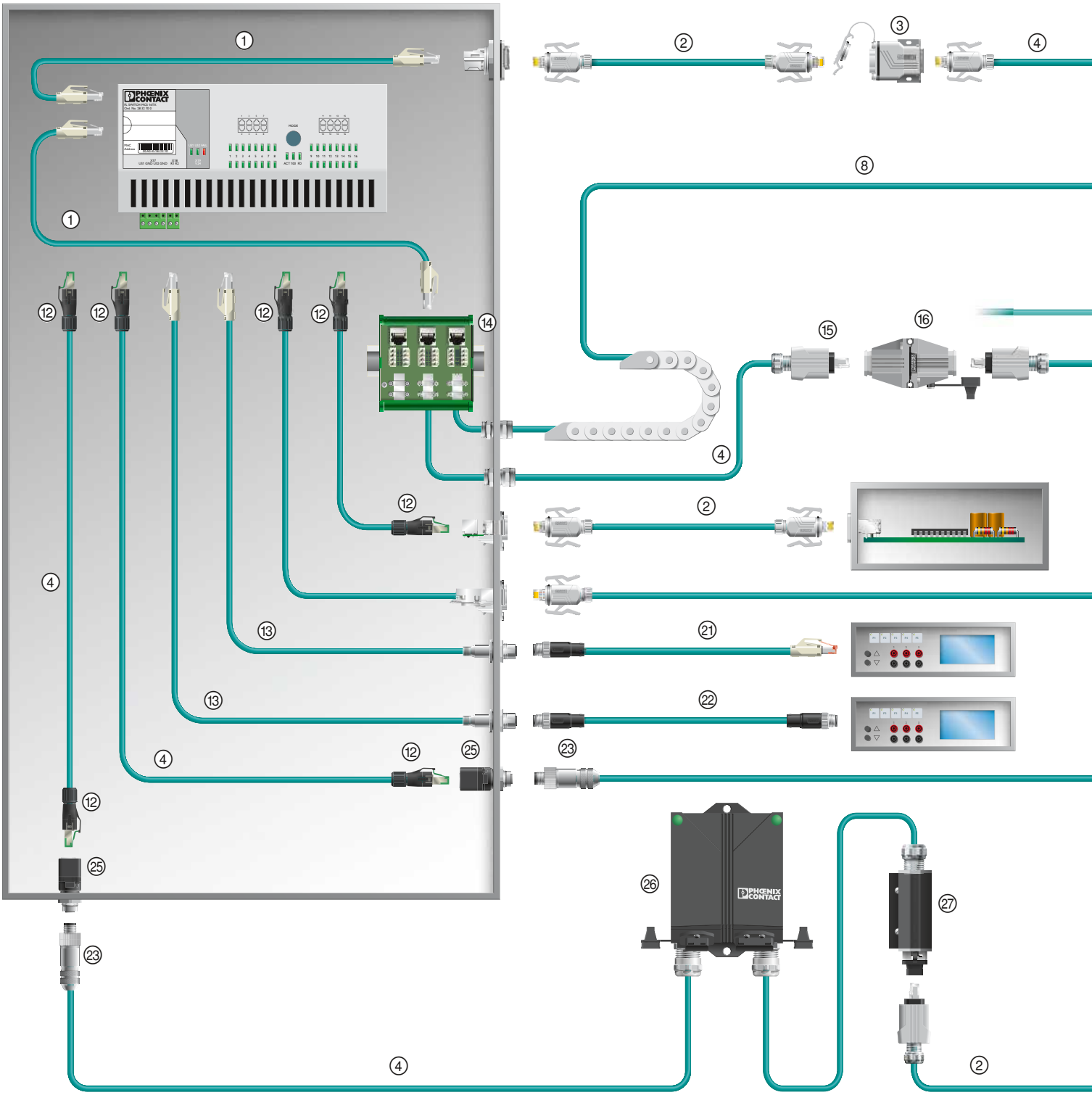


Plug | Socket

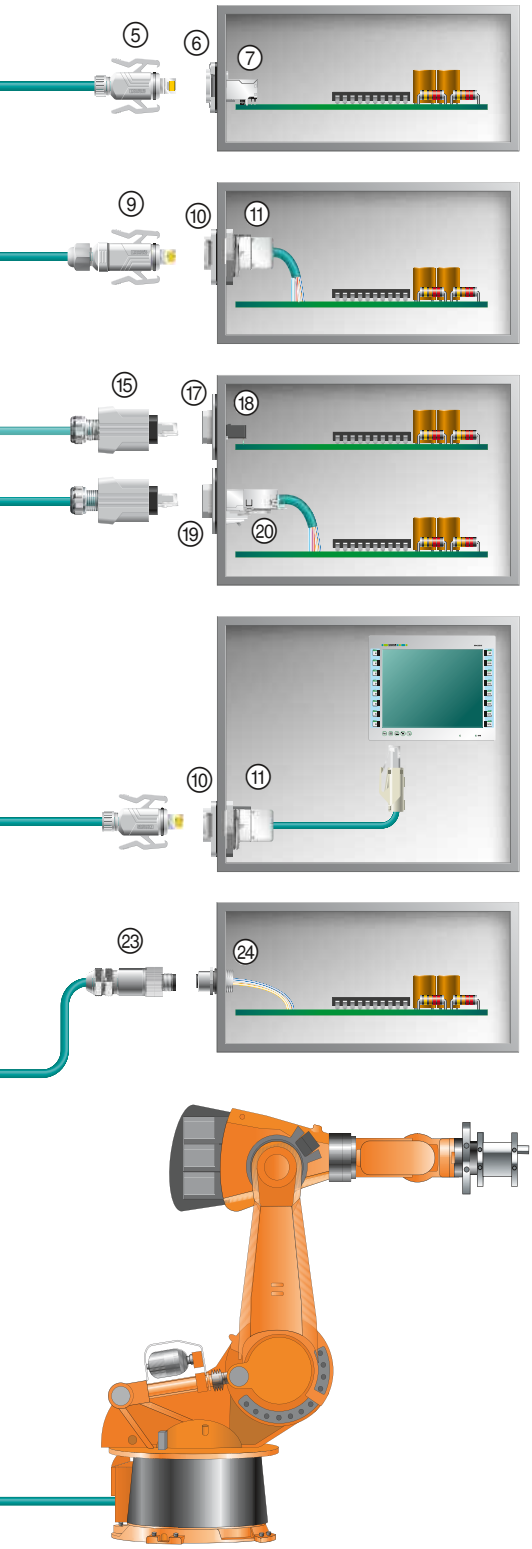
M12, 4-pos., A-coded

See phoenixcontact.net/products

Topology – copper-based cabling for Industrial Ethernet

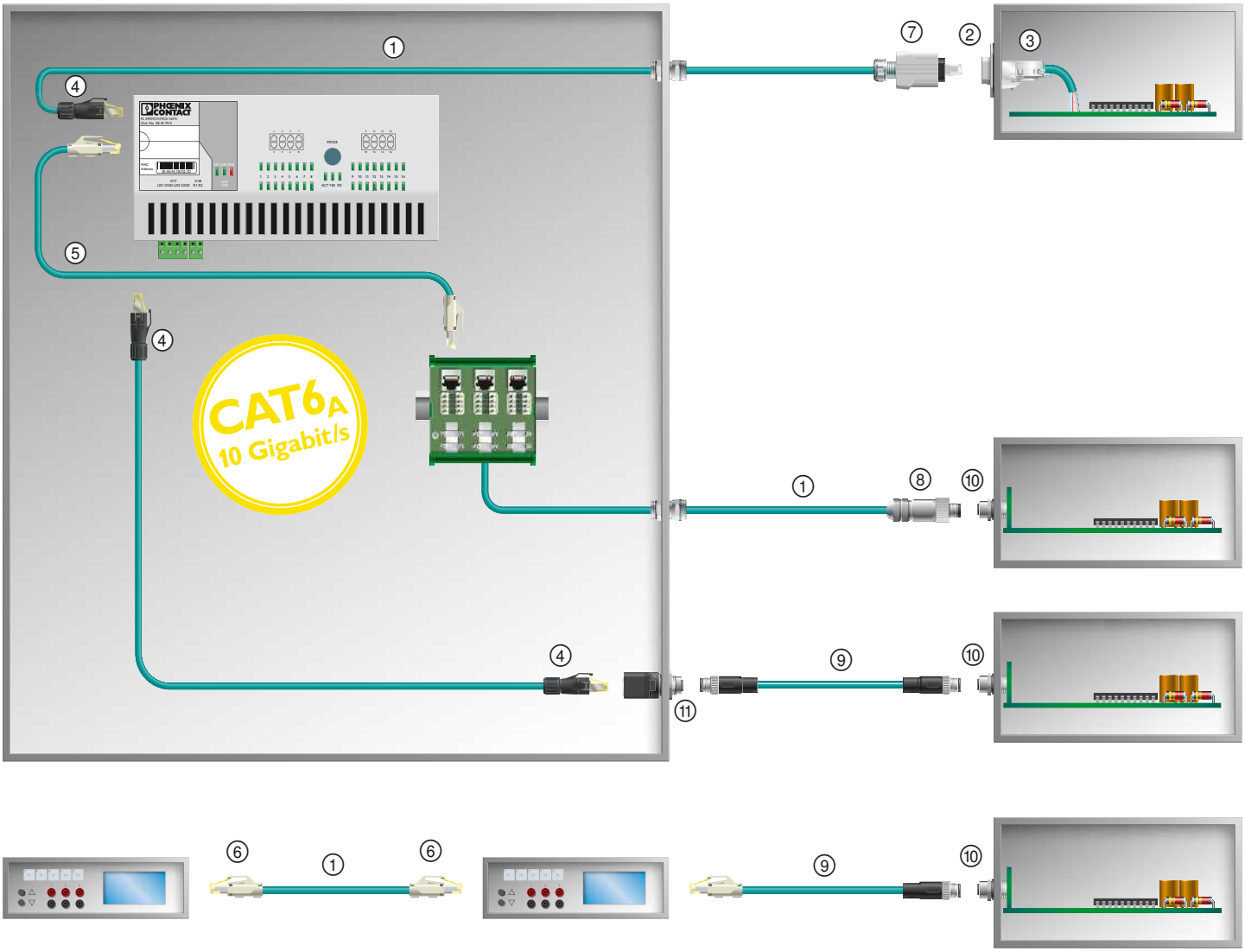


Topology – copper-based cabling for Industrial Ethernet



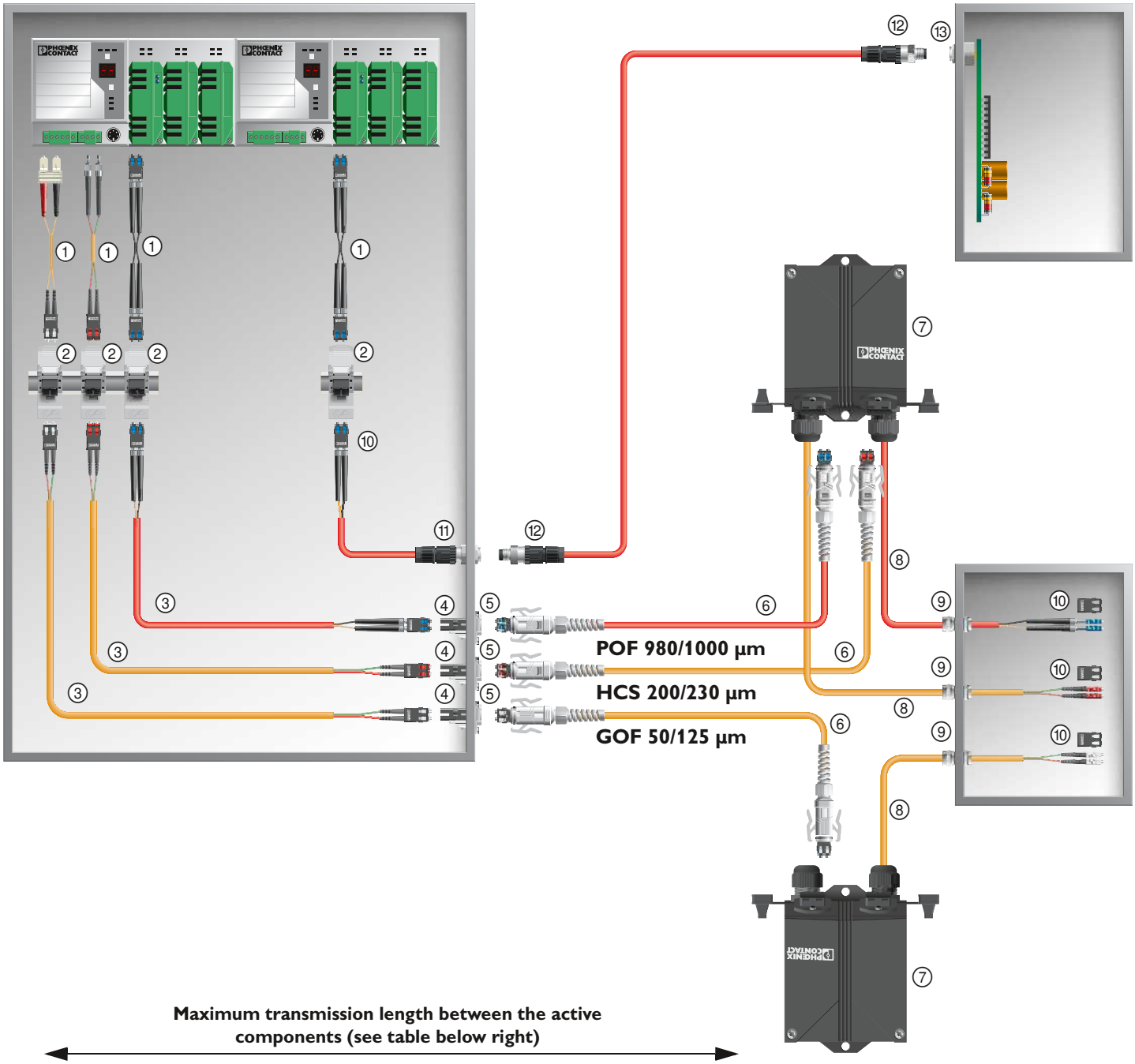
No.	Designation	Page
1	Assembled Ethernet cable with RJ45 plug-in connectors, IP20	100
2	Assembled Ethernet cable with RJ45 plug-in connectors, IP67	100
3	RJ45 coupling, IP67, version 6	119
4	Ethernet cable, by the meter	96
5	RJ45 plug-in connector, IP67, version 6, consisting of sleeve housing and pin insert	82
6	RJ45 panel mounting frame, IP67, version 6, for PCB socket inserts	83
7	RJ45 socket insert for PCB mounting	85
8	Ethernet cable, for drag chain, by the meter	96
9	RJ45 plug-in connector, IP67, for assembly without special tools	82
10	RJ45 panel mounting frame, IP67, for keystones, version 6	84
11	RJ45 keystone socket inserts	84
12	RJ45 plug-in connector, IP20, CAT5e, 8-pos., for assembly without special tools	78
13	Assembled Ethernet cable, RJ45 to M12	98
14	RJ45 patch panel for the DIN rail	120
15	RJ45 plug-in connector, IP67, push/pull, version 14, for assembly without special tools	80
16	RJ45 field couplings, IP67	119
17	RJ45 panel mounting frame, IP67, push/pull, for PCB socket inserts, version 14	85
18	RJ45 socket insert for PCB mounting, version 14	85
19	RJ45 panel mounting frame, IP67, for the Freenet system, version 14	83
20	RJ45 socket inserts for the Freenet system	83
21	Assembled Ethernet cable with RJ45 and M12 plug-in connectors	98
22	Assembled Ethernet cable with M12 plug-in connectors	98
23	M12 plug-in connector, shielded, for assembly without special tools	88
24	M12 flush-type plug-in connector	92
25	RJ45 to M12 bulkhead	94
26	Terminal outlets, IP65/IP67	118
27	RJ45 multi-port robot interface	117

Topology – 10 Gbps Industrial Ethernet



No.	Designation	Page
①	Ethernet cable, by the meter, for 10 Gbps	96
②	RJ45 panel mounting frame, IP67, for the Freenet system, version 14	83
③	RJ45 socket inserts for the Freenet system	83
④	RJ45 plug-in connector, IP20, for 10 Gbps, for assembly without special tools	78
⑤	Assembled Ethernet cable for 10 Gbps	102
⑥	RJ45 plug-in connector, IP20, consisting of sleeve housing and pin insert for 10 Gbps	78
⑦	RJ45 plug-in connector, IP67, version 14	80
⑧	M12 plug-in connector for 10 Gbps, for assembly without special tools	88
⑨	Assembled Ethernet cable for 10 Gbps	102
⑩	M12 flush-type plug-in connector for 10 Gbps, for PCB mounting	90
⑪	Control cabinet feed-through, $CAT6_A$, M12, 8-pos., X-coded to RJ45 socket	94

Topology – fiber optic cabling for Industrial Ethernet



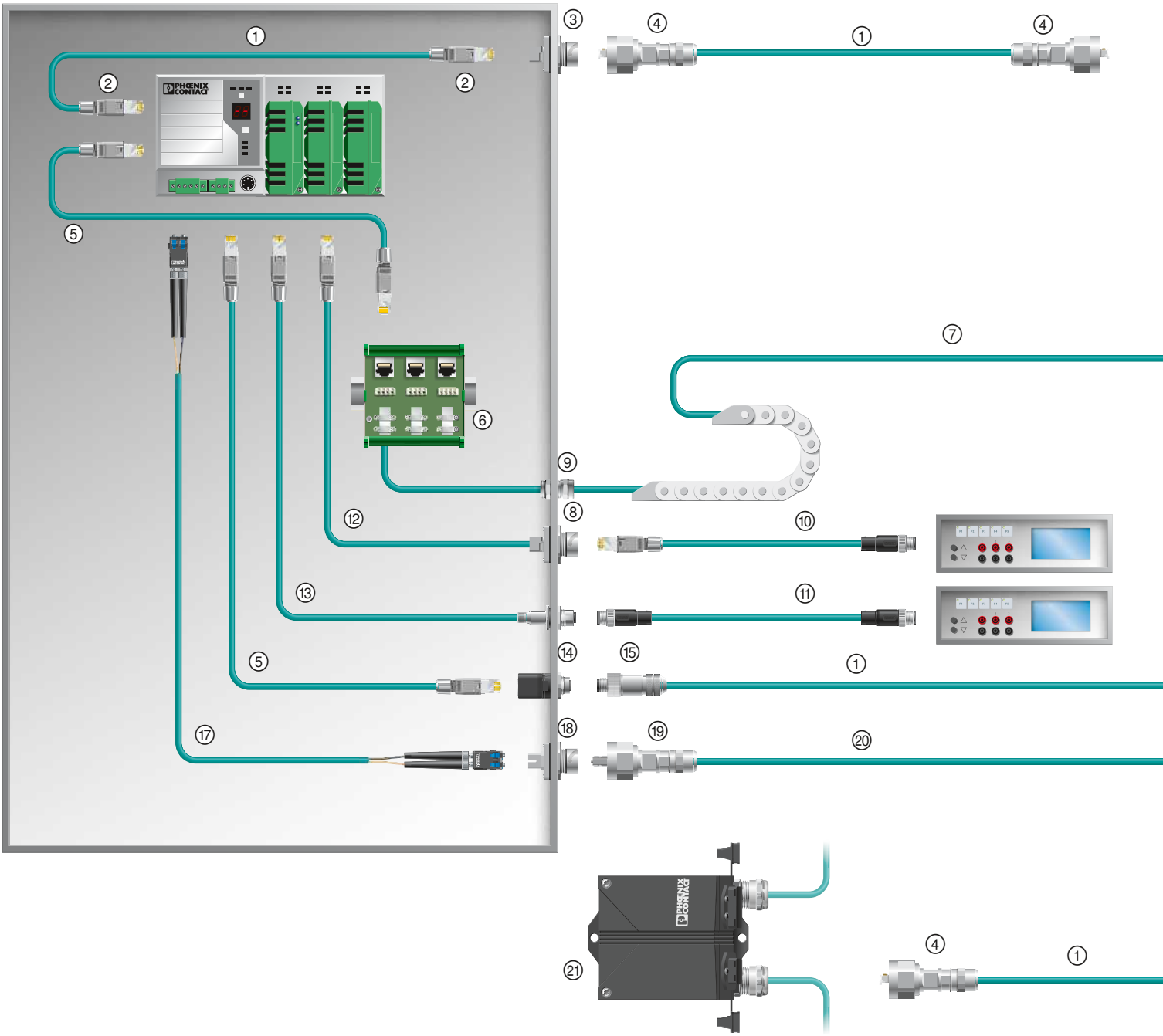
Topology – fiber optic cabling for Industrial Ethernet

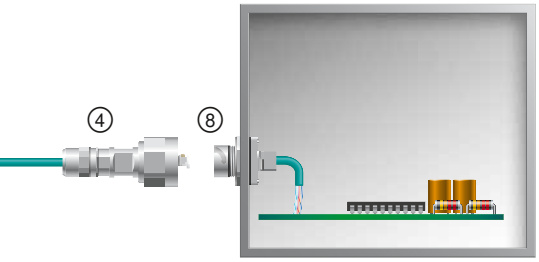
No.	Designation	Page		
		POF	HCS	GOF
①	Adapter cable, SCRJ/IP20 to FSMA (with POF/HCS) or SCRJ/IP20 to SC duplex (with GOF)			
②	Patch panel, SCRJ/IP20, for DIN rail mounting	134	134	134
③	Assembled industrial cable, assembled at both ends with SCRJ/IP20 plug-in connectors	138	152	156
④	SCRJ socket insert for panel mounting frames	From 127	From 130	From 132
⑤	SCRJ/IP67 panel mounting frames	From 127	From 130	From 132
⑥	Assembled fiber optic round cable with SCRJ plug-in connectors, IP67	From 138	From 148	From 156
⑦	IP67 terminal outlet with 2 SCRJ/IP67 slots and integrated SCRJ socket inserts	134	134	134
⑧	Industrial cable for fixed indoor installation	From 138	From 148	From 156
⑨	IP68 cable gland	From 42	From 42	From 42
⑩	SCRJ plug-in connector, IP20	127	130	132
⑪	Panel feed-through assembled with the cable	126		
⑫	M12 plug-in connector	126		
⑬	M12 transceiver	126		

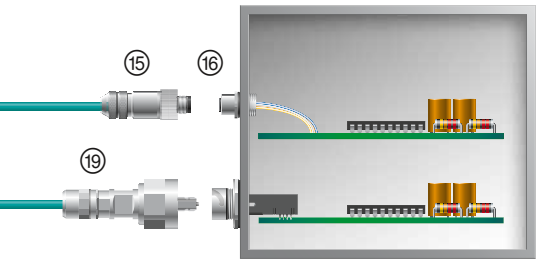
Standard	Transmission speed	Fiber type	Wavelength	Length
–	10 Mbps	POF 980/1000 µm	660 nm	50 m*
–	10 Mbps	HCS 200/230 µm	660 nm	300 m
IEC 61784-5-3 (PROFINET)	100 Mbps	POF 980/1000 µm	660 nm	50 m*
IEC 61784-5-3 (PROFINET)	100 Mbps	HCS 200/230 µm	660 nm	100 m
100Base-SX	100 Mbps	GOF 50/125 µm	850 nm	3800 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

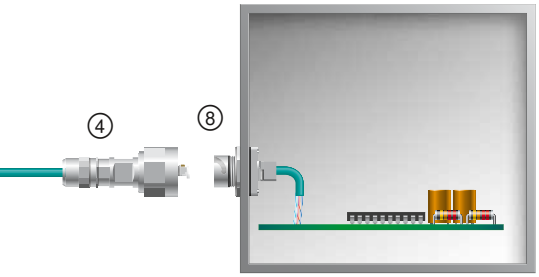
* minus 10 meters per passive coupling, e.g., patch panel, panel feed-through or terminal outlet

Topology – EtherNet/IP™









No.	Designation	Page
①	Cables for flexible installation, by the meter	96
②	RJ45 plug-in connector, IP20, for tool-free assembly	78
③	RJ45 panel feed-through, IP67, socket/socket	86
④	RJ45 plug-in connector, IP67, with bayonet locking	82
⑤	Assembled cables with RJ45 plug-in connectors, IP20	100
⑥	RJ45 patch panel, IP20, for DIN rail mounting	120
⑦	Cables for continuous motion applications, suitable for use with drag chain, by the meter	96
⑧	RJ45 panel feed-through, IP67, with cable connection	86
⑨	IP68 cable gland	42
⑩	M12 plug-in connector, with Ethernet cable and assembled RJ45 plug-in connector	98
⑪	Assembled cable with M12 plug-in connectors, IP65/IP67	98
⑫	Assembled cables with RJ45 plug-in connector and free cable end	98
⑬	Assembled cable with M12 flush-type socket to free cable end	98
⑭	Control cabinet feed-through, M12/RJ45, 180°	94
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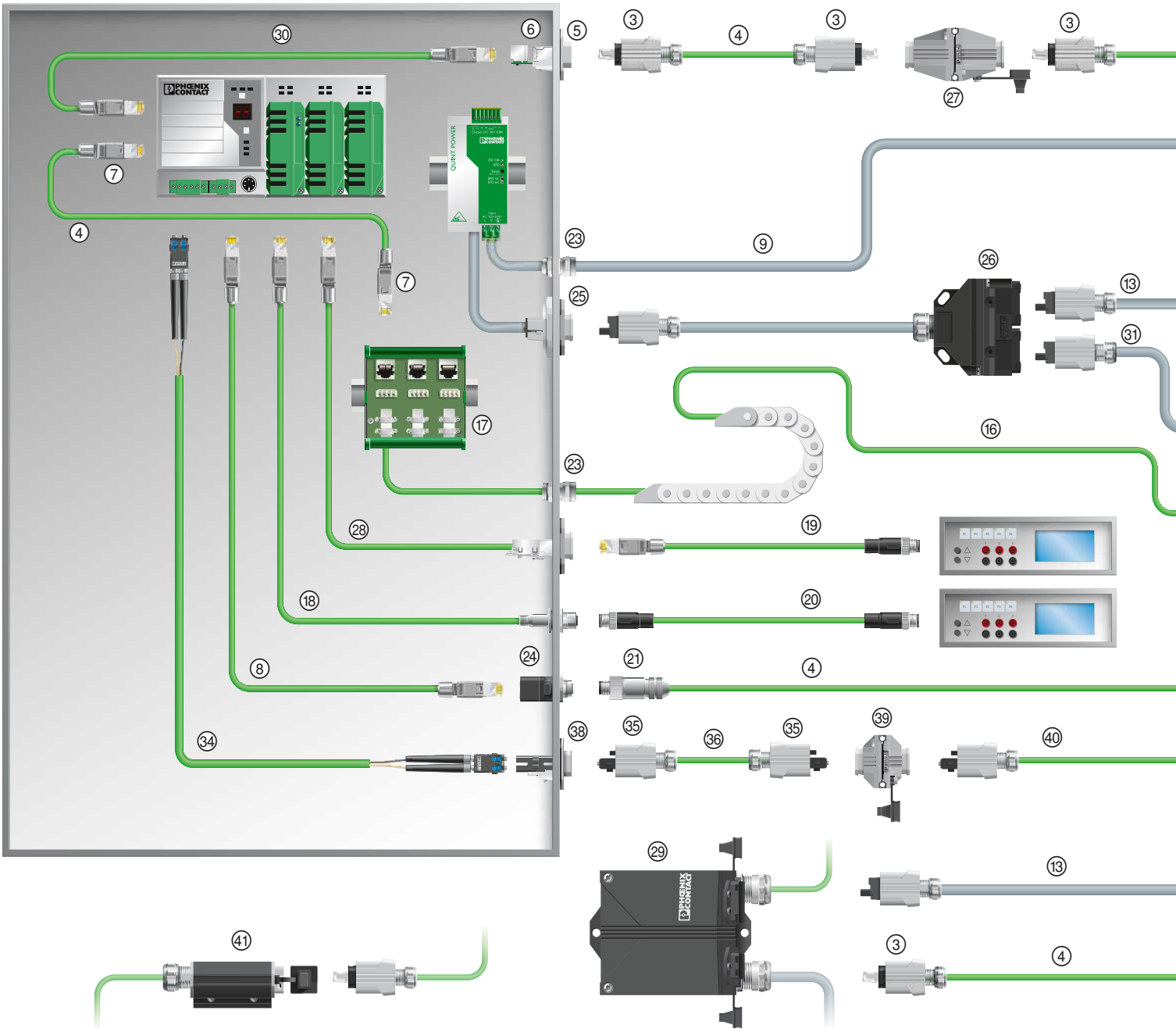
Topology – PROFINET



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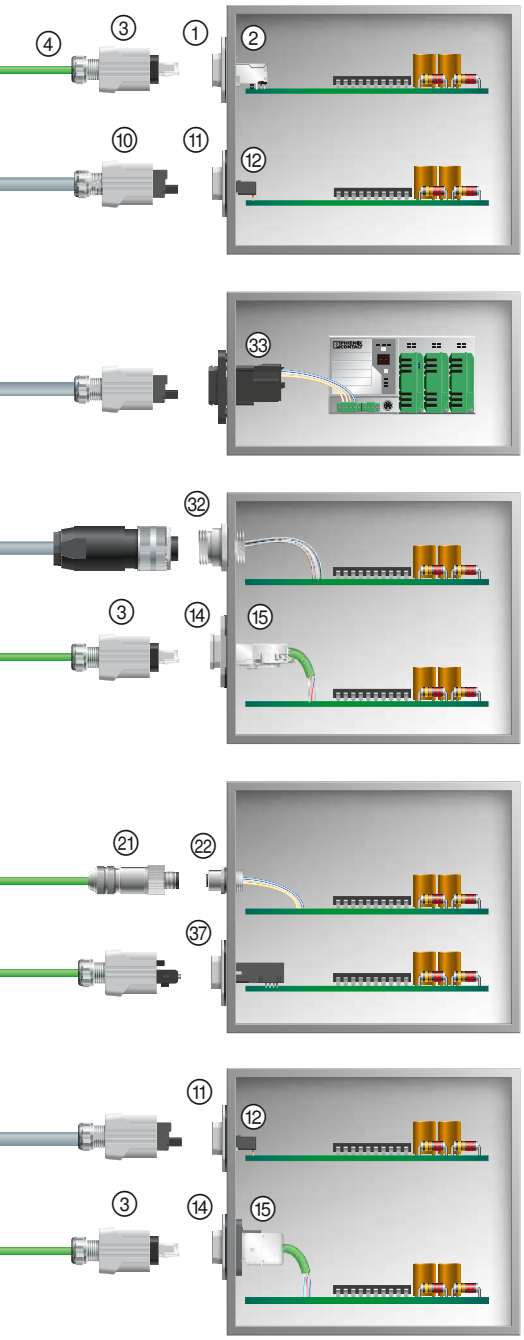

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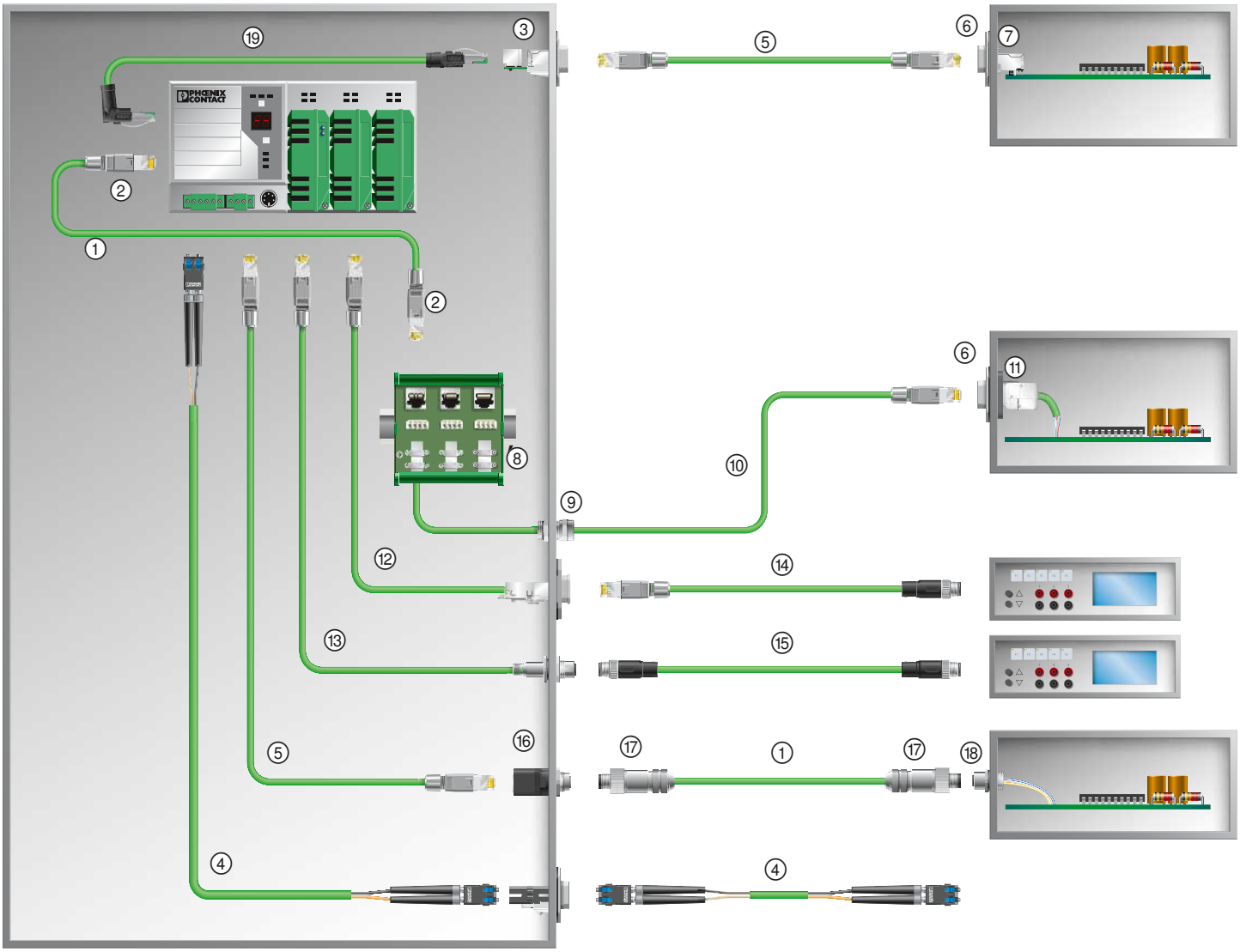
Topology – EtherCAT



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⑧	RJ45 patch panel, IP20, for DIN rail mounting	120
⑨	IP68 cable gland	42
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RJ45 plug-in connector, IP20

RJ45 plug-in connector with fast connection technology, for up to 10 Gbps

RJ45 pin inserts, $CAT6_A$ and CAT5

	Technical data		Technical data	
	VS-08-RJ45-10G/Q	VS-...-RJ45-...-Q...	VS-08-RJ45-10G/C	VS-08-ST-H...-RJ45
Electrical data				
Transmission characteristics (category)	$CAT6_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	$CAT6_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Surge voltage category	I	I	I	I
Material data				
Housing material	PA 6.6	PA 6.6	-	-
Contact material	CuSn	CuSn	Phosphor bronze	Copper alloy
Inflammability class according to UL 94	V2	V2	V2	V2
Pollution degree	2	2	-	2
External cable diameter	4.5 mm ... 8 mm	4.5 mm ... 8 mm	-	-
Insertion/withdrawal cycles	≥ 750	≥ 750	-	≥ 750
Temperature data				
Ambient temperature (operation)	-20 °C ... 70 °C	-20 °C ... 70 °C	-25 °C ... 60 °C	-25 °C ... 60 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
RJ45 plug-in connector, IP20, **$CAT6_A$**, 8-pos., with QUICKON fast connection technology, for 1-wire and 7-wire AWG 26 ... 24 conductors, color: black	**VS-08-RJ45-10G/Q**	**1419001**	1			
RJ45 plug-in connector, IP20, **CAT5**, 8-pos., with QUICKON fast connection technology, for 1-wire and 7-wire AWG 26 ... 24 conductors, color: black	**VS-08-RJ45-Q**	**1402420**	1			
RJ45 plug-in connector, 4-pos., with QUICKON fast connection technology, for 22 AWG, color: gray	**VS-PN-RJ45-5-Q/IP20**	**1658435**	1			
RJ45 pin insert, $CAT6_A$, 10 Gbps				**VS-08-RJ45-10G/C**	**1418853**	5
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
RJ45 bend protection sleeve, for VS-08-ST-H11-RJ45 and VS-08-RJ45-10G/C pin inserts, for cable diameters up to 7 mm Gray				**VS-08-KS-H/GY**	**1654743**	5
Green				**VS-08-KS-H/GN**	**1654756**	5

	Accessories			Accessories		
Crimp tool, pliers with die, for VS-08-ST-H…-RJ45				**VS-CT-RJ45-H**	**1653265**	1
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1	**VS-CABLE-STRIP-VARIO**	**1657407**	1
Shielding foil set, 25 pcs., replacement for RJ45 and M12-QUICKON connectors	**VS-08-RJ45-FOLIEN-SET**	**1417184**	1			

RJ45 panel mounting frames with IP20 and socket inserts

RJ45 socket inserts and IP20 panel mounting frame, modular system, keystone

Technical data

	VS-08-BU-RJ45-6/KA/LSA	VS-08-A-RJ45/MOD-1-IP20
Electrical data		
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 14, IP65/IP67

Ethernet

RJ45 plug-in connector, version 14, push/pull, 10 Gbps

Ethernet

RJ45 plug-in connector, version 14, push/pull, fast connection technology

	Technical data	Technical data	
	VS-PPC-C1-...-8/10G	VS-PPC-C1-...-PG9-8Q5	VS-PPC-C1-...-PG9-4Q5
Electrical data			
Nominal voltage U_N	50 V	50 V	50 V
Rated current	1.75 A	1.75 A	1.75 A
Transmission characteristics (category)	$CAT6_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Surge voltage category	I	I	I
Material data			
Housing material	Zinc die-cast	Zinc die-cast	Zinc die-cast
Contact material	Copper alloy	Copper alloy	Copper alloy
Inflammability class according to UL 94	V0	V0	V0
Pollution degree	2	2	2
Connection data			
Connection method	IDC fast connection	IDC fast connection	IDC fast connection
Connection cross section AWG	26 ... 24 (solid)	26 ... 22 (solid)	26 ... 22 (solid)
Connection cross section AWG	26 ... 24 (7-wire)	26 ... 22 (stranded)	26 ... 22 (stranded)
External cable diameter	5 mm ... 8 mm	5 mm ... 8 mm	5 mm ... 8 mm
Insertion/withdrawal cycles	≥ 250	≥ 250	≥ 500
Temperature data			
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 70 °C	-40 °C ... 70 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Push/pull plug-in connector (version 14) for 10 Gbps, with RJ45 crimp connection, for 26 ... 24 AWG stranded conductors, 5.0 mm ... 8.0 mm cable diameter						
Metal housing	**VS-PPC-C1-RJ45-MNNA-8I10G**	**1422108**	1			
Plastic housings	**VS-PPC-C1-RJ45-POBK-8I10G**	**1422205**	1			
Push/pull plug-in connector (version 14) optimized for use in environments subject to EMI, with RJ45 QUICKON fast connection technology, for 5.0 mm ... 8.0 mm cable diameter						
4-pos., 22 AWG 1-wire and 7-wire conductors				**VS-PPC-C1-MNNA-4Q5-EMC**	**1403366**	1
8-pos., 26 ... 24 AWG 1-wire and 7-wire conductors				**VS-PPC-C1-MNNA-8Q5-EMC**	**1403367**	1
Push/pull plug-in connector (version 14) for 1 Gbps, 8-pos., with RJ45 QUICKON fast connection technology, for 26 ... 24 AWG 1 and 7-wire conductors, 5.0 mm ... 8.0 mm cable diameter						
Metal housing				**VS-PPC-C1-RJ45-MNNA-PG9-8Q5**	**1608016**	1
Plastic housings				**VS-PPC-C1-RJ45-POBK-PG9-8Q5**	**1657834**	1
Push/pull plug-in connector (version 14) for 1 Gbps, 4-pos., PROFINET with RJ45 QUICKON fast connection technology, for 22 AWG 1-wire and 7-wire conductors, 5.0 mm ... 8.0 mm cable diameter						
Metal housing				**VS-PPC-C1-RJ45-MNNA-PG9-4Q5**	**1608100**	1
Plastic housings				**VS-PPC-C1-RJ45-POBK-PG9-4Q5**	**1608126**	1
	Accessories			**Accessories**		
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-F1-PC-POBK**	**1405316**	1
Shielding foil set, 25 pcs., replacement for RJ45 and M12-QUICKON connectors	**VS-08-RJ45-FOLIEN-SET**	**1417184**	1	**VS-08-RJ45-FOLIEN-SET**	**1417184**	1
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1	**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						
Straight solder pins				**CUC-V04-BU-180**	**1407409**	1
Angled solder pins				**CUC-V04-BU-90**	**1407408**	1
Panel mounting frame						
For 180° socket insert				**CUC-V04-F-POBK-180**	**1407410**	1
For 90° socket insert				**CUC-V04-F-POBK-90**	**1407411**	1
Panel mounting frame set						
Socket / Socket				**CUC-V04-F-BU/BU-RJ45**	**1407412**	1

	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 plug-in connectors	**FL CRIMPTOOL**	**2744869**	1			

RJ45 plug-in connector, version 6 and version 1, IP65/IP67

Ethernet

RJ45 plug-in connector, version 6

EtherNet/IP

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

Push/pull, version 14, Freenet system

Version 6, Freenet system

	Technical data		Technical data	
	VS-08-BU-RJ45/10G-F	VS-PPC-F1-RJ45-MNNA-1R-F	VS-08-BU-RJ45-5-F/PK	VS-A-F-IP67
Electrical data				
Nominal voltage U_N	50 V	-	50 V	-
Rated current	1 A	-	1 A	-
Housing material	Polycarbonate	Zinc die-cast	-	PA
Contact material	CuSn	-	Copper alloy	-
Inflammability class according to UL 94	V0	V0	V0	V0
No. of pos.	8	-	8	-
Connection method	IDC	-	IDC	-
Insertion/withdrawal cycles	≥ 750	-	≥ 750	≥ 1000
Temperature data				
Ambient temperature (operation)	-10 °C ... 60 °C	-40 °C ... 70 °C	-20 °C ... 70 °C	-40 °C ... 80 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
RJ45 Freenet socket insert, 8-pos., shielded, with cable connection						
10 Gbps, CAT6$_A$	**VS-08-BU-RJ45/10G-F**	**1424009**	1	**VS-08-BU-RJ45/10G-F**	**1424009**	1
RJ45 Freenet socket insert, 8-pos., shielded, with cable connection						
1 Gbps, CAT5	**VS-08-BU-RJ45-5-F/PK**	**1652936**	1	**VS-08-BU-RJ45-5-F/PK**	**1652936**	1
RJ45 Freenet socket insert, 8-pos., shielded, socket to socket						
1 Gbps, CAT5	**VS-08-BU/BU-RJ45-F**	**1405617**	1	**VS-08-BU/BU-RJ45-F**	**1405617**	1
RJ45 Freenet panel mounting frame, version 14, IP65/IP67, for rectangular mounting cutout, with seal, without mounting screws						
Metal housing	**VS-PPC-F1-RJ45-MNNA-1R-F**	**1405358**	1			
Plastic housings	**VS-PPC-F1-RJ45-POBK-1R-F**	**1608197**	1			
RJ45 Freenet panel mounting frame, version 14, IP65/IP67, for round mounting cutout, with seal and central nut						
Metal housing	**VS-PPC-F1-RJ45-MNNA-1C-F**	**1405222**	1			
Freenet panel mounting frame, version 6, for round mounting cutout, with seal, without mounting screws						
Military gray RAL 7042				**VS-A-F-IP67**	**1653744**	5
Deep black RAL 9005				**VS-A-F-IP67-BK**	**1658668**	5

	Accessories			Accessories		
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
Protective cover						
For data port	**VS-PPC-C1-PC-ROBK-L**	**1405293**	1			
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1	**VS-CABLE-STRIP-VARIO**	**1657407**	1

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

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		Technical data	
	VS-08-BU-RJ45-6/...	VS-PPC-F1-RJ45-MNNA-1R-PHA	VS-08-BU-RJ45/LP-1	VS-08-A-RJ45/LP-1-IP67...
Electrical data				
Rated voltage	125 V	-	150 V	-
Rated current	1 A	-	1.5 A	-
Housing material	Copper alloy	Zinc die-cast	-	PA
Contact material	Copper alloy	-	Copper alloy	-
Inflammability class according to UL 94	V0	V0	V0	V0
No. of pos.	8	-	8	-
Insertion/withdrawal cycles	≥ 750	≥ 500	≥ 750	≥ 1000
Temperature data				
Ambient temperature (operation)	-25 °C ... 80 °C	-40 °C ... 70 °C	-40 °C ... 85 °C	-40 °C ... 80 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	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				VS-08-BU-RJ45/LP-1	1688586	5
RJ45 socket insert, single, for PCB mounting, CAT6, 8-pos., shielded						
Straight solder pins	VS-08-BU-RJ45-6/LV-1	1653090	5	VS-08-BU-RJ45-6/LV-1	1653090	5
Angled solder pins	VS-08-BU-RJ45-6/LH-1	1653087	5	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 housings	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				VS-08-A-RJ45/LP-1-IP67	1689446	5
Deep black RAL 9005				VS-08-A-RJ45/LP-1-IP67-BK	1658655	5

	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						
For data port	VS-PPC-C1-PC-ROBK-L	1405293	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 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	VS-V1-F-RJ45-MNNA-1-C-S-JJ-S	1419184	1			
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-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	Technical data
	VS-08-M12...-10G-P SCO	SACC-M12MSD-4CON-...-SH
Electrical data		
Nominal voltage U_N	48 V	60 V
Rated current	0.5 A	4 A
Transmission characteristics (category)	$CAT6_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Material contact / contact surface	CuSn / Ni/Au	CuZn / Au
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	HB
No. of pos.	8	4
Connection method	Piercecon®	Screw connection
Connection cross section AWG	26	24 ... 18
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Ambient temperature (operation)	-40 °C ... 85 °C	-40 °C ... 85 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Plug-in connector, $CAT6_A$, plug, 8-pos., shielded, X-coded, **cable diameter: 4 mm ... 8 mm**						
straight	**VS-08-M12MS-10G-P SCO**	**1417430**	1			
angled	**VS-08-M12MR-10G-P SCO**	**1417443**	1			
Plug-in connector, Pg7 screw connection, 4-pos., D-coded, **cable diameter: 4 mm ... 6 mm**						
Plug, straight				**SACC-M12MSD-4CON-PG 7-SH**	**1521258**	1
Plug-in connector, Pg9 screw connection, 4-pos., D-coded, **cable diameter: 4 mm ... 8 mm**						
Plug, straight				**SACC-M12MSD-4CON-PG 9-SH**	**1521261**	1

	Accessories			Accessories		
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1	**VS-CABLE-STRIP-VARIO**	**1657407**	1

M12 plug-in connector, for assembly

Notes:

For description of connection method, see page 8

Ethernet

M12 plug-in connector, 100 Mbps and 1 Gbps, QUICKON connection

M12 plug-in connector, 100 Mbps, QUICKON connection

Technical data

	SACC-M12...-4Q SH	SACC-M12...-8Q SH	SACC-M12...-4Q SH PN	SACC-M12...-6Q SH VARAN
Electrical data				
Nominal voltage U_N	60 V	30 V	60 V	30 V
Rated current	1.75 A	1.75 A	1.75 A	2 A
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)	-
Contact material	CuSn	CuSn	CuSn	CuSn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0	V0	V0
No. of pos.	4	8	4	6
Connection method	Insulation displacement connection	Insulation displacement connection	Insulation displacement connection	Insulation displacement connection
Connection cross section AWG	26 ... 22	26 ... 22	26 ... 22	26 ... 22
Insertion/withdrawal cycles	≥ 100	≥ 100	≥ 100	≥ 100
Temperature data				
Ambient temperature (operation)	-40 °C ... 85 °C	-40 °C ... 85 °C	-40 °C ... 85 °C	-40 °C ... 85 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.	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			
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

Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1	**VS-CABLE-STRIP-VARIO**	**1657407**	1

M12 flush-type plug-in connector, solder connection

CAT6$_A$

CAT5/CAT5e

	Technical data	Technical data	
	SACC-DSI-...-L180-10G SCO	SACC-DSI-...4CON-L180/...	SACC-DSI-...8CON-L180/...
Electrical data			
Nominal voltage U_N	48 V	250 V	30 V
Rated current	0.5 A	4 A	2 A
Transmission characteristics (category)	CAT6$_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn	CuZn	CuZn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0	V0
No. of pos.	8	4	8
Insertion/withdrawal cycles	≥ 100	≥ 100	≥ 100
Temperature data			
Plug / socket [°C]	-40 ... 85	-25 ... 85	-25 ... 85

Description	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Flush-type plug-in connector, CAT6$_A$, Ethernet, 8-pos., M12 SPEEDCON, rear/screw mounting with Pg9 thread, with straight solder connection						
Socket	**SACC-DSIV-FS-8CON-L180-10G SCO**	**1440669**	20			
Contact carrier, CAT6$_A$, Ethernet, 8-pos., rear mounting, with straight solder connection						
Socket	**SACC-CI-M12FS-8CON-L180-10G**	**1402457**	20			
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers						
Socket	**SACC-M12-SCO NUT L 90**	**1432460**	10			
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M16 thread, with straight solder connection						
Socket				**SACC-DSI-FSD-4CON-L180/SH TQ**	**1456527**	20
Plug				**SACC-DSI-MSD-4CON-L180/SH TQ**	**1456514**	20
Flush-type plug-in connector, Ethernet, **8-pos.,** M12 SPEEDCON, with shield contact, rear/screw mounting with M16 thread, with polarity protection, with straight solder connection						
Socket				**SACC-DSI-FS-8CON-L180/SH TQ**	**1456543**	20
Plug				**SACC-DSI-MS-8CON-L180/SH TQ**	**1456530**	20
Flush-type plug-in connector, PROFINET, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M16 thread, with straight solder connection						
Socket				**SACC-DSI-FSD-4CON-L180/SH GN**	**1456569**	20
Plug				**SACC-DSI-MSD-4CON-L180/SH GN**	**1456556**	20
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M12 thread, with angled solder connection				**SACC-DSIV-FSD-4CON-L90 SCO**	**1436550**	10
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M12 thread, with polarity protection, with straight solder connection						
Socket				**SACC-DSIV-FSD-4CON-L180 SCO**	**1542619**	10
Flush-type plug-in connector, Ethernet, **8-pos.,** M12 SPEEDCON, with shield contact, A-coded, rear/screw mounting with M12 thread, with straight THR solder connection						
Socket				**SACC-DSIV-FS-8CON-L180-THR SH**	**1557549**	60
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M12 thread, with polarity protection, with straight THR solder connection						
Socket				**SACC-DSIV-FSD-4CON-L180 SCO-THR**	**1542648**	60

M12 flush-type plug-in connector, solder connection

X-coded

Ethernet

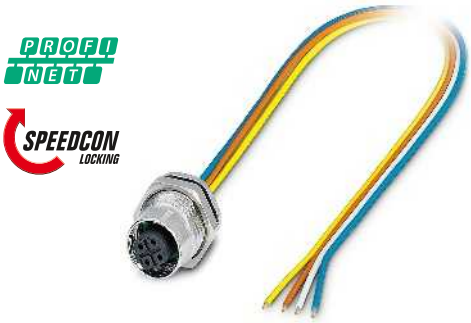
Y-coded

	Technical data	Technical data
	SACC-DSI-FSX-8CON...	VS-08-DSIV-L180-HYB SCO
Electrical data		
Nominal voltage U_N	48 V	30 V (Data)
Rated current	0.5 A	0.5 A (Data) / 6 A (Power)
Transmission characteristics (category)	$CAT6_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn	CuZn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0
No. of pos.	8	8
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Plug / socket [°C]	-40 ... 85	-40 ... 85

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Flush-type socket, $CAT6_A$, Ethernet, one-piece, 8-pos., M12 SPEEDCON, with straight solder connection, rear/screw mounting with:						
M16 fastening thread	**SACC-DSI-FSX-8CON-M16-L180 SCO**	**1424177**	20			
Pg9 fastening thread	**SACC-DSI-FSX-8CON-PG9-L180 SCO**	**1404741**	20			
Hybrid flush-type plug-in connector for the reflow soldering process, with straight solder connection, 4 x power contacts, 4 x signal contacts, rear mounting, SPEEDCON						
Socket				**VS-08-DSIV-L180-HYB SCO**	**1456666**	20
Hybrid flush-type plug-in connector for the wave soldering process, with straight solder connection, 4 x power contacts, 4 x signal contacts, rear mounting, SPEEDCON						
Socket				**SACC-DSI-FSY-8CON-M16-L180 SCO**	**1407503**	20
Contact carrier, two-piece, $CAT6_A$, Ethernet, 8-pos., rear mounting, with angled solder connection	**SACC-CI-M12FSX-8CON-L90**	**1424180**	20			
Hybrid contact carrier, **two-piece**, Ethernet, 8-pos., rear/screw mounting, with angled solder connection				**SACC-CI-M12FSY-8CON-L90**	**1424193**	20

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

Front mounting, D-coded



Rear mounting, D-coded

	Technical data	Technical data
	SACC-E-...-4CON-M16/0,5 SCO	SACC-DSI-FSD-4CON...
Electrical data		
Nominal voltage U_N	250 V	250 V
Rated current	4 A	4 A
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn	CuZn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0
Connection method	Individual wires	Individual wires
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Plug / socket [°C]	-25 ... 85	-25 ... 85

Description	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
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	**SACC-E-FSD-4CON-M16/0,5 SCO**	**1535202**	1			
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	**SACC-EC-FSD-4CON-M16/0,5 SCO**	**1535215**	1			
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				**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	Technical data
	VS-FSBPXS-OE-94F...	VS-FSBPYS-OE-94I...
Electrical data		
Nominal voltage U_N	48 V	30 V (Power and data)
Rated current	0.5 A	6 A (Power) / 0.5 A (Data)
Transmission characteristics (category)	$CAT6_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn	CuZn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Plug / socket [°C]	-40 ... 90	-40 ... 85

		Ordering data			Ordering data		
Description	Cable length	Type	Order No.	Pcs. / Pkt.	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				**VS-FSBPYS-OE-94I/0,5 SCO**	**1407504**	1
	1 m				**VS-FSBPYS-OE-94I/1,0 SCO**	**1407505**	1
	2 m				**VS-FSBPYS-OE-94I/2,0 SCO**	**1407506**	1
	5 m				**VS-FSBPYS-OE-94I/5,0 SCO**	**1407507**	1

Control cabinet feed-through/ bulkhead, M12/RJ45

Bulkhead, 10 Gbps

Bulkhead, 100 Mbps and 1 Gbps

	Technical data	Technical data	
	VS-BH-M12FSX-10G-RJ45/...	VS-BH-M12FS-8CON-RJ45...	VS-BH-M12FSD-RJ45...
Electrical data			
Nominal voltage U_N	60 V	50 V	50 V
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						
90° socket outlet	**VS-BH-M12FSX-10G-RJ45/90**	**1404548**	1			
180° socket outlet	**VS-BH-M12FSX-10G-RJ45/180**	**1404549**	1			
Control cabinet feed-through, M12, 8-pos., A-coded to RJ45 socket						
90° socket outlet				**VS-BH-M12FS-8CON-RJ45/ 90**	**1405057**	1
180° socket outlet				**VS-BH-M12FS-8CON-RJ45/180**	**1405060**	1
Control cabinet feed-through, M12, 4-pos., D-coded to RJ45 socket						
90° socket outlet				**VS-BH-M12FSD-RJ45/90**	**1657261**	1
180° socket outlet				**VS-BH-M12FSD-RJ45/180**	**1657494**	1

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

		M8 plug		M8 socket	
			M8MS		M8FS
		Ordering data		Ordering data	
			Order No.		Order No.
Open cable end					
		1 m	1407344		
		2 m	1407345		
		5 m	1407346		
		10 m	1407347		
	OE	Variable	1408719	Variable	1408716
M8 plug					
		1 m	1407348		
		2 m	1407349		
		5 m	1407350		
		10 m	1407351		
	M8MS	Variable	1408718	Variable	1408715
RJ45 plug, IP20					
		1 m	1407352		
		2 m	1407353		
		5 m	1407354		
		10 m	1407355		
	R4AC	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] Max. 100 m
1408717	/	93B	/	4.5

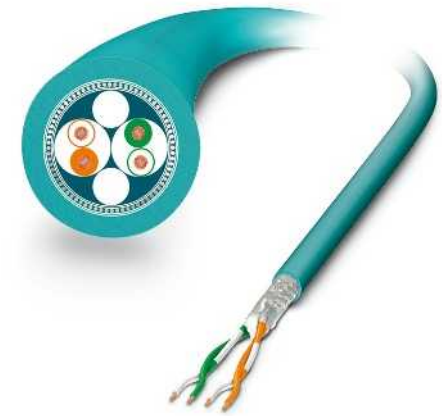
Increments:
0.2 ... 3 m = 0.1 m
> 3 m = 0.5 m

Minimum order amount = 25

Pin M8	Pin RJ45	Wire color		Signal
1	1	YE		TD+
4	2	OG		TD–
2	3	WH		RD+
3	6	BU		RD–

		Technical data
		PROFINET [93B]
Transmission characteristics (category)		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Cable structure		1x4xAWG22/7; SF/TQ
Conductor cross section		4x 0.34 mm²
Conductor structure for signal		7x 0.25 mm
AWG signal line		22
Cable diameter		6.5 mm
Conductor resistance		≤ 120 Ω/km
Type of shield		Aluminum-coated foil, tin-plated copper braided shield
Conductor material		Tin-plated Cu litz wires
Outer sheath material		PVC
Color of outer sheath		Green RAL 6018
Color, single wire		White, yellow, blue, orange
Ambient temperature		
Fixed installation	[°C]	-40 ... 70
Flexible installation	[°C]	-40 ... 70

Assembled cables, Ethernet, 4-pos., shielded



Ethernet

	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 OE	1 m	1405633	2 m	1405675	5 m	1405743
RJ45 plug, IP20 R4AC	1 m 2 m 5 m 10 m	1408933 1408934 1408935 1408936	2 m	1405921	5 m	1405992
RJ45 plug, version 6 R4MC			1 m 2 m 5 m 10 m	1408937 1408938 1408939 1408940		
RJ45 plug, version 14, metal R4RC					1 m 2 m 5 m 10 m	1408941 1408942 1408943 1408945
RJ45 plug, version 14, plastic R4QC						
M12 plug, SPEEDCON MSD SCO						
M12 plug, SPEEDCON MRD SCO						

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the **93E** cable type and are available from stock.

Cable description	Cable type
PUR stranded - blue, 2 x 2, CAT5e	93E

Pin M12	Pin RJ45	Wire color	Signal
1	1	WHOG	TD+
3	2	OG	TD–
2	3	WHGN	RD+
4	6	GN	RD–

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

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.
		1 m	1407356			1 m	1407380				
		2 m	1407357			2 m	1407381			2 m	1405866
5 m	1405772	5 m	1407358			5 m	1407382				
		10 m	1407359			10 m	1407383				
		Variable	1408713	Variable	1408705	Variable	1408697	Variable	1408690		
		1 m	1407360			1 m	1407384				
		2 m	1407361			2 m	1407385			2 m	1406085
5 m	1406030	5 m	1407362			5 m	1407386				
		10 m	1407363			10 m	1407387				
		Variable	1408712	Variable	1408704	Variable	1408696	Variable	1408689		
		1 m	1407364			1 m	1407388				
		2 m	1407365			2 m	1407389			2 m	1406247
		5 m	1407366			5 m	1407390				
		10 m	1407367			10 m	1407391				
		Variable	1408710	Variable	1408703	Variable	1408695	Variable	1408688		
		1 m	1407368			1 m	1407392				
		2 m	1407369			2 m	1407393			2 m	1406519
		5 m	1407370			5 m	1407394				
		10 m	1407371			10 m	1407395				
		Variable	1408709	Variable	1408702	Variable	1408694	Variable	1408687		
1 m	1408947	1 m	1407372			1 m	1407396				
2 m	1408948	2 m	1407373			2 m	1407397			2 m	1406603
5 m	1408946	5 m	1407374			5 m	1407398				
10 m	1408949	10 m	1407375			10 m	1407399				
		Variable	1408707	Variable	1408701	Variable	1408693	Variable	1408686		
		1 m	1407376			1 m	1407400				
		2 m	1407377			2 m	1407401				
		5 m	1407378			5 m	1407402				
		10 m	1407379			10 m	1407403				
		Variable	1408706	Variable	1408700	Variable	1408692	Variable	1408684		
				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

Assembled cables, Ethernet, 8-pos., shielded

Ethernet

	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 OE	5 m	1407699	5 m	1407725	5 m	1407783
RJ45 plug, IP20 R4AC	1 m 2 m 5 m 10 m	1408950 1408951 1408952 1408953	5 m	1407932	5 m	1407990
RJ45 plug, version 6 R4MC			1 m 2 m 5 m 10 m	1408955 1408956 1408954 1408958		
RJ45 plug, version 14, metal R4RC					1 m 2 m 5 m 10 m	1408961 1408962 1408959 1408963
RJ45 plug, version 14, plastic R4QC						
M12 plug, SPEEDCON MS SCO						
M12 plug, SPEEDCON MR SCO						

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the **94B** cable type and are available from stock.

Ordering data for cables with variable cable lengths:

For a network cable, type **94C**, 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
1408681	/	94C	/	4.5
Minimum order amount = 25				Increments: 0.2 ... 3 m = 0.1 m > 3 m = 0.5 m

Cable description	Cable type
PUR stranded - blue, 4 x 2, CAT5e	94B
PUR suitable for use with drag chain - blue, 4 x 2, CAT5e	94C

Pin M12	Pin RJ45	Wire color	Signal
6	1	WHOG	D1+
4	2	OG	D1–
1	5	WHBU	D3+
7	4	BU	D3–
5	3	WHGN	D2+
8	6	GN	D2–
2	7	WHBN	D4+
3	8	BN	D4–

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.
		1 m	1407404			1 m	1407439				
		2 m	1407405			2 m	1407440				
5 m	1407819	5 m	1407406			5 m	1407441			5 m	1407877
		10 m	1407407			10 m	1407442				
		Variable	1408682	Variable	1408675	Variable	1408665	Variable	1408657		
		1 m	1407414			1 m	1407443				
		2 m	1407415			2 m	1407444				
5 m	1412024	5 m	1407416			5 m	1407445			5 m	1412082
		10 m	1407417			10 m	1407446				
		Variable	1408681	Variable	1408674	Variable	1408664	Variable	1408655		
		1 m	1407422			1 m	1407451				
		2 m	1407423			2 m	1407452				
		5 m	1407424			5 m	1407453			5 m	1412231
		10 m	1407425			10 m	1407454				
		Variable	1408679	Variable	1408671	Variable	1408662	Variable	1408653		
		1 m	1407426			1 m	1407455				
		2 m	1407427			2 m	1407456				
		5 m	1407428			5 m	1407457			5 m	1412503
		10 m	1407429			10 m	1407458				
		Variable	1408678	Variable	1408670	Variable	1408661	Variable	1408652		
1 m	1408965	1 m	1407430			1 m	1407459				
2 m	1408966	2 m	1407431			2 m	1407460				
5 m	1408964	5 m	1407432			5 m	1407461			5 m	1412590
10 m	1408967	10 m	1407433			10 m	1407462				
		Variable	1408677	Variable	1408668	Variable	1408660	Variable	1408651		
		1 m	1407434			1 m	1407463				
		2 m	1407435			2 m	1407464				
		5 m	1407436			5 m	1407465				
		10 m	1407438			10 m	1407466				
		Variable	1408676	Variable	1408667	Variable	1408659	Variable	1408650		
				Variable	1408666	Variable	1408658	Variable	1408649		

		Technical data	Technical data
		Ethernet [94B]	Ethernet [94C]
Transmission characteristics (category)		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	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 mm²	4x 2x 0.14 mm²
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$_A$

CAT6A 10 Gigabit/s

Ethernet

	RJ45 plug, IP20		M12 plug, SPEEDCON	
	R4AC		MSX SCO	
	Ordering data		Ordering data	
		Order No.		Order No.
Open cable end OE			1 m	1407467
			2 m	1407468
			5 m	1407469
			10 m	1407470
			Variable	1408648
RJ45 plug, IP20 R4AC	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 R4RC			1 m	1407475
			2 m	1407476
			5 m	1407477
			10 m	1407478
			Variable	1408646
RJ45 plug, version 14, plastic R4QC			1 m	1407479
			2 m	1407480
			5 m	1407481
			10 m	1407482
			Variable	1408645
M12 plug, SPEEDCON MSX SCO			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.

Cable description	Cable type
PUR stranded - blue, 4 x 2, CAT6$_A$	94F

Pin M12	Pin RJ45	Wire color	Signal
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–

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

		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

Assembled cables, Ethernet hybrid, 4+4-pos., shielded

Ethernet

SPEEDCON LOCKING

M12 plug, SPEEDCON

MSY SCO

Ordering data

	Order No.
Open cable end	
OE	
1 m	**1407487**
2 m	**1407488**
5 m	**1407489**
10 m	**1407490**
Variable	**1408642**
M12 plug, SPEEDCON	
MSY SCO	
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

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

Minimum order amount = 25

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	

Technical data

		Ethernet hybrid [94H]
Transmission characteristics (category)		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Cable structure		1x4xAWG26+1x4xAWG20
Conductor cross section for signal	[mm²]	0.15
Conductor structure for signal		19x 0.10 mm
AWG signal line		26
Conductor cross section for power	[mm²]	0.6
Conductor structure for power		19x 0.20 mm
AWG power supply		20
Cable diameter		7.6 mm
Type of shield		Tin-plated copper braided shield
Conductor material		Bare Cu litz wires
Outer sheath material		PUR
Color of outer sheath		Black RAL 9005
Color, single wire		White/orange-orange, white/green-green, white, blue, brown, black
Ambient temperature		
Fixed installation	[°C]	-40 ... 90
Flexible installation	[°C]	-30 ... 70

Network cables, sold by the meter, PROFINET, shielded

4-wire, star quad

Description	Ordering data		
	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**

Assembled cables, PROFINET, 4-pos., shielded

	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 OE					5 m	1416162
RJ45 plug, IP20 R4AC	1 m 2 m 5 m 10 m	1408968 1408969 1408970 1408971	1 m 2 m	1418248 1418277	5 m	1416138
RJ45 plug, IP20 R4ACR			1 m 2 m 5 m 10 m	1409002 1409003 1409004 1409005		
RJ45 plug, version 14, metal R4RC					1 m 2 m 5 m 10 m	1408974 1408975 1408972 1408976
RJ45 plug, version 14, plastic R4QC						
M12 plug, SPEEDCON MSD SCO						
M12 plug, SPEEDCON MRD SCO						

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:

Order No.		Cable type		Length [m] Max. 100 m
1408639	/	93C	/	4.5

Minimum order amount = 25

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

Cable description	Cable type
PVC stranded - green, 1 x 4, CAT5e	93B
PUR suitable for use with drag chain - green, 1 x 4, CAT5e	93C
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

Pin M12	Pin RJ45	Wire color		Signal
1	1	YE		TD+
3	2	OG		TD–
2	3	WH		RD+
4	6	BU		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.
		1 m	1407495			1 m	1407528			1 m	1437779
		2 m	1407496			2 m	1407529			2 m	1437782
5 m	1416168	5 m	1407497			5 m	1407530			5 m	1437795
		10 m	1407498			10 m	1407531				
		Variable	1408640	Variable	1408633	Variable	1408623	Variable	1408615		
		1 m	1407499			1 m	1407532				
		2 m	1407500			2 m	1407533				
5 m	1416141	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 mm²	4x 0.34 mm²	4x 0.38 mm²	4x 0.34 mm²
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 ... 80	-40 ... 90
Flexible installation [°C]	-40 ... 70	-40 ... 70	-40 ... 80	-25 ... 90

Assembled cables, EtherCAT, 4-pos., shielded

EtherCAT Technology Group

	RJ45 plug, IP20		RJ45 plug, IP20		M12 plug, SPEEDCON	
	R4AC		R4ACR		MSD SCO	
	Ordering data		Ordering data		Ordering data	
		Order No.		Order No.		Order No.
Open cable end OE					1 m	1407557
					2 m	1407558
					5 m	1407559
					10 m	1407560
					Variable	1408600
RJ45 plug, IP20 R4AC	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
RJ45 plug, IP20 R4ACR			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
M12 plug, SPEEDCON MSD SCO					1 m	1407569
					2 m	1407570
					5 m	1407571
					10 m	1407572
					Variable	1408597
M12 plug, SPEEDCON MRD SCO						
RJ45 socket, Freenet F4AC	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
PVC stranded - green, 1 x 4, CAT5e	93G
PUR suitable for use with drag chain - green, 1 x 4, CAT5e	93H

Pin M12	Pin RJ45	Wire color		Signal
1	1	YE		TD+
3	2	OG		TD–
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.
						1 m	1419135
						2 m	1419136
						5 m	1419137
Variable	1408596	Variable	1408590	Variable	1408584		
						2 m	1419146
Variable	1408595	Variable	1408589	Variable	1408583		
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	[°C]	-40 ... 70	-40 ... 70
Flexible installation	[°C]	-40 ... 70	-40 ... 70

Ethernet RJ45, patch cables

Ethernet

	RJ45 plug, IP20, straight		RJ45 plug, IP20, angled	
	Ordering data		Ordering data	
		Order No.		Order No.
RJ45 plug, IP20, straight	0.3 m	**1417993**	0.3 m	**1418002**
	0.5 m	**1418028**	0.5 m	**1418031**
	1 m	**1418057**	1 m	**1418070**
	2 m	**1418109**	2 m	**1418125**
	5 m	**1418141**	5 m	**1418154**
RJ45 plug, IP20, angled			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 200

Pin RJ45*)	Pin RJ45*)	Wire color	Signal
1	1	WHOG	D1+
2	2	OG	D1–
5	5	WHBU	D3+
4	4	BU	D3–
3	3	WHGN	D2+
6	6	GN	D2–
7	7	WHBN	D4+
8	8	BN	D4–

*) RJ45 assignment according to TIA568B

		Technical data
		Ethernet cable
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
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]	-40 ... 70
Flexible installation	[°C]	-10 ... 50

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

Accessories

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	FL DUST CVR BK	2891107	10			
- Blue	FL DUST CVR BU	2891204	10			
- Brown	FL DUST CVR BN	2891301	10			
- Yellow	FL DUST CVR YE	2891408	10			
- Gray	FL DUST CVR GY	2891505	10			
- Green	FL DUST CVR GN	2891602	10			
- Red	FL DUST CVR RD	2891709	10			
- Violet	FL DUST CVR VT	2891806	10			
- White	FL DUST CVR WH	2891903	10			
Security frame for SFN switch and patch fields						
- Green				FL PLUG GUARD GN	2891615	20
- Red				FL PLUG GUARD RD	2891712	20
- White				FL PLUG GUARD WH	2891819	20
Locking element for security frame FL PLUG GUARD...						
- Locking element				FL PORT GUARD	2891220	20
- Key				FL PLUG GUARD KEY	2891327	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		
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

Ordering data		
Type	Order No.	Pcs. / Pkt.
FL PATCH SAFE CLIP	2891246	20

Ordering data		
Type	Order No.	Pcs. / Pkt.
FL PATCH GUARD	2891424	20
FL PATCH GUARD KEY	2891521	1

Modular distribution panel

19" mounting frame

Assembled modules
for 19" mounting frames

	Technical data	Technical data
	CUC-PP-FRAME-19	CUC-PP-MODUL-RJ45:6-RJ45:6/...
Electrical data		
Transmission characteristics (category)	-	$CAT6_A$
Material data		
Housing material	Steel, powder-coated	Stainless steel
Inflammability class according to UL 94	V0	V0
Connection data		
Connection method	-	-
Connection cross section AWG	-	-
External cable diameter	-	18 mm
Insertion/withdrawal cycles	-	≥ 750
Temperature data		
Ambient temperature (operation)	-20 °C ... 60 °C	-20 °C ... 60 °C

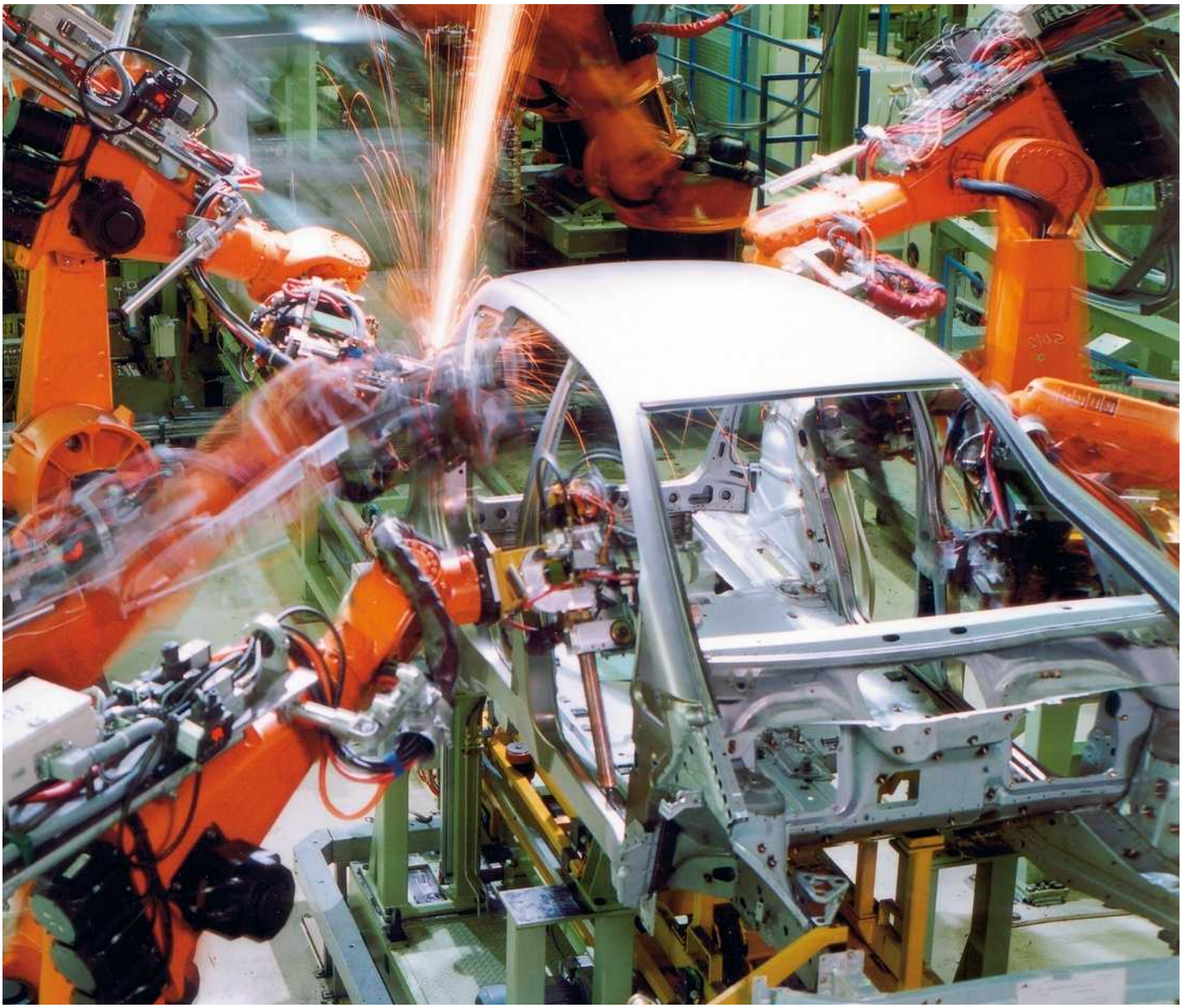
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
19" frame, empty, for using 8 modules (RJ45)	**CUC-PP-FRAME-19**	**1407986**	1			
Jumpering panel	**CUC-PP-PATCHBAY**	**1407994**	1			
RJ45 module, 6 x RJ45 to 6 x RJ45, $CAT6_A$, can be unlocked from the front, variable length				**CUC-PP-MODUL-RJ45:6-RJ45:6/...**	**1407995**	1
Dummy frame, size of one module, for use in the frame				**CUC-PP-MODUL-COVER**	**1407988**	1

	Accessories			Accessories		
Screw set, fixing material for the frame	**CUC-PP-FRAME-SCREWSET**	**1407989**	1			
Cable binder, fixing material for module cable routing				**CUC-PP-MODUL-CABLEFIXSET**	**1407991**	1

Ordering example for modules of variable length:

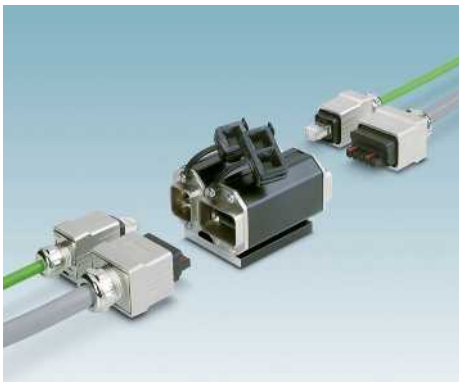
For an RJ45 module with a cable length of 25.0 m, the ordering data is as follows:

Order No.		Length [m] Max. 80 m
1407995	/	**25**
		Increment: 1.0 m ... 80 m = **0.5 m**



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 conveyer 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
	VS-MP-PPC/CG-PO/10G	VS-MP-PPC/CG-10G
Electrical data		
Transmission characteristics (category)	$CAT6_A$	$CAT6_A$
Material data		
Housing material	Aluminum alloy	Aluminum alloy
Connection data		
Connection method	-	-
Connection cross section AWG	-	-
Cable cross section	5 mm ... 8 mm (Data cable gland)	5 mm ... 8 mm (Data cable gland)
Insertion/withdrawal cycles	> 1000 (Data)	> 1000 (Data)
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.
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

PROFINET

sercos the automation bus

Terminal outlet with RJ45 slots

Ethernet

PROFINET

sercos the automation bus

Terminal outlet with M12 slots

	Technical data	Technical data
	VS-TO-RO-MCBK-F141...	VS-TO-RO-MCBK-F142...
Electrical data		
Transmission characteristics (category)	CAT6	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Material data		
Housing material	Aluminum cast alloy, powder-coated	Aluminum cast alloy, powder-coated
Mechanical data		
Color	black	black
Degree of protection	IP65/67	IP65/67

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Terminal outlet, IP65/IP67, 2 slots, version 14, with protective plugs, 2 cable entries Push/pull with 2 x RJ45	**VS-TO-RO-MCBK-F1411/1411**	**1404281**	1			
Terminal outlet, RJ45, IP65/67, 2 slots version 6, with protective plugs, 2 cable entries 2 x RJ45	**VS-TO-RO-MCBK-F1418/1418**	**1404278**	1			
Terminal outlet, IP65/IP67, 2 slots, version 14, with protective plugs, 2 cable entries Push/pull with 1 x power and 1 x RJ45	**VS-TO-RO-MCBK-F1411/1413**	**1404333**	1			
Terminal outlet, M12, IP65/67, 2 slots, with protective plugs, 2 cable entries						
M12 with 2 x sockets, 8-pos., A-coded				**VS-TO-RO-MCBK-F1422/1422**	**1404304**	1
M12 with 2 x socket, 4-pos., D-coded				**VS-TO-RO-MCBK-F1421/1421**	**1404294**	1

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
	FL-PP-RJ45-...	VS-PP-F-RJ45-CAT6
Electrical data		
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.	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 Freenet RJ45 sockets

	Technical data	
	FL PF 2TX CAT5E	FL PF 8TX CAT5E
Ethernet interface		
Interface	Ethernet (RJ45)	
Number of ports	2	8
Weight	125 g	260 g
Width	38 mm	124 mm
Height	112 mm	135 mm
Depth	88 mm	140 mm
Degree of protection	IP20	
Ambient temperature (operation)	0 °C ... 55 °C (no condensation)	
Housing material	Metal	

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Patch field, 2 RJ45 network connections			
- CAT5e	**FL PF 2TX CAT5E**	**2891165**	1
- CAT6	**FL PF 2TX CAT 6**	**2891068**	1
Patch field, 8 RJ45 network connections			
- CAT5e	**FL PF 8TX CAT5E**	**2891178**	1
- CAT6	**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		Technical data	
	VS-PP-19-1HE-16-F	VS-08-BU-RJ45-5-F/PK	VS-TO-OW-2-F-9010	VS-08-BU-RJ45-6-F/PK
Electrical data				
Rated voltage	-	50 V	-	50 V
Rated current	-	1 A	-	1 A
Transmission characteristics (category)	-	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	-	CAT6
Material data				
Housing material	PC-GF	-	PC+ABS	-
Contact material	-	Copper alloy	-	Copper alloy
Inflammability class according to UL 94	V0	V0	HB	V0
Mechanical data				
No. of pos.	-	8	-	8
Color	gray	-	Pure white RAL 9010	-
Degree of protection	IP20	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)
Temperature data				
Ambient temperature (operation)	5 °C ... 55 °C	-20 °C ... 70 °C	5 °C ... 55 °C	-20 °C ... 70 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Patch panel, 19" mounting, IP20, 16 slots for Freenet contact inserts	**VS-PP-19-1HE-16-F**	**1652994**	1			
Terminal outlet, IP20, with slots for Freenet contact inserts						
Flush-type socket, two slots				**VS-TO-IW-2-F-9010**	**1653016**	1
Surface-mounted socket, two slots				**VS-TO-OW-2-F-9010**	**1653003**	1
RJ45 Freenet socket insert, 8-pos., shielded, socket to socket						
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	**VS-08-BU-RJ45-5-F/PK**	**1652936**	1
10 Gbps, $CAT6_A$	**VS-08-BU-RJ45/10G-F**	**1424009**	1	**VS-08-BU-RJ45/10G-F**	**1424009**	1

Power plug-in connectors and panel mounting frames, IP65/IP67

Push/pull plug-in connector, version 14, IP65/67, with spring-cage fast connection technology

Socket inserts and push/pull panel mounting frames, for PCB connection

Technical data

	VS-PPC-C2-MSTB-MNNA...	VS-MSTBA...-BK-A	VS-PPC-F2-MSTB-MNNA...
Electrical data			
Rated current	16 A	16 A	-
Material data			
Housing material	Zinc die-cast	-	Zinc die-cast
Inflammability class according to UL 94	V0	V0	V0
Conductor cross section	0.75 mm² ... 2.5 mm²	-	-
Connection cross section AWG	18 ... 13	-	-
Insertion/withdrawal cycles	≤ 100	≥ 100	≥ 500
Temperature data			
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 70 °C	-40 °C ... 80 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
MSTB plug-in connector, IP67, with push/pull interlocking, 5-pos., with a spring-cage connection, for cable diameter 9.0 mm … 13.0 mm						
Metal housing, 24 V	**VS-PPC-C2-MSTB-MNNA-P13-A5-SP**	**1608074**	1			
Plastic housing, 24 V	**VS-PPC-C2-MSTB-POBK-P13-A5-SP**	**1657892**	1			
Plastic housing, 400 V	**VS-PPC-C2-MSTB-POBK-P13-B5-SP**	**1608236**	1			
MSTB contact insert, for PCB mounting, 24 V, 5-pos., RAL 9005 (black), for panel mounting frame VS-PPC-F2-MSTB-…-1R-P						
Angled solder pins				**VS-MSTBAH 2,5/ 5-GB-5,08-BK-A**	**1657915**	50
Straight solder pins				**VS-MSTBVA 2,5/ 5-GB-5,08-BK-A**	**1609565**	50
MSTB contact insert, for PCB mounting, 400 V, 5-pos., RAL 3000 (red), for panel mounting frame VS-PPC-F2-MSTB-…-1R-P						
Angled solder pins				**VS-MSTBAH 2,5/ 5-GB-5,08-RD-B**	**1609549**	50
Straight solder pins				**VS-MSTBVA 2,5/ 5-GB-5,08-RD-B**	**1609581**	50
MSTB panel mounting frame, IP67, for push/pull interlocking, for PCB connection, for rectangular assembly opening, with gasket, without mounting screws						
Metal housing				**VS-PPC-F2-MSTB-MNNA-1R-P**	**1608087**	1
Plastic housings				**VS-PPC-F2-MSTB-POBK-1R-P**	**1608281**	1
MSTB panel mounting frame, IP67, for push/pull interlocking, with an integrated contact insert for conductor connection, spring-cage connection, for rectangular mounting cutout, with seal, without mounting screws						
24 V, plastic				**VS-PPC-F2-MSTB-POBK-1R-SPSA5**	**1608294**	1
400 V, plastic				**VS-PPC-F2-MSTB-POBK-1R-SPSB5**	**1608304**	1
24 V, metal				**VS-PPC-F2-MSTB-MNNA-1R-SPSA5**	**1608249**	1
400 V, metal				**VS-PPC-F2-MSTB-MNNA-1R-SPSB5**	**1608252**	1
MSTB panel mounting frame, IP67, for push/pull interlocking, metal, with an integrated contact insert for conductor connection, spring-cage connection, for round mounting cutout, with seal, without mounting screws						
24 V				**VS-PPC-F2-MSTB-MNNA-1C-SPSA5**	**1405248**	1
400 V				**VS-PPC-F2-MSTB-MNNA-1C-SPSB5**	**1405167**	1
Protective cover, IP67, to cover the contact insert in the push-pull panel mounting frame for power						
Metal housing				**VS-PPC-C2-PC67-MNNA**	**1404045**	1
Protective cover for push/pull panel mounting frame				**VS-PPC-C2-PC-ROBK**	**1405125**	1
Protective cover						
For power port				**VS-PPC-C2-PC-ROBK-L**	**1405303**	1
Protective cap, IP65, with push/pull Interlocking for covering the contact insert in the push/pull connector for power, plastic				**VS-PPC-F2-PC-POBK**	**1405329**	1

POWER distributors, IP67

Push/pull Y-distributor

Power H-distributor

	Technical data	Technical data
	VS-PPC-J-1220-1227-1020-0,2	VS-PPC-J-4X-1227
Electrical data		
Rated voltage	24 V	24 V
Rated current	16 A	16 A
Material data		
Housing material	Aluminum, die-cast	Zinc die-cast
Mechanical data		
No. of pos.	5	5
Degree of protection	IP65/67	IP65/67
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C (cable, fixed installation)	-40 °C ... 70 °C

	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
	Accessories			**Accessories**		
Mounting foot for power distributors, plastic	**VS-PPC-J-M**	**1405390**	1	**VS-PPC-J-M**	**1405390**	1

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

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

	VS-SCRJ-...-IP20	VS-SCRJ-...-IP67
Material data		
Housing material	PBT	PA
Ferrule material	Copper alloy	Copper alloy
Inflammability class according to UL 94	V0	V0
Color	black	gray
Degree of protection	IP20	IP67
Insertion/withdrawal cycles	≥ 1000	≥ 1000
Temperature data		
Ambient temperature (operation)	-20 °C ... 70 °C	-20 °C ... 70 °C

Technical data

	VS-SCRJ-GOF-BU/BU
Material data	
Housing material	PBT
Ferrule material	Zirconia ceramics
Inflammability class according to UL 94	V0
Color	-
Degree of protection	IP20
Insertion/withdrawal cycles	≥ 500
Temperature data	
Ambient temperature (operation)	-25 °C ... 70 °C

Ordering data

Description	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			
- 1x SCRJ/SCRJ (duplex)			
VS-SCRJ panel mounting frame, for use with an AVAGO transceiver, type: AFBR 5978Z			
Freenet panel mounting frame, version 6, for round mounting cutout, with seal, without mounting screws			
Military gray RAL 7042			
Deep black RAL 9005			

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector, duplex, with fast connection			
IP20			
IP67			
Connector set for polymer fibers (diameter of the individual elements: 2.2 mm), for self-assembly, with bend protection			
- F-SMA set, 4 connectors			
- SCRJ set, 2 duplex connectors			
SCRJ socket insert, duplex, for panel mounting frame VARIOSUB IP67, can be used for glass, multi-mode, HCS and polymer			
- 1x SCRJ/SCRJ (duplex)	**VS-SCRJ-GOF-BU/BU**	**1652978**	1
VS-SCRJ panel mounting frame, for use with an AVAGO transceiver, type: AFBR 5978Z	**VS-SCRJ-A-TC-IP67**	**1658545**	1
Freenet panel mounting frame, version 6, for round mounting cutout, with seal, without mounting screws			
Military gray RAL 7042	**VS-A-F-IP67**	**1653744**	5
Deep black RAL 9005	**VS-A-F-IP67-BK**	**1658668**	5

Accessories

Description	Type	Order No.	Pcs. / Pkt.
Protective cover for version 6 panel mounting frame			
Military gray RAL 7042			
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

Accessories

Description	Type	Order No.	Pcs. / Pkt.
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
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			
Protective cover SCRJ/IP67, for covering the SCRJ pin insert on the SCRJ/IP67 sleeve housing			

Fiber optic 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
Material data		
Housing material	Zinc die-cast	PA-GF
Ferrule material	Copper alloy	Copper alloy
Inflammability class according to UL 94	V0	V0
Color	silver	black
Degree of protection	IP65/67	IP65/67
Insertion/withdrawal cycles	≥ 500	≥ 500
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C	-20 °C ... 70 °C

Technical data

	Metal housing	Plastic housing
Material data		
Housing material	Zinc die-cast	PA-GF
Ferrule material	-	-
Inflammability class according to UL 94	V0	V0
Color	silver	black
Degree of protection	IP65/67	IP65/67
Insertion/withdrawal cycles	≥ 500	≥ 500
Temperature data		
Ambient temperature (operation)	-40 °C ... 80 °C	-40 °C ... 80 °C

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 housings	**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 housings			
SCRJ panel mounting frame, IP67, for push/pull interlocking, with Freenet system, for rectangular mounting cutout, with seal, without mounting screws			
Metal housing			
Plastic housings			
SCRJ panel mounting frame, IP67, for push/pull Interlocking, metal, with Freenet system, for round mounting cutout, with seal			

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			
Plastic housings			
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 housings	**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 housings	**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

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

Accessories

Description	Type	Order No.	Pcs. / Pkt.
Protective cover For data port	**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		
Housing material	Zinc die-cast	Zinc die-cast
Color	silver	-
Degree of protection	IP67	IP67
Insertion/withdrawal cycles	500	500
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.
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

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

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

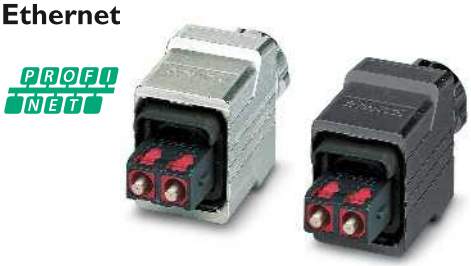
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector, IP20, duplex, with fast connection technology, for 200/230 µm HCS fiber						
For single wire diameter: 2.9 mm	**VS-SCRJ-HCS-FA-IP20**	**1654866**	1			
Connector set for HCS fibers (diameter of the individual elements: 2.9 mm), for self-assembly, with bend protection						
- F-SMA set, 4 connectors	**PSM-SET-FSMA/4-HCS**	**2799487**	1			
- B-FOC (ST®) set, 4 connectors	**PSM-SET-B-FOC/4-HCS**	**2708481**	1			
- SCRJ set, 2 duplex connectors	**PSM-SET-SCRJ-DUP/2-HCS**	**2313070**	1			
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	**VS-SCRJ-HCS-FA-IP67**	**1657012**	1			
SCRJ socket insert, duplex, for panel mounting frame VARIOSUB IP67, can be used for glass, multi-mode, HCS and polymer						
- 1x SCRJ/SCRJ (duplex)				**VS-SCRJ-GOF-BU/BU**	**1652978**	1
VS-SCRJ panel mounting frame, for use with an AVAGO transceiver, type: AFBR 5978Z				**VS-SCRJ-A-TC-IP67**	**1658545**	1
Freenet panel mounting frame, version 6, for round mounting cutout, with seal, without mounting screws						
Military gray RAL 7042				**VS-A-F-IP67**	**1653744**	5
Deep black RAL 9005				**VS-A-F-IP67-BK**	**1658668**	5

Accessories

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
Protective cover SCRJ/IP67, for covering the SCRJ pin insert on the SCRJ/IP67 sleeve housing	**VS-SCRJ-PC**	**1653757**	5			
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	**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

	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 housings	**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 housings				**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 housings				**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 For data port				**VS-PPC-C1-PC-ROBK-L**	**1405293**	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			
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, panel mounting frames, and couplings for GOF, IP20 and IP65/IP67

Ethernet

SCRJ plug-in connector, version 6, for 50/125 µm multi-mode fiberglass

Ethernet

SCRJ panel mounting side, version 6, for 50/125 µm multi-mode fiberglass

Technical data

	VS-SCRJ-...-IP20	VS-SCRJ-...-IP67	VS-SCRJ-GOF-BU/BU
Material data			
Housing material	PBT	PA	PBT
Ferrule material	Zirconia ceramics	Zirconia ceramics	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

Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector, duplex, with fast connection technology, for fiberglass multi-mode 50/125 µm, for individual wire diameter 2.9 mm						
IP20	**VS-SCRJ-GOF-FA-IP20**	**1657070**	1			
IP67	**VS-SCRJ-GOF-FA-IP67**	**1657083**	1			
SC duplex fiber optic plug-in connector, IP20, with fast connection technology	**VS-SCDU-GOF-FA-IP20**	**1658529**	1			
SCRJ socket insert, duplex, for panel mounting frame VARIOSUB IP67, can be used for glass, multi-mode, HCS and polymer - 1x SCRJ/SCRJ (duplex)				**VS-SCRJ-GOF-BU/BU**	**1652978**	1
VS-SCRJ panel mounting frame, for use with an AVAGO transceiver, type: AFBR 5978Z				**VS-SCRJ-A-TC-IP67**	**1658545**	1
Freenet panel mounting frame, version 6, for round mounting cutout, with seal, without mounting screws						
Military gray RAL 7042				**VS-A-F-IP67**	**1653744**	5
Deep black RAL 9005				**VS-A-F-IP67-BK**	**1658668**	5

Accessories

Assembly tool set for fiberglass, for field assembly of SCRJ and SC duplex plug-in connectors, with fast connection technology						
EU version	**VS-GOF-FA-KONFTOOL-EU**	**1658228**	1			
US version	**VS-GOF-FA-KONFTOOL-US**	**1658231**	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
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 and panel mounting frames, version 1, for GOF, IP65/IP67

EtherNet/IP

Fiber optic plug-in connector, version 1

EtherNet/IP

Fiber optic panel mounting frame, version 1

	Technical data	Technical data
	VS-V1-C-SCRJ-MNNA-PG9...	VS-V1-F-SCRJ-MNNA-PG9-C-S...
Material data		
Housing material	Zinc die-cast	Zinc die-cast
Inflammability class according to UL 94	V0	V0
Color	silver	-
Degree of protection	IP67	IP67
Insertion/withdrawal cycles	500	500
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.
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	**VS-V1-C-SCRJ-MNNA-PG9-A1-G**	**1419187**	1			
For single mode fiber	**VS-V1-C-SCRJ-MNNA-PG9-B1-G**	**1419188**	1			
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	**VS-V1-C-LC-MNNA-PG9-A1-G**	**1419190**	1			
For single mode fiber	**VS-V1-C-LC-MNNA-PG9-B1-G**	**1419191**	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
Single mode				**VS-V1-F-SCRJ-MNNA-PG9-C-S-B1**	**1420207**	1
LC panel mounting frame, IP67, for bayonet locking, metal, for round mounting cutout, with seal, without mounting screws, **with coupling for:**						
Multi-mode				**VS-V1-F-LC-MNNA-PG9-C-S-A1**	**1420210**	1
Single mode				**VS-V1-F-LC-MNNA-PG9-C-S-B1**	**1420223**	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

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			Ordering data		
	Type	Order No.	Pcs. / Pkt.	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				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			Ordering data		
	Type	Order No.	Pcs. / Pkt.	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-0W-6-F-9010	1653029	1			
Terminal outlet, SCRJ/power, IP65/67, push/pull, 2 slots version 14, with protective plugs, 2 cable entries				VS-TO-RO-MCBK-F1417/1413	1404346	1
Terminal outlet, SCRJ, IP65/67, push/pull, 2 slots version 14, with protective plugs, 2 cable entries				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

Technical data

	VS-MP-PPC/CG-PO/FO	VS-MP-PPC/CG-PO
Material data		
Housing material	Aluminum alloy	Aluminum alloy
Connection data		
Connection profile	Data/power: SCRJ/5-pos.	Power: 5-pos.
Insertion/withdrawal cycles	≥ 500 (Data) // ≤ 100 (Power)	≤ 100 (Power)
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 70 °C

Technical data

	VS-MP-PPC/CG-FO
Material data	
Housing material	Aluminum alloy
Connection data	
Connection profile	Data: SCRJ
Insertion/withdrawal cycles	≥ 500 (Data)
Temperature data	
Ambient temperature (operation)	-40 °C ... 70 °C

Ordering data

Description	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/FO**	**1404321**	1
7 mm ... 10.5 mm	**VS-MP-PPC/CG-XL-PO/FO**	**1404325**	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

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-MP-PPC/CG-FO	**1404319**	1
VS-MP-PPC/CG-XL-FO	**1404324**	1

Accessories

Protective cover			
For data port	**VS-PPC-C1-PC-ROBK-L**	**1405293**	1
For power port	**VS-PPC-C2-PC-ROBK-L**	**1405303**	1
Stripping tool, for multiple-stage repositioning of shielded conductors	**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	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
SCRJ coupling, for terminal outlets VS-TO-... and 19" patch panels VS-PP-19-1HE-16-F and front plate VS-SI-FP-2F	**VS-SCRJ-GOF-KU**	**1654358**	1			
Coupling; set, consisting of:						
- 2 x F-SMA/F-SMA				**PSM-SET-FSMA-LINK/2**	**2799416**	1
- 2 x B-FOC (ST®)/B-FOC (ST®)				**PSM-SET-BFOC-LINK/2**	**2799429**	1
- 1 x SCRJ/SCRJ (duplex)				**VS-SCRJ-GOF-BU/BU**	**1652978**	1
- 1 x LC/LC (duplex, multi-mode fiber)				**FL MM PATCH COUPLER LC-LC**	**2700312**	1
- 1 x LC/LC (duplex, single mode fiber)				**FL SM PATCH COUPLER LC-LC**	**2700313**	1
- 1 x SC duplex/SC duplex				**FL COUPLER SC-DUPLEX**	**2901788**	1

Coupling, version 14, IP65/IP67

Ethernet

Description	Ordering data: Type	Order No.	Pcs. / Pkt.
SCRJ push/pull coupling, IP67, metal, with protective cover, color: nickel-plated	**VS-PPC-J-1-SCRJ-MNBK**	**1405206**	1

Fiber optic outdoor cables, sold by the meter

- Robust round cable for outdoor installation
- Ozone and UV resistant
- Watertight lengthwise
- Integrated vapor barrier and rodent-proof scrim

GOF fiber type

PCF fiber type

	Technical data		Technical data	
	FOC-OE-OE-GB01/...	FOC-OE-OE-GB02/...	FOC-OE-OE-GB03/...	FOC-OE-OE-HB01/...
Cable data				
Cable abbreviation in accordance with IEC 61977:2010	02-G50/FJ(ZNG)H-...22	02-G50/FJ(ZN)Z-...22	04-G50/FJ(ZNG)H-...22	02-H200/VJ(ZNG)H-...22
Fibers	50/125 µm OM2	50/125 µm OM2	50/125 µm OM2	200/230 µm
Attenuation, typical	2.7 dB/km (at 850 nm); 0.8 dB/km (at 1300 nm)	2.7 dB/km (at 850 nm); 0.8 dB/km (at 1300 nm)	2.7 dB/km (at 850 nm); 0.8 dB/km (at 1300 nm)	10 dB/km (at 660 nm), 8 dB/km (at 850 nm)
Outer sheath				
Material	PE	PUR	PE	PE
Color	black	black	black	black
Strain relief elements	Aramid/glass fibers	Non-metallic, aramid fiber	Aramid/glass fibers	Aramid/glass fibers
Diameter	7.5 mm	7.5 - 8 mm	9 mm	7.5 mm
Individual wire				
Color	Black/orange	Black/orange	Black/orange	Black/orange
Diameter	2.2 mm	2.2 mm	2.15 mm	2.2 mm
Strain relief elements	Non-metallic, aramid fibers	Non-metallic, aramid fibers	Non-metallic, aramid fibers	Non-metallic, aramid fibers
General data				
Weight	59.00 kg/km	46.00 kg/km	90.00 kg/km	67.00 kg/km
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 85 °C	-40 °C ... 70 °C	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-45 °C ... 70 °C	-45 °C ... 85 °C	-40 °C ... 70 °C	-25 °C ... 70 °C
Ambient temperature (installation)	-20 °C ... 60 °C	-20 °C ... 60 °C	-20 °C ... 60 °C	-10 °C ... 60 °C
Halogen-free as per:	According to IEC 60754-1/2	According to IEC 60754-1/2	According to IEC 60754-1/2	According to IEC 60754-1/2

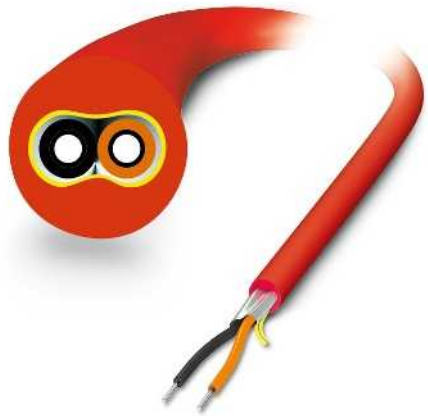
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
GOF outdoor cable, 2-wire, full breakout cable for **fixed** installation	**FOC-OE-OE-GB01/...**	**1406429**	1			
GOF outdoor cable, 2-wire, full breakout cable for **flexible** installation	**FOC-OE-OE-GB02/...**	**1406430**	1			
GOF outdoor cable, 4-wire, full breakout cable for **fixed** installation	**FOC-OE-OE-GB03/...**	**1406431**	1			
PCF outdoor cable, 2-wire, full breakout cable for **fixed** installation				**FOC-OE-OE-HB01/...**	**1406432**	1

Ordering example for cables with variable cable lengths:

For fiber optic outdoor cable type **GB02** with a cable length of 34.0 m, the ordering data is as follows:

Order No.		Length [m] Max. 1000 m
1406430	/	**34.0** **Increment:** 1.0 m ... 1000 m = **1.0 m**

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	By the meter	2744319	Variable	2901553	Variable	2901553
FSMA plug, IP20 FSMA	Variable	2901553	Variable	2901553	Variable	2901553
SCRJ plug, IP20 SCRJ	Variable	2901553	Variable	2901553	Variable	2901553
B-FOC (ST®) plug, IP20 BFOC	Variable	2901553	Variable	2901553	Variable	2901553
SCRJ plug, IP67 IP67	Variable	1402188	Variable	1402188	Variable	1402188
Push/pull SCRJ, plastic PPCPL	Variable	1402188	Variable	1402188	Variable	1402188
Push/pull SCRJ, metal PPCME	Variable	1402188	Variable	1402188	Variable	1402188

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	1 m ... 5 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:

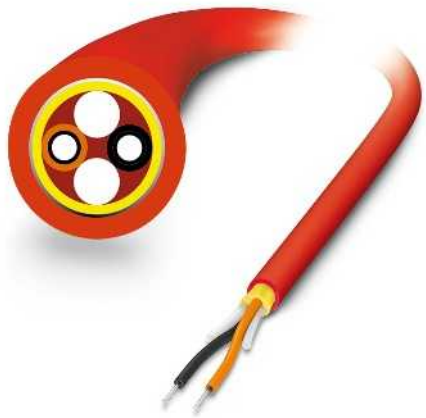
Order No.		Length [m]
2744319	/	70

Length:	Min. 0.5 m Max. 500 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 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

	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	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

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	By the meter	2744322	Variable	2901548	Variable	2901548
FSMA plug, IP20 FSMA	Variable	2901548	Variable	2901548	Variable	2901548
SCRJ plug, IP20 SCRJ	Variable	2901548	Variable	2901548	Variable	2901548
B-FOC (ST®) plug, IP20 BFOC	Variable	2901548	Variable	2901548	Variable	2901548
SCRJ plug, IP67 IP67	Variable	1402185	Variable	1402185	Variable	1402185
Push/pull SCRJ, plastic PPCPL	Variable	1402185	Variable	1402185	Variable	1402185
Push/pull SCRJ, metal PPCME	Variable	1402185	Variable	1402185	Variable	1402185

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	1 m ... 5 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	1 m ... 5 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

	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

Highly flexible POF cable for free assembly, type RUGGED-FLEX-1013

- 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

	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	By the meter	2744335	Variable	2901549	Variable	2901549
FSMA plug, IP20 FSMA	Variable	2901549	Variable	2901549	Variable	2901549
SCRJ plug, IP20 SCRJ	Variable	2901549	Variable	2901549	Variable	2901549
B-FOC (ST®) plug, IP20 BFOC	Variable	2901549	Variable	2901549	Variable	2901549
SCRJ plug, IP67 IP67	Variable	1402187	Variable	1402187	Variable	1402187
Push/pull SCRJ, plastic PPCPL	Variable	1402187	Variable	1402187	Variable	1402187
Push/pull SCRJ, metal PPCME	Variable	1402187	Variable	1402187	Variable	1402187

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]
1402187	SCRJ	PPCPL	15

Length:	Min. 0.5 m Max. 100 m	
Increment:	0.25 m 1 m	1 m ... 5 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:

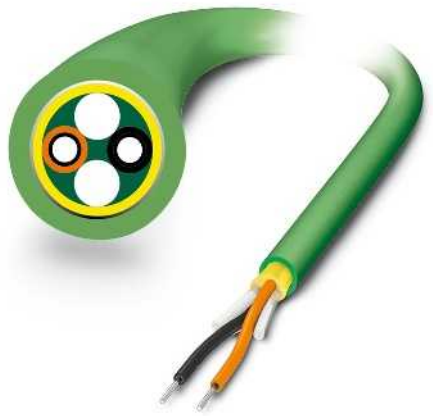
Order No.	Length [m]
2744335	70

Length:	Min. 0.5 m Max. 500 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 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	2901549	Variable	1402187	Variable	1402187	Variable	1402187
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

	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

PROFINET B POF cable for free assembly, type PN-B-1000



- 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
- PROFINET type B

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 OE	By the meter	2313397	Variable	2901551	Variable	2901551
FSMA plug, IP20 FSMA	Variable	2901551	Variable	2901551	Variable	2901551
SCRJ plug, IP20 SCRJ	Variable	2901551	Variable	2901551	Variable	2901551
B-FOC (ST®) plug, IP20 BFOC	Variable	2901551	Variable	2901551	Variable	2901551
Push/pull SCRJ, plastic PPCPL	Variable	1402172	Variable	1402172	Variable	1402172
Push/pull SCRJ, metal PPCME	Variable	1402172	Variable	1402172	Variable	1402172

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]
1402172	/	SCRJ	/	PPCPL	/	15

Length:	Min. 0.5 m Max. 100 m	
Increment:	0.25 m 1 m	1 m ... 5 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]
2313397	/	70

Length:	Min. 0.5 m Max. 500 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 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	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

	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		FSMA plug, IP20		SCRJ plug, IP20	
	OE		FSMA		SCRJ	
	Ordering data		Ordering data		Ordering data	
		Order No.		Order no.		Order No.
Free end OE	By the meter	2313407	Variable	2901552	Variable	2901552
FSMA plug, IP20 FSMA	Variable	2901552	Variable	2901552	Variable	2901552
SCRJ plug, IP20 SCRJ	Variable	2901552	Variable	2901552	Variable	2901552
B-FOC (ST®) plug, IP20 BFOC	Variable	2901552	Variable	2901552	Variable	2901552
Push/pull SCRJ, plastic PPCPL	Variable	1402175	Variable	1402175	Variable	1402175
Push/pull SCRJ, metal PPCME	Variable	1402175	Variable	1402175	Variable	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	1 m ... 5 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	1 m ... 5 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

	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	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

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	1408459 1408458	Variable	1408460	Variable	1408461
SCRJ plug, IP20 SCRJ			Variable	1408466	Variable	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	1 m ... 5 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

	Technical data
Cable 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:	-

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 OE	By the meter	2313410	Variable	2901554	Variable	2901554
FSMA plug, IP20 FSMA	Variable	2901554	Variable	2901554	Variable	2901554
SCRJ plug, IP20 SCRJ	Variable	2901554	Variable	2901554	Variable	2901554
SC duplex plug, IP20 SCDUP	Variable	2901554	Variable	2901554	Variable	2901554
B-FOC (ST®) plug, IP20 BFOC	Variable	2901554	Variable	2901554	Variable	2901554
LC plug LC	Variable	2901554	Variable	2901554	Variable	2901554
Push/pull SCRJ, plastic PPCPL	Variable	1402189	Variable	1402189	Variable	1402189
Push/pull SCRJ, metal PPCME	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.	Connector 1	Connector 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:

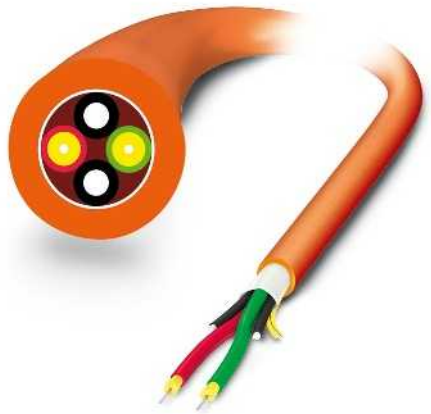
Order No.	Length [m]
2313410	70

Length:	Min. 1 m Max. 2000 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 2000 m

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**

	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

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 OE	By the meter	2799885	Variable	2901555	Variable	2901555
FSMA plug, IP20 FSMA	Variable	2901555	Variable	2901555	Variable	2901555
SCRJ plug, IP20 SCRJ	Variable	2901555	Variable	2901555	Variable	2901555
SC duplex plug, IP20 SCDUP	Variable	2901555	Variable	2901555	Variable	2901555
B-FOC (ST®) plug, IP20 BFOC	Variable	2901555	Variable	2901555	Variable	2901555
LC plug LC	Variable	2901555	Variable	2901555	Variable	2901555
Push/pull SCRJ, plastic PPCPL	Variable	1402191	Variable	1402191	Variable	1402191
Push/pull SCRJ, metal PPCME	Variable	1402191	Variable	1402191	Variable	1402191
SCRJ plug, IP67 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.		Connector 1		Connector 2		Length [m]
1402191	/	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]
2799885	/	70

Length:	Min. 1 m Max. 2000 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 2000 m

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

	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

Outdoor cables for free assembly, type HCSO-1015

- Robust round cable for laying outdoors
- 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	By the meter	2799445	Variable	2901557	Variable	2901557
FSMA plug, IP20 FSMA	Variable	2901557	Variable	2901557	Variable	2901557
SCRJ plug, IP20 SCRJ	Variable	2901557	Variable	2901557	Variable	2901557
SC duplex plug, IP20 SCDUP	Variable	2901557	Variable	2901557	Variable	2901557
B-FOC (ST®) plug, IP20 BFOC	Variable	2901557	Variable	2901557	Variable	2901557
LC plug LC	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.		Connector 1		Connector 2		Length [m]
2901557	/	SCRJ	/	BFOC	/	15

Length:	Min. 1 m Max. 1000 m	
Increment:	0.25 m 1 m	1 m ... 5 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:

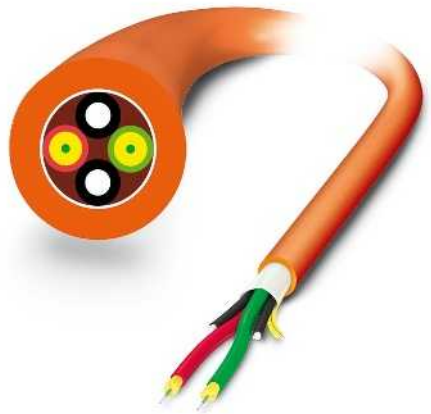
Order No.		Length [m]
2799445	/	70

Length:	Min. 1 m Max. 1000 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 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

Multi-mode fiberglass cables for free assembly, type GDM-RUGGED-1016



- 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 OE	By the meter	2799322	Variable	2901558	Variable	2901558
FSMA plug, IP20 FSMA	Variable	2901558	Variable	2901558	Variable	2901558
SCRJ plug, IP20 SCRJ	Variable	2901558	Variable	2901558	Variable	2901558
SC duplex plug, IP20 SCDUP	Variable	2901558	Variable	2901558	Variable	2901558
B-FOC (ST®) plug, IP20 BFOC	Variable	2901558	Variable	2901558	Variable	2901558
LC plug LC	Variable	2901558	Variable	2901558	Variable	2901558
Push/pull SCRJ, plastic PPCPL	Variable	1402193	Variable	1402193	Variable	1402193
Push/pull SCRJ, metal PPCME	Variable	1402193	Variable	1402193	Variable	1402193
SCRJ plug, IP67 IP67	Variable	1402193	Variable	1402193	Variable	1402193

Ordering example for configured cable:

For a **fiberglass 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.		Connector 1		Connector 2		Length [m]
1402193	/	SCRJ	/	PPCPL	/	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]
2799322	/	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	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
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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

	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

Outdoor multi-mode fiberglass cables for free assembly, type GDO-1017

- Robust round cable for laying outdoors
- 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	By the meter	2799432	Variable	2901559	Variable	2901559
FSMA plug, IP20 FSMA	Variable	2901559	Variable	2901559	Variable	2901559
SCRJ plug, IP20 SCRJ	Variable	2901559	Variable	2901559	Variable	2901559
SC duplex plug, IP20 SCDUP	Variable	2901559	Variable	2901559	Variable	2901559
B-FOC (ST®) plug, IP20 BFOC	Variable	2901559	Variable	2901559	Variable	2901559
LC plug LC	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.		Connector 1		Connector 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

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.
SCRJ plug, IP20 SCRJ	2 m	1400697	2 m	1400690	2 m	1400706
	Variable	1405703	Variable	1405700	Variable	1405710
SC duplex plug, IP20 SCDUP			2 m	1400685	2 m	1400703
			Variable	1405697	Variable	1405708
B-FOC (ST®) plug, IP20 BFOC					2 m	1404768
					Variable	1405712
LC plug LC			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	I-V(ZN)H
Fibers	50/125 µm OM2
Attenuation, typical	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

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.
SCRJ plug, IP20	2 m	1400699	2 m	1400691	2 m	1400711
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	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	Aqua
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, 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.
SCRJ plug, IP20	2 m	1400700	2 m	1400695	2 m	1400684
SCRJ	Variable	1405705	Variable	1405702	Variable	1405696
SC duplex plug, IP20			2 m	1400689		
SCDUP			Variable	1405699		
LC plug			2 m	1400681	2 m	1400622
LC			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**

	Technical data
Cable 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

FSMA plug, IP20

FSMA

Ordering data		
		Order No.
FSMA plug, IP20 FSMA	Variable	1406532
SC duplex plug, IP20 SCDUP	Variable	1406536
B-FOC (ST®) plug, IP20 BFOC	Variable	1406535

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**

	Technical data
Cable 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:	A0ccording to IEC 60754-1/2

Fiber optics patch cables

LC plug

Plugs:
– LC
– SC duplex
– SCRJ
– B-FOC (ST®)

Fixed lengths:
– 1 m
– 2 m
– 5 m

Fiber types:
– Multi-mode fiberglass (MM)
– Single-mode fiberglass (SM)

Sheath colors:
– Multi-mode: orange
– Single mode: yellow

Technical data:
– Halogen-free
– Flame-retardant
– No corrosive or toxic fumes
– External dimensions: 2.8 mm x 5.7 mm

	Technical data
Cable, properties	
Individual wire diameter	2.8 mm
Outer sheath, material	FRNC
Outer sheath, strain relief elements	Non-metallic, aramid fiber
Lateral pressure, long-term	60 N/cm
Tensile strength short-term/long-term	600 N
Halogen-free	According to IEC 60754-2
General data	
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Ambient temperature (operation)	-5 °C ... 70 °C

Ordering data

Description	Length of cable	Type	Order No.	Pcs. / Pkt.
FO patch cable with **multi-mode fiberglass (OM2)** - **LC plug** to LC, SC duplex, B-FOC or SCRJ plug				
	1 m	**FL MM PATCH 1,0 LC-LC**	**2989158**	1
	2 m	**FL MM PATCH 2,0 LC-LC**	**2989255**	1
	5 m	**FL MM PATCH 5,0 LC-LC**	**2901799**	1
FO patch cable with **multi-mode fiberglass (OM2)** - **SC duplex plug** to SC duplex, B-FOC or SCRJ plug				
	1 m			
	2 m			
	5 m			
FO patch cable with **multi-mode fiberglass (OM2)** - **B-FOC plug** to B-FOC or SCRJ plug				
	1 m			
	2 m			
	5 m			
FO patch cable with **multi-mode fiberglass (OM2)** - **SCRJ plug** to SCRJ plug				
	1 m			
	2 m			
	5 m			
FO patch cable with **single-mode fiberglass (OS1)** - **LC plug** to LC, SC duplex or B-FOC plug				
	1 m	**FL SM PATCH 1,0 LC-LC**	**2989187**	1
	2 m	**FL SM PATCH 2,0 LC-LC**	**2989284**	1
	5 m	**FL SM PATCH 5,0 LC-LC**	**2901826**	1
FO patch cable with **single-mode fiberglass (OS1)** - **SC duplex plug** to SC duplex or B-FOC plug				
	1 m			
	2 m			
	5 m			
FO patch cable with **single-mode fiberglass (OS1)** - **B-FOC plug** to B-FOC plug				
	1 m			
	2 m			
	5 m			

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

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

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-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

Technical data

2.8 mm
FRNC
Non-metallic, a7ramid 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-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

Accessories for processing fiber optics

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Ceramic blade	FOC-TOOL-CERAMIC-BLADE	1407019	1			
Solvent dispenser, 100 ml, lockable pump dispenser				FOC-TOOL-DISPENSER	1406995	1

Polishing fiber optic plug-in connectors

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Polishing film, silicon carbide						
15 µm	FOC-POLISHINGFILM-SK-15.0	1407034	1			
Polishing film, ALO^2						
1 µm	FOC-POLISHINGFILM-AO-01.0	1407037	1			
3 µm	FOC-POLISHINGFILM-AO-03.0	1407039	1			
Polishing film, diamond						
0.1 µm	FOC-POLISHINGFILM-D-00.1	1407046	1			
1 µm	FOC-POLISHINGFILM-D-01.0	1407042	1			
9 µm	FOC-POLISHINGFILM-D-09.0	1407044	1			
Polishing disc						
1.25 mm, for LC				FOC-POLISHINGDISC-1.25	1407024	1
2.50 mm, for ST, SC, FC				FOC-POLISHINGDISC-2.50	1407021	1

Cleaning tools
for fiber optic connection technology

	Ordering data			Ordering data		
Description	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

Tool for processing fiber optics

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Fiber stripper, for stripping the coating from 250 µm to 125 µm						
For 1 fiber	FOC-TOOL-STRIPPING-1HOLE-250	1407004	1			
For 2 fibers	FOC-TOOL-STRIPPING-2HOLE-250	1407008	1			
T-stripper						
18 ... 10 AWG/1.0 mm ... 2.6 mm				FOC-TOOL-STRIPPING-T-1	1407016	1
30 ... 22 AWG/0.25 mm ... 0.64 mm				FOC-TOOL-STRIPPING-T-2	1407014	1
	Accessories			**Accessories**		
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	CUTFOX-ES	1212621	1	CUTFOX-ES	1212621	1

Tools for FO cabling, POF

Ethernet

PROFI NET

Ethernet

PROFI NET

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Scrj polishing tool set, for polymer fiber, for field assembly of scrj/ip20 and SCRJ/IP67 plug-in connectors7 with fast connection system	VS-SCRJ-POF-KONFTOOL-POLISH	1658820	1			
Refill set for VS-SCRJ-POF-KONFTOOL-POLISH, consisting of two polishers and a polishing disc						
- For SCRJ connectors	VS-SCRJ-POF-POLISH	1656673	1			
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
Cutting tool, SCRJ, for polymer fiber				CUTFOX-SCRJ-POF	1405247	1
Sheath stripping tool, for polymer fiber				WIREFOX-PN POF	1405249	1

Tools for FO cabling, HCS

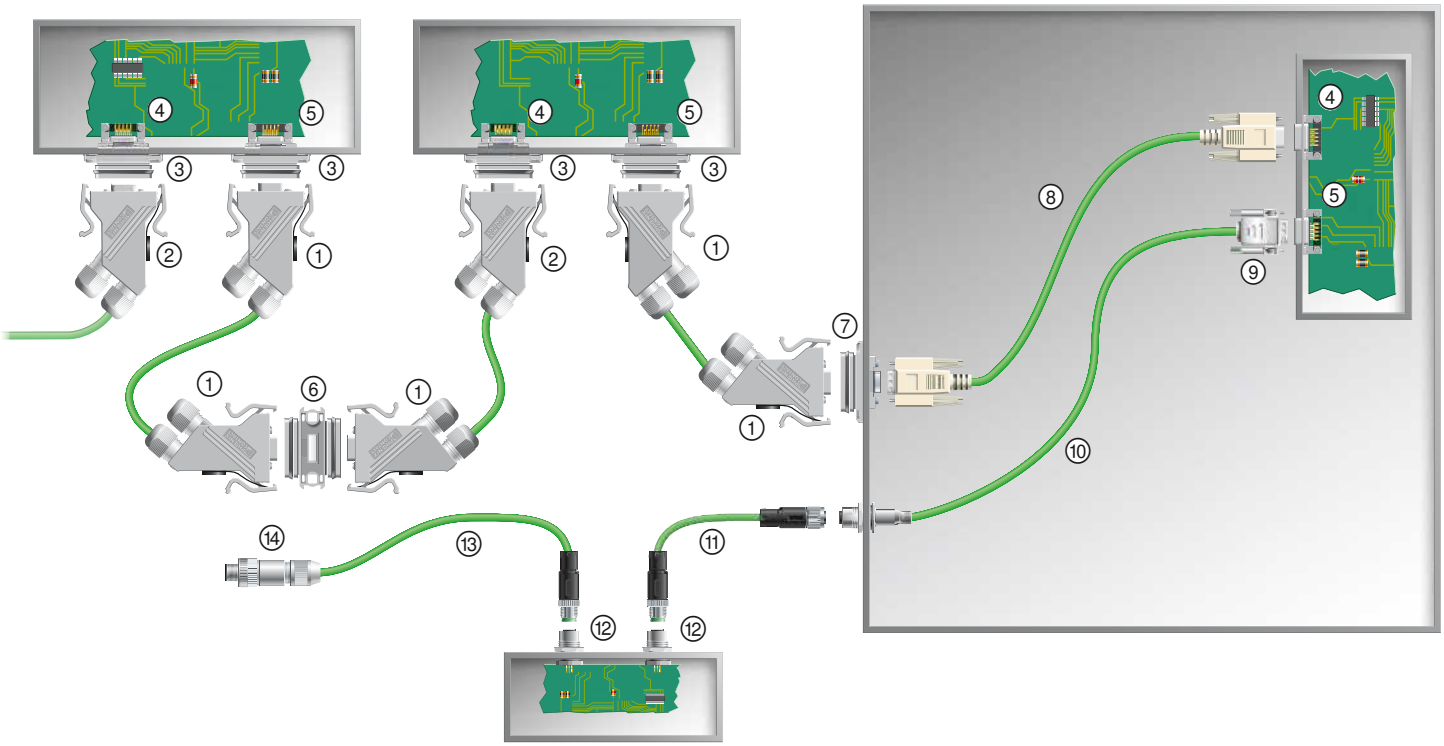
Assembly tool for fiber optics

Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
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			
- For SCRJ/SC duplex connectors	PSM-HCS-KONFTOOL/SC-RJ	2708876	1
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			
- For B-FOC (ST®) connectors	PSM-HCS-KONFTOOL/B-FOC	2708465	1
HCS DIY case for F-SMA quick mounting connectors, comprising stripping blade, stripping pliers, aramid yarn scissors, fiber stripper, fiber cleaving tool, and microscope			
- For F-SMA connectors	PSM-HCS-KONFTOOL	2799526	1

Tools for FO cabling, GOF

Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
Assembly tool set for fiberglass, for the field assembly of the SCRJ and SC-Duplex connectors, with a fast connection technology			
EU version	VS-GOF-FA-KONFTOOL-EU	1658228	1
US version	VS-GOF-FA-KONFTOOL-US	1658231	1
Consumables for VS-GOF-FA-KONFTOOL-…			
Glue cartridge	VS-GOF-FA-KONFTOOL-ADHESIVE	1658244	1

Topology – INTERBUS



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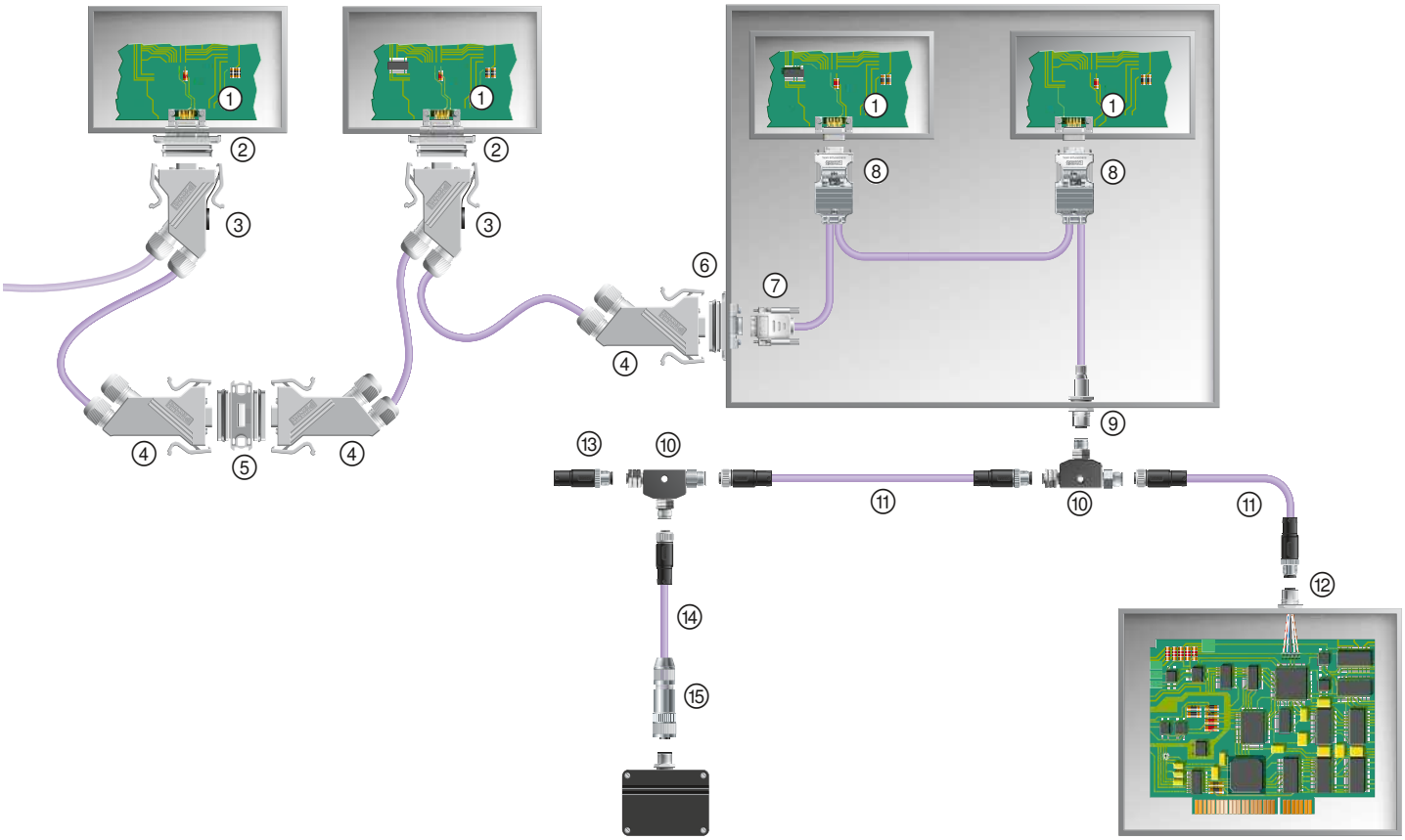
Topology – PROFIBUS DP



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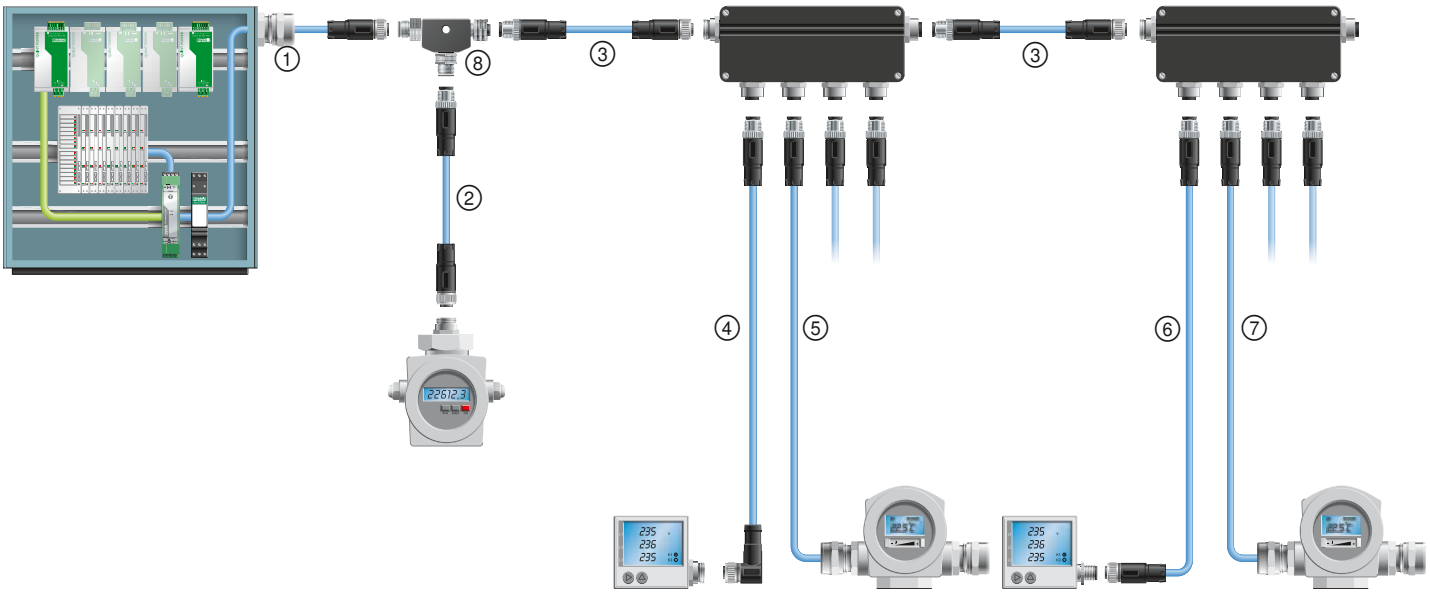
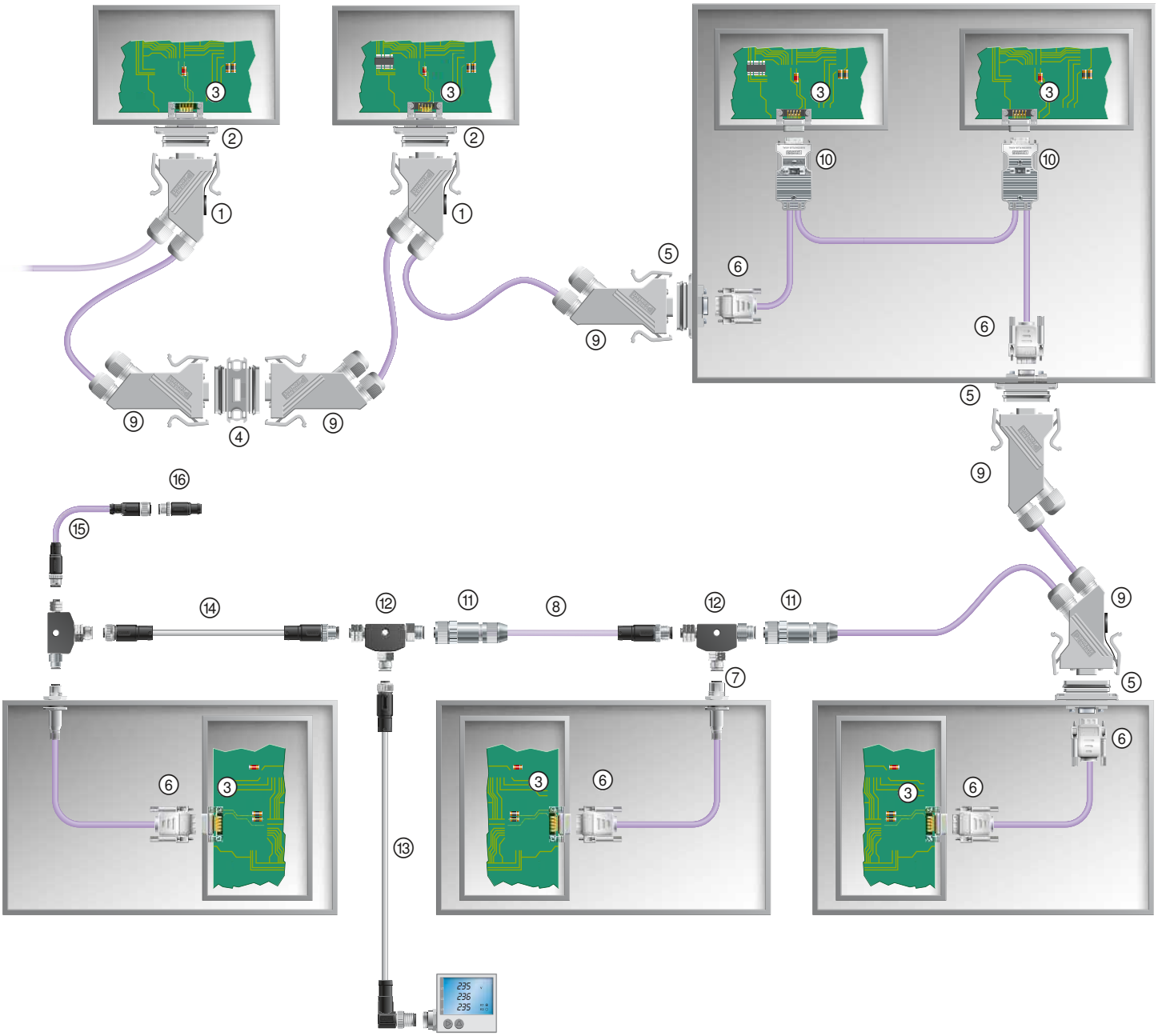
Topology – PROFIBUS PA



No.	Designation	Page
①	Assembled cable with straight M12 socket and free cable end, 2 m	See Catalog 4
②	Assembled cable with straight M12 socket and straight M12 plug, 1 m	See Catalog 4
③	Assembled cable with straight M12 socket and straight M12 plug, 5 m	See Catalog 4
④	Assembled cable with straight M12 plug and angled M12 socket, 5 m	See Catalog 4
⑤	Assembled cable with straight M12 plug and free cable end, 5 m	See Catalog 4
⑥	Assembled cable with straight M12 socket and straight M12 plug, 2 m	See Catalog 4
⑦	Assembled cable with straight M12 plug and free cable end, 20 m	See Catalog 4
⑧	M12 T-distributor	See Catalog 4

Topology – CANopen®



No.	Designation	Page
①	IP67 D-SUB complete plug-in connectors	184
②	IP67 D-SUB panel mounting frames for D-SUB contact inserts	206
③	D-SUB contact inserts	206
④	IP67 D-SUB coupling	185
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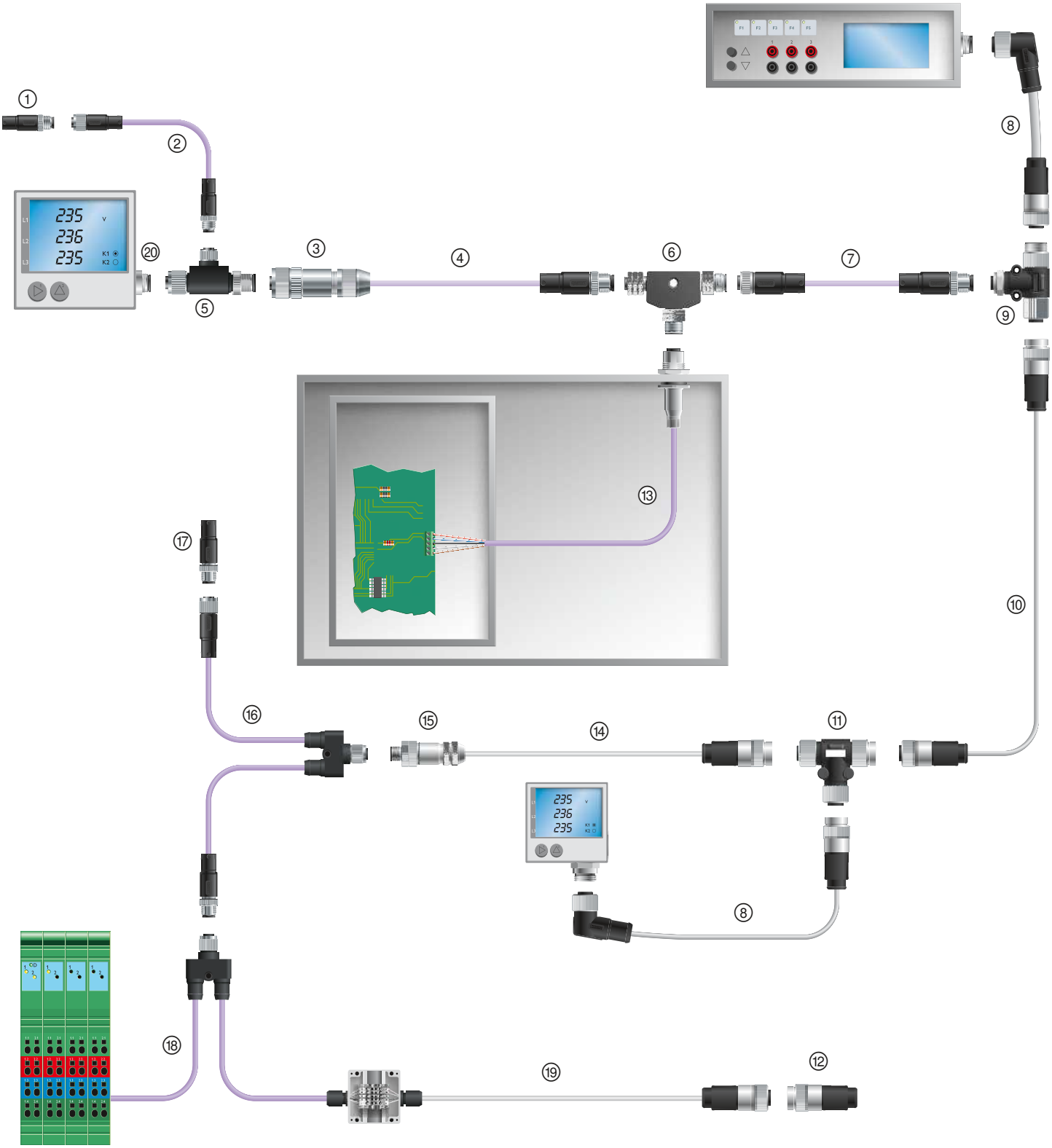
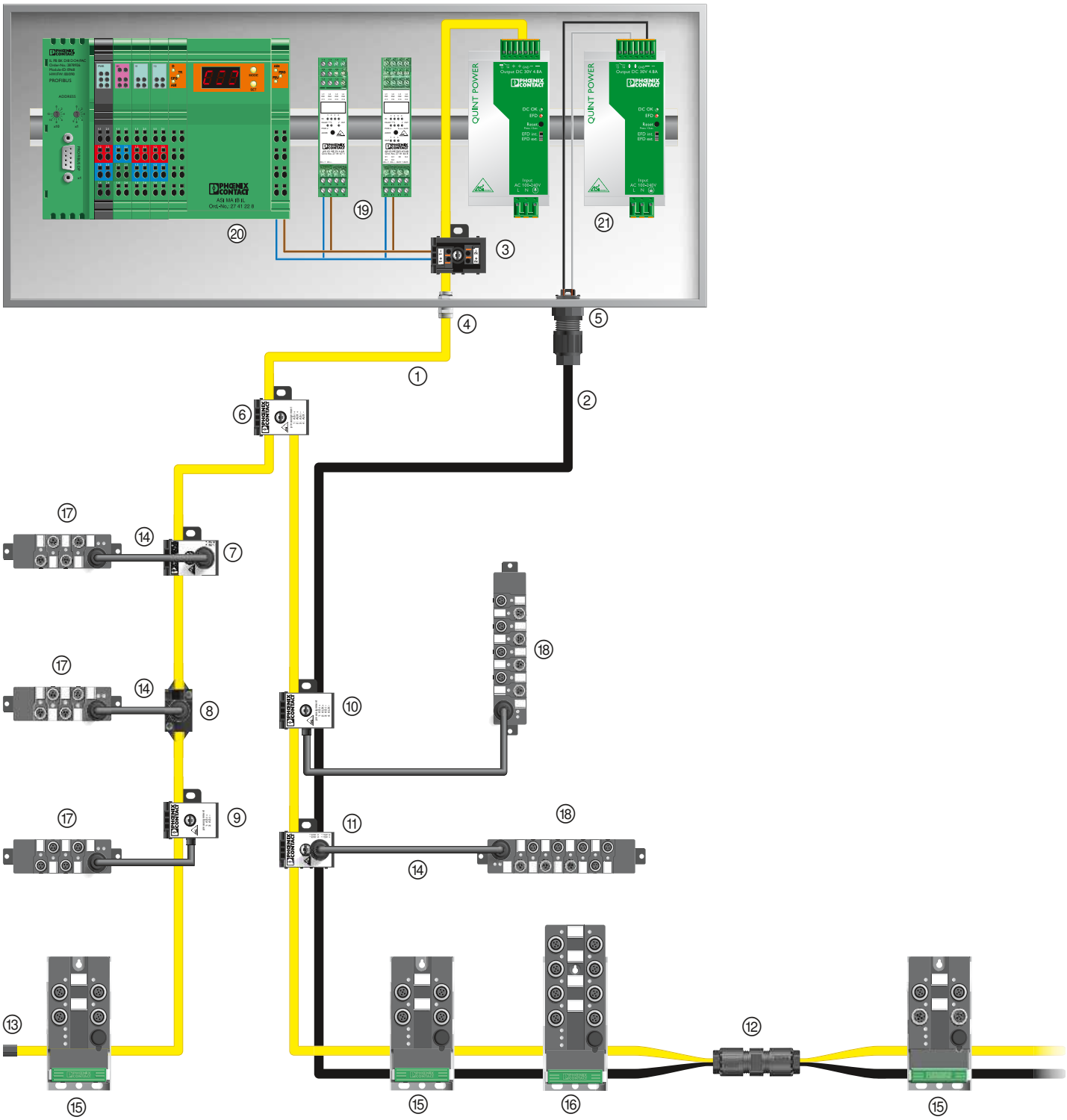
⑦	M12 panel feed-through with fieldbus cable and free cable end	192
⑧	Assembled fieldbus cable with M12 plug-in connector and free cable end	See Catalog 4
⑨	IP67 D-SUB sleeve housing with accessories and D-SUB contact insert	206
⑩	IP20 D-SUB complete plug-in connectors	219
⑪	M12 plug-in connectors, for assembly	187
⑫	M12 T-piece	See Catalog 4
⑬	Assembled cable with angled M12 plug-in connector to straight M12 socket, 5 m	See Catalog 4
⑭	Assembled cable with straight M12 plug-in connector to straight M12 socket, 2 m	See Catalog 4
⑮	Termination resistor	See Catalog 4
⑯	Assembled fieldbus cable with M8 plug-in connector and M8 socket	See Catalog 4

Topology – DeviceNet™



No.	Designation	Page
①	M8 termination resistor	See Catalog 4
②	Assembled fieldbus cable with straight M8 plug to straight M8 socket	See Catalog 4
③	M12 plug-in connector for free assembly, socket	186
④	Assembled fieldbus cable with M12 plug and free cable end	See Catalog 4
⑤	Bus system T-distributor, M8 socket to M12 plug and M12 socket	See Catalog 4
⑥	Bus system T-distributor, M12 socket to M12 plug and M12 socket	See Catalog 4
⑦	Assembled fieldbus cable with straight M12-SPEEDCON plug to straight M12-SPEEDCON socket	See Catalog 4
⑧	Assembled trunk cable with angled 7/8" plug to straight 7/8" socket	See Catalog 4
⑨	Bus system T-distributor, 5-pos., M12 socket to 7/8" socket and 7/8" plug, 7/8", stainless steel knurl	See Catalog 4
⑩	Assembled trunk cable with straight 7/8" plug to straight 7/8" socket	See Catalog 4
⑪	Bus system T-distributor, 5-pos., 7/8" socket to 7/8" socket and 7/8" plug, stainless steel knurl	See Catalog 4
⑫	Termination resistor, 7/8" plug	See Catalog 4
⑬	M12 flush-type plug-in connector	190
⑭	Assembled trunk cable with straight 7/8" plug and free cable end	See Catalog 4
⑮	M12 plug-in connector for free assembly, plug	186
⑯	Y-distributor, bus system cable, straight M12-SPEEDCON socket to straight M12-SPEEDCON plug and straight M12-SPEEDCON socket	See Catalog 4
⑰	M12 termination resistor	See Catalog 4
⑱	Y-distributor, bus system cable, straight M12-SPEEDCON socket and 2 free cable ends	See Catalog 4
⑲	7/8" assembled drop cable, straight 7/8" socket and free cable end	See Catalog 4
⑳	M12 panel feed-through with solder connection	188

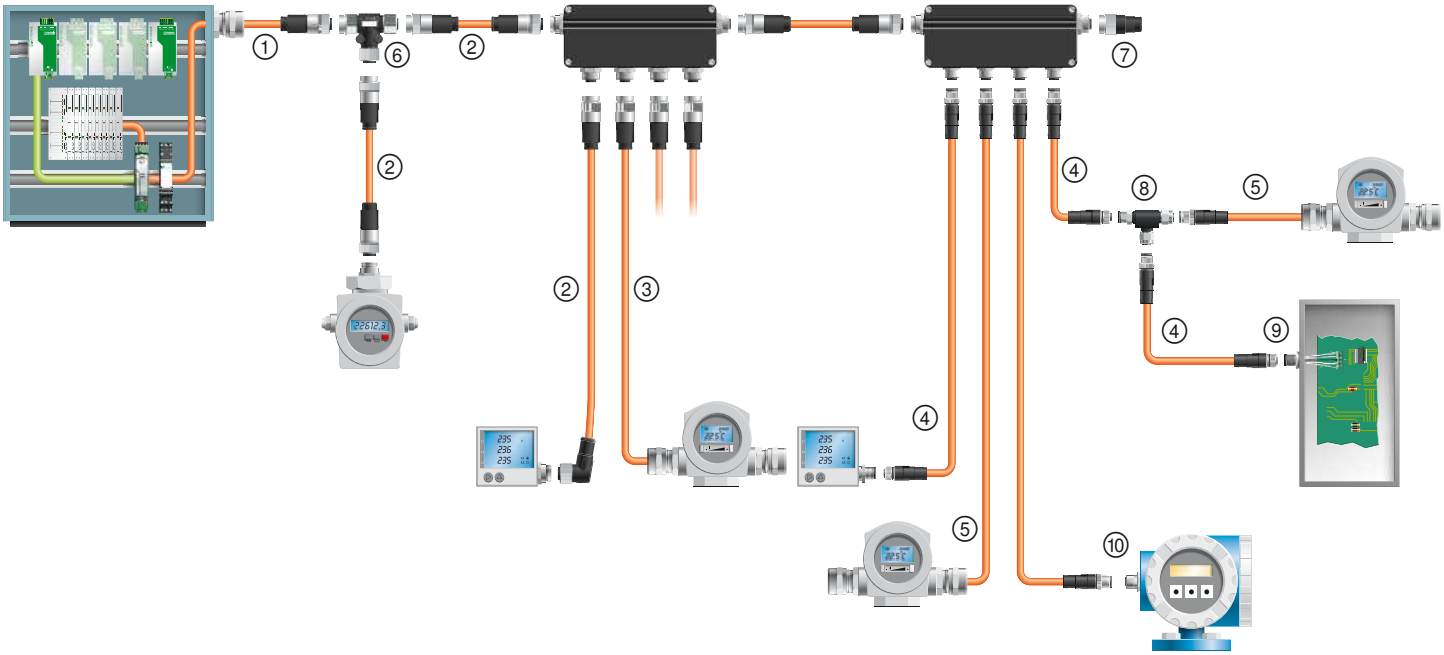
Topology – AS-Interface



No.	Designation	Page
①	AS-Interface flat-ribbon conductor, yellow	See Catalog 4
②	AS-Interface flat-ribbon conductor, black	See Catalog 4
③	AS-Interface distributor, 4-pos., with spring-cage terminal blocks up to 1.5 mm^2	See Catalog 4
④	Metal screw connection for an AS-Interface flat-ribbon conductor	See Catalog 4
⑤	Panel feed-through with QUICKON fast connection technology for accommodating up to two AS-Interface flat-ribbon conductors	See Catalog 4
⑥	AS-Interface H-distributor for the distribution of AS-Interface flat-ribbon conductors	See Catalog 4
⑦	AS-Interface distributor, 2-pos., with straight, A-coded M12 socket	See Catalog 4
⑧	AS-Interface distributor, 2-pos., with straight, A-coded M12 socket	See Catalog 4
⑨	AS-Interface distributor, 2-pos., with round cable and molded, A-coded M12 socket	See Catalog 4
⑩	AS-Interface distributor, 4-pos., with round cable and molded, A-coded M12 socket	See Catalog 4
⑪	AS-Interface distributor, 4-pos., with straight, A-coded M12 socket	See Catalog 4
⑫	Cable connector with QUICKON fast connection technology for connecting up to four AS-Interface flat-ribbon conductors	See Catalog 4
⑬	End clip for AS-Interface flat-ribbon conductor	See Catalog 4
⑭	Assembled round cable with M12 plug-in connectors	See Catalog 4
⑮	AS-Interface digital M12 I/O devices, 4 slots, IP65/IP67	See Catalog 4
⑯	AS-Interface digital M12 I/O devices, 8 slots, IP65/IP67	See Catalog 4
⑰	AS-Interface digital M8 input devices, 4 slots, IP65/IP67	See Catalog 4
⑱	AS-Interface digital M8 I/O devices, 8 slots, IP65/IP67	See Catalog 4
⑲	AS-Interface digital I/O devices, ME-Line, IP20	.
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.

Topology – FOUNDATION Fieldbus



No.	Designation	Page
①	Assembled FOUNDATION Fieldbus cable with 7/8" socket and free cable end	See Catalog 4
②	Assembled FOUNDATION Fieldbus cable with 7/8" plug and 7/8" socket	See Catalog 4
③	Assembled FOUNDATION Fieldbus cable with 7/8" plug and free cable end	See Catalog 4
④	Assembled FOUNDATION Fieldbus cable with M12 plug and M12 socket	See Catalog 4
⑤	Assembled FOUNDATION Fieldbus cable with M12 plug and free cable end	See Catalog 4
⑥	FOUNDATION Fieldbus 7/8" T-distributor	See Catalog 4
⑦	FOUNDATION Fieldbus 7/8" termination resistor	See Catalog 4
⑧	FOUNDATION Fieldbus M12 distributor	See Catalog 4
⑨	FOUNDATION Fieldbus M12 system flush-type plug-in connector	193
⑩	FOUNDATION Fieldbus M12 flush-type plug	193

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

	Technical data		Technical data	
	Spring-cage connection	**Screw connection**	**Spring-cage connection**	**Screw connection**
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	Spring-cage conn.	Screw connection	Spring-cage conn.	Screw connection
Electrical data				
Rated voltage	60 V	60 V	60 V	60 V
Rated current	4 A	4 A	4 A	4 A
Volume resistance	≤ 8 mΩ	≤ 3 mΩ	≤ 8 mΩ	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ
Material data				
Contact material	CuSn	CuSn	CuSn	CuSn
Contact surface material	Ni/Au	Au	Ni/Au	Au
Contact carrier material	TPU	PA 66	TPU	PA 66
Inflammability class according to UL 94	V0	HB	V0	HB
Coding	B - inverse	B - inverse	B - inverse	B - inverse
No. of pos.	5	5	2	5
Temperature data				
Plug / socket [°C]	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	Spring-cage connection		**Screw connection**		**Spring-cage connection**		**Screw connection**	
Plug-in connector								
Socket, straight	**1432826**	1	**1507777**	1	**1432868**	1	**1507777**	1
Plug, straight	**1432800**	1	**1507764**	1	**1432842**	1	**1507764**	1
Socket, angled	**1432839**	1			**1432871**	1		
Plug, angled	**1432813**	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		Technical data	
	Spring-cage connection	**Screw connection**	**Spring-cage connection**	
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	-
Degree of protection	IP67	IP67	IP67	-
Connection method	Spring-cage conn.	Screw connection	Spring-cage conn.	-
Electrical data				
Rated voltage	60 V	60 V	60 V	-
Rated current	4 A	4 A	4 A	-
Volume resistance	≤ 8 mΩ	≤ 3 mΩ	≤ 8 mΩ	-
Insulation resistance	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	-
Material data				
Contact material	CuSn	CuSn	CuSn	-
Contact surface material	Ni/Au	Au	Ni/Au	-
Contact carrier material	TPU	PA 66	PA 66	-
Inflammability class according to UL 94	V0	HB	V0	-
Coding	A - standard	A - standard	A - standard	-
Temperature data				
Plug / socket [°C]	-40 ... 85	-40 ... 85	-40 ... 85	-

	Ordering data				Ordering data		
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	Spring-cage connection		**Screw connection**		**Spring-cage connection**			
Plug-in connector								
Socket, straight	**1432787**	1	**1508365**	1	**1559770**	1		
Plug, straight	**1432761**	1	**1508352**	1	**1559767**	1		
Socket, angled	**1432790**	1						
Plug, angled	**1432774**	1						

Flush-type plug-in connector, one-piece, rear mounting

M12 flush-type plug-in connector with solder connection

M12 flush-type plug-in connector with solder connection

	Technical data		Technical data	
	Without shield contact	**With shield contact**	**Without shield contact**	**With shield contact**
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	Solder pins	Solder pins	Solder pins	Solder pins
Electrical data				
Rated voltage	60 V	60 V	60 V	60 V
Rated current	4 A	4 A	4 A	4 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ
Material data				
Material contact / contact surface	CuZn / Au	CuZn / Ni/Au	CuZn / Au	CuZn / Au
Contact carrier material	PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94	V0	V0	V0	V0
Coding	B - inverse	B - inverse	A - standard	A - standard
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	Without shield contact		**With shield contact**		**Without shield contact**		**With shield contact**	
Flush-type plug-in connector, Pg9 fastening thread								
Socket			**1553022**	20	**1542761**	20	**1553019**	20
Plug	**1543647**	20	**1553051**	20	**1542745**	20	**1553048**	20
Flush-type plug-in connector, M12 fastening thread								
Plug	**1551846**	20	**1552971**	20	**1551833**	20	**1552968**	20
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with:								
Pg9 fastening thread	**1440177**	10	**1440177**	10	**1440177**	10	**1440177**	10
M12 fastening thread	**1440151**	10	**1440151**	10	**1440151**	10	**1440151**	10

Flush-type plug-in connector, two-piece, rear mounting

M12 flush-type plug-in connector with solder connection

M12 flush-type plug-in connector with solder connection

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

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	Wave soldering		**THR process**		**Wave soldering**		**THR process**	
Flush-type plug-in connector, M12 fixing, straight contacts								
Socket	**1437180**	10	**1542635**	60	**1694237**	10	**1434879**	60
Plug	**1437203**	10	**1552188**	60	**1694211**	10	**1439968**	60
Flush-type plug-in connector, M12 fixing, angled contacts								
Socket	**1436576**	10			**1438024**	10		
Plug	**1436615**	10			**1438037**	10		

Flush-type plug-in connector, with pre-assembled cable, type 900

Rear mounting

Front mounting, can be positioned

	Technical data		Technical data	
	M16 fastening thread	Pg9 fastening thread	M16 fastening thread	
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
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 [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data				Ordering data			
Description	Cable length	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		M16 fastening thread		Pg9 fastening thread		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	**1534546**	1	**1437601**	1	**1529742**	1		
Plug	0.5 m	**1534504**	1	**1437643**	1	**1529629**	1		
Socket	1 m	**1534559**	1	**1437614**	1	**1529755**	1		
Plug	1 m	**1534517**	1	**1437656**	1	**1530223**	1		
Socket	2 m	**1534562**	1	**1437627**	1	**1529768**	1		
Plug	2 m	**1534520**	1	**1437669**	1	**1529726**	1		
Socket	5 m	**1534575**	1	**1437630**	1	**1529771**	1		
Plug	5 m	**1534533**	1	**1437672**	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				

Flush-type plug-in connector, with pre-assembled cable, type 910

Rear mounting

Front mounting, can be positioned

	Technical data		Technical data	
	M16 fastening thread	Pg9 fastening thread	M16 fastening thread	
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
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 [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data				Ordering data			
Description	Cable length	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		M16 fastening thread		Pg9 fastening thread		M16 fastening thread			
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 mm²									
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				

Flush-type plug-in connector, with pre-assembled cable, type 920

Rear mounting

Front mounting, can be positioned

	Technical data		Technical data	
	M16 fastening thread	Pg9 fastening thread	M16 fastening thread	
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
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 [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data				Ordering data			
Description	Cable length	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		M16 fastening thread		Pg9 fastening thread		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 toothing, 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

With solder pins, rear mounting

	Technical data	Technical 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/IP69K
Connection method	Individual wires	Solder pins
Electrical data		
Rated voltage	250 V	60 V
Rated current	4 A	4 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ	≥ 100 MΩ
Material data		
Material contact / contact surface	CuZn / Ni/Au	CuZn / Au
Contact carrier material	PA66 GF	PA 66
Inflammability class according to UL 94	V0	V0
Temperature data		
Plug / socket [°C]	-25 ... 85	-25 ... 85

		Ordering data			Ordering data		
Description	Coding	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Device plug-in connectors							
Socket	A - standard	**SACC-E-M12FS-4CON-PG9/0,5 FFVA**	**1431429**	1	**SACC-DSI-M12FS-5CON-L180 VA**	**1554733**	20
Plug	A - standard	**SACC-E-M12MS-4CON-PG9/0,5 FFVA**	**1431432**	1	**SACC-DSI-M12MS-5CON-L180 VA**	**1554746**	20

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 areas 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 mm² 32 x 0.1 mm		Yellow, green, white, brown, pink, gray	PE	-30°C ... 70°C	190

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	191

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	192

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	See Catalog 4

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	See Catalog 4

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	See Catalog 4
961 **PVC** Blue	2-pos.	7/8", M12	2 x 20 AWG 7 x 0.3 mm		Blue, orange	PO	-30°C ... 105°C	See Catalog 4

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	105

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	97 105 106

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	105 106

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	105 106

PROFINET cable – type 937

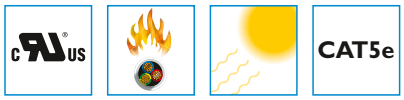
PROFINET cable for railway applications. The cable is oil resistant. It meets fire safety standard BS6853.
The cable's transmission properties meet CAT5e.

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	105 106

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.

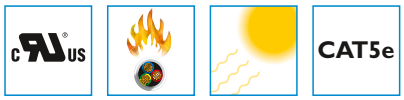
The cable's transmission properties meet CAT5e.

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	108

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	96 98

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	96

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	96 100

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	110

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	96 100

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	96

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	96

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	102

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	104

VARAN cable – type 970

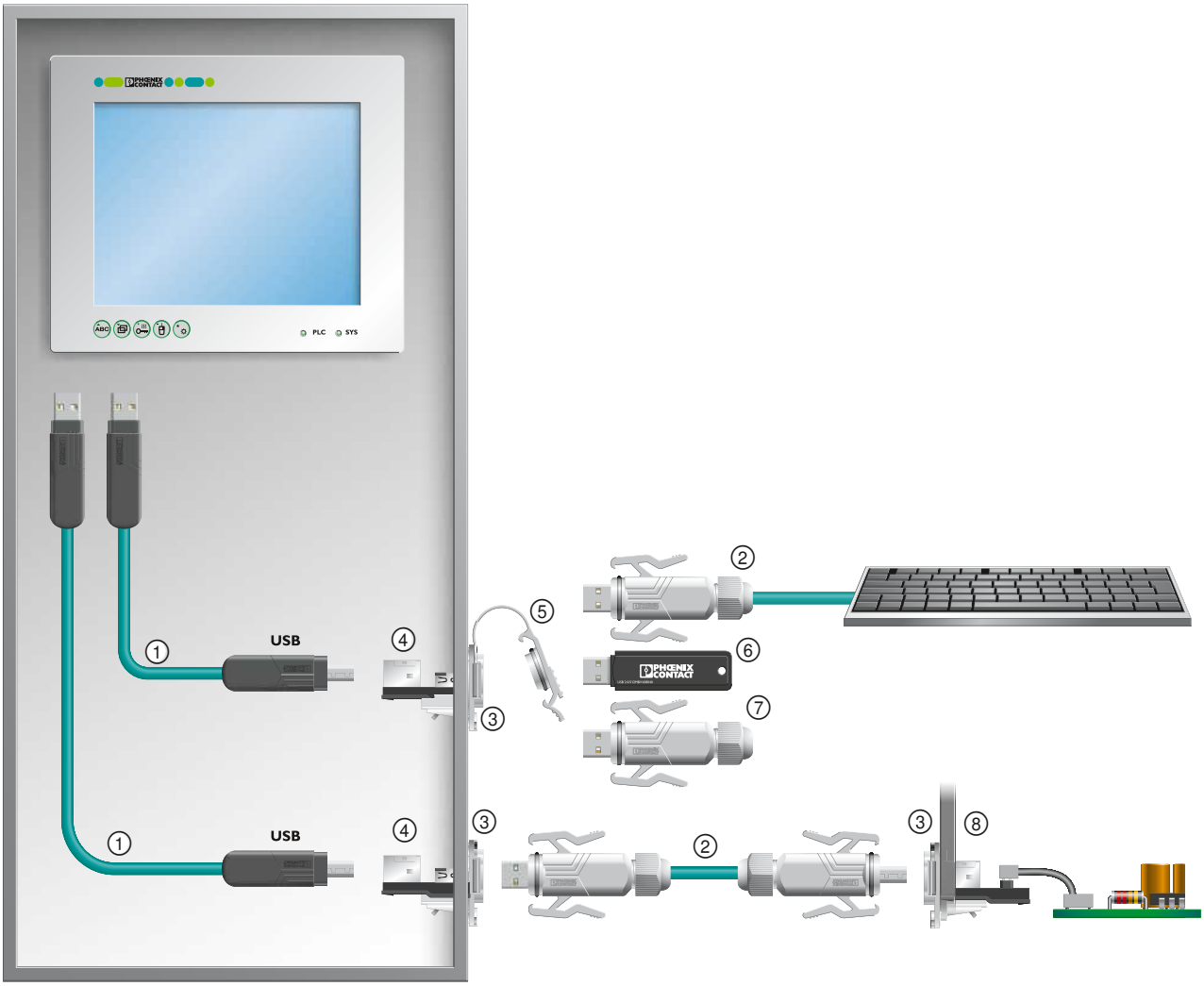
CAT5e

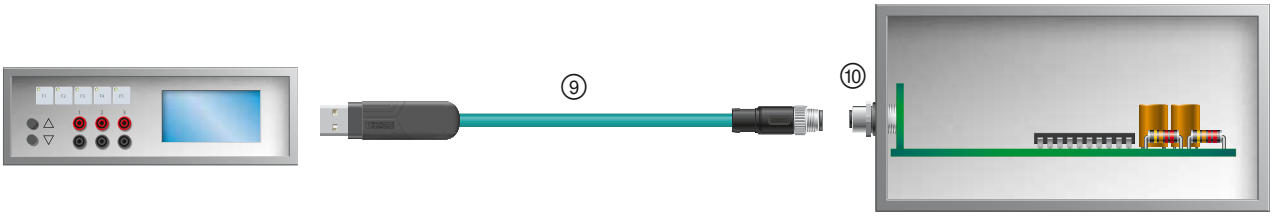
VARAN cable for flexible installation. The cable is resistant to oil and chemicals and is flame-retardant. The cable's transmission properties meet CAT5e.

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

USB





No.	Designation	Page
①	Assembled USB cables	See Catalog 4
②	Assembled USB cables, IP65/IP67	See Catalog 4
③	Panel mounting frame with IP65/IP67 protection for Freenet system, version 6	205
④	Socket-socket modules for Freenet system	205
⑤	Protective cover for the panel mounting frame with IP65/IP67 protection	205
⑥	USB memory stick with IP20 protection	205
⑦	USB memory stick with IP67 protection	205
⑧	USB socket insert with pin plug connection	205
⑨	Assembled USB cables with M12 mini-USB	See Catalog 4
⑩	M12 flush-type plug-in connector, mini-USB, for PCB mounting	See Catalog 4

Panel feed-throughs, memory sticks, protective cover

Panel feed-throughs can be implemented with the IP67 panel mounting frame and the USB socket inserts. The USB memory sticks with IP67 protection enable wireless data transmission in rough industrial environments.

Mini-B USB, M12 fastening threads, wave soldered contacts, integrated shield contact

USB socket inserts and panel mounting frames, IP67, Freenet system

	Technical data	Technical data	
	VS-EC-MSDB SH SCO	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	V0	-
Mechanical data			
No. of pos.	4	4	4
Degree of protection	IP67	IP20	IP20
Insertion/withdrawal cycles	≥ 100	≥ 1000	-
Temperature data			
Ambient temperature (operation)	-25 °C ... 85 °C (Plug / socket)	-15 °C ... 65 °C	-15 °C ... 60 °C

		Ordering data			Ordering data		
Description	Cable length	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Sensor/actuator flush-type connector, mini-B USB, M12 SPEEDCON, with straight solder connection		**VS-EC-MSDB SH SCO**	**1440711**	20			
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., USB 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
Freenet 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

Shell size 1 to 3			Screw connection			Solder connection					
						Straight solder cups					
			VS-...-ST-DSUB/...-MPT-0,5 VS-...-BU-DSUB/...-MPT-0,5			VS-...-ST-DSUB-EG VS-...-BU-DSUB-EG			VS-...-ST-DSUB-HD-EG VS-...-BU-DSUB-HD-EG		
			D-SUB contact insert Fixing: 2.5 mm hole			D-SUB contact insert Fixing: 3 mm hole			D-SUB contact insert, high-position Fixing: 3 mm hole		
	Type	Order No.	No. of positions	Pin	Socket	No. of positions	Pin	Socket	No. of positions	Pin	Socket
	IP67 panel mounting frame										
	VS-09-A	1688366	9	1688379	1688395	9	1688793	1688803	15	1655111	1655108
	VS-15-A	1688036	15	1688078	1688094	15	1688874	1688887	26	1655179	1655166
	VS-25-A	1689750	25	1689789	1689776	25	1689899	1689909	44	1655234	1655221
	IP20 sleeve housing										
	VS-09-T-20-1-S-A	1655661	9	-	-	9	1688793	1688803	15	1655111	1655108
	VS-15-T-20-1-S-A	1655687	15	-	-	15	1688874	1688887	26	1655179	1655166
	VS-25-T-20-1-S-A	1655700	25	-	-	25	1689899	1689909	44	1655234	1655221
	VS-09-T-20-1-S-S	1655658	9	-	-	9	1688793	1688803	15	1655111	1655108
	VS-15-T-20-1-S-S	1655674	15	-	-	15	1688874	1688887	26	1655179	1655166
	VS-25-T-20-1-S-S	1655690	25	-	-	25	1689899	1689909	44	1655234	1655221
	IP67 sleeve housing										
	VS-09-T-2M16	1688353	9	1688379	1688395	9	1688793	1688803	15	1655111	1655108
	VS-15-T-2PG11	1688052	15	1688078	1688094	15	1688874	1688887	26	1655179	1655166
	VS-25-T-2M20	1689792	25	1689789	1689776	25	1689899	1689909	44	1655234	1655221
	VS-09-SET-STD	1689145	Panel mounting frame	9	1688379	1688395	9	1688793	1688803	15	1655111	1655108
			Sleeve housing	9	1688379	1688395	9	1688793	1688803	15	1655111	1655108
	VS-15-SET-STD	1689129	Panel mounting frame	15	1688078	1688094	15	1688874	1688887	26	1655179	1655166
			Sleeve housing	15	1688078	1688094	15	1688874	1688887	26	1655179	1655166
	VS-25-SET-STD	1652198	Panel mounting frame	25	1689789	1689776	25	1689899	1689909	44	1655234	1655221
			Sleeve housing	25	1689789	1689776	25	1689899	1689909	44	1655234	1655221
	VS-09-SET-EMV	1689158	Panel mounting frame	9	1688379	1688395	9	1688793	1688803	15	1655111	1655108
			Sleeve housing	9	1688379	1688395	9	1688793	1688803	15	1655111	1655108
	VS-15-SET-EMV	1689132	Panel mounting frame	15	1688078	1688094	15	1688874	1688887	26	1655179	1655166
			Sleeve housing	15	1688078	1688094	15	1688874	1688887	26	1655179	1655166
	VS-25-SET-EMV	1652208	Panel mounting frame	25	1689789	1689776	25	1689899	1689909	44	1655234	1655221
			Sleeve housing	25	1689789	1689776	25	1689899	1689909	44	1655234	1655221

Note:
The EMC inner sleeve of the IP67 sleeve housing cannot be used on the panel mounting side.

Signal transmission

	Solder connection									Crimp connection								
	Angled solder pins									Contact carriers for crimp contacts								
	VS-...-ST-DSUB-ER VS-...-BU-DSUB-ER			VS-...-ST-DSUB-HD-ER VS-...-BU-DSUB-HD-ER			VS-...-ST-DSUB-LH-B VS-...-BU-DSUB-LH-B			VS-...-ST-DSUB-CD-...G VS-...-BU-DSUB-CD-...G			VS-...-ST-DSUB-CD-... VS-...-BU-DSUB-CD-…			VS-...-ST-DSUB-HD-CD-B VS-...-BU-DSUB-HD-CD-B		
	D-SUB contact insert Fixing: 4-40 UNC thread and solder pins			D-SUB contact insert, high-position. Fixing: 4-40 UNC thread and solder pins			D-SUB contact insert Fixing: 2.5 mm hole and solder metal plate			D-SUB contact carrier Fixing: 4-40 UNC thread			D-SUB contact carrier Fixing: 3 mm hole			D-SUB contact carrier, high-position Fixing: 3 mm hole		
	No. of positions	Pin	Socket	No. of positions	Pin	Socket	No. of positions	Pin	Socket	No. of positions	Pin	Socket	No. of positions	Pin	Socket	No. of positions	Pin	Socket
	9	1688382	1688405	15	1655098	1656136	9	1654785	1654798	9	1688832	1688845	9	1688858	1688861	15	1655137	1655124
	15	1688081	1688120	26	1655153	1655140	15	1654808	1654811	15	1688913	1688926	15	1688939	1688942	26	1655195	1655182
	25	1689873	1689886	44	1655218	1655205	25	1654824	1654837	25	1689938	1689941	25	1689954	1689967	44	1655250	1655247
	9	-	-	15	-	-	9	1654785	1654798	9	-	-	9	1688858	1688861	15	1655137	1655124
	15	-	-	26	-	-	15	1654808	1654811	15	-	-	15	1688939	1688942	26	1655195	1655182
	25	-	-	44	-	-	25	1654824	1654837	25	-	-	25	1689954	1689967	44	1655250	1655247
	9	-	-	15	-	-	9	1654785	1654798	9	-	-	9	1688858	1688861	15	1655137	1655124
	15	-	-	26	-	-	15	1654808	1654811	15	-	-	15	1688939	1688942	26	1655195	1655182
	25	-	-	44	-	-	25	1654824	1654837	25	-	-	25	1689954	1689967	44	1655250	1655247
	9	-	-	15	-	-	9	1654785	1654798	9	-	-	9	1688858	1688861	15	1655137	1655124
	15	-	-	26	-	-	15	1654808	1654811	15	-	-	15	1688939	1688942	26	1655195	1655182
	25	-	-	44	-	-	25	1654824	1654837	25	-	-	25	1689954	1689967	44	1655250	1655247
	9	1688382	1688405	15	1655098	1656136	9	1654785	1654798	9	1688832	1688845	9	1688858	1688861	15	1655137	1655124
	9	-	-	15	-	-	9	1654785	1654798	9	-	-	9	1688858	1688861	15	1655137	1655124
	15	1688081	1688120	26	1655153	1655140	15	1654808	1654811	15	1688913	1688926	15	1688939	1688942	26	1655195	1655182
	15	-	-	26	-	-	15	1654808	1654811	15	-	-	15	1688939	1688942	26	1655195	1655182
	25	1689873	1689886	44	1655218	1655205	25	1654824	1654837	25	1689938	1689941	25	1689954	1689967	44	1655250	1655247
	25	-	-	44	-	-	25	1654824	1654837	25	-	-	25	1689954	1689967	44	1655250	1655247
	9	1688382	1688405	15	1655098	1656136	9	1654785	1654798	9	1688832	1688845	9	1688858	1688861	15	1655137	1655124
	9	-	-	15	-	-	9	1654785	1654798	9	-	-	9	1688858	1688861	15	1655137	1655124
	15	1688081	1688120	26	1655153	1655140	15	1654808	1654811	15	1688913	1688926	15	1688939	1688942	26	1655195	1655182
	15	-	-	26	-	-	15	1654808	1654811	15	-	-	15	1688939	1688942	26	1655195	1655182
	25	1689873	1689886	44	1655218	1655205	25	1654824	1654837	25	1689938	1689941	25	1689954	1689967	44	1655250	1655247
	25	-	-	44	-	-	25	1654824	1654837	25	-	-	25	1689954	1689967	44	1655250	1655247

Note:
For crimp contacts, see page 216.

D-SUB-based plug-in connectors

				Signal transmission								
				Flat-ribbon cable connection			Gender changer					
										No. of positions 2PK/3PK/5PK		
				VS-...-ST-DSUB-FK VS-...-BU-DSUB-FK			VS-...-GC-ST/ST VS-...-GC-BU/BU			VS-...-ST-DSUB-...P VS-...-BU-DSUB-...P		
Shell size 1 to 3				D-SUB contact insert Fixing: 3 mm hole			D-SUB contact insert Fixing: 4-40 UNC thread			D-SUB contact carrier Fixing: 3 mm hole		
	Type	Order No.		No. of positions	Pin	Socket	No. of positions	Pin	Socket	No. of positions	Pin	Socket
	IP67 panel mounting frame											
	VS-09-A	1688366		9	1688816	1688829	9	1652651	1688722	2PK	1688418	1688421
	VS-15-A	1688036		15	1688890	1688900	15	1652677	1652664	3PK	1688201	1688214
	VS-25-A	1689750		25	1689912	1689925	25	1652693	1652680	5PK	1689970	1689983
	VS-25-A	1689750										
	IP20 sleeve housing											
	VS-09-T-20-1-S-A	1655661		9	-	-	9	-	-	2PK	-	-
	VS-15-T-20-1-S-A	1655687		15	-	-	15	-	-	3PK	-	-
	VS-25-T-20-1-S-A	1655700		25	-	-	25	-	-	5PK	-	-
	VS-25-T-20-1-S-A	1655700										
	VS-09-T-20-1-S-S	1655658		9	-	-	9	-	-	2PK	-	-
	VS-15-T-20-1-S-S	1655674		15	-	-	15	-	-	3PK	-	-
	VS-25-T-20-1-S-S	1655690		25	-	-	25	-	-	5PK	-	-
	VS-25-T-20-1-S-S	1655690										
	IP67 sleeve housing											
	VS-09-T-2M16	1688353		9	-	-	9	-	-	2PK	1688418	1688421
	VS-15-T-2PG11	1688052		15	-	-	15	-	-	3PK	1688201	1688214
	VS-25-T-2M20	1689792		25	-	-	25	-	-	5PK	1689970	1689983
	VS-25-T-2M20	1689792										
	VS-09-SET-STD	1689145	Panel mounting frame	9	1688816	1688829	9	1652651	1688722	2PK	1688418	1688421
			Sleeve housing	9	-	-	9	-	-	2PK	1688418	1688421
	VS-15-SET-STD	1689129	Panel mounting frame	15	1688890	1688900	15	1652677	1652664	3PK	1688201	1688214
			Sleeve housing	15	-	-	15	-	-	3PK	1688201	1688214
	VS-25-SET-STD	1652198	Panel mounting frame	25	1689912	1689925	25	1652693	1652680	5PK	1689970	1689983
			Sleeve housing	25	-	-	25	-	-	5PK	1689970	1689983
	VS-25-SET-STD	1652198	Panel mounting frame									
			Sleeve housing									
	VS-09-SET-EMV	1689158	Panel mounting frame	9	1688816	1688829	9	1652651	1688722	2PK	1688418	1688421
			Sleeve housing	9	-	-	9	-	-	2PK	-	-
	VS-15-SET-EMV	1689132	Panel mounting frame	15	1688890	1688900	15	1652677	1652664	3PK	1688201	1688214
			Sleeve housing	15	-	-	15	-	-	3PK	-	-
	VS-25-SET-EMV	1652208	Panel mounting frame	25	1689912	1689925	25	1652693	1652680	5PK	1689970	1689983
			Sleeve housing	25	-	-	25	-	-	5PK	-	-
	VS-25-SET-EMV	1652208	Panel mounting frame									
			Sleeve housing									

Note:
The EMC inner sleeve of the IP67 sleeve housing cannot be used on the panel mounting side.

Note:
When installing the gender changer in the front plate of the VARIOSUB service interface, VS-SI-SCREW-GC screws (1656961) should be used.

Power and signal transmission									Power				
Angled solder pins						Angled solder pins			Angled solder pins			Screw connection	
No. of positions 2PK/3PK/5PK			No. of positions 1PK-4S/2PK-5S/4PK-5S/3PK-10S						No. of positions 3/5				
VS-...-ST-DSUB-...P-LH VS-...-BU-DSUB-...P-LH			VS-...-ST-DSUB-...P-...S VS-...-BU-DSUB-...P-...S			VS-...-ST-DSUB-...P-...S-LH VS-...-BU-DSUB-...P-...S-LH			VS-PSC 1,5/...-M PE VS-PSC 1,5/...-M			PSC 1,5/...-F	
D-SUB contact carrier Fixing: 4-40 UNC thread and solder pins			D-SUB contact insert Fixing: 3 mm hole			D-SUB contact insert Fixing: 4-40 UNC thread and solder pins			D-SUB contact insert Fixing: M3 thread and solder pins			D-SUB contact insert Fixing: 3 mm hole	
No. of positions	Pin	Socket	No. of positions	Pin	Socket	No. of positions	Pin	Socket	No. of positions	Pin	Pin with PE	No. of positions	Socket
2PK	1655292	1655289	1PK-4S	1689006	1689019	1PK-4S	1655315	1655302	3	1689310	1689336	3	-
3PK	1655331	1655328	2PK-5S	1688227	1688230	2PK-5S	1655360	1655344	5	1688825	1689323	5	-
5PK	1655441	1655438	3PK-10S	1689996	1690008	3PK-10S	1655425	1655412					
			4PK-5S	1655386	1655373	4PK-5S	1655409	1655399					
2PK	-	-	1PK - 4S	-	-	1PK - 4S	-	-	3	-	-	3	1841909
3PK	-	-	2PK - 5S	-	-	2PK - 5S	-	-	5	-	-	5	1841912
5PK	-	-	3PK - 10S	-	-	3PK - 10S	-	-					
			4PK - 5S	-	-	4PK - 5S	-	-					
2PK	-	-	1PK - 4S	-	-	1PK - 4S	-	-	3	-	-	3	1841909
3PK	-	-	2PK - 5S	-	-	2PK - 5S	-	-	5	-	-	5	1841912
5PK	-	-	3PK - 10S	-	-	3PK - 10S	-	-					
			4PK - 5S	-	-	4PK - 5S	-	-					
2PK	-	-	1PK - 4S	1689006	1689019	1PK - 4S	-	-	3	-	-	3	1841909
3PK	-	-	2PK - 5S	1688227	1688230	2PK - 5S	-	-	5	-	-	5	1841912
5PK	-	-	3PK - 10S	1689996	1690008	3PK - 10S	-	-					
			4PK - 5S	1655386	1655373	4PK - 5S	-	-					
2PK	1655292	1655289	1PK - 4S	1689006	1689019	1PK - 4S	1655315	1655302	3	1689310	1689336	3	-
2PK	-	-	1PK - 4S	1689006	1689019	1PK - 4S	-	-	3	-	-	3	1841909
3PK	1655331	1655328	2PK - 5S	1688227	1688230	2PK - 5S	1655360	1655344	5	1688825	1689323	5	-
3PK		-	2PK - 5S	1688227	1688230	2PK - 5S	-	-	5	-	-	5	1841912
5PK	1655441	1655438	3PK - 10S	1689996	1690008	3PK - 10S	1655425	1655412					
5PK	-	-	3PK - 10S	1689996	1690008	3PK - 10S	-	-					
			4PK - 5S	1655386	1655373	4PK - 5S	1655409	1655399					
			4PK - 5S	1655386	1655373	4PK - 5S	-	-					
2PK	1655292	1655289	1PK - 4S	1689006	1689019	1PK - 4S	1655315	1655302	3	1689310	1689336	3	-
2PK	-	-	1PK - 4S	-	-	1PK - 4S	-	-	3	-	-	3	1841909
3PK	1655331	1655328	2PK - 5S	1688227	1688230	2PK - 5S	1655360	1655344	5	1688825	1689323	5	-
3PK		-	2PK - 5S	-	-	2PK - 5S	-	-	5	-	-	5	1841912
5PK	1655441	1655438	3PK - 10S	1689996	1690008	3PK - 10S	1655425	1655412					
5PK	-	-	3PK - 10S	-	-	3PK - 10S	-	-					
			4PK - 5S	1655386	1655373	4PK - 5S	1655409	1655399					
			4PK - 5S	-	-	4PK - 5S	-	-					

Contact inserts

Screw connection
Fixing: 2.5 mm hole

Straight solder cups
Fixing: 3 mm hole

	Technical data	Technical data	
	VS-...-MPT-0,5	VS-...EG	VS-...-HD-EG
Electrical data			
Rated voltage	60 V	125 V	60 V
Rated current	5 A	5 A	3 A
Surge voltage category	III	III	III
Material data			
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			
Pollution degree	2	2	2
Conductor cross section	0.14 mm² ... 0.5 mm²	0.5 mm²	0.34 mm²
Connection cross section AWG	26 ... 20	20	22
Insertion/withdrawal cycles	≥ 200	≥ 200	≥ 200
Connection method	Screw connection	Solder cup	Solder cup
Temperature data			
Ambient temperature (operation)	-20 °C ... 80 °C	-55 °C ... 125 °C	-55 °C ... 125 °C

			Ordering data			Ordering data		
Description	Design	No. of pos.	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
D-SUB contact insert								
Plug	09	9	**VS-09-ST-DSUB/10-MPT-0,5**	**1688379**	10			
Socket	09	9	**VS-09-BU-DSUB/9-MPT-0,5**	**1688395**	10			
Plug	15	15	**VS-15-ST-DSUB/16-MPT-0,5**	**1688078**	10			
Socket	15	15	**VS-15-BU-DSUB/16-MPT-0,5**	**1688094**	10			
Plug	25	25	**VS-25-ST-DSUB/25-MPT-0,5**	**1689789**	10			
Socket	25	25	**VS-25-BU-DSUB/25-MPT-0,5**	**1689776**	10			
D-SUB contact insert								
Plug	09	9				**VS-09-ST-DSUB-EG**	**1688793**	10
Socket	09	9				**VS-09-BU-DSUB-EG**	**1688803**	10
Plug	15	15				**VS-15-ST-DSUB-EG**	**1688874**	10
Socket	15	15				**VS-15-BU-DSUB-EG**	**1688887**	10
Plug	25	25				**VS-25-ST-DSUB-EG**	**1689899**	10
Socket	25	25				**VS-25-BU-DSUB-EG**	**1689909**	10
D-SUB contact insert, high density								
Plug	09	15				**VS-09-ST-DSUB-HD-EG**	**1655111**	10
Socket	09	15				**VS-09-BU-DSUB-HD-EG**	**1655108**	10
Plug	15	26				**VS-15-ST-DSUB-HD-EG**	**1655179**	10
Socket	15	26				**VS-15-BU-DSUB-HD-EG**	**1655166**	10
Plug	25	44				**VS-25-ST-DSUB-HD-EG**	**1655234**	10
Socket	25	44				**VS-25-BU-DSUB-HD-EG**	**1655221**	10
D-SUB contact insert								
Plug	09	9						
Socket	09	9						
Plug	15	15						
Socket	15	15						
Plug	25	25						
Socket	25	25						

Angled solder pins
Fixing: 4-40 UNC threads
and solder pins

Angled solder pins
Fixing: 2.5 mm bore hole
and solder metal plate

Technical data	
VS-...-ER	VS-...-HD-ER
125 V	60 V
5 A	3 A
III	III
Copper alloy	Copper alloy
Hard gold-plated over nickel	Hard gold-plated over nickel
Polyester GF	Polyester GF
V0	V0
2	2
-	-
-	-
≥ 200	≥ 200
Solder connection	Solder connection
-55 °C ... 125 °C	-55 °C ... 125 °C

Technical data
VS-...-LH-...
125 V
5 A
III
Copper alloy
Gold over nickel
PBT-GF
V0
2
-
-
≥ 200
Solder connection
-55 °C ... 125 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-ST-DSUB-ER	**1688382**	10
VS-09-BU-DSUB-ER	**1688405**	10
VS-15-ST-DSUB-ER	**1688081**	10
VS-15-BU-DSUB-ER	**1688120**	10
VS-25-ST-DSUB-ER	**1689873**	10
VS-25-BU-DSUB-ER	**1689886**	10
VS-09-ST-DSUB-HD-ER	**1655098**	10
VS-09-BU-DSUB-HD-ER	**1656136**	10
VS-15-ST-DSUB-HD-ER	**1655153**	10
VS-15-BU-DSUB-HD-ER	**1655140**	10
VS-25-ST-DSUB-HD-ER	**1655218**	10
VS-25-BU-DSUB-HD-ER	**1655205**	10

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-ST-DSUB-LH-B	**1654785**	10
VS-09-BU-DSUB-LH-B	**1654798**	10
VS-15-ST-DSUB-LH-B	**1654808**	10
VS-15-BU-DSUB-LH-B	**1654811**	10
VS-25-ST-DSUB-LH-B	**1654824**	10
VS-25-BU-DSUB-LH-B	**1654837**	10

Contact carriers, inserts and gender changers

D-SUB crimp inserts, with thread

D-SUB crimp inserts, with bore hole

	Technical data	Technical data	
	VS-...-CD-...	VS-...-CD-B	VS-...-HD-CD-B
Electrical data			
Rated voltage	125 V	125 V	60 V
Rated current	5 A	5 A	3 A
Surge voltage category	III	III	III
Material data			
Contact material	-	-	-
Contact surface material	-	-	-
Contact carrier material	Polyester GF	Polyester GF	Polyester GF
Inflammability class according to UL 94	V0	V0	V0
Mechanical data			
Pollution degree	2	2	2
Insertion/withdrawal cycles	≥ 500	≥ 500	≥ 500
Connection method	Crimp connection	Crimp connection	Crimp connection
Temperature data			
Ambient temperature (operation)	-55 °C ... 125 °C	-55 °C ... 125 °C	-55 °C ... 125 °C

Description	Design	No. of pos.	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
D-SUB contact support								
Plug	09	9	**VS-09-ST-DSUB-CD-G**	**1688832**	10	**VS-09-ST-DSUB-CD-B**	**1688858**	10
Socket	09	9	**VS-09-BU-DSUB-CD-G**	**1688845**	10	**VS-09-BU-DSUB-CD-B**	**1688861**	10
Plug	15	15	**VS-15-ST-DSUB-CD-MG**	**1688913**	10	**VS-15-ST-DSUB-CD-OG**	**1688939**	10
Socket	15	15	**VS-15-BU-DSUB-CD-MG**	**1688926**	10	**VS-15-BU-DSUB-CD-OG**	**1688942**	10
Plug	25	25	**VS-25-ST-DSUB-CD-G**	**1689938**	10	**VS-25-ST-DSUB-CD-B**	**1689954**	10
Socket	25	25	**VS-25-BU-DSUB-CD-G**	**1689941**	10	**VS-25-BU-DSUB-CD-B**	**1689967**	10
D-SUB contact carrier, high density								
Plug	09	15				**VS-09-ST-DSUB-HD-CD-B**	**1655137**	10
Socket	09	15				**VS-09-BU-DSUB-HD-CD-B**	**1655124**	10
Plug	15	26				**VS-15-ST-DSUB-HD-CD-B**	**1655195**	10
Socket	15	26				**VS-15-BU-DSUB-HD-CD-B**	**1655182**	10
Plug	25	44				**VS-25-ST-DSUB-HD-CD-B**	**1655250**	10
Socket	25	44				**VS-25-BU-DSUB-HD-CD-B**	**1655247**	10
D-SUB contact insert								
Plug	09	9						
Socket	09	9						
Plug	15	15						
Socket	15	15						
Plug	25	25						
Socket	25	25						
D-SUB gender changer								
Plug/plug	D-SUB 9	9						
Socket / Socket	D-SUB 9	9						
Plug/plug	D-SUB 15	15						
Socket / Socket	D-SUB 15	15						
Plug/plug	D-SUB 25	25						
Socket / Socket	D-SUB 25	25						

	Accessories	Accessories
Crimp contacts	See page 216	See page 216
Crimp contact, high-pos.		See page 216

D-SUB
with flat-ribbon cable connection

Gender changer

Technical data	
VS-...-FK	
125 V	
5 A	
III	
Copper alloy	
Hard gold-plated over nickel	
Polyester GF	
V0	
2	
≥ 200	
Flat-ribbon cable connection	
-55 °C ... 125 °C	

Ordering data		
Type	**Order No.**	Pcs. / Pkt.
VS-09-ST-DSUB-FK	**1688816**	10
VS-09-BU-DSUB-FK	**1688829**	10
VS-15-ST-DSUB-FK	**1688890**	10
VS-15-BU-DSUB-FK	**1688900**	10
VS-25-ST-DSUB-FK	**1689912**	10
VS-25-BU-DSUB-FK	**1689925**	10

Accessories

Technical data	
VS-...-GC-...	
125 V	
5 A	
III	
Copper alloy	
Hard gold-plated over nickel	
Polyester GF	
V0	
2	
≥ 200	
Gender changer	
-55 °C ... 125 °C	

Ordering data		
Type	**Order No.**	Pcs. / Pkt.
VS-09-GC-ST/ST	**1652651**	10
VS-09-GC-BU/BU	**1688722**	10
VS-15-GC-ST/ST	**1652677**	10
VS-15-GC-BU/BU	**1652664**	10
VS-25-GC-ST/ST	**1652693**	10
VS-25-GC-BU/BU	**1652680**	10

Accessories

Combination contact carriers and inserts

For power contacts, fixing: 3 mm hole

For power contacts, fixing: 4-40 UNC threads and solder pins

	Technical data	Technical data
	VS-...-DSUB-..P	VS-...-DSUB-...P-LH
Electrical data		
Rated voltage	-	-
Rated current	-	-
Surge voltage category	-	-
Material data		
Contact material	-	-
Contact surface material	Gold over nickel	Gold over nickel
Contact carrier material	PBTP	PBTP
Inflammability class according to UL 94	V0	V0
Mechanical data		
Pollution degree	-	-
Insertion/withdrawal cycles	≥ 500	≥ 500
Connection method	Accommodation of combined contact	Accommodation of combined contact
Temperature data		
Ambient temperature (operation)	-55 °C ... 125 °C	-55 °C ... 125 °C

			Ordering data			Ordering data		
Description	Design	No. of pos.	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
D-SUB contact support								
Plug	09	2 PK	**VS-09-ST-DSUB-2P**	**1688418**	10	**VS-09-ST-DSUB-2P-LH**	**1655292**	10
Socket	09	2 PK	**VS-09-BU-DSUB-2P**	**1688421**	10	**VS-09-BU-DSUB-2P-LH**	**1655289**	10
Plug	15	3 PK	**VS-15-ST-DSUB-3P**	**1688201**	10	**VS-15-ST-DSUB-3P-LH**	**1655331**	10
Socket	15	3 PK	**VS-15-BU-DSUB-3P**	**1688214**	10	**VS-15-BU-DSUB-3P-LH**	**1655328**	10
Plug	D-SUB 25	5 PK	**VS-25-ST-DSUB-5P**	**1689970**	10	**VS-25-ST-DSUB-5P-LH**	**1655441**	10
Socket	D-SUB 25	5 PK	**VS-25-BU-DSUB-5P**	**1689983**	10	**VS-25-BU-DSUB-5P-LH**	**1655438**	10
D-SUB contact insert								
Plug	09	1 PK 4 S						
Socket	09	1 PK 4 S						
Plug	15	2 PK 5 S						
Socket	15	2 PK 5 S						
Plug	25	3 PK 10 S						
Socket	25	3 PK 10 S						
Plug	25	4 PK 5 S						
Socket	25	4 PK 5 S						
D-SUB contact insert								
Plug	09	3						
Pin with capacitive PE	09	3						
Socket	09	3						
Plug	15	5						
Pin with capacitive PE	15	5						
Socket	15	5						

	Accessories	Accessories
Power contacts	See page 217	See page 217

**For power contacts,
with signal contacts (solder cups),
fixing: 3 mm hole**

**For power contacts,
with signal contacts (angled solder pins),
fixing: 4-40 UNC threads**

**Socket insert
with angled solder connection,
pin insert with screw connection**

Technical data

VS-...-DSUB-...P-...S	
250 V	
5 A	
III	
Copper alloy	
Gold over nickel	
PBTP	
V0	
2	
≥ 200	
Solder cup	
-55 °C ... 125 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-ST-DSUB-1P-4S	**1689006**	10
VS-09-BU-DSUB-1P-4S	**1689019**	10
VS-15-ST-DSUB-2P-5S	**1688227**	10
VS-15-BU-DSUB-2P-5S	**1688230**	10
VS-25-ST-DSUB-3P-10S	**1689996**	10
VS-25-BU-DSUB-3P-10S	**1690008**	10
VS-25-ST-DSUB-4P-5S	**1655386**	10
VS-25-BU-DSUB-4P-5S	**1655373**	10

Accessories

See page 217

Technical data

VS-...-DSUB-...P-...S-LH	
250 V	
5 A	
III	
Copper alloy	
Gold over nickel	
PBTP	
V0	
2	
≥ 200	
Solder connection	
-55 °C ... 125 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-ST-DSUB-1P-4S-LH	**1655315**	10
VS-09-BU-DSUB-1P-4S-LH	**1655302**	10
VS-15-ST-DSUB-2P-5S-LH	**1655360**	10
VS-15-BU-DSUB-2P-5S-LH	**1655344**	10
VS-25-ST-DSUB-3P-10S-LH	**1655425**	10
VS-25-BU-DSUB-3P-10S-LH	**1655412**	10
VS-25-ST-DSUB-4P-5S-LH	**1655409**	10
VS-25-BU-DSUB-4P-5S-LH	**1655399**	10

Accessories

See page 217

Technical data

VS-PSC 1,5/3-M	
250 V	
8 A	
III	
Copper alloy	
Tin-plated	
PA	
V0	
3	
≥ 100	
PCB connection	
-20 °C ... 80 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-PSC 1,5/3-M	**1689310**	10
VS-PSC 1,5/3-M PE	**1689336**	10
PSC 1,5/ 3-F	**1841909**	50
VS-PSC 1,5/5-M	**1688825**	10
VS-PSC 1,5/5-M PE	**1689323**	10
PSC 1,5/ 5-F	**1841912**	50

Accessories

Signal contacts

Contacts
for standard D-SUB contact carriers

Contacts
for high-density D-SUB contact carriers

	Technical data		Technical data
	AWG 28 … 24	AWG 24 … 20	VS-...-CD-HD-1,0/13,5/0,37
Electrical data			
Rated voltage	125 V	125 V	60 V
Rated current	5 A	5 A	3 A
Contact material	Copper alloy	Copper alloy	Copper alloy
Contact surface material	Hard gold-plated over nickel	Hard gold-plated over nickel	Hard gold-plated over nickel
Mechanical data			
Connection method	Crimp connection	Crimp connection	Crimp connection
Conductor cross section	0.08 mm² ... 0.2 mm²	0.2 mm² ... 0.5 mm²	0.34 mm²
Connection cross section AWG	28 ... 24	24 ... 20	22
Insertion/withdrawal cycles	≥ 200	≥ 200	≥ 200
Temperature data			
Ambient temperature (operation)	-55 °C ... 125 °C	-55 °C ... 125 °C	-55 °C ... 125 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Turned pin crimp contacts, for D-SUB contact inserts with standard contact density, gold-plated surface						
AWG 28 ... 24	**VS-ST-CD-1,0/14,8/0,2**	**1688971**	30			
AWG 24 ... 20	**VS-ST-CD-1,0/14,8/0,5**	**1688968**	30			
Turned crimp contacts VS 1,0 Gold-plated	**VS-BU-CD-1,0/14,4/0,2**	**1688997**	30			
	VS-BU-CD-1,0/14,4/0,5	**1688984**	30			
Turned crimp contacts, for D-SUB contact inserts with high density, gold-plated surface						
AWG 22, plug				**VS-ST-CD-HD-1,0/13,5/0,37**	**1655276**	100
AWG 22, socket				**VS-BU-CD-HD-1,0/13,5/0,37**	**1655263**	100

	Accessories			Accessories		
Crimping pliers - For rolled D-SUB contacts, high-density, 0.08 mm² - 0.5 mm², incl. contact locator	**CRIMPFOX-DSUB 5**	**1212111**	1	**CRIMPFOX-DSUB 5**	**1212111**	1
Insertion/extraction tool, for fitting and removing D-SUB **standard** signal contacts	**VS-IET-DSUB-SIGNAL-STD**	**1658794**	1			
Insertion/extraction tool, for fitting and removing D-SUB **high-density** signal contacts				**VS-IET-DSUB-SIGNAL-HD**	**1658503**	1

Power contacts

With straight solder cups or angled solder pins

With screw connection

	Technical data		Technical data
	VS.../2,6	VS-.../4,6	VS-...SC-2,6
Electrical data			
Rated voltage	-	-	-
Rated current	20 A	40 A	40 A
Material data			
Contact material	Copper alloy	Copper alloy	Copper alloy
Contact surface material	Hard gold-plated over nickel	Hard gold-plated over nickel	Hard gold-plated over nickel
Mechanical data			
Connection method	Solder cup	Solder cup	Screw connection
Conductor cross section	2 mm^2 ... 3.5 mm^2	4.5 mm^2 ... 8.5 mm^2	0.75 mm^2 ... 2 mm^2
Connection cross section AWG	14 ... 12	10 ... 8	18 ... 14
Insertion/withdrawal cycles	≥ 500	≥ 500	≥ 500
Temperature data			
Ambient temperature (operation)	-55 °C ... 155 °C	-55 °C ... 155 °C	-55 °C ... 155 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Power contact, for D-SUB combination inserts, with straight solder cup, gold-plated surface						
Up to 20 A, plug	**VS-ST-LK-3,6/22,4/2,6**	**1688243**	30			
Up to 40 A, plug	**VS-ST-LK-3,6/22,4/4,6**	**1688269**	30			
Up to 20 A, socket	**VS-BU-LK-3,6/22,8/2,6**	**1688256**	30			
Up to 40 A, socket	**VS-BU-LK-3,6/22,8/4,6**	**1688272**	30			
Power contact, for D-SUB combination inserts, with angled solder pins for PCB mounting, gold-plated surface						
Up to 40 A, plug	**VS-ST-LH-3,6/18/3,8**	**1655467**	30			
Up to 40 A, socket	**VS-BU-LH-3,6/18/3,8**	**1655454**	30			
Power contact, for D-SUB combination inserts, with straight screw connection, gold-plated surface						
Up to 40 A, plug				**VS-ST-SC-2,6**	**1655483**	30
Up to 40 A, socket				**VS-BU-SC-2,6**	**1655470**	30

	Accessories			Accessories		
Removal tool	**HC-M4-KOAX-EWZ**	**1676747**	1	**HC-M4-KOAX-EWZ**	**1676747**	1

Assembled cables and housing with IP20 and IP67 protection

Assembled D-SUB cable, IP20, plug to socket

D-SUB sleeve housing, IP20, with 4-40 UNC knurl screws

	Technical data	Technical data
	VS-...-DSUB-20-LI...	VS-...-T-20-1-S...
Electrical data		
Rated voltage	125 V	-
Rated current	1 A	-
Material data		
Housing material	PVC	ABS
Housing surface material	-	Metal-plated
Contact material	Copper alloy	-
Contact surface material	Gold-plated	-
Inflammability class according to UL 94	-	V0
Mechanical data		
Color	-	Bare metallic
Degree of protection	IP20	IP20
External cable diameter	-	4 mm ... 8.5 mm
Insertion/withdrawal cycles	≥ 50	-
Temperature data		
Ambient temperature (operation)	0 °C ... 70 °C	0 °C ... 70 °C

		Ordering data			Ordering data		
Description	Cable length	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Assembled D-SUB cable, shielded, stranded (7-wire), plug to socket							
D-SUB 09	1 m	**VS-09-DSUB-20-LI-1,0**	**1656233**	1			
D-SUB 09	2 m	**VS-09-DSUB-20-LI-2,0**	**1656246**	1			
D-SUB 09	5 m	**VS-09-DSUB-20-LI-5,0**	**1656259**	1			
D-SUB 15	1 m	**VS-15-DSUB-20-LI-1,0**	**1656262**	1			
D-SUB 15	2 m	**VS-15-DSUB-20-LI-2,0**	**1656275**	1			
D-SUB 15	5 m	**VS-15-DSUB-20-LI-5,0**	**1656288**	1			
D-SUB 25	1 m	**VS-25-DSUB-20-LI-1,0**	**1656291**	1			
D-SUB 25	2 m	**VS-25-DSUB-20-LI-2,0**	**1656301**	1			
D-SUB 25	5 m	**VS-25-DSUB-20-LI-5,0**	**1656314**	1			
D-SUB sleeve housing, shielded							
D-SUB 09, straight design					**VS-09-T-20-1-S-S**	**1655658**	1
D-SUB 09, angled design					**VS-09-T-20-1-S-A**	**1655661**	1
D-SUB 15, straight design					**VS-15-T-20-1-S-S**	**1655674**	1
D-SUB 15, angled design					**VS-15-T-20-1-S-A**	**1655687**	1
D-SUB 25, straight design					**VS-25-T-20-1-S-S**	**1655690**	1
D-SUB 25, angled design					**VS-25-T-20-1-S-A**	**1655700**	1
D-SUB sleeve housing							
D-SUB 09, M16 design							
D-SUB 15, Pg11 design							
D-SUB 25, M20 design							
D-SUB cap nut with line seal, for sleeve housing VARIOSUB IP67, design / line Ø:							
M16 / 3 mm ... 6 mm							
M16 / 5 mm ... 9 mm							
Pg11 / 3 mm ... 7 mm							
Pg11 / 5 mm ... 10 mm							
M20 / 5 mm ... 13 mm							
EMC inner sleeve, for shielding for sleeve housing VARIOSUB IP67							
For D-SUB 09 sleeve housing							
For D-SUB 15 sleeve housing							
For D-SUB 25 sleeve housing							
D-SUB protective cover, IP54 protection, for panel mounting frame and sleeve housing VARIOSUB IP67							
D-SUB 09							
D-SUB 15							
D-SUB 25							

IP67 D-SUB sleeve housing and IP54 protective cover

Accessories for IP67 D-SUB sleeve housing

Technical data	
VS-09-T-2M16	VS-...-SD
-	-
-	-
PA	PA
-	-
-	-
-	-
V0	V0
gray	gray
IP67	IP54
3 mm ... 9 mm	-
≥ 1000	≥ 1000
-40 °C ... 80 °C	-40 °C ... 80 °C

Technical data	
VS-M16(3-6)	VS-...TI-...EMV
-	-
-	-
PA	Nickel silver
-	-
-	-
-	-
V0	-
gray	Bare metallic
IP67	-
3 mm ... 6 mm	-
-	-
-40 °C ... 80 °C	-40 °C ... 80 °C

Ordering data		
Type	**Order No.**	Pcs. / Pkt.
VS-09-T-2M16	**1688353**	5
VS-15-T-2PG11	**1688052**	5
VS-25-T-2M20	**1689792**	5
VS-09-SD	**1887086**	5
VS-15-SD	**1887099**	5
VS-25-SD	**1652211**	5

Ordering data		
Type	**Order No.**	Pcs. / Pkt.
VS-M16 (3-6)	**1688450**	5
VS-M16 (5-9)	**1688447**	5
VS-PG11 (3- 7)	**1688117**	5
VS-PG11 (5-10)	**1688104**	5
VS-M20 (5-13)	**1652127**	5
VS-09-TI-2EMV	**1688476**	5
VS-15-TI-2EMV	**1688065**	5
VS-25-TI-2 EMV	**1689802**	5

IP67 housing sets, gender changer, and IP67 couplings

IP67 D-SUB panel mounting frame and EMC shroud

IP67 D-SUB connector set consisting of: sleeve housing, panel mounting frame, and accessories

	Technical data	Technical data
	VS-...A...	VS-09-SET-STD
Electrical data		
Rated voltage	-	-
Rated current	-	-
Material data		
Housing material	PA	PA
Contact material	-	-
Contact surface material	-	-
Seal material	Flat gasket: NBR; profile gasket: EPDM	Flat gasket: NBR; profile gasket: EPDM
Inflammability class according to UL 94	V0	V0
Mechanical data		
Color	gray	gray
Degree of protection	IP67	IP67
External cable diameter	-	3 mm ... 9 mm
Temperature data		
Ambient temperature (operation)	-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 panel mounting frame, for accommodating D-SUB contact inserts						
D-SUB 09	**VS-09-A**	**1688366**	5			
D-SUB 15	**VS-15-A**	**1688036**	5			
D-SUB 25	**VS-25-A**	**1689750**	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 15	**VS-15-A-EMV-S**	**1688049**	5			
D-SUB 25	**VS-25-A-EMV-S**	**1689763**	5			
D-SUB connector set						
D-SUB 09				**VS-09-SET-STD**	**1689145**	1
D-SUB 15				**VS-15-SET-STD**	**1689129**	1
D-SUB 25				**VS-25-SET-STD**	**1652198**	1
D-SUB panel mounting frame, with integrated gender changer, shielded						
D-SUB 09, pin/pin						
D-SUB 09, socket/socket						
D-SUB 15, pin/pin						
D-SUB 15, socket/socket						
D-SUB 25, pin/pin						
D-SUB 25, socket/socket						
D-SUB coupling, with integrated gender changer, shielded						
D-SUB 09, pin/pin						
D-SUB 09, socket/socket						
D-SUB 15, pin/pin						
D-SUB 15, socket/socket						
D-SUB 25, pin/pin						
D-SUB 25, socket/socket						

	Accessories			Accessories		
D-SUB protective cover, IP54 protection, for panel mounting frame and sleeve housing VARIOSUB IP67						
D-SUB 09	**VS-09-SD**	**1887086**	5	**VS-09-SD**	**1887086**	5
D-SUB 15	**VS-15-SD**	**1887099**	5	**VS-15-SD**	**1887099**	5
D-SUB 25	**VS-25-SD**	**1652211**	5	**VS-25-SD**	**1652211**	5

IP67 D-SUB connector set consisting of: sleeve housing, panel mounting frame, and accessories, shielded design

IP67 D-SUB panel mounting frame with integrated gender changer

IP67 D-SUB coupling with integrated gender changer

Technical data

VS-09-SET-EMV	
-	
-	
PA	
-	
-	
Flat gasket: NBR; profile gasket: EPDM	
V0	
gray	
IP67	
3 mm ... 9 mm	
-40 °C ... 80 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-SET-EMV	**1689158**	1
VS-15-SET-EMV	**1689132**	1
VS-25-SET-EMV	**1652208**	1

Accessories

VS-09-SD	**1887086**	5
VS-15-SD	**1887099**	5
VS-25-SD	**1652211**	5

Technical data

VS-...-A-GC-...	
125 V	
5 A	
PA	
Copper alloy	
Hard gold-plated over nickel	
Flat gasket: NBR; profile gasket: EPDM	
V0	
gray	
IP67	
-	
-40 °C ... 80 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-A-GC-ST/ST	**1689705**	5
VS-09-A-GC-BU/BU	**1689695**	5
VS-15-A-GC-ST/ST	**1689721**	5
VS-15-A-GC-BU/BU	**1689718**	5
VS-25-A-GC-ST/ST	**1689747**	5
VS-25-A-GC-BU/BU	**1689734**	5

Accessories

VS-09-SD	**1887086**	5
VS-15-SD	**1887099**	5
VS-25-SD	**1652211**	5

Technical data

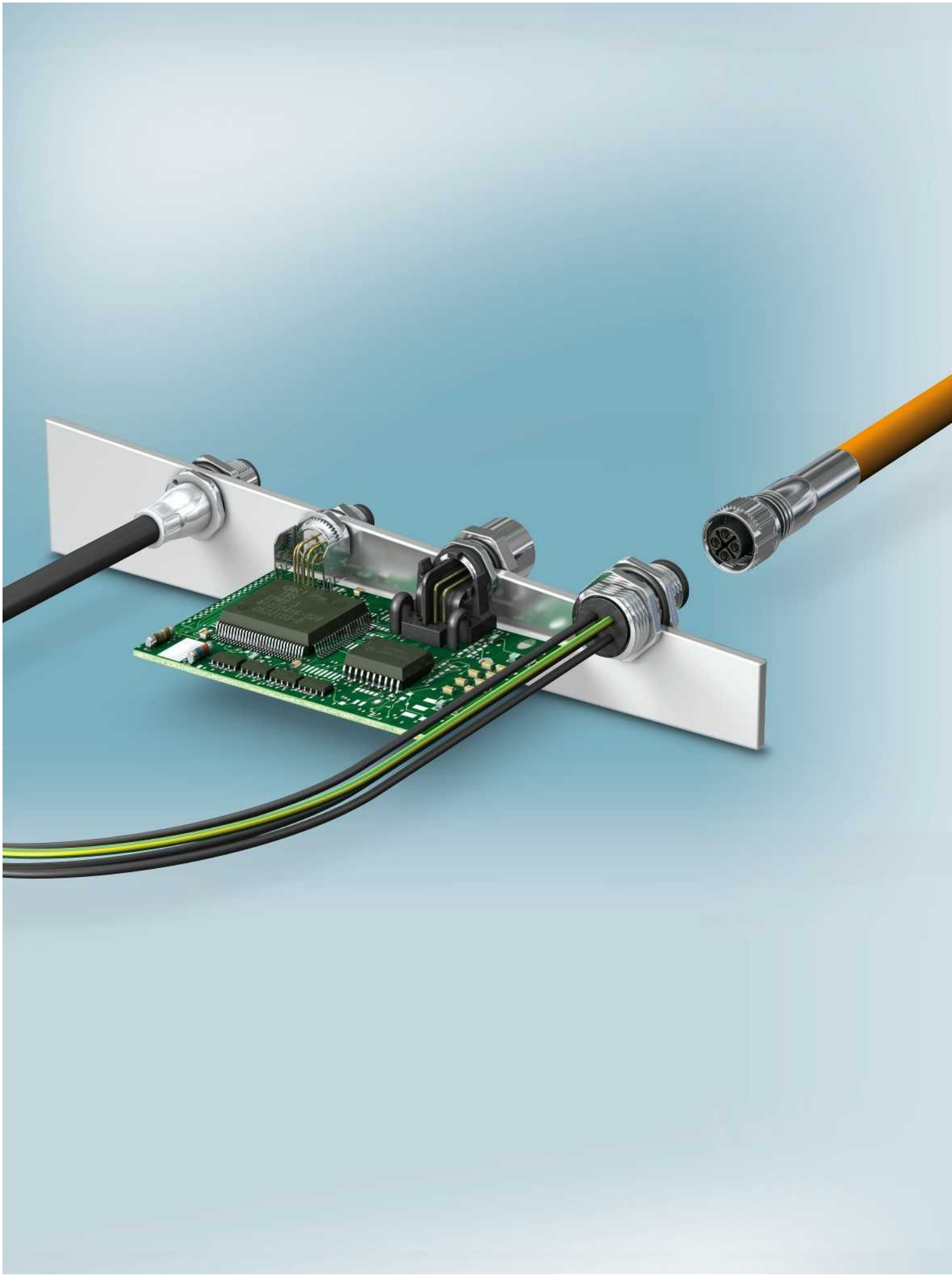
VS-...-KU-...	
125 V	
5 A	
PA	
Copper alloy	
Hard gold-plated over nickel	
EPDM	
V0	
gray	
IP67	
-	
-40 °C ... 80 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-KU-ST/ST	**1689640**	5
VS-09-KU-BU/BU	**1689637**	5
VS-15-KU-ST/ST	**1689666**	5
VS-15-KU-BU/BU	**1689653**	5
VS-25-KU-ST/ST	**1689682**	5
VS-25-KU-BU/BU	**1689679**	5

Accessories

VS-09-SD	**1887086**	5
VS-15-SD	**1887099**	5
VS-25-SD	**1652211**	5



M5 to M12 circular plug-in connectors

Sensor/actuator device plug-in connectors

A comprehensive range of M5, M8, and M12 flush-type plug-in connectors and panel feed-throughs has emerged as a result of the various requirements for sensor/actuator device connection technology in industrial environments. Customer-specific developments enable optimum adaptation to individual device concepts.

Sensor/actuator plug-in connectors for assembly

Safe and efficient assembly is of utmost importance in field wiring. The 5 selection options of the connection technology enable precise adaptation to the respective application or requirements in the field. The plug-in connectors for assembly are available in various versions, unshielded and EMC-compliant.

Sensor/actuator device plug-in connectors

M5, front/rear mounting	**224**
M8, front mounting	**225**
M8, rear mounting	**226**
M12, front mounting	**232**
M12, rear mounting	**242**
M12, rear mounting, two-piece	**252**
M12, for fieldbus systems	**260**
M12, plastic	**263**
M12, control cabinet feed-throughs	**264**
M12, stainless steel	**268**
7/8", front mounting	**265**
7/8", rear mounting	**266**

Sensor/actuator plug-in connectors for assembly

M8 plug-in connectors	**272**
M12 plug-in connectors	**275**
7/8" plug-in connectors	**285**

M12 power plug-in connectors

Device plug-in connectors with litz wires	**286**
Two-piece device plug-in connectors for reflow processes	**288**
Plug-in connectors for assembly	**289**
SPEEDCON power cable	**290**

Accessories	**296**
Pin assignments	**298**

M5/M8 sensor/actuator device plug-in connectors

M5, front/rear mounting

Notes:

Flat nut recommended for housing wall thicknesses < 2.5 mm.

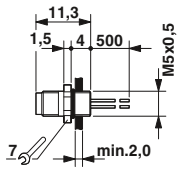
Front mounting, with 0.5 m long litz wires

Rear mounting, one-piece, straight, for wave soldering processes

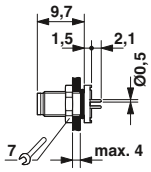
	Technical data		Technical data	
	3-pos.	**4-pos.**	**3-pos.**	**4-pos.**
General data				
M5 circular plug-in connector according to:	IEC 61076-2-105	IEC 61076-2-105	IEC 61076-2-105	IEC 61076-2-105
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	Individual wires	Individual wires	Solder pins	Solder pins
Electrical data				
Rated voltage	60 V	60 V	60 V	60 V
Rated current	1 A	1 A	1 A	1 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data				
Material contact / contact surface	CuSn / Au	CuSn / Au	CuSn / Au	CuSn / Au
Contact carrier material	PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94	HB	HB	HB	HB
Cable type	TPE litz wire	TPE litz wire	-	-
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 80	-25 ... 85

		Ordering data				Ordering data			
Description	Coding	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
		3-pos.		**4-pos.**		**3-pos.**		**4-pos.**	
Device plug-in connectors									
Socket	A - standard	**1530605**	1	**1530618**	1	**1530647**	20	**1530650**	20
Plug	A - standard	**1530582**	1	**1530595**	1	**1530621**	20	**1530634**	20

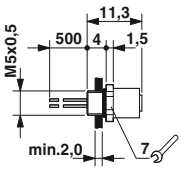
	Accessories			Accessories		
Flat nut, with: M5 thread	**SACC-E-MU-M 5**	**1535901**	100			



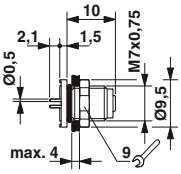
M5 flush-type plug



M5 flush-type plug, one-piece



M5 flush-type socket



M5 flush-type socket, one-piece

M8, front mounting, with 0.5 m long litz wires

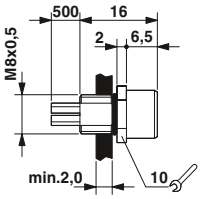
M8, 3, 4, 5-pos.

M8, 6, 8-pos.

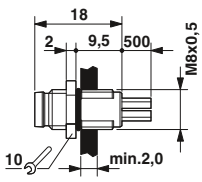
	Technical data			Technical data		
	3-pos.	4-pos.	5-pos.	6-pos.	8-pos.	
General data						
M8 circular plug-in connector according to:	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data						
Rated voltage	60 V	30 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	3 A	2 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	HB	HB	HB	HB	HB	-
Cable type	TPE litz wire	TPE litz wire	PVC litz wire	TPE litz wire	PVC litz wire	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		5-pos.		6-pos.		8-pos.			
Device plug-in connectors													
Socket	A - standard	**1500350**	1	**1500363**	1			**1542677**	1	**1424231**	1		
Plug	A - standard	**1500334**	1	**1500347**	1			**1542664**	1	**1424232**	1		
Socket	B - inverse					**1424233**	1						
Plug	B - inverse					**1424234**	1						

	Accessories			Accessories		
Flat nut, with: M8 thread	**SACC-E-MU-M 8**	**1504071**	100	**SACC-E-MU-M 8**	**1504071**	100



M8 flush-type socket



M8 flush-type plug

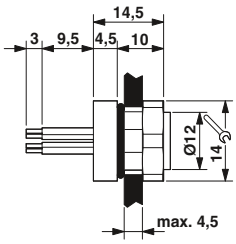
M8, rear mounting, one-piece, straight, for wave soldering processes

M8, 3, 4-pos.

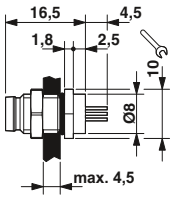
M8, 6, 8-pos.

	Technical data		Technical data	
	3-pos.	4-pos.	6-pos.	8-pos.
General data				
M8 circular plug-in connector according to:	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	Solder pins	Solder pins	Solder pins	Solder pins
Electrical data				
Rated voltage	60 V	30 V	30 V	30 V
Rated current	4 A	4 A	1.5 A	1.5 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data				
Material contact / contact surface	CuSn / Au	CuSn / Au	CuSn / Au	CuSn / Au
Contact carrier material	PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94	HB	HB	HB	HB
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		6-pos.		8-pos.	
Device plug-in connectors									
Socket	A - standard	**1694363**	20	**1694376**	20	**1436534**	20	**1424237**	20
Plug	A - standard	**1694334**	20	**1694347**	20	**1436521**	20	**1424238**	20



M8 flush-type socket



M8 flush-type plug

M8, rear mounting, with 0.5 m long litz wires

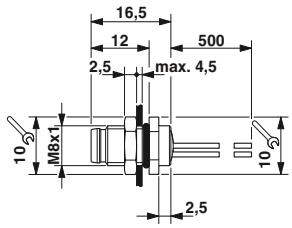
3, 4-pos.

6, 8-pos.

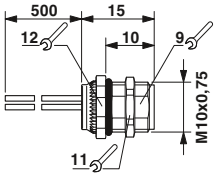
	Technical data		Technical data	
	3-pos.	4-pos.	6-pos.	8-pos.
General data				
M8 circular plug-in connector according to:	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	Individual wires	Individual wires	Individual wires	Individual wires
Electrical data				
Rated voltage	60 V	30 V	30 V	30 V
Rated current	4 A	4 A	2 A	1.5 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data				
Material contact / contact surface	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au
Contact carrier material	PUR / PA66	PUR / PA66	PUR / PA66	PUR / PA66
Inflammability class according to UL 94	HB	HB	HB	HB
Cable type	TPE litz wire	TPE litz wire	TPE litz wire	PVC litz wire
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85
Cable, fixed installation [°C]	-25 ... 90	-25 ... 90	-25 ... 90	-25 ... 85

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		6-pos.		8-pos.	
Flush-type plug-in connector, M8 fastening thread									
Plug	A - standard	**1453478**	1	**1453481**	1	**1453494**	1	**1424230**	1
Flush-type plug-in connector, M10 fastening thread									
Socket	A - standard	**1456080**	1	**1456093**	1	**1456103**	1	**1424229**	1
Flush-type plug-in connector, M12 fastening thread									
Socket	A - standard	**1453449**	1	**1453452**	1	**1453465**	1		

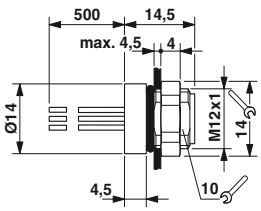
	Accessories			Accessories		
Flat nut, with: M8 thread	**SACC-E-MU-M 8**	**1504071**	100	**SACC-E-MU-M 8**	**1504071**	100



M8 flush-type plug, M8 fastening thread



M8 flush-type socket, M10 fastening thread



M8 flush-type socket, M12 fastening thread

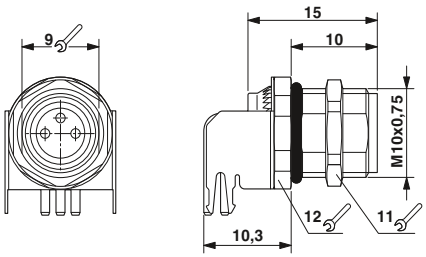
M8, rear mounting, two-piece, for wave soldering processes, shielded

Angled, 3, 4-pos.

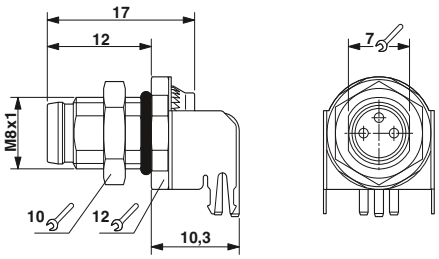
Angled, 5, 6-pos.

	Technical data		Technical data	
	3-pos.	4-pos.	5-pos.	6-pos.
General data				
M8 circular plug-in connector according to:	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	Solder pins	Solder pins	Solder pins	Solder pins
Electrical data				
Rated voltage	30 V	30 V	30 V	30 V
Rated current	4 A	4 A	3 A	1.5 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data				
Material contact / contact surface	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au
Contact carrier material	PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94	HB	HB	HB	HB
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		5-pos.		6-pos.	
Device plug-in connectors									
Socket	A - standard	**1456145**	20	**1456158**	20			**1424243**	20
Plug	A - standard	**1456035**	20	**1456048**	20			**1424244**	20
Socket	B - inverse					**1424239**	20		
Plug	B - inverse					**1424240**	20		



M8 flush-type socket, angled



M8 flush-type plug, angled

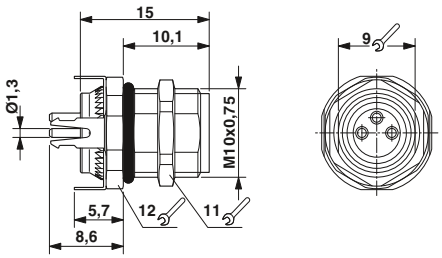
M8, rear mounting, two-piece, for wave soldering processes, shielded

Straight, 3, 4, 5-pos.

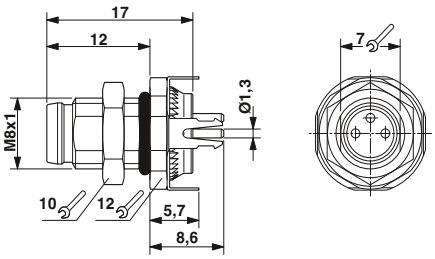
Straight, 6, 8-pos.

		Technical data			Technical data		
		3-pos.	4-pos.	5-pos.	6-pos.	8-pos.	
General data							
M8 circular plug-in connector according to:		IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data							
Rated voltage		60 V	30 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	3 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		HB	HB	HB	HB	HB	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		5-pos.		6-pos.		8-pos.			
Device plug-in connectors													
Socket	A - standard	**1456116**	20	**1456129**	20			**1456132**	20	**1424235**	20		
Plug	A - standard	**1455997**	20	**1456019**	20			**1456022**	20	**1424236**	20		
Socket	B - inverse					**1424241**	20						
Plug	B - inverse					**1424242**	20						



M8 flush-type socket, straight



M8 flush-type plug, straight,

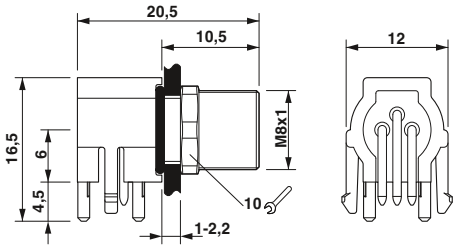
M8, rear mounting, two-piece, for wave soldering processes, unshielded

Angled, 3, 4-pos.

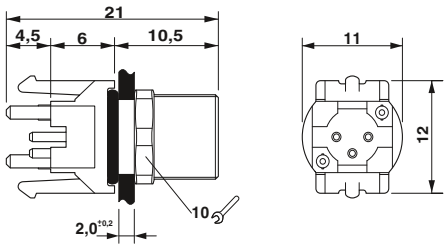
Straight, 3, 4-pos.

	Technical data		Technical data	
	3-pos.	4-pos.	3-pos.	4-pos.
General data				
M8 circular plug-in connector according to:	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	Solder pins	Solder pins	Solder pins	Solder pins
Electrical data				
Rated voltage	60 V	30 V	60 V	30 V
Rated current	4 A	4 A	4 A	4 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data				
Material contact / contact surface	CuSn / Au	CuSn / Au	CuSn / Au	CuSn / Au
Contact carrier material	PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94	HB	HB	HB	HB
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

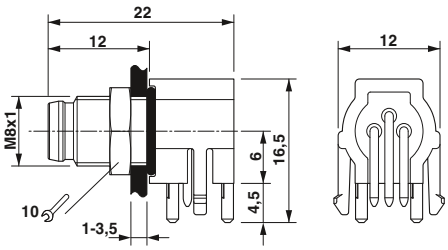
		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		3-pos.		4-pos.	
Device plug-in connectors									
Socket	A - standard	**1524788**	20	**1526169**	20	**1524776**	20	**1524789**	20
Plug	A - standard	**1440070**	20	**1440096**	20				



M8 flush-type socket, angled



M8 flush-type socket, straight



M8 flush-type plug, angled

Pg9 fastening thread, with 0.5 m long litz wires

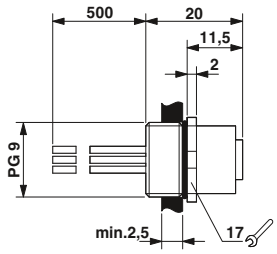
4, 5, 8-pos.

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

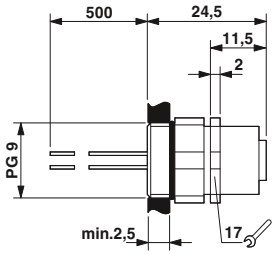
	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	4-pos.	5-pos.	8-pos.
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67	IP67	IP67
Connection method	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires
Electrical data						
Rated voltage	250 V	60 V	30 V	250 V	60 V	30 V
Rated current	4 A	4 A	2 A	4 A	4 A	2 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data						
Material contact / contact surface	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au
Contact carrier material	PA66	PA66	PA66	PA66	PA66	PA66
Inflammability class according to UL 94	V0	V0	V0	V0	V0	V0
Cable type	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		4-pos.		5-pos.		8-pos.	
Device plug-in connectors													
Socket	A - standard	**1693788**	1	**1671098**	1	**1513758**	1	**1693791**	1	**1671108**	1	**1513761**	1
Plug	A - standard	**1693762**	1	**1671111**	1	**1513774**	1	**1693775**	1	**1671124**	1	**1513787**	1
Socket	B - inverse									**1515044**	1		
Plug	B - inverse									**1515057**	1		

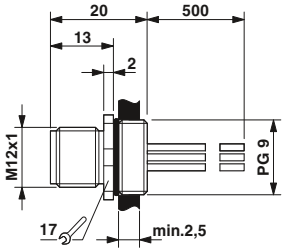
	Accessories			Accessories		
Flat nut, with: Pg9 thread	**SACC-E-MU-PG9**	**1504084**	100			



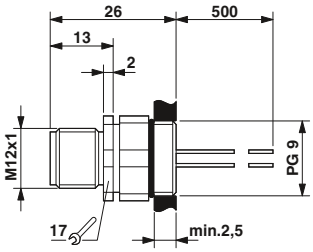
M12 flush-type socket



M12 flush-type socket, can be positioned



M12 flush-type plug



M12 flush-type plug, can be positioned

M16 fastening thread, with 0.5 m long litz wires

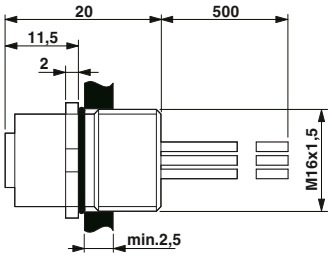
4, 5, 8-pos.

12, 17-pos.

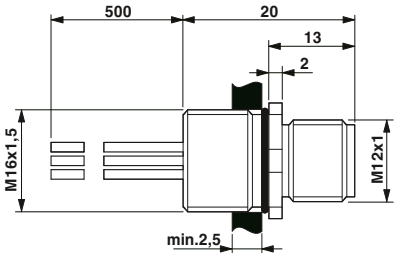
	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Cable type	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1523434**	1	**1520039**	1	**1523476**	1	**1556252**	1	**1556294**	1		
Plug	A - standard	**1523450**	1	**1520055**	1	**1523492**	1	**1556265**	1	**1556304**	1		
Socket	D - data	**1535202**	1										
Plug	D - data	**1551558**	1										
Socket	B - inverse			**1520000**	1								
Plug	B - inverse			**1520013**	1								

	Accessories			Accessories		
Flat nut, with: M16 thread	**SACC-E-MU-M16**	**1504097**	100	**SACC-E-MU-M16**	**1504097**	100



M12 flush-type socket



M12 flush-type plug

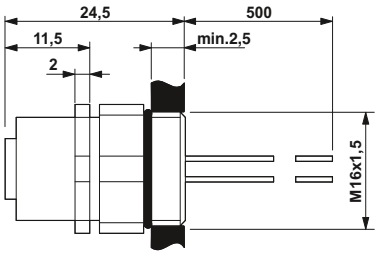
M16 fastening thread, with 0.5 m long litz wires, can be positioned

Can be positioned, 4, 5-pos.

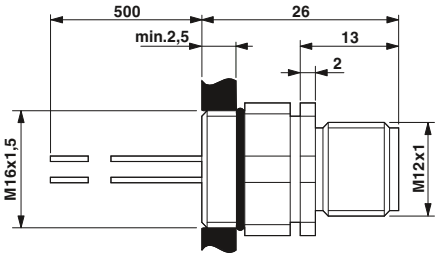
Can be positioned, 8-pos.

	Technical data		Technical data	
	4-pos.	5-pos.	8-pos.	
General data				
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	-
Degree of protection	IP67	IP67	IP67	-
Connection method	Individual wires	Individual wires	Individual wires	-
Electrical data				
Rated voltage	250 V	60 V	30 V	-
Rated current	4 A	4 A	2 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 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	-
Cable type	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.			
Device plug-in connectors									
Socket	A - standard	**1523447**	1	**1520042**	1	**1523489**	1		
Plug	A - standard	**1523463**	1	**1520068**	1	**1523502**	1		
Socket	D - data	**1535215**	1						
Plug	D - data	**1552256**	1						
Socket	B - inverse			**1519998**	1				
Plug	B - inverse			**1520026**	1				



M12 flush-type socket, can be positioned



M12 flush-type plug, can be positioned

N

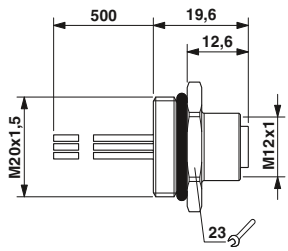
M20 fastening thread, with 0.5 m long litz wires

– Housing material: brass, nickel-plated

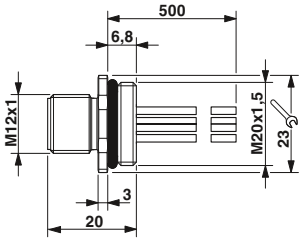
4, 5, 8-pos.

		Technical data		
		4-pos.	5-pos.	8-pos.
General data				
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree		3	3	3
Degree of protection		IP67/IP69K	IP67/IP69K	IP67/IP69K
Connection method		Individual wires	Individual wires	Individual wires
Electrical data				
Rated voltage		250 V	60 V	30 V
Rated current		4 A	4 A	2 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data				
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material		PA 66	PA 66	PA 66
Inflammability class according to UL 94		V0	V0	V0
Cable type		TPE litz wire	TPE litz wire	TPE litz wire
Temperature data				
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85
Cable, fixed installation	[°C]	-25 ... 90	-25 ... 90	-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 connectors							
Socket	A - standard	**1408436**	1	**1408454**	1	**1408453**	1
Plug	A - standard	**1408451**	1	**1408446**	1	**1408442**	1



M12 flush-type socket



M12 flush-type plug

M12 sensor/actuator device plug-in connectors, front mounting

One-piece, 20 mm square flange, with 0.5 m long litz wires

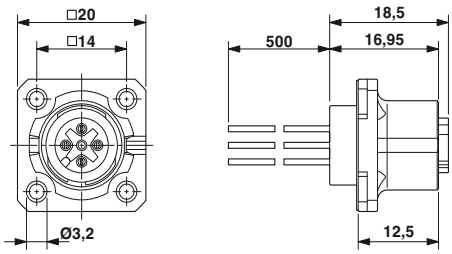
– 4 x fixing hole, 3.2 mm
– With form seal for M3 screws

4, 5, 8-pos.

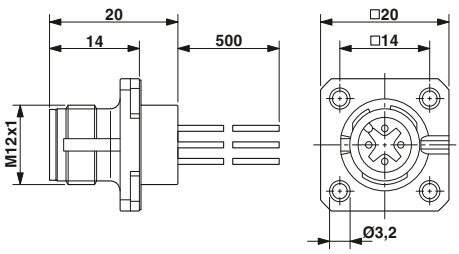
12, 17-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Cable type		TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data				
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.		
Device plug-in connectors												
Socket	A - standard	**1419797**	1	**1441655**	1	**1441697**	1	**1441710**	1	**1441736**	1	
Plug	A - standard	**1419784**	1	**1441642**	1	**1441684**	1	**1441707**	1	**1441723**	1	
Socket	D - data	**1441639**	1									
Plug	D - data	**1441626**	1									
Socket	B - inverse			**1441671**	1							
Plug	B - inverse			**1441668**	1							



M12 flush-type socket, square flange

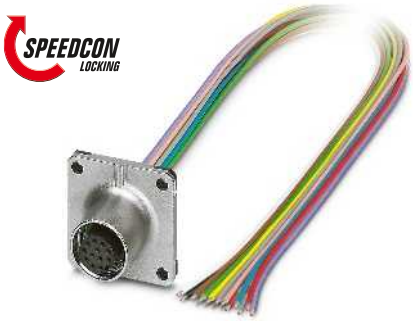


M12 flush-type plug, square flange

One-piece, 25 mm square flange, with 0.5 m long litz wires

– 4 x fixing hole, 2.7 mm
– With form seal for M2.5 screws

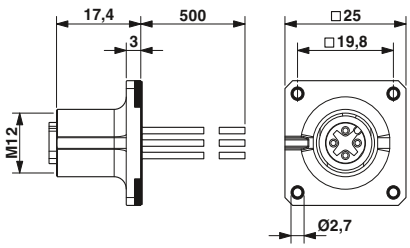
4, 5, 8-pos.



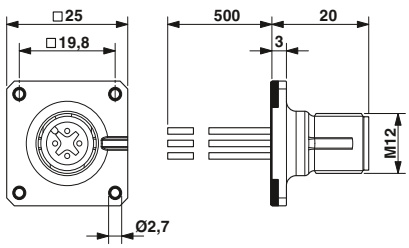
12, 17-pos.

	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Cable type	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1420003**	1	**1440986**	1	**1441574**	1	**1441590**	1	**1441613**	1		
Plug	A - standard	**1419991**	1	**1440973**	1	**1441561**	1	**1441587**	1	**1441600**	1		
Socket	D - data	**1440960**	1										
Plug	D - data	**1440957**	1										
Socket	B - inverse			**1441558**	1								
Plug	B - inverse			**1440999**	1								



M12 flush-type socket, square flange



M12 flush-type plug, square flange

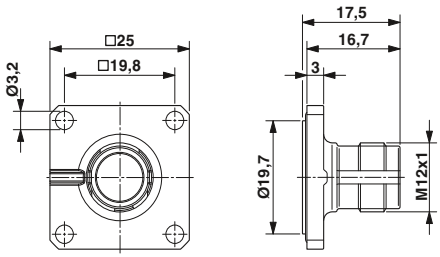
Modular, 25 mm square flange, pre-assembled

Flange housing, housing bore holes 3.2 mm

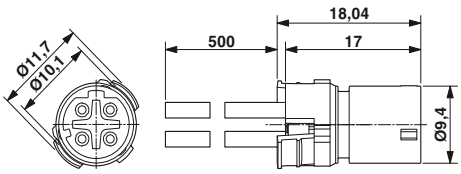
With 0.5 m long litz wires, assembled contact carrier and insulating body

	Technical data			Technical data		
				4-pos.	5-pos.	8-pos.
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	-	-	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	-	-	-	3	3	3
Degree of protection	-	-	-	IP67	IP67	IP67
Connection method	-	-	-	Crimp contacts	Crimp contacts	Crimp contacts
Electrical data						
Rated voltage	-	-	-	250 V	60 V	30 V
Rated current	-	-	-	4 A	4 A	2 A
Volume resistance	-	-	-	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data						
Material contact / contact surface	- / -	- / -	- / -	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material	-	-	-	PA 66	PA 66	PA 66
Cable gland material	Zinc die-cast, nickel-plated	-	-	-	-	-
Inflammability class according to UL 94	-	-	-	V0	V0	V0
Cable type	-	-	-	TPE litz wire	TPE litz wire	TPE litz wire
Temperature data						
Plug / socket [°C]	-25 ... 85	-	-	-25 ... 85	-25 ... 85	-25 ... 85
Cable, fixed installation [°C]	-	-	-	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
								4-pos.		5-pos.		8-pos.	
Square flange housing, with O-ring		1419959	10										
Assembled contact carrier and insulating body, with 0.5 m litz wires and crimp contacts													
Plug	A - standard							1440805	1	1440818	1	1457827	1
Plug	D - data							1440821	1				
Plug	B - inverse									1440759	1		



M12 square flange housing



M12 contact carrier, with litz wires

Modular, 25 mm square flange, for free assembly

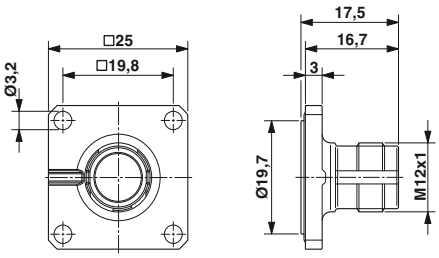
Flange housing, housing bore holes 3.2 mm

Contact carriers and insulating bodies for assembly

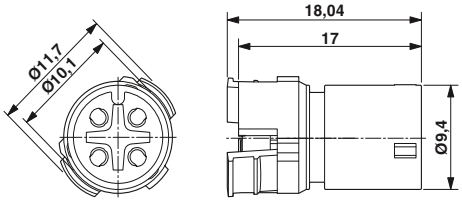
	Technical data			Technical data		
				4-pos.	**5-pos.**	**8-pos.**
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	-	-	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	-	-	-	3	3	3
Degree of protection	-	-	-	IP67	IP67	IP67
Connection method	-	-	-	Crimp contacts	Crimp contacts	Crimp contacts
Electrical data						
Rated voltage	-	-	-	250 V	60 V	30 V
Rated current	-	-	-	4 A	4 A	2 A
Volume resistance	-	-	-	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data						
Contact carrier material	-	-	-	PA 66	PA 66	PA 66
Cable gland material	Zinc die-cast, nickel-plated	-	-	-	-	-
Inflammability class according to UL 94	-	-	-	V0	V0	V0
Temperature data						
Plug / socket [°C]	-25 ... 85	-	-	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data						Ordering data					
Description	Coding	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
								4-pos.		**5-pos.**		**8-pos.**	
Square flange housing, with O-ring		**1419959**	10										
Contact carriers and insulating bodies													
Plug	A - standard							**1440931**	10	**1419988**	10	**1440928**	10
Plug	D - data							**1440944**	10				
Plug	B - inverse									**1440915**	10		
Crimp contacts, for 4 and 5-pos. contact carriers, contact material: CuZn, surface: gold-plated, connection cross section: 0.08 mm² ... 0.34 mm²													
Contact Ø: 1.0 mm								**1452356**	100	**1452356**	100		
Crimp contacts, for 8-pos. contact carriers, contact material: CuZn, surface: gold-plated, connection cross section: 0.08 mm² ... ... 0.34 mm²													
Contact Ø: 0.8 mm												**1452372**	100

	Accessories			Accessories		
Crimping pliers				**CRIMPFOX-TC MP**	**1212510**	1



M12 square flange housing



M12 contact carrier

One-piece, 20 mm square flange, for wave soldering processes

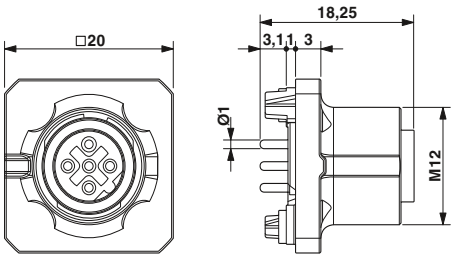
– M12 PCB connector for direct soldering with integrated torsion protection and shield connection

4, 5-pos.

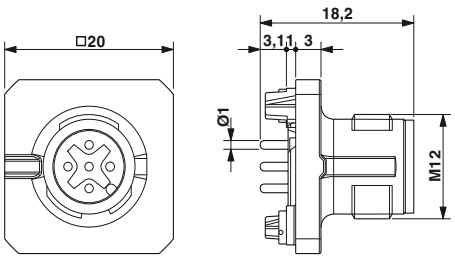
8-pos.

	Technical data		Technical data	
	4-pos.	5-pos.	8-pos.	
General data				
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	-
Degree of protection	IP67	IP67	IP67	-
Connection method	Solder pins	Solder pins	Solder pins	-
Electrical data				
Rated voltage	250 V	60 V	30 V	-
Rated current	4 A	4 A	2 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data				
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	-
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.			
Device plug-in connectors									
Socket	A - standard	**1456420**	10	**1456446**	10	**1408573**	10		
Plug	A - standard	**1456417**	10	**1456433**	10	**1408574**	10		
Socket	D - data	**1456404**	10						
Plug	D - data	**1456394**	10						
Socket	B - inverse			**1456462**	10				
Plug	B - inverse			**1456459**	10				



M12 flush-type socket, square flange (4/5-pos. version)



M12 flush-type plug, square flange (4/5-pos. version)

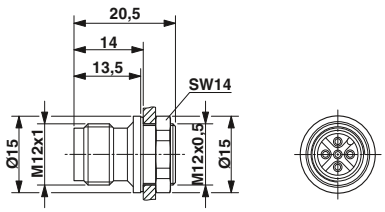
Contact carrier, plastic, with solder cups or with litz wires

Solder connection, 5, 8-pos.

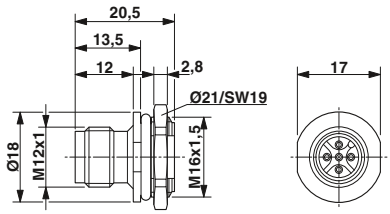
With 0.5 m long litz wires, 5, 8-pos.

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

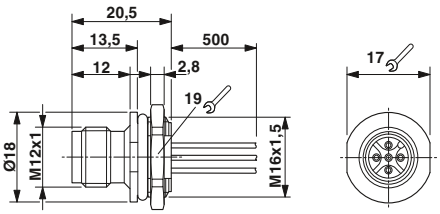
		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		5-pos.		8-pos.		5-pos.		8-pos.	
Flush-type plug-in connector, M16 fastening thread									
Plug	A - standard	**1436398**	20	**1436408**	20	**1436411**	1	**1436424**	1
Flush-type plug-in connector, M12 fastening thread									
Plug	A - standard	**1436437**	20	**1436440**	20				



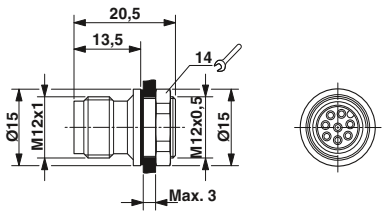
M12 pin, M12 fastening thread, solder cups



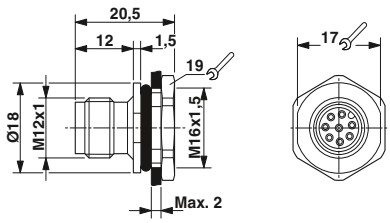
M12 pin, M16 fastening thread, solder cups



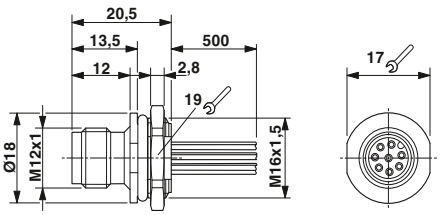
M12 pin, M16 fastening thread



M12 pin, M12 fastening thread, solder cups



M12 pin, M16 fastening thread, solder cups



M12 pin, M16 fastening thread

M12 sensor/actuator device plug-in connectors, rear mounting

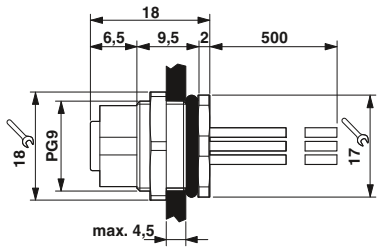
Pg9 fastening thread, with 0.5 m long litz wires

4, 5, 8-pos.

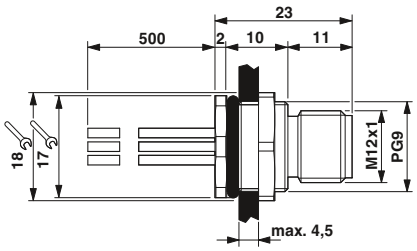
12, 17-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Cable type		TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-
Cable, fixed installation	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1556621**	1	**1542729**	1	**1542732**	1	**1430446**	1	**1430462**	1		
Plug	A - standard	**1556618**	1	**1542703**	1	**1542716**	1	**1430459**	1	**1430475**	1		
Socket	D - data	**1551529**	1										
Plug	D - data	**1551532**	1										
Socket	B - inverse			**1543676**	1								
Plug	B - inverse			**1543663**	1								



M12 flush-type socket



M12 flush-type plug

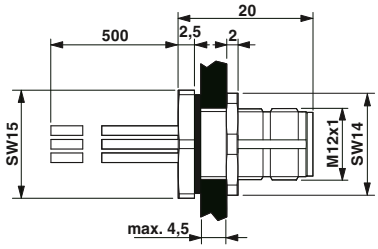
M12 fastening thread, with 0.5 m long litz wires

4, 5, 8-pos.

12, 17-pos.

	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Cable type	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-
Cable, fixed installation [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Plug	A - standard	**1551875**	1	**1551888**	1	**1551914**	1	**1437122**	1	**1437135**	1		
Plug	D - data	**1551901**	1										
Plug	B - inverse			**1551891**	1								



M12 flush-type plug, M12 fastening thread

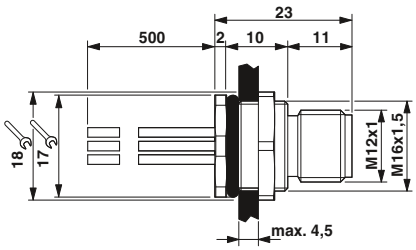
M16 fastening thread, with 0.5 m long litz wires

4, 5, 8-pos.

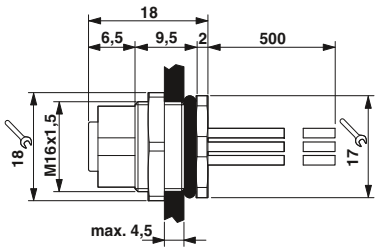
12, 17-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector According to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Cable type		TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-
Cable, fixed installation	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1419632**	1	**1419658**	1	**1419690**	1	**1419713**	1	**1419739**	1		
Plug	A - standard	**1419629**	1	**1419645**	1	**1419687**	1	**1419700**	1	**1419726**	1		
Socket	D - data	**1419616**	1										
Plug	D - data	**1419603**	1										
Socket	B - inverse			**1419674**	1								
Plug	B - inverse			**1419661**	1								



M12 flush-type plug



M12 flush-type socket

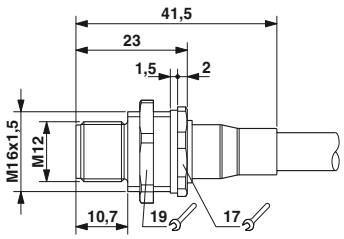
M16 fastening thread, with assembled cable, shielded

PUR cable, 4, 5, 8-pos., shielded

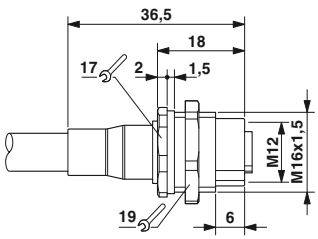
PVC cable, 12, 17-pos., shielded

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Free cable end	Free cable end	Free cable end	Free cable end	Free cable end	-
Electrical data							
Rated voltage		60 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Cable type		PUR halogen-free black	PUR halogen-free black	PUR halogen-free black	PVC black	PVC black	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-
Cable, fixed installation	[°C]	-30 ... 85	-30 ... 85	-30 ... 85	-30 ... 85	-30 ... 85	-

		Ordering data						Ordering data					
Description	Cable length	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Flush-type plug-in connector, A-coded													
Socket	1 m	**1419302**	1	**1419328**	1	**1419357**	1	**1442188**	1	**1442269**	1		
Plug	1 m	**1419399**	1	**1419409**	1	**1419425**	1	**1442227**	1	**1442308**	1		
Socket	2 m	**1419315**	1	**1419331**	1	**1419344**	1	**1442191**	1	**1442272**	1		
Plug	2 m	**1419386**	1	**1419412**	1	**1419438**	1	**1442230**	1	**1442311**	1		



M12 flush-type plug



M12 flush-type socket

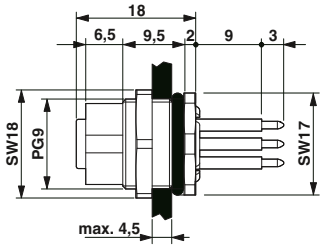
Pg9 fastening thread, one-piece, for wave soldering processes

Straight, 4, 5, 8-pos.

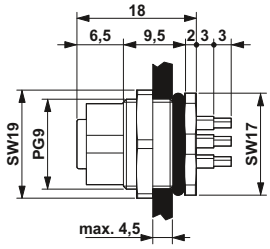
Straight, 12, 17-pos.

	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

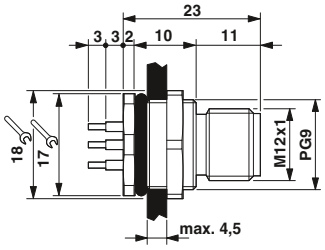
		Ordering data						Ordering data				
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.		
Device plug-in connector, solder pin length: 6 mm												
Socket	A - standard	**1553462**	20	**1542761**	20	**1542774**	20	**1559929**	20	**1559958**	20	
Plug	A - standard	**1553459**	20	**1542745**	20	**1542758**	20	**1559932**	20	**1559961**	20	
Socket	D - data	**1551503**	20									
Plug	D - data	**1551516**	20									
Socket	B - inverse			**1543650**	20							
Plug	B - inverse			**1543647**	20							
Device plug-in connector, solder pin length: 12 mm												
Socket	A - standard			**1552285**	20	**1408770**	20					
Plug	A - standard			**1552311**	20							
Socket	D - data	**1552272**	20									
Plug	D - data	**1552308**	20									
Socket	B - inverse			**1552298**	20							
Plug	B - inverse			**1552324**	20							



M12 flush-type socket, contact length: 12 mm



M12 flush-type socket, contact length: 6 mm



M12 flush-type plug, contact length: 6 mm

Pg9 fastening thread, one-piece, for wave soldering processes, shielded

Ethernet

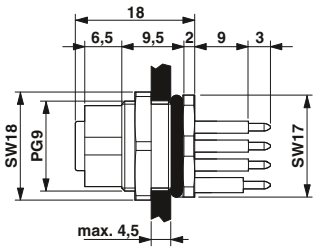
Straight, 4, 5, 8-pos.

Straight, 12, 17-pos.

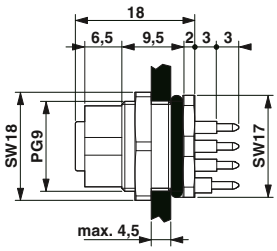
	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connector, solder pin length: 6 mm													
Socket	A - standard	**1556841**	20	**1553019**	20	**1553860**	20	**1436770**	20	**1436806**	20		
Plug	A - standard			**1553048**	20	**1553873**	20	**1436783**	20	**1436819**	20		
Socket	D - data	**1553006**	20										
Plug	D - data	**1553035**	20										
Socket	B - inverse			**1553022**	20								
Plug	B - inverse			**1553051**	20								
Device plug-in connector, solder pin length: 12 mm													
Socket	A - standard	**1558522**	20	**1558548**	20	**1408771**	20						
Plug	A - standard	**1558535**	20	**1558551**	20								
Socket	D - data	**1558506**	20										
Plug	D - data	**1558519**	20										
Socket	B - inverse			**1558564**	20								
Plug	B - inverse			**1558577**	20								

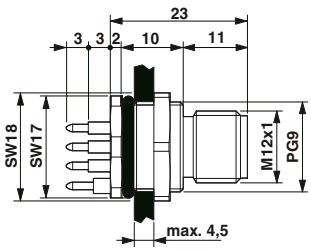
	Accessories			Accessories		
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with: **Pg9** fastening thread	**SACC-PG9-KD-NUT-SH**	**1440177**	10	**SACC-PG9-KD-NUT-SH**	**1440177**	10



M12 flush-type socket, contact length: 12 mm



M12 flush-type socket, contact length: 6 mm



M12 flush-type plug, contact length: 6 mm

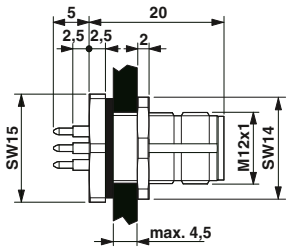
M12 fastening thread, one-piece, for wave soldering processes

Straight, 4, 5, 8-pos.

Straight, 12, 17-pos.

	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Plug	A - standard	**1551820**	20	**1551833**	20	**1551862**	20	**1559945**	20	**1559974**	20		
Plug	D - data	**1551859**	20										
Plug	B - inverse			**1551846**	20								



M12 flush-type plug

M12 fastening thread, one-piece, for wave soldering processes, shielded

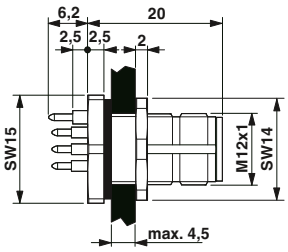
Straight, 4, 5, 8-pos.

Straight, 12, 17-pos.

	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Plug	A - standard	**1552955**	20	**1552968**	20	**1552997**	20	**1437106**	20	**1437119**	20		
Plug	D - data	**1552984**	20										
Plug	B - inverse			**1552971**	20								

	Accessories			Accessories		
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with: **M12** fastening thread	**SACC-M12-KD-NUT-SH**	**1440151**	10	**SACC-M12-KD-NUT-SH**	**1440151**	10



M12 flush-type plug

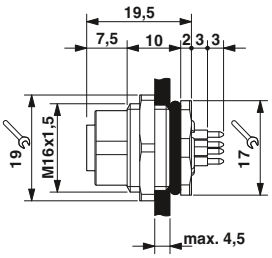
M16 fastening thread, one-piece, for wave soldering processes

Straight, 4, 5, 8-pos.

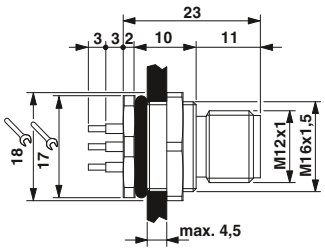
Straight, 12, 17-pos.

	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1419755**	20	**1441778**	20	**1441817**	20	**1441833**	20	**1441859**	20		
Plug	A - standard	**1419742**	20	**1441765**	20	**1441804**	20	**1441820**	20	**1441846**	20		
Socket	D - data	**1441752**	20										
Plug	D - data	**1441749**	20										
Socket	B - inverse			**1441794**	20								
Plug	B - inverse			**1441781**	20								



M12 flush-type socket



M12 flush-type plug

M16 fastening thread, one-piece, for wave soldering processes, shielded

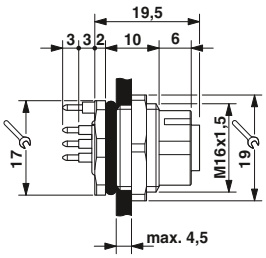
Straight, 4, 5, 8-pos.

Straight, 12, 17-pos.

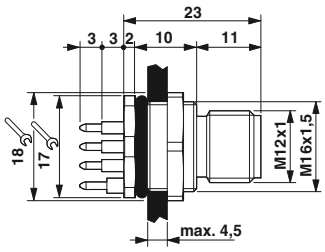
	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1419771**	20	**1441891**	20	**1441930**	20	**1441956**	20	**1441972**	20		
Plug	A - standard	**1419768**	20	**1441888**	20	**1441927**	20	**1441943**	20	**1441969**	20		
Socket	D - data	**1441875**	20										
Plug	D - data	**1441862**	20										
Socket	B - inverse			**1441914**	20								
Plug	B - inverse			**1441901**	20								

	Accessories			Accessories		
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with: **M16** fastening thread	**SACC-M16-KD-NUT-SH**	**1440164**	10	**SACC-M16-KD-NUT-SH**	**1440164**	10



M12 flush-type socket



M12 flush-type plug

Contact carrier, two-piece, angled, for wave soldering processes

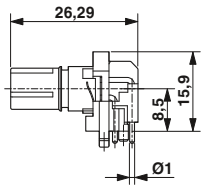
Angled, 4, 5, 8-pos.

Angled, shielded, 4, 5, 8-pos.

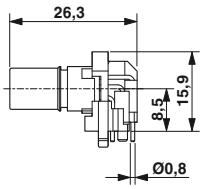
	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	4-pos.	5-pos.	8-pos.
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67	IP67	IP67
Connection method	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins
Electrical data						
Rated voltage	250 V	60 V	30 V	250 V	60 V	30 V
Rated current	4 A	4 A	2 A	4 A	4 A	2 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94	V0	V0	V0	V0	V0	V0
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		4-pos.		5-pos.		8-pos.	
Contact carrier													
Socket	A - standard	**1436628**	20	**1436644**	20	**1436990**	20	**1432444**	20	**1432431**	20	**1437009**	20
Plug	A - standard	**1436660**	20	**1436686**	20	**1436987**	20	**1439887**	20	**1439890**	20	**1437038**	20
Socket	D - data							**1432457**	20				
Plug	D - data							**1436673**	20				
Socket	B - inverse									**1432512**	20		
Plug	B - inverse									**1436699**	20		

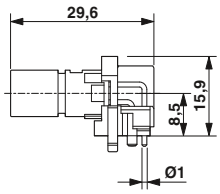
	Accessories	Accessories
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers	See page 258 onwards	See page 258 onwards



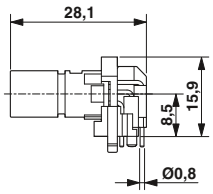
M12 socket contact carrier, angled, 4, 5-pos.



M12 socket contact carrier, angled, 8-pos.



M12 pin contact carrier, angled, 4, 5-pos.



M12 pin contact carrier, angled, 8-pos.

Contact carrier, two-piece, angled, for wave soldering processes

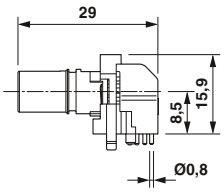
Angled, 12, 17-pos.

Angled, shielded, 12, 17-pos.

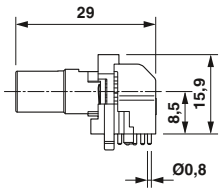
	Technical data			Technical data		
	12-pos.	17-pos.		12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	-	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	-	3	3	-
Degree of protection	IP67	IP67	-	IP67	IP67	-
Connection method	Solder pins	Solder pins	-	Solder pins	Solder pins	-
Electrical data						
Rated voltage	30 V	30 V	-	30 V	30 V	-
Rated current	1.5 A	1.5 A	-	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	-	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	- / -	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PA6T	PA6T	-	PA6T	PA6T	-
Inflammability class according to UL 94	V0	V0	-	V0	V0	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		12-pos.		17-pos.				12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1424195**	20	**1424197**	20			**1424199**	20	**1424201**	20		
Plug	A - standard	**1424194**	20	**1424196**	20			**1424198**	20	**1424200**	20		

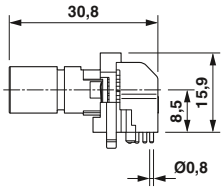
	Accessories	Accessories
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers	See page 258 onwards	See page 258 onwards



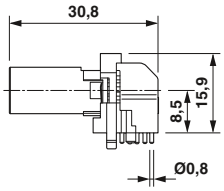
M12 socket contact carrier, angled, 12-pos.



M12 socket contact carrier, angled, 17-pos.



M12 pin contact carrier, angled, 12-pos.



M12 pin contact carrier, angled, 17-pos.

Contact carrier, two-piece, for wave soldering processes

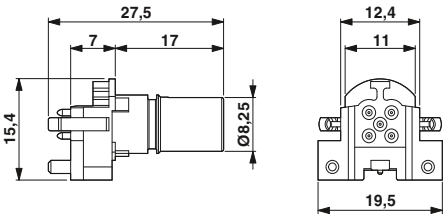
Straight, 5-pos.

Straight, shielded, 4, 5-pos.

	Technical data			Technical data		
	5-pos.			4-pos.	5-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	-	-	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	-	-	3	3	-
Degree of protection	IP67	-	-	IP67	IP67	-
Connection method	Solder pins	-	-	Solder pins	Solder pins	-
Electrical data						
Rated voltage	60 V	-	-	250 V	60 V	-
Rated current	4 A	-	-	4 A	4 A	-
Volume resistance	≤ 3 mΩ	-	-	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Au	- / -	- / -	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PA 66	-	-	PA 66	PA 66	-
Inflammability class according to UL 94	V0	-	-	V0	V0	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-	-	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		5-pos.						4-pos.		5-pos.			
Contact carrier													
Socket	A - standard	**1551464**	20										
Socket	D - data							**1551480**	20				
Socket	B - inverse									**1551477**	20		

	Accessories	Accessories
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers	See page 258 onwards	See page 258 onwards



M12 socket contact carrier, straight, 4, 5-pos.

Two-piece, for reflow processes, tray packaging, tape-on-reel packing

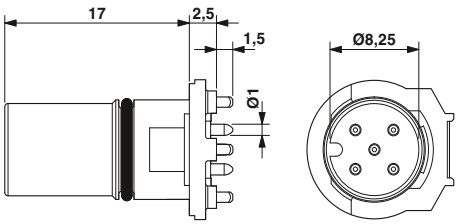
Straight, 4, 5, 8-pos.

Straight, 12, 17-pos.

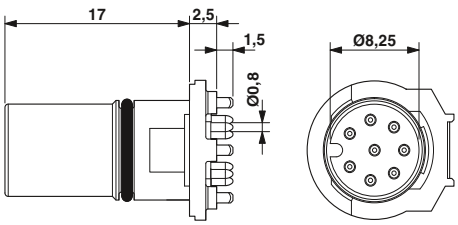
	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	THR solder connection	THR solder connection	THR solder connection	THR solder connection	THR solder connection	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PPA	PPA	PPA	PPA	PPA	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data				
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.		
Contact carrier, tray packaging												
Socket	A - standard	**1439942**	60	**1551448**	60	**1557808**	60	**1441970**	60	**1441998**	60	
Plug	A - standard	**1437164**	60	**1552227**	60	**1552269**	60	**1441985**	60	**1442007**	60	
Contact carrier, tape-on-reel packing with assembly pad												
Socket	A - standard	**1457610**	100	**1457649**	100	**1457678**	100	**1457694**	100	**1457717**	100	
Plug	A - standard	**1457490**	100	**1457526**	100	**1457555**	100	**1457571**	100	**1457597**	100	

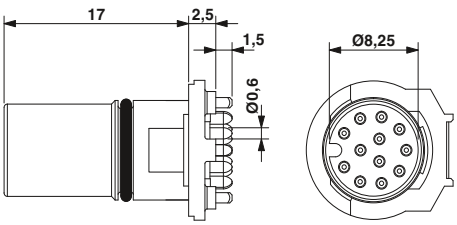
	Accessories	Accessories
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers	See page 258 onwards	See page 258 onwards



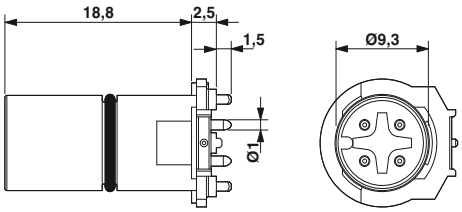
M12 socket contact carrier, straight, 4, 5-pos.



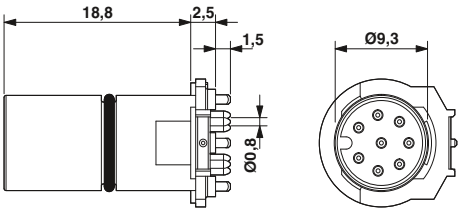
M12 socket contact carrier, straight, 8-pos.



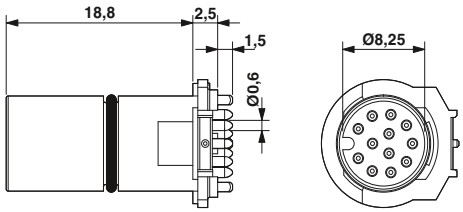
M12 socket contact carrier, straight, 12, 17-pos.



M12 plug contact carrier, straight, 4, 5-pos.



M12 plug contact carrier, straight, 8-pos.



M12 plug contact carrier, straight, 12, 17-pos.

Two-piece, for reflow processes, shielded, tray packaging, tape-on-reel packing

Straight, 4, 5, 8-pos.

Straight, 12, 17-pos.

	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	THR solder connection	THR solder connection	THR solder connection	THR solder connection	THR solder connection	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PPA	PPA	PPA	PPA	PPA	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Contact carrier, tray packaging													
Socket	A - standard	**1439955**	60	**1432363**	60	**1551422**	60	**1442052**	60	**1442078**	60		
Plug	A - standard	**1439939**	60	**1432350**	60	**1557581**	60	**1442065**	60	**1442081**	60		
Socket	D - data	**1551451**	60										
Plug	D - data	**1552214**	60										
Socket	B - inverse			**1551435**	60								
Plug	B - inverse			**1552230**	60								
Contact carrier, tape-on-reel packing with assembly pad													
Socket	A - standard	**1457623**	100	**1457652**	100	**1457681**	100	**1457704**	100	**1457720**	100		
Plug	A - standard	**1457500**	100	**1457539**	100	**1457568**	100	**1457584**	100	**1457607**	100		
Socket	D - data	**1457636**	100										
Plug	D - data	**1457513**	100										
Socket	B - inverse			**1457665**	100								
Plug	B - inverse			**1457542**	100								

	Accessories	Accessories
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers	See page 258 onwards	See page 258 onwards

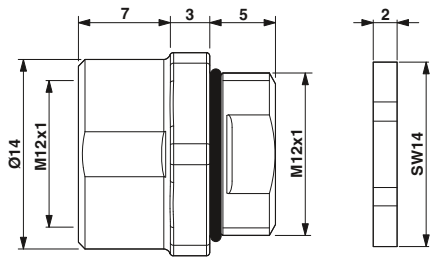
Housing screw connections, screw versions

– For two-piece M12 device plug-in connectors

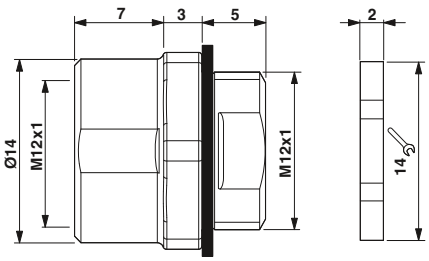
With O-ring

With flat gasket

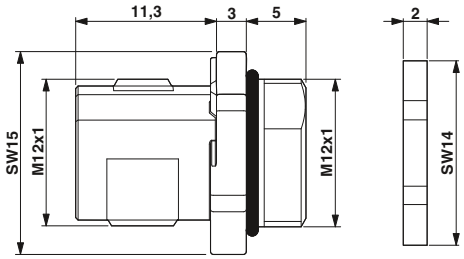
	Technical data			Technical data		
Material data						
Material	Zinc die-cast (nickel-plated)			Zinc die-cast (nickel-plated)		
Temperature data						
Ambient temperature (operation)	-25 °C ... 85 °C			-25 °C ... 85 °C		
	Ordering data			**Ordering data**		
Description	**Type**	**Order No.**	Pcs. / Pkt.	**Type**	**Order No.**	Pcs. / Pkt.
Housing screw connections, SPEEDCON screw versions for all two-piece THR and wave soldering contact carriers						
Socket	**SACC-M12-SCO NUT**	**1552243**	60	**SACC-M12-SCO NUT L 90**	**1432460**	10
Plug	**SACC-M12-SCO PLUG**	**1551493**	60	**SACC-M12-SCO PLUG L90**	**1436709**	10



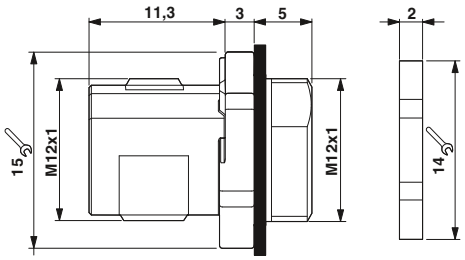
Socket housing screw connection, with O-ring



Socket housing screw connection, with flat gasket



Pin housing screw connection, with O-ring



Pin housing screw connection, with flat gasket

Housing screw connections, press-in versions

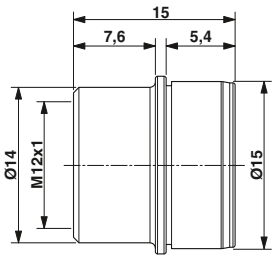
– For two-piece M12 device plug-in connectors

M12 socket

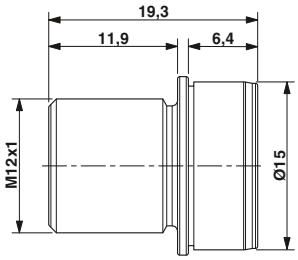
M12 pin

	Technical data	Technical data
Material data		
Material	CuZn (nickel-plated)	CuZn (nickel-plated)
Temperature data		
Ambient temperature (operation)	-25 °C ... 85 °C	-25 °C ... 85 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Housing screw connection, for all two-piece THR and wave soldering contact carriers						
Socket	**SACC-M12 NUT PRESS**	**1437889**	10			
Plug				**SACC-M12 PLUG PRESS**	**1437892**	10



Socket housing screw connection



Pin housing screw connection

M12 flush-type plug-in connector, solder connection

CAT6$_A$, X-coded

CAT5/CAT5e

	Technical data	Technical data	
	SACC-DSI-...-L180-10G SCO	SACC-DSI-...4CON-L180/...	SACC-DSI-...8CON-L180/...
Electrical data			
Nominal voltage U_N	48 V	250 V	30 V
Rated current	0.5 A	4 A	2 A
Transmission characteristics (category)	CAT6$_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn	CuZn	CuZn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0	V0
No. of pos.	8	4	8
Insertion/withdrawal cycles	≥ 100	≥ 100	≥ 100
Temperature data			
Plug / socket [°C]	-40 ... 85	-25 ... 85	-25 ... 85

Description	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Flush-type plug-in connector, CAT6$_A$, Ethernet, 8-pos., M12 SPEEDCON, rear/screw mounting with Pg9 thread, with straight solder connection						
Socket	**SACC-DSIV-FS-8CON-L180-10G SCO**	**1440669**	20			
Contact carrier, CAT6$_A$, Ethernet, 8-pos., rear mounting, with straight solder connection						
Socket	**SACC-CI-M12FS-8CON-L180-10G**	**1402457**	20			
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers						
Socket	**SACC-M12-SCO NUT L 90**	**1432460**	10			
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M16 thread, with straight solder connection						
Socket				**SACC-DSI-FSD-4CON-L180/SH TQ**	**1456527**	20
Plug				**SACC-DSI-MSD-4CON-L180/SH TQ**	**1456514**	20
Flush-type plug-in connector, Ethernet, **8-pos.,** M12 SPEEDCON, with shield contact, rear/screw mounting with M16 thread, with polarity protection, with straight solder connection						
Socket				**SACC-DSI-FS-8CON-L180/SH TQ**	**1456543**	20
Plug				**SACC-DSI-MS-8CON-L180/SH TQ**	**1456530**	20
Flush-type plug-in connector, PROFINET, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M16 thread, with straight solder connection						
Socket				**SACC-DSI-FSD-4CON-L180/SH GN**	**1456569**	20
Plug				**SACC-DSI-MSD-4CON-L180/SH GN**	**1456556**	20
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M12 thread, with angled solder connection				**SACC-DSIV-FSD-4CON-L90 SCO**	**1436550**	10
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M12 thread, with polarity protection, with straight solder connection						
Socket				**SACC-DSIV-FSD-4CON-L180 SCO**	**1542619**	10
Flush-type plug-in connector, Ethernet, **8-pos.,** M12 SPEEDCON, with shield contact, A-coded, rear/screw mounting with M12 thread, with straight THR solder connection						
Socket				**SACC-DSIV-FS-8CON-L180-THR SH**	**1557549**	60
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M12 thread, with polarity protection, with straight THR solder connection						
Socket				**SACC-DSIV-FSD-4CON-L180 SCOTHR**	**1542648**	60

M12 flush-type plug-in connector, solder connection

CAT6$_A$, X-coded

Ethernet

CAT5e, Y-coded

	Technical data	Technical data
	SACC-DSI-FSX-8CON...	VS-08-DSIV-L180-HYB SCO
Electrical data		
Nominal voltage U_N	48 V	30 V (Data)
Rated current	0.5 A	0.5 A (Data) / 6 A (Power)
Transmission characteristics (category)	CAT6$_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn	CuZn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0
No. of pos.	8	8
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Plug / socket [°C]	-40 ... 85	-40 ... 85

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Flush-type socket, CAT6$_A$, Ethernet, one-piece, 8-pos., M12 SPEEDCON, with straight solder connection, rear/screw mounting with:						
M16 fastening thread	**SACC-DSI-FSX-8CON-M16-L180 SCO**	**1424177**	20			
Pg9 fastening thread	**SACC-DSI-FSX-8CON-PG9-L180 SCO**	**1404741**	20			
Hybrid flush-type plug-in connector for the reflow soldering process, with straight solder connection, 4 x power contacts, 4 x signal contacts, rear mounting, SPEEDCON						
Socket				**VS-08-DSIV-L180-HYB SCO**	**1456666**	20
Hybrid flush-type plug-in connector for the wave soldering process, with straight solder connection, 4 x power contacts, 4 x signal contacts, rear mounting, SPEEDCON						
Socket				**SACC-DSI-FSY-8CON-M16-L180 SCO**	**1407503**	20
Contact carrier, two-piece, CAT6$_A$, Ethernet, 8-pos., rear mounting, with angled solder connection	**SACC-CI-M12FSX-8CON-L90**	**1424180**	20			
Hybrid contact carrier, two-piece, Ethernet, 8-pos., rear/screw mounting, with angled solder connection				**SACC-CI-M12FSY-8CON-L90**	**1424193**	20

	Accessories	Accessories
Housing screw connection, SPEEDCON, for all two-piece THR and wave soldering contact carriers	See page 258 onwards	See page 258 onwards

M12, two-piece, for wave soldering processes

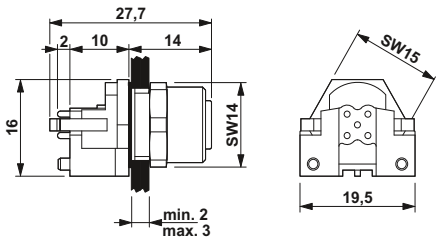
Ethernet

Straight, 4, 5, 8-pos.

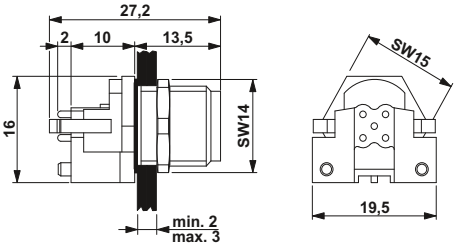
Straight, shielded, 5-pos.

	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	5-pos.		
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-	-
Pollution degree	3	3	3	3	-	-
Degree of protection	IP67	IP67	IP67	IP67	-	-
Connection method	Solder pins	Solder pins	Solder pins	Solder pins	-	-
Electrical data						
Rated voltage	250 V	60 V	30 V	60 V	-	-
Rated current	4 A	4 A	2 A	4 A	-	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	-	-
Inflammability class according to UL 94	HB	HB	HB	HB	-	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		5-pos.					
Flush-type plug-in connector, straight													
Socket	A - standard			**1694237**	10	**1556854**	10						
Plug	A - standard			**1694211**	10			**1437193**	10				
Socket	D - data	**1534627**	10										
Socket	B - inverse			**1515934**	10			**1437180**	10				
Plug	B - inverse			**1514883**	10			**1437203**	10				



M12 flush-type socket, straight,



M12 flush-type plug, straight,

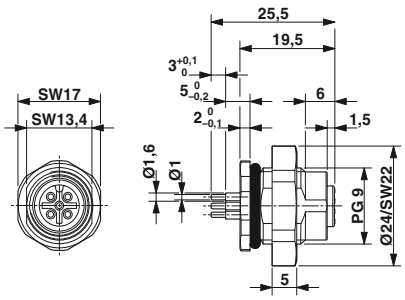
Pg9 fastening thread, plastic

Solder connection, 5, 8-pos.

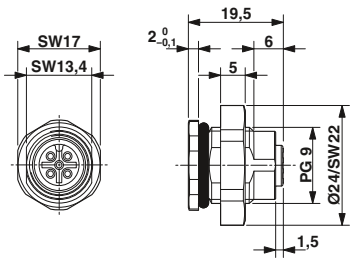
With 0.5 m long litz wires, 5, 8-pos.

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

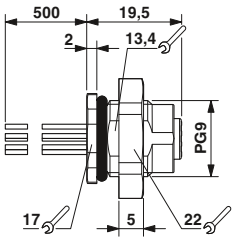
		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		5-pos.		8-pos.		5-pos.		8-pos.	
Flush-type plug-in connector, with solder pins									
Socket	A - standard	**1436330**	20	**1436343**	20				
Flush-type plug-in connector, with solder cups									
Socket	A - standard	**1436314**	20	**1436327**	20				
Flush-type plug-in connector, with litz wires									
Socket	A - standard					**1436356**	1	**1436369**	1



M12, Pg9 fastening thread, solder pins



M12 socket, Pg9 fastening thread, solder cups



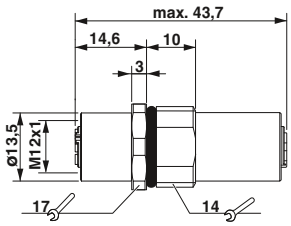
M12 socket, Pg9 fastening thread, with litz wires

Control cabinet feed-through

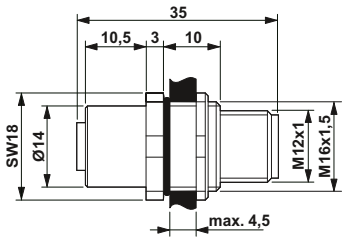
4, 5, 8-pos.

		Technical data		
		4-pos.	**5-pos.**	**8-pos.**
General data				
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree		3	3	3
Degree of protection		IP67	IP67	IP67
Electrical data				
Rated voltage		60 V	24 V	24 V
Rated current		4 A	4 A	1.5 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data				
Contact material		CuZn	CuZn	CuZn
Contact surface material		Au	Au	Au
Contact carrier material		PA 66	PA 66	PA 66
Inflammability class according to UL 94		HB	HB	HB
Temperature data				
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data					
Description	Coding	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
		4-pos.		**5-pos.**		**8-pos.**	
Control cabinet feed-through, M16 fastening thread							
Plug on socket	A - standard			**1551671**	1	**1551697**	1
Plug on socket	B - inverse			**1551684**	1		
Socket to socket	D - data	**1424326**	1				



Control cabinet feed-through, socket to socket on both sides



Control cabinet feed-through, socket to pin on both sides

Front mounting, Pg13.5 fastening thread, with 0.5 m long litz wires

Notes:

Flat nut recommended for housing wall thicknesses < 2.5 mm.

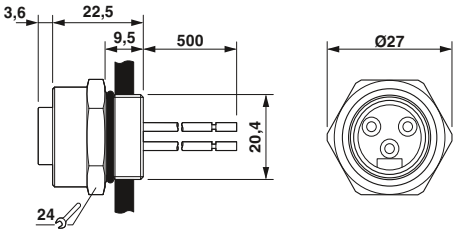
3, 4-pos.

5-pos.

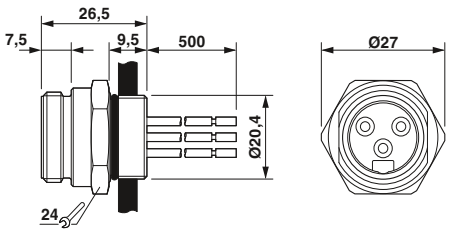
	Technical data		Technical data	
	3-pos.	4-pos.	5-pos.	
General data				
Pollution degree	3	3	3	-
Degree of protection	IP67	IP67	IP67	-
Connection method	Individual wires	Individual wires	Individual wires	-
Electrical data				
Rated voltage	250 V	250 V	250 V	-
Rated current	12 A	9 A	9 A	-
Volume resistance	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	-
Surge voltage category	II	II	II	-
Material data				
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PUR	PUR	PUR	-
Inflammability class according to UL 94	HB	HB	HB	-
Cable type	PVC litz wire	PVC litz wire	PVC litz wire	-
Temperature data				
Plug / socket [°C]	-40 ... 85	-40 ... 85	-40 ... 85	-
Cable, fixed installation [°C]	-40 ... 85	-40 ... 85	-40 ... 85	-

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		5-pos.			
Device plug-in connectors									
Socket	A - standard	**1521407**	1	**1521423**	1	**1521449**	1		
Plug	A - standard	**1521410**	1	**1521436**	1	**1521452**	1		

	Accessories			Accessories		
Flat nut, with: Pg13.5 thread	**SACC-E-MU-PG13,5**	**1539143**	100	**SACC-E-MU-PG13,5**	**1539143**	100



7/8" flush-type socket



7/8" flush-type plug

7/8" sensor/actuator device plug-in connectors, rear mounting

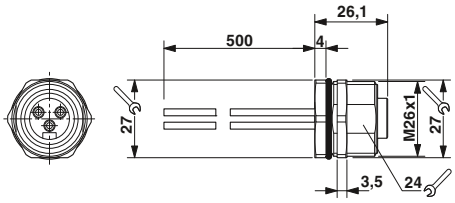
7/8", with 1.0 m long litz wires

3, 4, 5-pos.

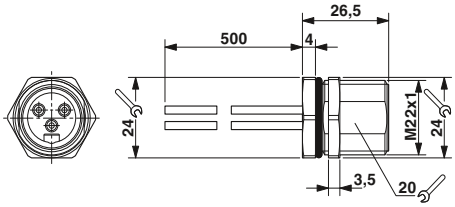
3, 4, 5-pos.

		Technical data			Technical data		
		3-pos.	4-pos.	5-pos.	3-pos.	4-pos.	5-pos.
General data							
Pollution degree		3	3	3	3	3	3
Degree of protection		IP67	IP67	IP67	IP67	IP67	IP67
Connection method		Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires
Electrical data							
Rated voltage		250 V	250 V	250 V	250 V	250 V	250 V
Rated current		12 A	9 A	9 A	12 A	9 A	9 A
Volume resistance		≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ
Surge voltage category		II	II	II	II	II	II
Material data							
Contact material		CuZn	CuZn	CuZn	CuZn	CuZn	CuZn
Contact surface material		Au	Au	Au	Au	Au	Au
Contact carrier material		PUR	PUR	PUR	PUR	PUR	PUR
Inflammability class according to UL 94		HB	HB	HB	HB	HB	HB
Temperature data							
Plug / socket	[°C]	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85
Cable, fixed installation	[°C]	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85

	Ordering data						Ordering data					
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.		5-pos.		3-pos.		4-pos.		5-pos.	
Flush-type plug-in connector, M26 fastening thread												
Socket	**1453782**	1	**1453795**	1	**1453805**	1						
Flush-type plug-in connector, 7/8" fastening thread												
Plug							**1453753**	1	**1453766**	1	**1453799**	1



7/8" flush-type socket



7/8" flush-type plug

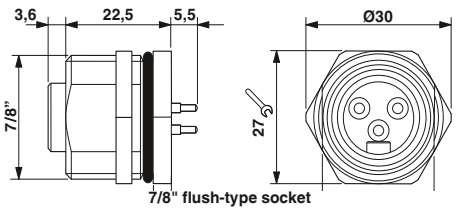
7/8" rear mounting, for wave soldering processes

3, 4, 5-pos.

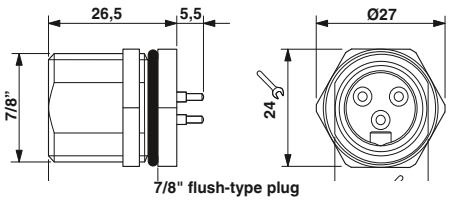
3, 4, 5-pos.

	Technical data			Technical data		
	3-pos.	4-pos.	5-pos.	3-pos.	4-pos.	5-pos.
General data						
Pollution degree	3	3	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67	IP67	IP67
Connection method	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins
Electrical data						
Rated voltage	250 V	250 V	250 V	250 V	250 V	250 V
Rated current	12 A	9 A	9 A	12 A	9 A	9 A
Volume resistance	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ
Surge voltage category	II	II	II	II	II	II
Material data						
Contact material	CuZn	CuZn	CuZn	CuZn	CuZn	CuZn
Contact surface material	Au	Au	Au	Au	Au	Au
Contact carrier material	PUR	PUR	PUR	PUR	PUR	PUR
Inflammability class according to UL 94	HB	HB	HB	HB	HB	HB
Temperature data						
Plug / socket [°C]	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		5-pos.		3-pos.		4-pos.		5-pos.	
Flush-type plug-in connector, M26 fastening thread													
Socket	A - standard	**1457830**	1	**1457843**	1	**1457775**	1						
Flush-type plug-in connector, 7/8" fastening thread													
Plug	A - standard							**1455007**	1	**1455010**	1	**1457487**	1



7/8" flush-type socket



7/8" flush-type plug

Front mounting, Pg9/M16 fastening thread, with 0.5 m long litz wires

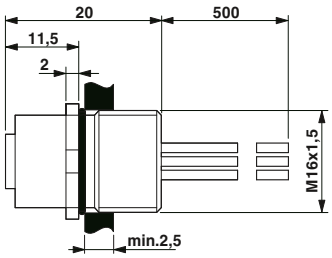
– Housing material, stainless steel 1.4404

4, 5, 8-pos.

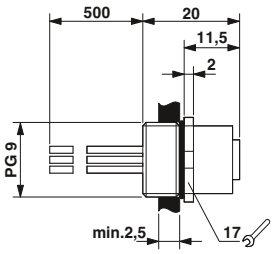
Can be positioned, 4, 5, 8-pos.

	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	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3	3	3	3	3
Degree of protection	IP67/IP69K	IP67/IP69K	IP67/IP69K	IP67/IP69K	IP67/IP69K	IP67/IP69K
Connection method	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires
Electrical data						
Rated voltage	250 V	60 V	30 V	250 V	60 V	30 V
Rated current	4 A	4 A	2 A	4 A	4 A	2 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material	PA66 GF	PA66 GF	PA66 GF	PA66 GF	PA66 GF	PA66 GF
Inflammability class according to UL 94	V0	V0	V0	V0	V0	V0
Cable type	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

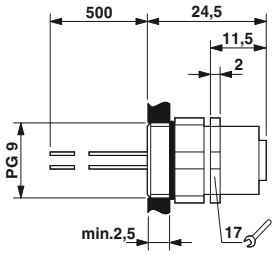
		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		4-pos.		5-pos.		8-pos.	
Device plug-in connector, Pg9 fastening thread													
Socket	A - standard	**1555448**	1	**1699863**	1	**1554607**	1	**1554649**	1	**1554652**	1	**1554665**	1
Plug	A - standard	**1554555**	1	**1554568**	1	**1554571**	1	**1554610**	1	**1554623**	1	**1554636**	1
Device plug-in connector, M16 fastening thread													
Socket	A - standard	**1458855**	1	**1458871**	1	**1458842**	1						
Plug	A - standard	**1405233**	1	**1458868**	1	**1405221**	1						



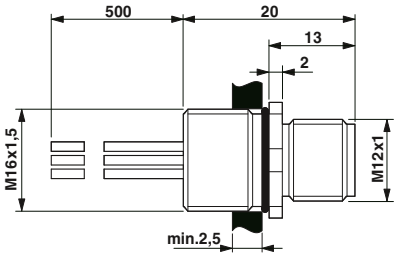
M12 flush-type socket



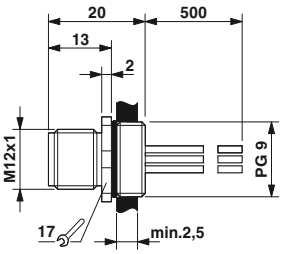
M12 flush-type socket



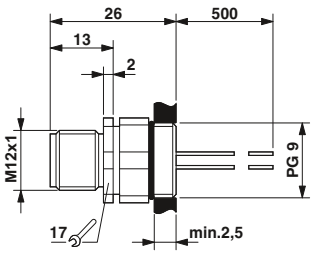
M12 flush-type socket, can be positioned



M12 flush-type plug



M12 flush-type plug



M12 flush-type plug, can be positioned

Front mounting, M20 fastening thread, with 0.5 m long litz wires

– Housing material, stainless steel 1.4404

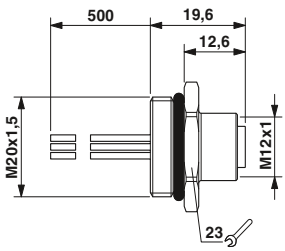
4, 5, 8-pos.

Technical data

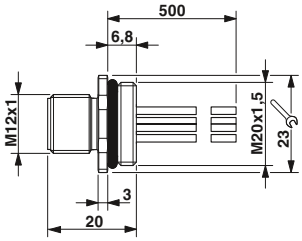
	4-pos.	5-pos.	8-pos.
General data			
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3	3
Degree of protection	IP67/IP69K	IP67/IP69K	IP67/IP69K
Connection method	Individual wires	Individual wires	Individual wires
Electrical data			
Rated voltage	250 V	60 V	30 V
Rated current	4 A	4 A	2 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data			
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material	PA 66	PA 66	PA 66
Inflammability class according to UL 94	V0	V0	V0
Cable type	TPE litz wire	TPE litz wire	TPE litz wire
Temperature data			
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85

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 connectors							
Socket	A - standard	**1408416**	1	**1452071**	1	**1452110**	1
Plug	A - standard	**1408415**	1	**1452068**	1	**1452107**	1
Socket	B - inverse			**1452097**	1		
Plug	B - inverse			**1452084**	1		



M12 flush-type socket



M12 flush-type plug

Device plug-in connector, rear mounting

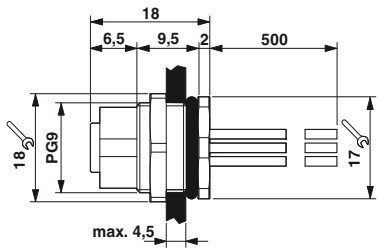
– Housing material, stainless steel 1.4404

With 0.5 m long litz wires, 4, 5, 8-pos.

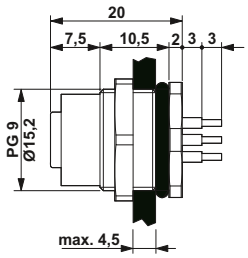
For wave soldering processes, 4, 5, 8-pos.

	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	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3	3	3	3	3
Degree of protection	IP67/IP69K	IP67/IP69K	IP67/IP69K	IP67/IP69K	IP67/IP69K	IP67/IP69K
Connection method	Individual wires	Individual wires	Individual wires	Solder pins	Solder pins	Solder pins
Electrical data						
Rated voltage	250 V	60 V	30 V	250 V	60 V	30 V
Rated current	4 A	4 A	2 A	4 A	4 A	2 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94	V0	V0	V0	V0	V0	V0
Cable type	TPE litz wire	TPE litz wire	TPE litz wire	-	-	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

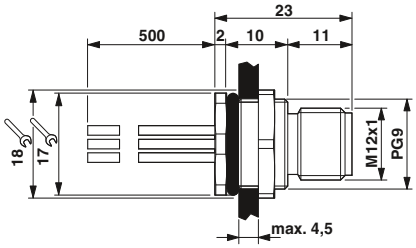
		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		4-pos.		5-pos.		8-pos.	
Device plug-in connectors													
Socket	A - standard	**1405240**	1	**1554717**	1	**1554720**	1	**1404974**	20	**1554733**	20	**1529797**	20
Plug	A - standard	**1405239**	1	**1554681**	1	**1554694**	1	**1404979**	20	**1554746**	20	**1529807**	20



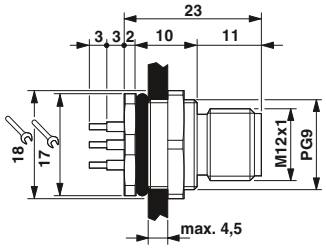
M12 flush-type socket



M12 flush-type socket



M12 flush-type plug



M12 flush-type plug

M8, insulation displacement connection

0.08 mm² - 0.25 mm², 3, 4-pos.

0.25 mm² - 0.5 mm², 3, 4-pos.

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

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	3-pos.		**4-pos.**		**3-pos.**		**4-pos.**	
Plug-in connector								
Socket, straight	**1441040**	1	**1441053**	1	**1441066**	1	**1441079**	1
Plug, straight	**1441008**	1	**1441011**	1	**1441024**	1	**1441037**	1

M8, screw connections

Unshielded, 3, 4-pos.

Shielded, 3, 4-pos.

	Technical data		Technical data	
	3-pos.	4-pos.	3-pos.	4-pos.
General data				
M8 circular plug-in connector according to:	IEC 61076-2-104		IEC 61076-2-104	
Pollution degree	3		3	
Degree of protection	IP67		IP67	
Connection method	Screw connection		Screw connection	
Cable diameter	3.5 mm ... 5 mm		3.5 mm ... 5.5 mm	
Connection cross section [mm²]	0.14 mm² ... 0.5 mm²		0.14 mm² ... 0.5 mm²	
Electrical data				
Rated voltage	60 V	30 V	60 V	30 V
Rated current	4 A		4 A	
Volume resistance	≤ 3 mΩ		≤ 3 mΩ	
Insulation resistance	≥ 100 MΩ		≥ 100 MΩ	
Material data				
Material contact / contact surface	CuZn / Au		CuSn / Au	
Contact carrier material	PA		PUR / PA66	
Inflammability class according to UL 94	HB		HB	
Temperature data				
Plug / socket [°C]	-40 ... 85		-40 ... 85	

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.		3-pos.		4-pos.	
Plug-in connector								
Socket, straight	**1506888**	1	**1506891**	1	**1542907**	1	**1542910**	1
Plug, straight	**1501252**	1	**1501265**	1	**1542884**	1	**1542897**	1
Socket, angled	**1407582**	1	**1407584**	1				
Plug, angled	**1407583**	1	**1407585**	1				

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

M8, solder connection

Unshielded, 3, 4-pos.

Shielded, 3, 4-pos.

	Technical data		Technical data	
	3-pos.	4-pos.	3-pos.	4-pos.
General data				
M8 circular plug-in connector according to:	IEC 61076-2-104		IEC 61076-2-104	
Pollution degree	3		3	
Degree of protection	IP67		IP67	
Connection method	Solder connection		Solder connection	
Cable diameter	3.5 mm ... 5 mm		3.5 mm ... 5 mm	
Connection cross section [mm²]	0.08 mm² ... 0.25 mm²		0.08 mm² ... 0.25 mm²	
Electrical data				
Rated voltage	60 V	30 V	60 V	30 V
Rated current	4 A		4 A	
Volume resistance	≤ 3 mΩ		≤ 3 mΩ	
Insulation resistance	≥ 100 MΩ		≥ 100 MΩ	
Material data				
Material contact / contact surface	CuSn / Au		CuSn / Au	
Contact carrier material	PUR / PA66		PUR / PA66	
Inflammability class according to UL 94	V0		HB	
Temperature data				
Plug / socket [°C]	-40 ... 85		-40 ... 85	

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.		3-pos.		4-pos.	
Plug-in connector								
Socket, angled	**1529399**	1	**1513444**	1	**1436479**	1	**1436482**	1
Plug, angled	**1699902**	1	**1554209**	1	**1436453**	1	**1436466**	1
Socket, straight	**1681172**	1	**1681185**	1	**1506927**	1	**1506930**	1
Plug, straight	**1681156**	1	**1681169**	1	**1506901**	1	**1506914**	1

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

M12, solder and Piercecon® connection

Solder connection, 12-pos.

Piercecon® connection, 12, 17-pos.

	Technical data		Technical data	
	Unshielded	Shielded	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	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 [°C]	-25 ... 85		-25 ... 85	

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		Unshielded		Shielded		12-pos.		17-pos.	
Plug-in connector									
Socket, straight	A - standard	**1404420**	1	**1404411**	1	**1559631**	1	**1559644**	1
Plug, straight	A - standard	**1404419**	1	**1404410**	1	**1559592**	1	**1559602**	1
Socket, angled	A - standard	**1404423**	1	**1404413**	1				
Plug, angled	A - standard	**1404421**	1	**1404412**	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	Technical data
	VS-08-M12...-10G-P SCO	SACC-M12MSD-4CON-...-SH
Electrical data		
Nominal voltage U_N	48 V	60 V
Rated current	0.5 A	4 A
Transmission characteristics (category)	$CAT6_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Material contact / contact surface	CuSn / Ni/Au	CuZn / Au
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	HB
No. of pos.	8	4
Connection method	Piercecon®	Screw connection
Connection cross section AWG	26	24 ... 18
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Ambient temperature (operation)	-40 °C ... 85 °C	-40 °C ... 85 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Plug-in connector, $CAT6_A$, plug, 8-pos., shielded, X-coded, **cable diameter: 4 mm ... 8 mm**						
Straight	**VS-08-M12MS-10G-P SCO**	**1417430**	1			
Angled	**VS-08-M12MR-10G-P SCO**	**1417443**	1			
Plug-in connector, Pg7 screw connection, 4-pos., D-coded, **cable diameter: 4 mm ... 6 mm**						
Plug, straight				**SACC-M12MSD-4CON-PG 7-SH**	**1521258**	1
Plug-in connector, Pg9 screw connection, 4-pos., D-coded, **cable diameter: 4 mm ... 8 mm**						
Plug, straight				**SACC-M12MSD-4CON-PG 9-SH**	**1521261**	1

	Accessories			Accessories		
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1	**VS-CABLE-STRIP-VARIO**	**1657407**	1

M12, insulation displacement connection

0.14 mm² ... 0.34 mm²

0.34 mm² ... 0.75 mm²

	Technical data	Technical data
	4-pos.	**4-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	IP65/67	IP65/67
Connection method	Insulation displacement connection	Insulation displacement connection
Cable diameter	3.5 mm ... 6 mm	4 mm ... 8 mm
Electrical data		
Rated voltage	125 V	250 V
Rated current	4 A	4 A
Volume resistance	≤ 5 mΩ	≤ 5 mΩ
Insulation resistance	≥ 100 MΩ	≥ 100 MΩ
Material data		
Material contact / contact surface	CuSn / Ni/Au	CuSn / Ni/Au
Contact carrier material	TPU	TPU
Inflammability class according to UL 94	V0	V0
Temperature data		
Plug / socket [°C]	-25 ... 80	-25 ... 80

		Ordering data			Ordering data		
Description	Coding	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Plug-in connector, with plastic knurl							
Socket, straight	A - standard	**SACC-M12FS-4QO-0,34**	**1641701**	1	**SACC-M12FS-4QO-0,75**	**1641756**	1
Plug, straight	A - standard	**SACC-M12MS-4QO-0,34**	**1641714**	1	**SACC-M12MS-4QO-0,75**	**1641769**	1
Plug-in connector, with metal knurl, SPEEDCON							
Socket, straight	A - standard	**SACC-FS-4QO-0,34-M SCO**	**1521588**	1	**SACC-FS-4QO-0,75-M SCO**	**1521601**	1
Plug, straight	A - standard	**SACC-MS-4QO-0,34-M SCO**	**1521575**	1	**SACC-MS-4QO-0,75-M SCO**	**1521591**	1
Plug-in connector, with metal knurl							
Socket, straight	A - standard	**SACC-M12FS-4QO-0,34-M**	**1641688**	1	**SACC-M12FS-4QO-0,75-M**	**1641772**	1
Plug, straight	A - standard	**SACC-M12MS-4QO-0,34-M**	**1641691**	1	**SACC-M12MS-4QO-0,75-M**	**1641785**	1
Plug-in connector, with stainless steel knurl							
Socket, straight	A - standard	**SACC-M12FS-4QO-0,34-VA**	**1440766**	1	**SACC-M12FS-4QO-0,75-VA**	**1440782**	1
Plug, straight	A - standard	**SACC-M12MS-4QO-0,34-VA**	**1440753**	1	**SACC-M12MS-4QO-0,75-VA**	**1440779**	1

M12, spring-cage connections

Unshielded, 4, 5-pos.

Shielded, 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		IP67	
Connection method	Spring-cage conn.		Spring-cage conn.	
Cable diameter	4 mm ... 8 mm		4 mm ... 8 mm	
Connection cross section [mm²]	0.14 mm² ... 0.5 mm²		0.14 mm² ... 0.5 mm²	
Electrical data				
Rated voltage	250 V	60 V	60 V	
Rated current	4 A		4 A	
Volume resistance	≤ 8 mΩ		≤ 8 mΩ	
Insulation resistance	≥ 100 MΩ		≥ 100 MΩ	
Material data				
Material contact / contact surface	CuSn / Ni/Au		CuSn / Ni/Au	
Contact carrier material	TPU		TPU	
Inflammability class according to UL 94	V0		V0	
Temperature data				
Plug / socket [°C]	-40 ... 85		-40 ... 85	

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		4-pos.		5-pos.	
Plug-in connector, terminal marking: standard color coding and numbering									
Socket, angled	A - standard	**1432622**	1	**1432596**	1	**1432758**	1	**1432677**	1
Plug, angled	A - standard	**1432606**	1	**1432570**	1	**1432732**	1	**1432651**	1
Socket, straight	A - standard	**1432619**	1	**1432583**	1	**1432745**	1	**1432664**	1
Plug, straight	A - standard	**1432635**	1	**1432567**	1	**1432729**	1	**1432648**	1

M12, screw connections

Plastic knurl, 4, 5-pos.

Metal knurl, SPEEDCON, 4, 5-pos.

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		-	IP67		-
Connection method	Screw connection		-	Screw connection		-
Connection cross section [mm²]	0.25 mm² ... 0.75 mm²		- ... -	0.25 mm² ... 0.75 mm²		- ... -
Electrical data						
Rated voltage	250 V	60 V	-	250 V	60 V	-
Rated current	4 A		-	4 A		-
Volume resistance	≤ 8 mΩ		-	≤ 8 mΩ		-
Insulation resistance	≥ 100 MΩ		-	≥ 100 MΩ		-
Material data						
Material contact / contact surface	CuZn / CuSnZn		- / -	CuZn / CuSnZn		- / -
Contact carrier material	PA 66		-	PA 66		-
Inflammability class according to UL 94	HB		-	HB		-
Temperature data						
Plug / socket [°C]	-40 ... 85		-	-40 ... 85		-

Ordering data

Description	Coding	Order No. (4-pos.)	Pcs. / Pkt.	Order No. (5-pos.)	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No. (4-pos.)	Pcs. / Pkt.	Order No. (5-pos.)	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
Plug-in connector, with **Pg7** screw connection, **cable diameter: 4 mm ... 6 mm**													
Socket, angled	A - standard	**1681130**	1	**1662308**	1			**1543058**	1	**1543061**	1		
Plug, angled	A - standard	**1681091**	1	**1662269**	1			**1542981**	1	**1542994**	1		
Socket, straight	A - standard	**1681114**	1	**1662298**	1			**1543029**	1	**1543032**	1		
Plug, straight	A - standard	**1681088**	1	**1662256**	1			**1542952**	1	**1542965**	1		
Plug-in connector, with **Pg9** screw connection, **cable diameter: 6 mm ... 8 mm**													
Socket, angled	A - standard			**1500790**	1					**1543414**	1		
Plug, angled	A - standard			**1513431**	1					**1543003**	1		
Socket, straight	A - standard			**1500787**	1					**1543045**	1		
Plug, straight	A - standard			**1500774**	1					**1542978**	1		
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												

Accessories

Pressure screw and seal, for cable diameters:						
2.5 mm ... 3.5 mm	**SACC-M12-SET/2,5-3,5**	**1436505**	5	**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 mm² ... 0.75 mm²		0.25 mm² ... 0.5 mm²
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	

Ordering data

Order No. (4-pos.)	Pcs. / Pkt.	Order No. (5-pos.)	Pcs. / Pkt.	Order No. (8-pos.)	Pcs. / Pkt.
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		

Accessories

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

Technical data

4-pos.	5-pos.	
	IEC 61076-2-101	-
	3	-
	IP67	-
	Screw connection	-
0.25 mm² ... 0.75 mm²		- ... -
250 V	125 V	-
4 A		-
≤ 8 mΩ		-
≥ 100 MΩ		-
CuZn / CuSnZn		- / -
	PA 66	-
	HB	-
	-20 ... 80	-

Ordering data

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

Accessories

Technical data

4-pos.	5-pos.	
	IEC 61076-2-101	-
	3	-
	IP67/IP69K	-
	Screw connection	-
0.25 mm² ... 0.75 mm²		- ... -
250 V	60 V	-
4 A		-
≤ 3 mΩ		-
≥ 100 MΩ		-
CuZn / Au		- / -
	PA 66	-
	V0	-
	-40 ... 85	-

Ordering data

Order No. (4-pos.)	Pcs. / Pkt.	Order No. (5-pos.)	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
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

M12, screw connection, shielded

Zinc die-cast housing, 4, 5, 8-pos.

Stainless steel housing, 5-pos.

	Technical data			Technical data		
	4-pos.	5-pos.	8-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			IP67/IP69K	-	
Connection method	Screw connection			Screw connection	-	
Connection cross section [mm²]	0.25 mm² ... 0.75 mm²			0.25 mm² ... 0.75 mm²	- ... -	
Electrical data						
Rated voltage	60 V		30 V	60 V	-	
Rated current	4 A		2 A	4 A	-	
Volume resistance	≤ 3 mΩ			≤ 3 mΩ	-	
Insulation resistance	≥ 100 MΩ			≥ 100 MΩ	-	
Material data						
Material contact / contact surface	CuZn / Au			CuZn / Au	- / -	
Contact carrier material	PA 66			PA 66	-	
Inflammability class according to UL 94	HB			V0	-	
Temperature data						
Plug / socket [°C]	-40 ... 85			-40 ... 85	-	

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		5-pos.					
Plug-in connector, with **Pg7** screw connection, **cable diameter: 4 mm ... 6 mm**													
Plug, angled	A - standard	**1694279**	1	**1693429**	1								
Socket, straight	A - standard	**1694295**	1	**1694305**	1								
Plug, straight	A - standard	**1693830**	1	**1693416**	1								
Plug-in connector, with **Pg9** screw connection, **cable diameter: 6 mm ... 8 mm**													
Socket, angled	A - standard			**1430433**	1								
Plug, angled	A - standard			**1694282**	1								
Socket, straight	A - standard	**1515170**	1	**1694318**	1	**1511860**	1						
Plug, straight	A - standard	**1501540**	1	**1694266**	1	**1511857**	1						
Plug-in connector, with **Pg9** screw connection, **cable diameter: 6 mm ... 8.5 mm**													
Socket, straight	A - standard			**1508365**	1								
Plug, straight	A - standard			**1508352**	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, power plug-in connector, screw connection

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

Metal knurl, 4-pos., T-coded

	Technical data	Technical data
	3-pos. + PE	**4-pos.**
General data		
Pollution degree	3	3
Degree of protection	IP67	IP67
Connection method	Screw connection	Screw connection
Connection cross section [mm²]	0.75 mm² ... 1.5 mm²	0.75 mm² ... 1.5 mm²
Electrical data		
Rated voltage	630 V	60 V
Rated current	12 A	12 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ
Insulation resistance	> 10 GΩ	> 10 GΩ
Material data		
Material contact / contact surface	CuZn / Au	CuZn / Au
Contact carrier material	PA 46	PA 46
Inflammability class according to UL 94	V0	V0
Temperature data		
Plug / socket [°C]	-40 ... 85	-40 ... 85

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	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**	1	**SACC-M12FST-3PECON-PG11-M**	**1404644**	1
Plug, straight	**SACC-M12MSS-3PECON-PG11-M**	**1404641**	1	**SACC-M12MST-3PECON-PG11-M**	**1404643**	1

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		Technical data	
	4-pos.	**5-pos.**	**Metal knurl, SPEEDCON, 5-pos.**	**Plastic knurl, 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		IP67	
Connection method	Screw connection		Screw connection	
Connection cross section [mm²]	0.25 mm² ... 0.75 mm²		0.25 mm² ... 0.75 mm²	
Electrical data				
Rated voltage	250 V	60 V	60 V	
Rated current	4 A		4 A	
Volume resistance	≤ 8 mΩ		≤ 8 mΩ	
Insulation resistance	≥ 100 MΩ		≥ 100 MΩ	
Material data				
Material contact / contact surface	CuZn / CuSnZn		CuZn / CuSnZn	
Contact carrier material	PA 66		PA 66	
Inflammability class according to UL 94	V0		V0	
Temperature data				
Plug / socket [°C]	-40 ... 85		-40 ... 85	-25 ... 85

		Ordering data				Ordering data			
Description	Coding	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
		4-pos.		**5-pos.**		**Metal knurl, SPEEDCON, 5-pos.**		**Plastic knurl, 5-pos.**	
Plug-in connector, with **Pg11 DUO** screw connection, **cable diameter: 2 x 3 mm ... 5.2 mm**									
Socket, straight	A - standard							**1694596**	1
Plug, straight	A - standard	**1507052**	1	**1662748**	1	**1543016**	1	**1662285**	1
Plug, angled	A - standard							**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			Technical data		
	3-pos.	4-pos.	5-pos.	5-pos.		
General data						
Pollution degree		3		3	-	
Degree of protection		IP67		IP67	-	
Connection method		Screw connection		Screw connection	-	
Connection cross section		0.34 mm² ... 1.5 mm²		0.34 mm² ... 2.5 mm²	- ... -	-
Connection cross section AWG		22 ... 16		22 ... 14	- ... -	-
Electrical data						
Rated voltage		250 V		250 V	-	
Rated current	12 A	9 A		9 A	-	
Volume resistance		≤ 5 mΩ		≤ 5 mΩ	-	
Insulation resistance		≥ 100 MΩ		≥ 100 MΩ	-	
Material data						
Material contact / contact surface		CuZn / Au		CuZn / Au	- / -	
Contact carrier material		PUR / PA66		PUR / PA66	-	
Inflammability class according to UL 94		HB		HB	-	
Temperature data						
Plug / socket [°C]		-25 ... 85		-25 ... 85	-	

	Ordering data						Ordering data					
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.		5-pos.		5-pos.					
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					**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	**1521313**	1	**1521355**	1	**1521397**	1	**1456284**	1				
Plug, straight	**1521290**	1	**1521339**	1	**1521371**	1	**1456213**	1				
Plug-in connector, with **Pg16** screw connection, **cable diameter: 12 mm ... 14 mm**												
Socket, straight					**1559071**	1	**1456268**	1				
Plug, straight					**1559039**	1	**1456239**	1				

M12 power flush-type plug-in connectors, with 0.5 m long litz wires

S-coded, 3-pos. + PE

T-coded, 4-pos.

		Technical data		Technical data	
		Front mounting	Rear mounting	Front mounting	Rear mounting
General data					
Pollution degree		3	3	3	3
Degree of protection		IP67	IP67	IP67	IP67
Connection method		Individual wires	Individual wires	Individual wires	Individual wires
Electrical data					
Rated voltage		630 V	630 V	60 V	60 V
Rated current		12 A	12 A	12 A	12 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Insulation resistance		≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ
Surge voltage category		III	III	III	III
Material data					
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material		PA6	PA6	PA6	PA6
Cable type		PP litz wire	PP litz wire	PP litz wire	PP litz wire
Temperature data					
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85
Cable, fixed installation	[°C]	-40 ... 90	-40 ... 90	-40 ... 90	-40 ... 90

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	Front mounting		Rear mounting		Front mounting		Rear mounting	
Flush-type plug-in connector, M16 fastening thread								
Socket	**1424137**	1	**1424133**	1	**1424138**	1	**1424134**	1
Plug	**1424139**	1	**1424132**	1	**1424140**	1	**1424136**	1

	Accessories			Accessories		
Flat nut, with: M16 thread	**SACC-E-MU-M16**	**1504097**	100	**SACC-E-MU-M16**	**1504097**	100

M12 power flush-type plug-in connectors, modular, 25 mm square flange, pre-assembled

Flange housing, 2.7 mm housing bore holes

Pre-assembled contact carrier and insulating body with 0.5 m long litz wires

		Technical data		Technical data	
				S-coded, 3-pos. + PE	T-coded, 4-pos.
General data					
Pollution degree		-	-	3	3
Degree of protection		-	-	IP67	IP67
Connection method		-	-	Individual wires	Individual wires
Electrical data					
Rated voltage		-	-	630 V	60 V
Rated current		-	-	12 A	12 A
Volume resistance		-	-	≤ 3 mΩ	≤ 3 mΩ
Surge voltage category		-	-	III	III
Material data					
Material contact / contact surface		- / -	- / -	CuZn / Au	CuZn / Au
Contact carrier material		-	-	PA6	PA6
Cable gland material		Zinc die-cast, nickel-plated	-	-	-
Cable type		-	-	PP litz wire	PP litz wire
Temperature data					
Plug / socket	[°C]	-40 ... 85	-	-25 ... 85	-25 ... 85
Cable, fixed installation	[°C]	-	-	-40 ... 90	-40 ... 90

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
					S-coded, 3-pos. + PE		T-coded, 4-pos.	
Square flange housing, with flat gasket	1424131	10						
Assembled contact carrier and insulating body, with 0.5 m litz wires and crimp contacts Plug					1424129	1	1424130	1

M12, power device plug-in connector, two-piece, for reflow processes, rear mounting

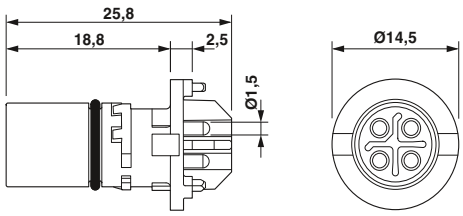
S-coded, 3-pos. + PE

T-coded, 4-pos.

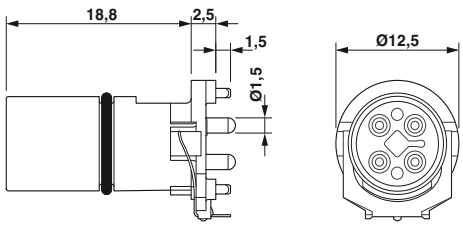
	Technical data		Technical data	
	Plug	Socket	Plug	Socket
General data				
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	THR solder connection	THR solder connection	THR solder connection	THR solder connection
Electrical data				
Rated voltage	630 V	630 V	60 V	60 V
Rated current	12 A	12 A	12 A	12 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Surge voltage category	III	III	III	III
Material data				
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material	PA4T	PA4T	PA4T	PA4T
Inflammability class according to UL 94	V0	V0	V0	V0
Temperature data				
Plug / socket [°C]	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	Plug		Socket		Plug		Socket	
Contact carrier, for reflow processes	1406410	20	1406409	20	1406396	60	1406411	60
Contact carrier, shielded, for reflow processes					1406397	60	1406412	60

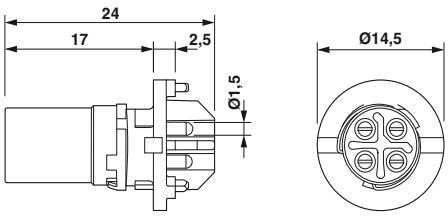
	Accessories	Accessories
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers	See page 258 onwards	See page 258 onwards



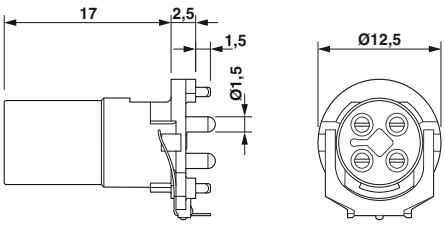
M12 flush-type plug



M12 flush-type plug



M12 flush-type socket



M12 flush-type socket

M12, power plug-in connector, screw connection

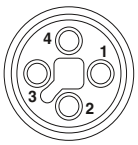
S-coded, 3-pos. + PE

T-coded, 4-pos.

	Technical data	Technical data
General data		
Pollution degree	3	3
Degree of protection	IP67	IP67
Connection method	Screw connection	Screw connection
Cable diameter	8 mm ... 10 mm	8 mm ... 10 mm
Connection cross section [mm²]	0.75 mm² ... 1.5 mm²	0.75 mm² ... 1.5 mm²
Electrical data		
Rated voltage	630 V	60 V
Rated current	12 A	12 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ
Surge voltage category	III	III
Material data		
Material contact / contact surface	CuZn / Au	CuZn / Au
Contact carrier material	PA 46	PA 46
Temperature data		
Plug / socket [°C]	-40 ... 85	-40 ... 85

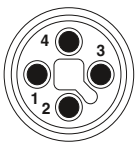
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Plug-in connector, with **Pg11** screw connection, **cable diameter: 8 mm ... 10 mm**						
Socket, straight	**SACC-M12FSS-3PECON-PG11-M**	**1404642**	1	**SACC-M12FST-3PECON-PG11-M**	**1404644**	1
Plug, straight	**SACC-M12MSS-3PECON-PG11-M**	**1404641**	1	**SACC-M12MST-3PECON-PG11-M**	**1404643**	1

Pin assignment of M12 socket, 4-pos., S-coded, view of socket side



Pin assignment of M12 socket, 4-pos., T-coded, view of socket side

Pin assignment of M12 plug, 4-pos., S-coded, view of plug side



Pin assignment of M12 plug, 4-pos., T-coded, view of plug side

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

Free end	M12 plug, SPEEDCON	

	Ordering data		Ordering data		Ordering data	
Free end		**Order No.**		**Order No.**		**Order No.**
			1 m	**1408835**	1 m	**1408839**
			2 m	**1408836**	2 m	**1408840**
			5 m	**1408837**	5 m	**1408841**
			10 m	**1408838**	10 m	**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	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

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

Free end	M12 plug, SPEEDCON, 360° shielded	

Free end	Ordering data	Order No.	Ordering data	Order No.	Ordering data	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**
M12 socket, SPEEDCON, straight, 360° shielded						
	1.5 m	**1424096**				
	3 m	**1424097**				
	5 m	**1424098**				
	10 m	**1424099**				
M12 socket, SPEEDCON, angled, 360° shielded						
	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

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

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
PUR, halogen-free - black	**PUR**

Color coding		Pin assignment
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

Free end	M12 plug, SPEEDCON 360° shielded	

Free end	Ordering data		Ordering data		Ordering data	
		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
PUR, halogen-free - black	**PUR**

Color coding		Pin assignment
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

Accessories

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 For unoccupied M5 sockets of the sensor/actuator cables, boxes and flush-type plug-in connectors	①	**PROT-M5**	**1533288**	10
M8 screw plug For unoccupied M8 sockets of the sensor/actuator cables, boxes and flush-type plug-in connectors	②	**PROT-M8**	**1682540**	5
M12 screw plug For the unused M12 sockets of the sensor/actuator cables, boxes and flush-type plug-in connectors	③	**PROT-M12**	**1680539**	5
M12 screw plug with SPEEDCON quick locking For unoccupied M12 sockets of the sensor/actuator cables, boxes and flush-type plug-in connectors	④	**PROT-MS SCO**	**1553129**	5
M12 sealing cap For unoccupied M12 plugs of the sensor/actuator cables, flush-type plug-in connectors and I/O devices in the field	⑤	**PROT-M12 FS**	**1560251**	5
M12 screw plug,metal For unoccupied M12 sockets of the shielded sensor/actuator cables, boxes and flush-type plug-in connectors	⑥	**PROT-M12 SH**	**1503302**	5
M12 sealing cap, metal For unoccupied M12 plugs of the sensor/actuator cables, flush-type plug-in connectors and I/O devices in the field	⑦	**PROT-M12 FS-M**	**1430488**	10
M12 screw plug, stainless steel For unused M12 sockets of the sensor/actuator cables, boxes, and flush-type plug-in connectors in the food and outdoor range	⑧	**PROT-M12 FB**	**1555538**	5
Closing cap For Pg9/ Pg11, to close unoccupied connections	⑨	**Q-PROT 9/11**	**1670235**	10
M16 locking screw With flat nut for oval housing cutouts	⑩	**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.

Description		Ordering data		
		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 for flush-type plug-in connectors

Special fixing nuts are available for EMC-compliant installation of M12 flush-type plug-in connectors on coated or varnished housing surfaces. When tightened, these cut through the surface coating, thus establishing contact between the housing and the connector.

Alternatively, flat gaskets can be used as the seal between the housing panel and the device plug. Flat gaskets are recommended for thin panels, as the housing cutouts do not have to be chamfered.

Description		Ordering data		
		Type	Order No.	Pcs. / Pkt.
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with:	①			
M12 fastening thread		**SACC-M12-KD-NUT-SH**	**1440151**	10
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with:	②			
M16 fastening thread		**SACC-M16-KD-NUT-SH**	**1440164**	10
Pg9 fastening thread		**SACC-PG9-KD-NUT-SH**	**1440177**	10
Flat gasket for all flush-type plug-in connectors with:	③			
M16 fastening thread		**SACC-M16-SEAL CLM**	**1430394**	10
Pg9 fastening thread		**SACC-PG9-SEAL CLM**	**1556320**	10

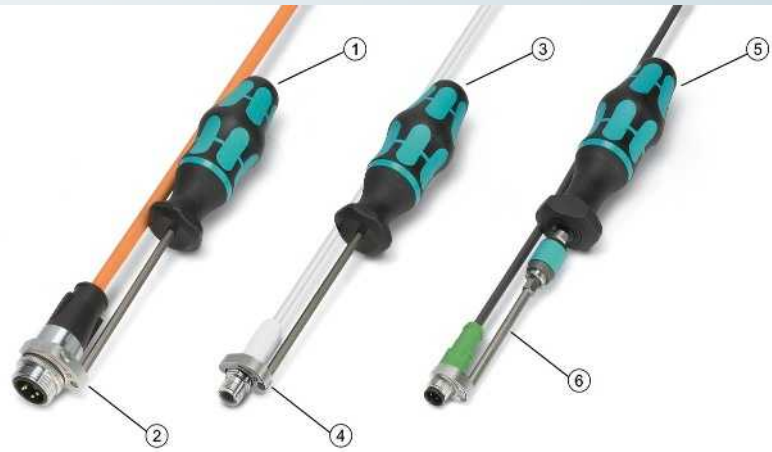
Assembly tools for sensor/actuator cables

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 connectors with hexagonal stainless steel knurl is also made from stainless steel. This prevents the connector knurls from being contaminated by corrosive materials.

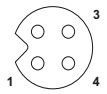
For greater flexibility, screwdrivers with adjustable torque are also available. When used in conjunction with the adapter insert, they can also be used to accommodate the available plug attachments.



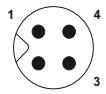
Description	Ordering data: Type	Order No.	Pcs. / Pkt.
Torque screwdriver ① With a preset torque of 0.8 Nm and a 4 mm hexagonal drive	**TSD 08 SAC**	**1212597**	1
Nut ② For assembling 7/8" plug-in connectors, with 4 mm hexagonal drive	**SAC BIT MIN-D25**	**1212512**	1
Torque screwdriver ③ With preset torque of 0.4 Nm and 4 mm hexagonal drive	**TSD 04 SAC**	**1208429**	1
Nut ④ For mounting M12 plug-in connectors with hexagonal stainless steel knurl, wrench size 14, with 4 mm hexagonal drive	**SAC BIT M12-W14**	**1212513**	1
Torque screwdriver, accuracy according to standard EN ISO 6789 ⑤			
Adjustable from 0.3 - 1.2 Nm	**TSD-M 1,2NM**	**1212224**	1
Adjustable from 1.2 - 3 Nm	**TSD-M 3NM**	**1212225**	1
Adjustable from 3 - 6 Nm	**TSD-M 6NM**	**1212226**	1
Adapter insert ⑥ For torque screwdrivers with adjustable torque, for accommodating plug attachments with 4 mm hexagonal drive	**TSD-M SAC-BIT ADAPTER**	**1212600**	1

M5 flush-type plug-in connectors

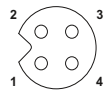
Pin assignments



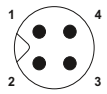
Socket, 3-pos.



Plug, 3-pos.



Socket, 4-pos.



Plug, 4-pos.

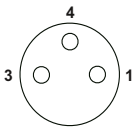
Litz wire colors

Pin	Wire color			
	3-pos.		4-pos.	
1	BN		BN	
2	–		WH	
3	BU		BU	
4	BK		BK	

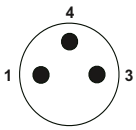
Assignment: M5 flush-type plugs/sockets

M8 flush-type plug-in connectors

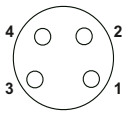
Pin assignments



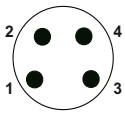
Socket, 3-pos.



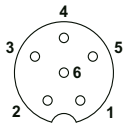
Plug, 3-pos.



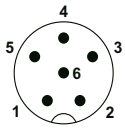
Socket, 4-pos.



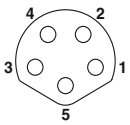
Plug, 4-pos.



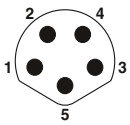
Socket, 6-pos.



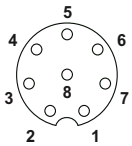
Plug, 6-pos.



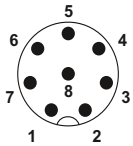
Socket, 5-pos., DeviceNet™, B-coded



Plug, 5-pos., DeviceNet™, B-coded



Socket, 8-pos.



Plug, 8-pos.

Litz wire colors

Pin	Wire color							
	3-pos.		4-pos.		6-pos.		8-pos.	
1	BN		BN		BN		WH	
2	–		WH		WH		BN	
3	BU		BU		BU		GN	
4	BK		BK		BK		YE	
5	–		–		GY		GY	
6	–		–		PK		PK	
7	–		–		–		BU	
8	–		–		–		RD	

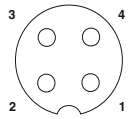
Assignment: M8 flush-type plugs/sockets

Pin	Wire color		Signal DeviceNet™
1	Shield		Drain
2	RD		V+
4	BK		V–
3	WH		CAN_H
5	BU		CAN_L

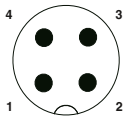
Assignment: CANopen®/DeviceNet™

M12 flush-type plug-in connectors

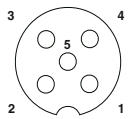
Pin assignments



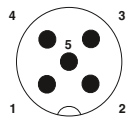
Socket, 4-pos., A-coded



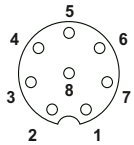
Plug, 4-pos., A-coded



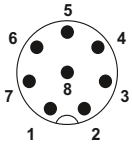
Socket, 5-pos., A-coded



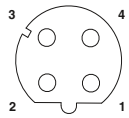
Plug, 5-pos., A-coded



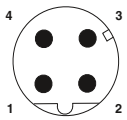
Socket, 8-pos.



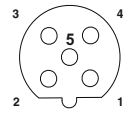
Plug, 8-pos.



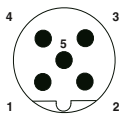
Socket, 4-pos., D-coded



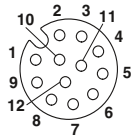
Plug, 4-pos., D-coded



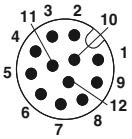
Socket, 5-pos., B-coded



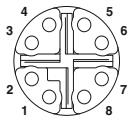
Plug, 5-pos., B-coded



Socket, 12-pos.

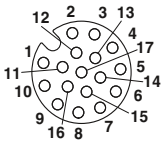


Plug, 12-pos.

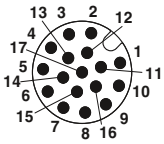


Socket, 8-pos., X-coded

Socket, 8-pos., Y-coded



Socket, 17-pos.



Plug, 17-pos.

Litz wire colors

Pin	4-pos., A-coded		4-pos., D-coded	
1	BN		YE	
2	WH		WH	
3	BU		OG	
4	BK		BU	
	–		–	

Assignment: M12 flush-type plugs/sockets

Pin	5-pos., A-coded		5-pos., B-coded	
1	BN		BN	
2	WH		WH	
3	BU		BU	
4	BK		BK	
5	GY		GY	

Assignment: M12 flush-type plugs/sockets

Pin	8-pos.		12-pos.	
1	WH		BN	
2	BN		BU	
3	GN		WH	
4	YE		GN	
5	GY		PK	
6	PK		YE	
7	BU		BK	
8	RD		GY	
9	–		RD	
10	–		VT	
11	–		GYPK	
12	–		RDBU	

Assignment: M12 flush-type plugs/sockets

Pin	Wire color		Signal PROFIBUS
1	–		–
2	GN		A cable
3	–		–
4	RD		B cable
5	Filler litz wire		–

Shield on housing

Assignment: PROFIBUS

Pin	Wire color		Signal CANopen®
1	Shield		–
2	RD		–
3	BK		CAN_GND
4	WH		CAN_H
5	BU		CAN_L

Shield on housing

Assignment: CANopen®

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

Assignment: M12 flush-type plugs/sockets

Pin	Wire color		Signal DeviceNet™
1	Shield		Drain
2	RD		V+
3	BK		V-
4	WH		CAN_H
5	BU		CAN_L

Shield on housing

Assignment: DeviceNet™

Pin	Wire color		Signal Ethernet
1	WHOG		TD+
2	WHGN		RD+
3	OG		TD–
4	GN		RD–

Shield on housing

Assignment: Ethernet

Pin	Wire color		Signal INTERBUS
1	YE		DO
2	GN		DO
3	GY		DI
4	PK		DI
5	BN		COM
-	WH		NC

Shield on housing

Assignment: INTERBUS

Pin	Wire color		Signal Ethernet
1	WH		D1+
2	OG		D1-
3	WH		D2+
4	GN		D2–
5	WH		D4+
6	BN		D4–
7	WH		D3–
8	BU		D3+

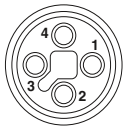
Assignment: Ethernet CAT6$_A$

M12 power flush-type plug-in connectors

Pin assignments

Socket, S-coded, 3+PE

Plug, A-coded, 3+PE



Socket, T-coded, 4-pos.

Plug, T-coded, 4-pos.

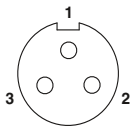
Litz wire colors

Pin	3+PE, S-cod.	Pin	4-pos, T-cod.
1	BK1	1	BN
2	BK2	2	WH
3	BK3	3	BU
PE	GNYE	4	BK

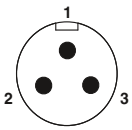
Assignment: M12 flush-type plugs/sockets

7/8" flush-type plug-in connectors

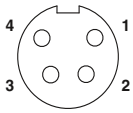
Pin assignments



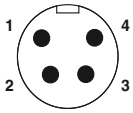
Socket, 3-pos.



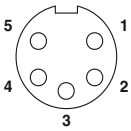
Plug, 3-pos.



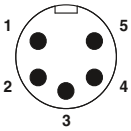
Socket, 4-pos.



Plug, 4-pos.



Socket, 5-pos.



Plug, 5-pos.

Litz wire colors

Pin	3-pos.	4-pos.	5-pos.
1	BK	BK	BK
2	BN	BU	BU
3	BU	BN	GNYE
4	–	WH	BN
5	–	–	WH

Assignment: 7/8" flush-type plugs/sockets

THR processing notes

Information for THR processing	
PCB thickness	Max. 1.6 mm
Residual ring	Recommended: 0.5 mm
Overprinting on soldering mold	Residual ring diameter: 0.2 mm
Soldering mold thickness	150 µm
Soldering profile	IEC 61760-3

Further information	
RoHS conformance	Attained

locked

M17 to M58 circular plug-in connectors

PLUSCON circular is the complete range of electrical circular plug-in connectors designed for use in industrial automation. The wide range of available versions covers sizes M17 to M23, M40, and M58 locking threads.

The product portfolio covers all common applications in industrial environments for signal and power plug-in connectors up to 630 V/150 A. This also includes requirements relating to tightness, vibration resistance, and EMC shielding. These solid metal plugs are particularly suitable for harsh ambient conditions. The circular plug-in connector range is rounded off with a complete portfolio of plastic molded cable plug-in connectors.

Among the numerous applications, the area of electrical drives is worth highlighting. Here, the entire range covers all the power ranges and designs required for wiring from the drive to the control cabinet.

M17 - signal plug-in connectors

Technical data/pin assignments **304**
Selection guide **306**
Plug-in connectors **308**
Crimp contacts **318**

M23 - signal plug-in connectors

Technical data/pin assignments **320**
Selection guide **322**
Plug-in connectors **324**
Crimp contacts **334**

M23 - feedback plug-in connectors

Technical data/pin assignments **336**
Selection guide **338**
Plug-in connectors **340**
Crimp contacts **346**

M17 - power plug-in connectors

Technical data/pin assignments **348**
Selection guide **350**
Plug-in connectors **352**
Crimp contacts **362**

M23 - power plug-in connectors

Technical data/pin assignments **364**
Selection guide **366**
Plug-in connectors **368**
Crimp contacts **374**

M40 - power plug-in connectors

Technical data/pin assignments **376**
Selection guide **378**
Plug-in connectors **380**
Crimp contacts **385**

M58 - power plug-in connectors

Technical data/pin assignments **386**
Selection guide **388**
Plug-in connectors **390**
Crimp contacts **392**

Signal/power plug-in connectors, plastic molded **394**

Tools and accessories **404**

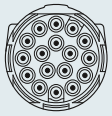
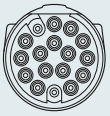
Mechanical and electrical data

Mechanical data	
Housing material:	Copper zinc alloy (CuZn), die-cast zinc (GD-Zn)
Housing surface:	Nickel-plated/thick layer passivated (can be coated)
Insulating body:	Polyamide (PA 66)
Contact material:	Copper zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold coating (Au)
Contact connection method:	Crimp version
Sealing and O-ring:	Fluorocarbon rubber (FKM)
Ambient temperature:	-40°C ... 125°C
Cable entry:	Cable and coupler plug-in connectors for cable outside diameter of 3.5 - 11 mm, shielded (M17 Compact) 5 - 12.5 mm, shielded (M17)
Type of locking:	M17 SPEEDCON rapid interlock system, cable plug-in connector Optionally with M17 x 1 coarse-pitch thread
Mechanical insertion/withdrawal cycles:	Standard: 100, punched-rolled C-HC crimp contacts: up to 500
Protection class:	IP67 in the locked state

Electrical data			
Number of positions		**8**	**17**
Contacts		8	17
Contact Ø	[mm]	1	0.6
Litz wire cross section, crimp contacts Turned	[mm²]	0.06 ... 1.0	0.06 ... 0.5
Litz wire cross section, C-HC crimp contacts Punched-rolled	[mm²]	0.06 ... 0.56	–
Nominal current per contact at 25°C [1]		3.6	3.6
Specifications according to DIN EN 61984:2009			
Rated voltage	[V AC/DC]	60	60
Test/surge voltage	[kV AC]	1.5	1.5
Surge voltage category		III	III
Pollution degree [2]		3	3
Installation height	[m]	Up to 3000	Up to 3000
Cable clamping area [3]	max. Ø [mm]	12.5	12.5

[1] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2] The values specified assume that the plug-in connector pair is correctly locked and is only disconnected for testing and maintenance purposes. If the plug-in connector is unlocked and exposed to ambient conditions, and if there is a danger of contamination, the plug-in connector must be sealed using a protective cap ≥ IP54.
[3] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selection and testing is the responsibility of the user.

Pin assignments and coding

	Contact chamber numbering (view of plug-in side)	
Number of positions	**Pin**	**Socket**
8-pos. Crimp		
17-pos. Crimp		

Note:
The plug-in connectors can be equipped with pin or socket contacts according to the application.

For reasons of safety, only socket contacts may be used in the live part of the plug.

Selection guide

M17 signal plug-in connectors, 8 and 17-pos., crimp ranges: 0.06 mm² to 1.0 mm²
– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors (device flanges)

The plug-in connectors are supplied fully pre-assembled and are complemented by the respective crimp contacts.

Plug-in connectors with knurled nuts can be optionally equipped with SPEEDCON rapid interlock system or with M17 x 1 coarse-pitch thread. The plug-in connectors with external thread are fully compatible with standard threads and the SPEEDCON rapid interlock system.

The product chart provides an overview of the available components.

Plug-in connector type

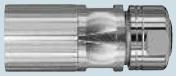
Cable plug-in connector

Shielded

SPEEDCON rapid interlock system,
M17 Compact, see page 308.

M17, see page 312.

M17 x 1 standard interlocking,
M17, see page 313.



Square mounting flange for M17 cable and coupler plug-in connectors for wall mounting, see page 410.

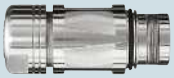
Coupler plug-in connector/panel feed-through

Shielded

Coupler plug-in connector
M17 Compact, see page 309.

Panel feed-through
M17 Compact, see page 310.

M17, see page 314.



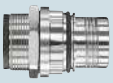
Device plug-in connector

Shielded

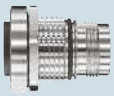
Straight,
M17 Compact, see page 311.

Straight,
M17, see page 315.

Straight, with central fastening thread, front mounting,
M17, see page 317.



Straight, with central fastening thread, rear mounting,
M17, see page 317.



Angled, rotatable,
M17, see page 316.

All housing can be fitted with pin or socket crimp contacts

Crimp contacts

Socket contacts

Turned, see page 319.

Punched-rolled, taped,
see page 318.

Pin contacts

Turned, see page 319.

Punched-rolled, taped,
see page 318.

Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Tools/accessories

Crimping tools

Crimping pliers for punched-rolled C-HC crimp contacts,
see page 406.

Crimping pliers with digital display for turned crimp contacts,
see page 407.

Tools/accessories

Contact removal tool for device plug-in connectors with contact carriers for snapping in from the device side,
see page 410.

Color rings for individually marking the plug-in connectors,
see page 412.

M17 Compact cable plug-in connector

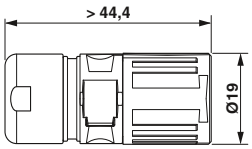
- High packing density in a compact product
- Individual marking of plug-in connectors with color rings

Cable plug-in connector, socket assembly

Cable plug-in connector, pin assembly

Description	Cable clamping area	Ordering data: Order No. (8-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.	Ordering data: Order No. (8-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.
Cable plug-in connector, with contact carrier, **without** contacts									
	3.5 mm ... 5.5 mm	**1613370**	1	**1613288**	1	**1618641**	1	**1618682**	1
	5 mm ... 9 mm	**1613371**	1	**1613324**	1	**1618648**	1	**1618683**	1
	9 mm ... 11 mm	**1613372**	1	**1613325**	1	**1618649**	1	**1618684**	1

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412	For pin contacts, see page 318 onwards See page 412



M17 Compact coupler plug-in connector

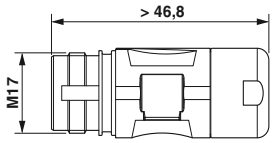
- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings

Coupler plug-in connector, socket assembly

Coupler plug-in connector, pin assembly

		Ordering data				Ordering data			
Description	Cable clamping area	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		8-pos.		17-pos.		8-pos.		17-pos.	
Coupler plug-in connector, with contact carrier, **without** contacts									
	3.5 mm ... 5.5 mm	**1618724**	1	**1618756**	1	**1617799**	1	**1613497**	1
	5 mm ... 9 mm	**1618725**	1	**1618757**	1	**1617813**	1	**1613896**	1
	9 mm ... 11 mm	**1618726**	1	**1618758**	1	**1617830**	1	**1614532**	1

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412	For pin contacts, see page 318 onwards See page 412



M17 Compact panel feed-through

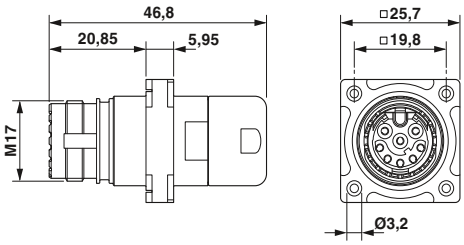
- Panel feed-throughs suitable for front and rear mounting
- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings
- **Flange dimensions 25.7 mm x 25.7 mm**

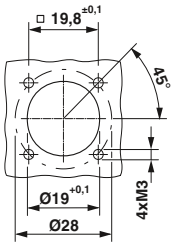
Panel feed-through, socket assembly

Panel feed-through, pin assembly

Description	Cable clamping area	Ordering data: Order No. (8-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.	Ordering data: Order No. (8-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.
Panel feed-through, with contact carrier, **without contacts**									
	3.5 mm ... 5.5 mm	**1618801**	1	**1618834**	1	**1617925**	1	**1617863**	1
	5 mm ... 9 mm	**1618802**	1	**1618835**	1	**1617929**	1	**1617872**	1
	9 mm ... 11 mm	**1618805**	1	**1618836**	1	**1617932**	1	**1617873**	1

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412	For pin contacts, see page 318 onwards See page 412





Installation dimensions

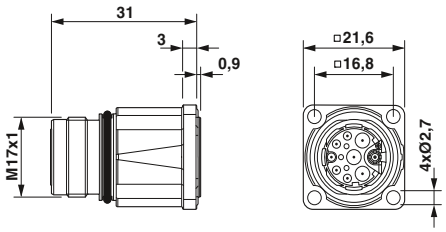
M17 Compact device plug-in connectors, front mounting

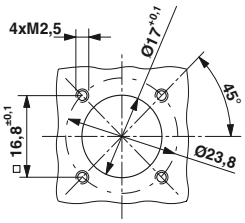
- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings
- **Flange dimensions 21.6 mm x 21.6 mm**

Device plug-in connector, straight, socket assembly

Device plug-in connector, straight, pin assembly

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	8-pos.		**17-pos.**		**8-pos.**		**17-pos.**	
Device plug-in connector, with contact carrier, **without** contacts, contact insert **can be snapped in**	**1619039**	1	**1607654**	1	**1613286**	1	**1607636**	1
Device plug-in connector, with contact carrier, **without** contacts, contact insert **for support** on the device	**1619038**	1	**1607653**	1	**1619037**	1	**1607634**	1
	Accessories				**Accessories**			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412				For pin contacts, see page 318 onwards See page 412			





Installation dimensions

Cable plug-in connector, SPEEDCON rapid interlock system

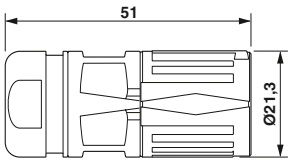
– Individual marking of plug-in connectors with color rings

Cable plug-in connector, socket assembly

Cable plug-in connector, pin assembly

Description	Cable clamping area	Ordering data: Order No. (8-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.	Ordering data: Order No. (8-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.
Cable plug-in connector, with contact carrier, **without** contacts									
	5 mm ... 8 mm	**1619007**	1	**1607642**	1	**1618999**	1	**1607625**	1
	8 mm ... 10 mm	**1619008**	1	**1607644**	1	**1619000**	1	**1607627**	1
	10 mm ... 12.5 mm	**1619009**	1	**1624532**	1	**1619001**	1	**1624529**	1

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412	For pin contacts, see page 318 onwards See page 412



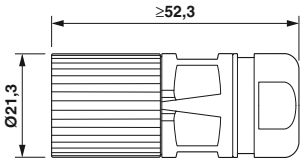
Cable plug-in connector, M17 standard interlocking

- Standard knurled nuts compatible with mating plugs with SPEEDCON or M17 standard external thread
- Individual marking of plug-in connectors with color rings

Cable plug-in connector, socket assembly

Cable plug-in connector, pin assembly

		Ordering data				Ordering data			
Description	Cable clamping area	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		8-pos.		17-pos.		8-pos.		17-pos.	
Cable plug-in connector, with contact carrier, **without** contacts									
	5 mm ... 8 mm	**1619003**	1	**1607641**	1	**1618995**	1	**1607624**	1
	8 mm ... 10 mm	**1619004**	1	**1607643**	1	**1618996**	1	**1607626**	1
	10 mm ... 12.5 mm	**1619005**	1	**1624531**	1	**1618997**	1	**1624528**	1
		Accessories				Accessories			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		For socket contacts, see page 318 onwards See page 412				For pin contacts, see page 318 onwards See page 412			



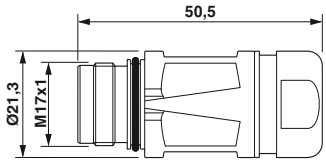
Coupler plug-in connector

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings

Coupler plug-in connector, socket assembly

Coupler plug-in connector, pin assembly

		Ordering data				Ordering data			
Description	Cable clamping area	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
		8-pos.		**17-pos.**		**8-pos.**		**17-pos.**	
Coupler plug-in connector, with contact carrier, **without** contacts									
	5 mm ... 8 mm	**1619015**	1	**1607647**	1	**1619011**	1	**1607630**	1
	8 mm ... 10 mm	**1619016**	1	**1607649**	1	**1619012**	1	**1607631**	1
	10 mm ... 12.5 mm	**1619017**	1	**1624533**	1	**1619013**	1	**1624530**	1
		Accessories				**Accessories**			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		For socket contacts, see page 318 onwards See page 412				For pin contacts, see page 318 onwards See page 412			



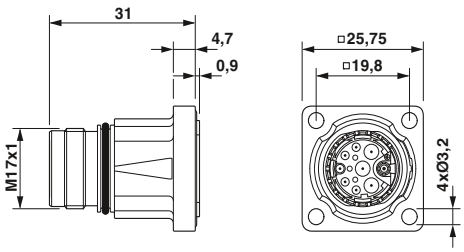
Device plug-in connector, straight, front mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Contact insert for support on the device or can be snapped in
- Individual marking of plug-in connectors with color rings

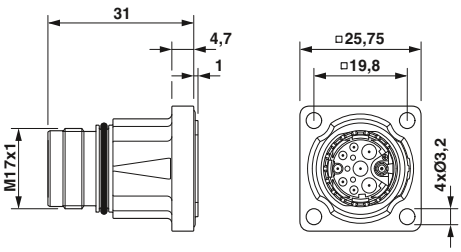
Device plug-in connector, straight, socket assembly

Device plug-in connector, straight, pin assembly

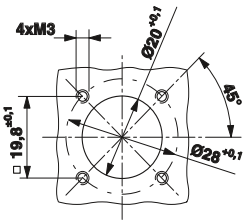
	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	8-pos.		**17-pos.**		**8-pos.**		**17-pos.**	
Device plug-in connector, with contact carrier, **without** contacts, contact insert **for support** on the device								
Flange dimensions: 25.75 mm x 25.75 mm	**1619197**	1	**1619206**	1	**1619196**	1	**1619202**	1
Device plug-in connector, with contact carrier, **without** contacts, contact insert **can be snapped in**								
Flange dimensions: 25.75 mm x 25.75 mm	**1619220**	1	**1619226**	1	**1619219**	1	**1619225**	1
	Accessories				**Accessories**			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412				For pin contacts, see page 318 onwards See page 412			



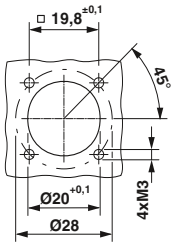
Contact insert for support on the device



Contact insert can be snapped in



Installation dimensions



Installation dimensions

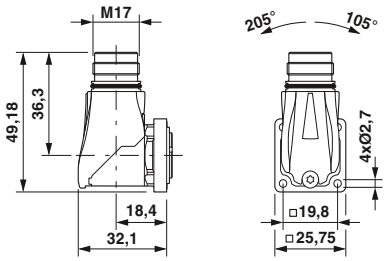
Device plug-in connector, angled, rotatable, front mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Housing can be freely rotated up to 308°
- Individual marking of plug-in connectors with color rings
- Flange versions for M2.5/M3 attachment

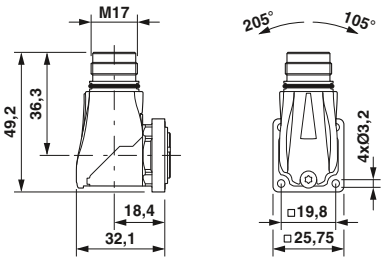
Device plug-in connector, angled, rotatable, for socket contacts

Device plug-in connector, angled, rotatable, for pin contacts

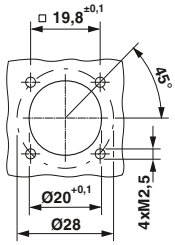
	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	8-pos.		17-pos.		8-pos.		17-pos.	
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts **Fixing with M2.5**	1620440	1	1620442	1	1620439	1	1620441	1
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts **Fixing with M3**	1620455	1	1620457	1	1620456	1	1620458	1
	Accessories				Accessories			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412				For pin contacts, see page 318 onwards See page 412			



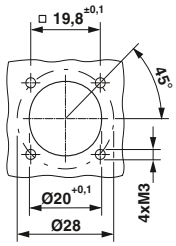
Fixing with M2.5



Fixing with M3



Installation dimensions



Installation dimensions

Device plug-in connector, central fastening thread, front/rear mounting

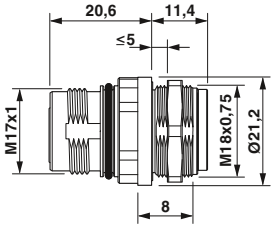
- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Contact carrier snapped in from the device side
- Individual marking of plug-in connectors with color rings

Device plug-in connector, central fixing, socket assembly

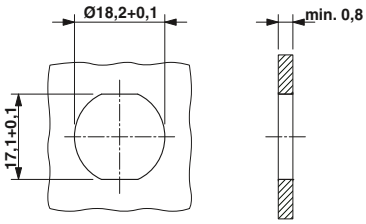
Device plug-in connector, central fixing, pin assembly

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	8-pos.		17-pos.		8-pos.		17-pos.	
Device plug-in connector, **front mounting**, M18 x 0.75 fastening thread, with contact carrier, without contacts	1619036	1	1613542	1	1618584	1	1613540	1
Device plug-in connector, **rear mounting**, M20 x 1.5 fastening thread, with contact carrier, without contacts	1619035	1	1613543	1	1619034	1	1613541	1

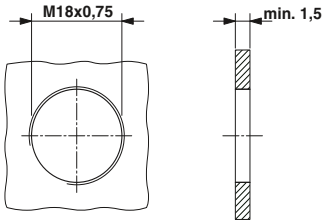
	Accessories			Accessories		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Locking nut, for mounting bore holes and anti-rotation protection						
M18 x 0.75	ST-E2015151	1613831	10	ST-E2015151	1613831	10
M20 x 1.5	RC-13041	1600417	10	RC-13041	1600417	10
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412			For pin contacts, see page 318 onwards See page 412		



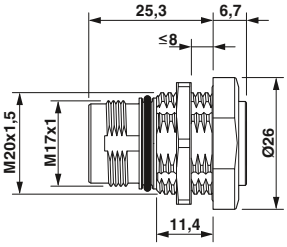
Front mounting, M18 x 0.75, order locking nut separately



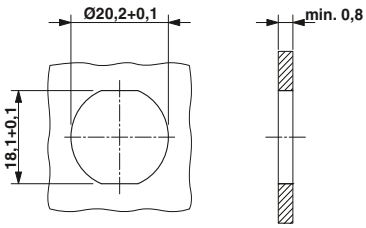
Installation dimensions: mounting with anti-rotation protection and locking nut



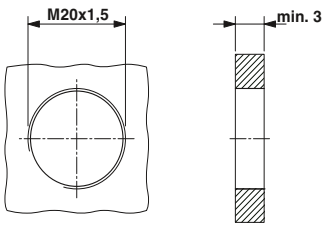
Installation dimensions: mounting with thread



Rear mounting, M20 x 1.5, order locking nut separately



Installation dimensions: mounting with anti-rotation protection and locking nut



Installation dimensions: mounting with thread

Crimp contacts, punched-rolled

C-HC® are punched-rolled contacts. They are designed for high insertion/ withdrawal cycles.

The contacts are available taped on rolls for manual or automatic processing.

Note: depending on the litz wire used, the connection cross sections (crimp ranges) may deviate from the listed values. For reasons of safety, only socket contacts may be used in the live part of the plug.

C-HC socket contacts

C-HC pin contacts

Description	Connection cross section [mm²]	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.
Crimp contacts, C-HC punched-rolled, Ø 1.0 mm, **2500 pcs./roll**							
	0.06 mm² ... 0.25 mm²	**SF-10KS320**	**1607031**	1	**SF-10KP320**	**1615961**	1
	0.2 mm² ... 0.56 mm²	**SF-10KS350**	**1607032**	1	**SF-10KP350**	**1615963**	1
Crimp contact C-HC punched-rolled, Ø 1.0 mm, **10,000 pcs./roll**							
	0.06 mm² ... 0.25 mm²	**SF-10KS330**	**1607358**	1	**SF-10KP330**	**1615962**	1
	0.2 mm² ... 0.56 mm²	**SF-10KS360**	**1607361**	1	**SF-10KP360**	**1615964**	1
		Accessories			**Accessories**		
Crimping tools		Order separately, see page 406			Order separately, see page 406		

Crimp contacts, turned

M17 signal plug-in connectors are fitted with contacts with Ø 1.0 mm or Ø 0.6 mm depending on the number of positions.
– 8-pos. versions: contacts with Ø 1.0 mm
– 17-pos. versions: contacts with Ø 0.6 mm

Note:
Depending on the litz wire used, the connection cross sections (crimp ranges) may deviate from the values listed below.

Crimp contacts, socket

Crimp contacts, pin

Description	Connection cross section [mm²]	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.
Contact socket Ø 0.6 mm							
	0.06 mm² ... 0.25 mm²	**ST-06KS010**	**1607580**	100			
	0.14 mm² ... 0.34 mm²	**ST-06KS020**	**1607581**	100			
	0.34 mm² ... 0.50 mm²	**ST-06KS030**	**1607582**	100			
Contact socket Ø 1.0 mm							
	0.06 mm² ... 0.25 mm²	**ST-10KS010**	**1618239**	100			
	0.34 mm² ... 0.5 mm²	**ST-10KS020**	**1618251**	100			
	0.5 mm² ... 1.0 mm²	**ST-10KS030**	**1618254**	100			
Contact pin Ø 0.6 mm							
	0.06 mm² ... 0.25 mm²				**ST-06KP010**	**1607577**	100
	0.14 mm² ... 0.34 mm²				**ST-06KP020**	**1607578**	100
	0.34 mm² ... 0.50 mm²				**ST-06KP030**	**1607579**	100
Contact pin Ø 1.0 mm							
	0.06 mm² ... 0.25 mm²				**ST-10KP010**	**1618255**	100
	0.34 mm² ... 0.5 mm²				**ST-10KP020**	**1618256**	100
	0.5 mm² ... 1.0 mm²				**ST-10KP030**	**1618261**	100
		Accessories			**Accessories**		
Crimping tools		Order separately, see page 407			Order separately, see page 407		

Notes:
Every plug-in connector housing type can be fitted with pin or socket contacts.

For reasons of safety, only socket contacts may be used in the live part of the plug.

Mechanical and electrical data

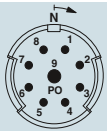
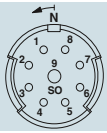
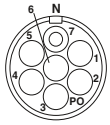
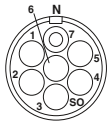
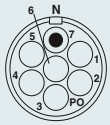
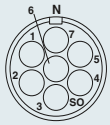
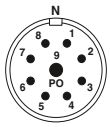
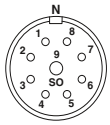
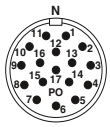
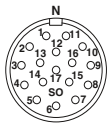
Mechanical data	
Housing material:	Copper zinc alloy (CuZn), die-cast zinc (GD-Zn)
Housing surface:	Nickel-plated/thick layer passivated (can be coated)
Insulating body:	Thermoplastic polyester (PBT), polyamide (PA 66)
Contact material:	Copper zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold coating (Au)
Contact connection method:	Solder cup, crimp, solder-in pin
Sealing and O-ring:	NBR
Flat gasket:	NBR, fiber reinforced NBR
Temperature range:	-40°C ... +125°C
Cable entry:	cable and coupler plug-in connectors for cable outside diameter of 3 - 14.5 mm, shielded
Type of locking:	M23 SPEEDCON rapid interlock system, Cable plug-in connector optionally with M23 x 1 coarse-pitch thread
Mechanical insertion/withdrawal cycles:	Standard: 100, punched-rolled C-HC crimp contacts: up to 500
Protection class:	IP67 in the locked state

Electrical data

Number of positions		**6**	7	**9 (8+1)**	**12**	**17**	19 (16+3)
Contacts		6	7	8 + 1	12	17	16 + 3
Contact Ø	[mm]	2	2	1 2	1	1	1 1.5
Litz wire cross section							
Solder connection: contacts x [mm²] maximum		6 x 2.5	7 x 2.5	8 x 1.0 + 1 x 2.5	12 x 1.0	17 x 1.0	16 x 1.0 + 3 x 1.0
Crimp connection: contacts x [mm²] maximum		6 x 2.5	7 x 2.5	8 x 0.56 + 1 x 2.5	12 x 0.56	17 x 0.56	16 x 1.0 + 3 x 1.0
Nominal current per contact at 25°C[1]		20	20	8 20	8	8	8 10
Specifications according to DIN EN 61984:2009							
Rated voltage	[V AC/DC]	300	300	300	150	150	150
Test/surge voltage	[kV AC]	2.5	2.5	2.5	1.5	1.5	1.5
Surge voltage category		II	II	II	II	II	II
Pollution degree [2]		3	3	3	3	3	3
Installation height	[m]	Up to 2000	Up to 2000	Up to 2000	Up to 2000	Up to 2000	Up to 2000
Cable clamping area [3]	max. Ø [mm]	14.5	14.5	14.5	14.5	14.5	14.5

[1] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2] The values specified assume that the plug-in connector pair is correctly locked and is only disconnected for testing and maintenance purposes. If the plug-in connector is unlocked and exposed to ambient conditions, and if there is a danger of contamination, the plug-in connector must be sealed using a protective cap ≥ IP54.
[3] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selection and testing is the responsibility of the user.

Note:
Unlike plug-in equipment, plug-in connectors must not be plugged or unplugged under load.

	Contact chamber numbering (view of plug-in side)	
Direction of rotation for contact chamber numbering (view of plug-in side)		
	Clockwise (standard)	**Counter-clockwise** (standard)
Number of positions	**Pin**	**Socket**
6-pos. Solder/crimp/solder-in		
7-pos. Solder/crimp/solder-in		
9-pos. (8+1) Solder/crimp/solder-in		
12-pos. Solder/crimp/solder-in		
17-pos. Solder/crimp/solder-in		
19-pos. (16+3) Solder/crimp		

Note:
The plug-in connectors can be equipped with pin or socket contacts according to the application.

For reasons of safety, only socket contacts may be used in the live part of the plug.

Selection guide

M23 signal plug-in connector, 6 to 19-pos., up to 20 A/300 V, solder, crimp, and solder-in connection.

– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors (device flanges)

In the case of crimp connection, the respective crimp contacts must be added according to the connection cross section.

Each housing type can be equipped with pin or socket contacts. The product chart provides an overview of the available components.

Plug-in connector type

Shielded

Cable plug-in connectors

SPEEDCON rapid interlock system, see page 324.

M23 x 1 standard interlocking, see page 325.

Shielded

Coupler plug-in connectors

See page 326.

Shielded

Device plug-in connectors

Front mounting, Pg13.5 fastening thread, see page 327.

Front mounting, M20 fastening thread, see page 328.

Front mounting, flange dimensions 25 mm x 25 mm, see page 329.

Front mounting, solder-in connection flange dimensions 25 mm x 25 mm, see page 330.

Rear mounting, central fastening nut, see page 332.

All housing can be fitted with pin or socket crimp contacts

For crimp connection:

Socket contacts

Turned, see page 334.

Rolled, taped,
see page 334.

Pin contacts

Turned, see page 334.

Rolled, taped,
see page 334.

Tools/accessories

Crimping tools

Crimping pliers for rolled crimp contacts,
see page 404.

Crimping pliers with digital display for turned crimp contacts,
see page 404.

Tools/accessories

Contact removal tool for device plug-in connectors for releasing the contact carriers from the plug-in side,
see page 410.

Color rings for individually marking the plug-in connectors,
see page 412.

Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Cable plug-in connector, SPEEDCON rapid interlock system

- 6 to 19-pos. versions, solder/crimp connection
- Individual marking of plug-in connectors with color rings

N

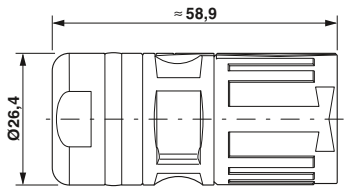
6, 7, 8+1-pos.

N

12, 17, 16+3-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Cable plug-in connector, with contact carrier, with **socket contacts**, **solder connection**													
Universal gasket	3 mm ... 14.5 mm	1619605	1	1619601	1	1619597	1	1619593	1	1619585	1	1619581	1
	4 mm ... 6 mm	1619579	1	1619575	1	1619571	1	1619567	1	1619541	1	1619537	1
	6 mm ... 10 mm	1619534	1	1619530	1	1619526	1	1619522	1	1619514	1	1619510	1
	10 mm ... 14.5 mm	1619508	1	1619504	1	1619500	1	1619496	1	1619483	1	1619479	1
Cable plug-in connector, with contact carrier, with **pin contacts**, **solder connection**													
Universal gasket	3 mm ... 14.5 mm	1619604	1	1619600	1	1619596	1	1619592	1	1619584	1	1619580	1
	4 mm ... 6 mm	1619578	1	1619574	1	1619570	1	1619548	1	1619540	1	1619536	1
	6 mm ... 10 mm	1619533	1	1619529	1	1619525	1	1619521	1	1619513	1	1619509	1
	10 mm ... 14.5 mm	1619507	1	1619503	1	1619499	1	1619495	1	1619482	1	1619478	1
Cable plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection**													
Universal gasket	3 mm ... 14.5 mm	1619603	1	1619599	1	1619595	1	1619591	1	1619583	1		
	4 mm ... 6 mm	1619577	1	1619573	1	1619569	1	1619547	1	1619539	1		
	6 mm ... 10 mm	1619532	1	1619528	1	1619524	1	1619520	1	1619512	1		
	10 mm ... 14.5 mm	1619506	1	1619502	1	1619498	1	1619489	1	1619481	1		
Cable plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection**													
Universal gasket	3 mm ... 14.5 mm	1619602	1	1619598	1	1619594	1	1619590	1	1619582	1		
	4 mm ... 6 mm	1619576	1	1619572	1	1619568	1	1619546	1	1619538	1		
	6 mm ... 10 mm	1619531	1	1619527	1	1619523	1	1619519	1	1619511	1		
	10 mm ... 14.5 mm	1619505	1	1619501	1	1619497	1	1619488	1	1619480	1		

	Accessories	Accessories
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412	Order separately, see page 334 onwards See page 412



Cable plug-in connector, M23 standard interlocking

- Standard knurled nuts compatible with mating plugs with SPEEDCON or M23 standard external thread
- 6 to 19-pos. versions, solder/crimp connection
- Individual marking of plug-in connectors with color rings

N

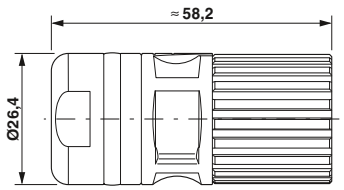
6, 7, 8+1-pos.

N

12, 17, 16+3-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Cable plug-in connector, with contact carrier, with **socket contacts**, **solder connection**													
Universal gasket	3 mm ... 14.5 mm	**1619776**	1	**1619772**	1	**1619768**	1	**1619764**	1	**1619756**	1	**1619752**	1
	4 mm ... 6 mm	**1619750**	1	**1619746**	1	**1619742**	1	**1619738**	1	**1619730**	1	**1619726**	1
	6 mm ... 10 mm	**1619724**	1	**1619720**	1	**1619716**	1	**1619710**	1	**1619702**	1	**1619661**	1
	10 mm ... 14.5 mm	**1619659**	1	**1619655**	1	**1619651**	1	**1619647**	1	**1619639**	1	**1619635**	1
Cable plug-in connector, with contact carrier, with **pin contacts**, **solder connection**													
Universal gasket	3 mm ... 14.5 mm	**1619775**	1	**1619771**	1	**1619767**	1	**1619763**	1	**1619755**	1	**1619751**	1
	4 mm ... 6 mm	**1619749**	1	**1619745**	1	**1619741**	1	**1619737**	1	**1619729**	1	**1619725**	1
	6 mm ... 10 mm	**1619723**	1	**1619719**	1	**1619715**	1	**1619709**	1	**1619701**	1	**1619660**	1
	10 mm ... 14.5 mm	**1619658**	1	**1619654**	1	**1619650**	1	**1619646**	1	**1619638**	1	**1619634**	1
Cable plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection**													
Universal gasket	3 mm ... 14.5 mm	**1619774**	1	**1619770**	1	**1619766**	1	**1619762**	1	**1619754**	1		
	4 mm ... 6 mm	**1619748**	1	**1619744**	1	**1619740**	1	**1619736**	1	**1619728**	1		
	6 mm ... 10 mm	**1619722**	1	**1619718**	1	**1619714**	1	**1619708**	1	**1619700**	1		
	10 mm ... 14.5 mm	**1619657**	1	**1619653**	1	**1619649**	1	**1619645**	1	**1619637**	1		
Cable plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection**													
Universal gasket	3 mm ... 14.5 mm	**1619773**	1	**1619769**	1	**1619765**	1	**1619761**	1	**1619753**	1		
	4 mm ... 6 mm	**1619747**	1	**1619743**	1	**1619739**	1	**1619735**	1	**1619727**	1		
	6 mm ... 10 mm	**1619721**	1	**1619717**	1	**1619711**	1	**1619707**	1	**1619699**	1		
	10 mm ... 14.5 mm	**1619656**	1	**1619652**	1	**1619648**	1	**1619644**	1	**1619636**	1		

	Accessories	Accessories
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412	Order separately, see page 334 onwards See page 412



Coupler plug-in connector

N

6, 7, 8+1-pos.

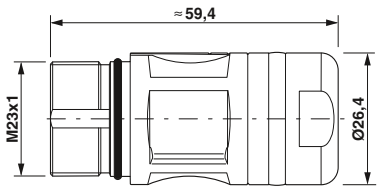
N

12, 17, 16+3-pos.

- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- 6 to 19-pos. versions, solder/crimp connection
- Individual marking of plug-in connectors with color rings

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Coupler plug-in connector, with contact carrier, with **socket contacts**, **solder connection**													
Universal gasket	3 mm ... 14.5 mm	**1620172**	1	**1620168**	1	**1620164**	1	**1620160**	1	**1620151**	1	**1620147**	1
	4 mm ... 6 mm	**1620145**	1	**1620141**	1	**1620137**	1	**1620133**	1	**1620125**	1	**1620121**	1
	6 mm ... 10 mm	**1620119**	1	**1620115**	1	**1620079**	1	**1620075**	1	**1620052**	1	**1620048**	1
	10 mm ... 14.5 mm	**1620046**	1	**1620042**	1	**1620036**	1	**1620032**	1	**1620024**	1	**1620020**	1
Coupler plug-in connector, with contact carrier, with **pin contacts**, **solder connection**													
Universal gasket	3 mm ... 14.5 mm	**1620171**	1	**1620167**	1	**1620163**	1	**1620159**	1	**1620150**	1	**1620146**	1
	4 mm ... 6 mm	**1620144**	1	**1620140**	1	**1620136**	1	**1620132**	1	**1620124**	1	**1620120**	1
	6 mm ... 10 mm	**1620118**	1	**1620114**	1	**1620078**	1	**1620074**	1	**1620051**	1	**1620047**	1
	10 mm ... 14.5 mm	**1620045**	1	**1620041**	1	**1620035**	1	**1620031**	1	**1620023**	1	**1620019**	1
Coupler plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection**													
Universal gasket	3 mm ... 14.5 mm	**1620170**	1	**1620166**	1	**1620162**	1	**1620158**	1	**1620149**	1		
	4 mm ... 6 mm	**1620143**	1	**1620139**	1	**1620135**	1	**1620131**	1	**1620123**	1		
	6 mm ... 10 mm	**1620117**	1	**1620081**	1	**1620077**	1	**1620073**	1	**1620050**	1		
	10 mm ... 14.5 mm	**1620044**	1	**1620038**	1	**1620034**	1	**1620030**	1	**1620022**	1		
Coupler plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection**													
Universal gasket	3 mm ... 14.5 mm	**1620169**	1	**1620165**	1	**1620161**	1	**1620157**	1	**1620148**	1		
	4 mm ... 6 mm	**1620142**	1	**1620138**	1	**1620134**	1	**1620130**	1	**1620122**	1		
	6 mm ... 10 mm	**1620116**	1	**1620080**	1	**1620076**	1	**1620072**	1	**1620049**	1		
	10 mm ... 14.5 mm	**1620043**	1	**1620037**	1	**1620033**	1	**1620029**	1	**1620021**	1		

	Accessories	Accessories
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412	Order separately, see page 334 onwards See page 412



Device plug-in connectors, front mounting

N

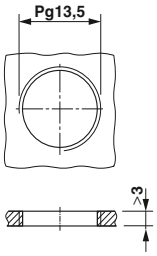
N

– Pg13.5 fastening thread
– Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
– 6 to 19-pos. versions, solder/crimp connection
– Individual marking of plug-in connectors with color rings

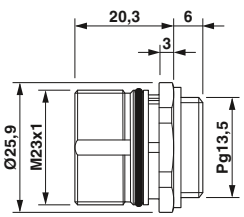
6, 7, 8+1-pos.

12, 17, 16+3-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Device plug-in connector, with contact carrier, with **socket contacts**, **solder connection, Pg13.5 central fastening thread,** axial seal	1619903	1	1619899	1	1619895	1	1619891	1	1619883	1	1619879	1
Device plug-in connector, with contact carrier, with **pin contacts**, **solder connection, Pg13.5 central fastening thread,** axial seal	1619902	1	1619898	1	1619894	1	1619890	1	1619882	1	1619878	1
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection, Pg13.5 central fastening thread,** axial seal	1619901	1	1619897	1	1619893	1	1619889	1	1619881	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection, Pg13.5 central fastening thread,** axial seal	1619900	1	1619896	1	1619892	1	1619888	1	1619880	1		
	Accessories						Accessories					
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412						Order separately, see page 334 onwards See page 412					



Installation dimensions



Device plug-in connectors, front mounting

N

N

– M20 fastening thread

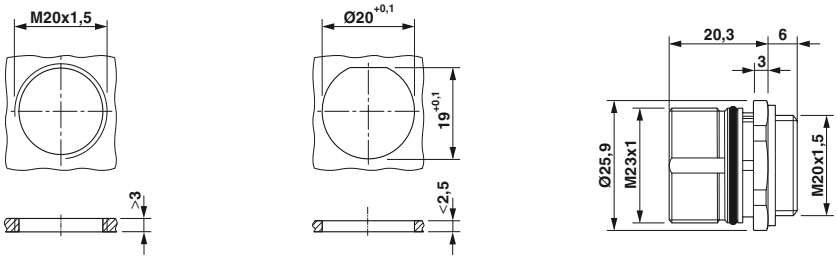
– Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
– 6 to 19-pos. versions, solder/crimp connection
– Individual marking of plug-in connectors with color rings

6, 7, 8+1-pos.

12, 17, 16+3-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Device plug-in connector, with contact carrier, with **socket contacts**, **solder connection, M20 central fastening thread,** axial seal	1619877	1	1619873	1	1619869	1	1619865	1	1619857	1	1619853	1
Device plug-in connector, with contact carrier, with **pin contacts**, **solder connection, M20 central fastening thread,** axial seal	1619876	1	1619872	1	1619868	1	1619864	1	1619856	1	1619852	1
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection, M20 central fastening thread,** axial seal	1619875	1	1619871	1	1619867	1	1619863	1	1619855	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection, M20 central fastening thread,** axial seal	1619874	1	1619870	1	1619866	1	1619862	1	1619854	1		

Description	Accessories			Accessories		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Locking nut, for mounting bore holes and anti-rotation protection M20 x 1.5	RC-13041	1600417	10	RC-13041	1600417	10
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412			Order separately, see page 334 onwards See page 412		



Installation dimensions

Device plug-in connectors, front mounting

N

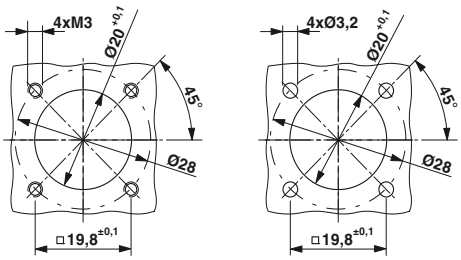
N

- **Flange dimensions 25 mm x 25 mm**
- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- 6 to 19-pos. versions, solder/crimp connection
- Individual marking of plug-in connectors with color rings

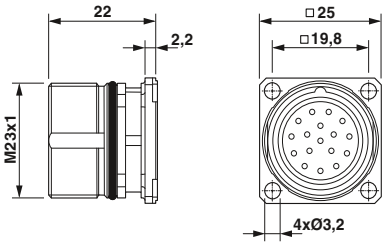
6, 7, 8+1-pos.

12, 17, 16+3-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Device plug-in connector, with contact carrier, with **socket contacts**, **solder connection,** flat gasket	1619993	1	1619989	1	1619973	1	1619969	1	1619961	1	1619957	1
Device plug-in connector, with contact carrier, with **pin contacts**, **solder connection,** flat gasket	1619992	1	1619988	1	1619972	1	1619968	1	1619960	1	1619956	1
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection,** flat gasket	1619991	1	1619987	1	1619971	1	1619967	1	1619959	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection,** flat gasket	1619990	1	1619986	1	1619970	1	1619966	1	1619958	1		
	Accessories						Accessories					
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412						Order separately, see page 334 onwards See page 412					



Installation dimensions



Device plug-in connectors, front mounting

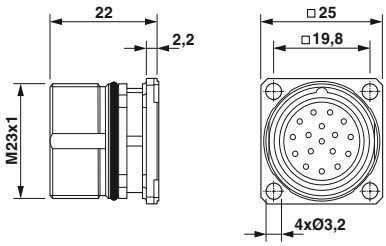
N N

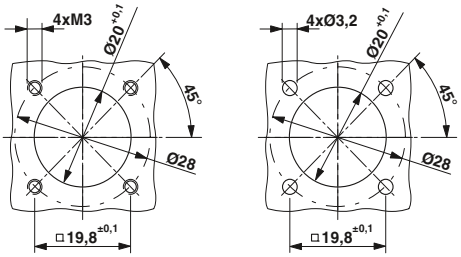
- **Flange dimensions 25 mm x 25 mm**
- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- 6 to 17-pos., **solder-in connection**
- Individual marking of plug-in connectors with color rings

6, 7, 8+1-pos.

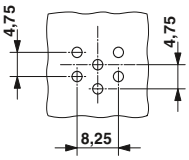
12, 17-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.			
Device plug-in connector, with contact carrier, with contacts, solder-in connection, **free solder pin length of 3.5 mm,** flat gasket												
Socket	1619955	1	1619953	1	1619951	1	1619949	1	1619933	1		
Plug	1619954	1	1619952	1	1619950	1	1619948	1	1619932	1		
Device plug-in connector, with contact carrier, with contacts, solder-in connection, **free solder pin length of 10.0 mm,** flat gasket												
Socket	1619931	1	1619929	1	1619927	1	1619925	1	1619918	1		
Plug	1619930	1	1619928	1	1619926	1	1619924	1	1619917	1		
Device plug-in connector, with contact carrier, with contacts, solder-in connection, **free solder pin length of 17.5 mm,** flat gasket												
Socket	1619916	1	1619914	1	1619912	1	1619910	1	1619905	1		
Plug	1619915	1	1619913	1	1619911	1	1619909	1	1619904	1		
	Accessories						Accessories					
Color rings, 50 pcs. in set (to be ordered separately)	See page 412						See page 412					

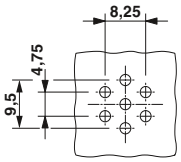




Installation dimensions



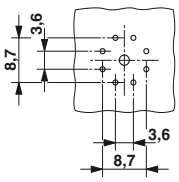
6-pos.



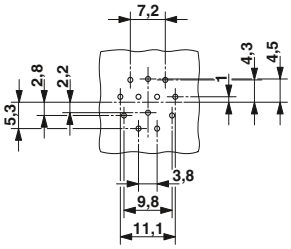
7-pos.

Device plug-in connectors, front mounting, PCB hole patterns

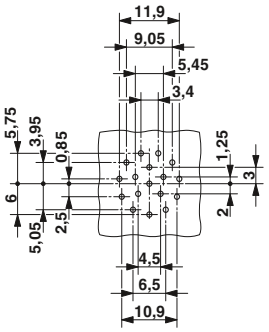
The free solder pin length is the distance between the mounting flange of the device connector and end of the soldered-in pin. In this measurement, the housing wall thickness and distance to the PCB are included.



8+1-pos.



12-pos.



17-pos.

Device plug-in connector, rear mounting

N

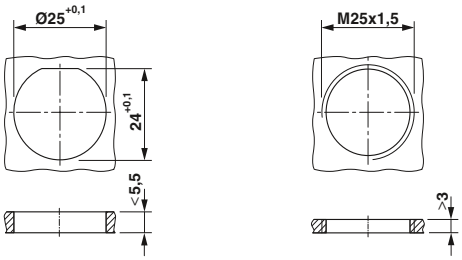
N

- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- 6 to 19-pos. versions, solder/crimp connection
- Individual marking of plug-in connectors with color rings

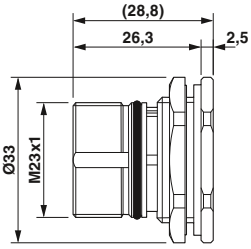
6, 7, 8+1-pos.

12, 17, 16+3-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Device plug-in connector, with contact carrier, with **socket contacts**, **solder connection, central fixing nut,** axial seal	1619851	1	1619847	1	1619843	1	1619790	1	1619782	1	1619778	1
Device plug-in connector, with contact carrier, with **pin contacts**, **solder connection, central fixing nut,** axial seal	1619850	1	1619846	1	1619842	1	1619789	1	1619781	1	1619777	1
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection, central fixing nut,** axial seal	1619849	1	1619845	1	1619841	1	1619788	1	1619780	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection, central fixing nut,** axial seal	1619848	1	1619844	1	1619791	1	1619787	1	1619779	1		
	Accessories						Accessories					
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412						Order separately, see page 334 onwards See page 412					



Installation dimensions



Crimp contacts

Pin and socket crimp contacts with various connection cross sections can be ordered for each crimp contact carrier.

Rolled crimp contacts

Turned crimp contacts

Description	Contacts / connection cross section [mm²]	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.
Crimp contacts for contact carriers, 6-pos., 6 x Ø 2.0 mm							
	Pin Ø 2.0 mm / 1.0 ... 1.5				**RC-5CP2000**	**1603513**	50
	Socket Ø 2.0 mm / 1.0 ... 1.5				**RC-5CS2000**	**1603517**	50
	Pin Ø 2.0 mm / 1.5 ... 2.5				**RC-5AP2000**	**1603505**	50
	Socket Ø 2.0 mm / 1.5 ... 2.5				**RC-5AS2000**	**1603509**	50
Crimp contacts for contact carriers, 7-pos., 7 x Ø 2.0 mm							
	Pin Ø 2.0 mm / 1.0 ... 1.5				**RC-5CP2000**	**1603513**	50
	Socket Ø 2.0 mm / 1.0 ... 1.5				**RC-5CS2000**	**1603517**	50
	Pin Ø 2.0 mm / 1.5 ... 2.5				**RC-5AP2000**	**1603505**	50
	Socket Ø 2.0 mm / 1.5 ... 2.5				**RC-5AS2000**	**1603509**	50
Crimp contacts for contact carriers, 9-pos. (8+1), 8 x Ø 1.0 mm, 1 x Ø 2.0 mm							
	Pin Ø 1.0 mm / 0.14 ... 0.56				**RC-12P2000**	**1597862**	100
	Socket Ø 1.0 mm / 0.14 ... 0.56				**RC-12S2000**	**1599600**	100
	Pin Ø 2.0 mm / 1.5 ... 2.5				**RC-5AP2000**	**1603505**	50
	Socket Ø 2.0 mm / 1.5 ... 2.5				**RC-5AS2000**	**1603509**	50
	Pin Ø 2.0 mm / 1.0 ... 1.5				**RC-5CP2000**	**1603513**	50
	Socket Ø 2.0 mm / 1.0 ... 1.5				**RC-5CS2000**	**1603517**	50
Crimp contacts for contact carriers, 12-pos., 12 x Ø 1.0 mm							
	Pin Ø 1.0 mm / 0.22 ... 0.56	**RC-22P2000**	**1603321**	100			
	Socket Ø 1.0 mm / 0.22 ... 0.56	**RC-22S2000**	**1603327**	100			
	Pin Ø 1.0 mm / 0.14 ... 0.56				**RC-12P2000**	**1597862**	100
	Socket Ø 1.0 mm / 0.14 ... 0.56				**RC-12S2000**	**1599600**	100
Crimp contacts for contact carriers, 16-pos., 16 x Ø 1.0 mm							
	Pin Ø 1.0 mm / 0.22 ... 0.56	**RC-22P2000**	**1603321**	100			
	Socket Ø 1.0 mm / 0.22 ... 0.56	**RC-22S2000**	**1603327**	100			
	Pin Ø 1.0 mm / 0.14 ... 0.56				**RC-12P2000**	**1597862**	100
	Socket Ø 1.0 mm / 0.14 ... 0.56				**RC-12S2000**	**1599600**	100

	Accessories	Accessories
Crimping tools	See page 404	See page 404

Mechanical and electrical data

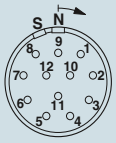
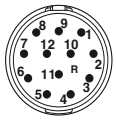
Mechanical data	
Housing material:	Copper zinc alloy (CuZn), die-cast zinc (GD-Zn)
Housing surface:	Nickel-plated/thick layer passivated (can be coated)
Insulating body:	Polyamide (PA 66)
Contact material:	Copper zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold coating (Au)
Contact connection method:	Crimp version
Sealing and O-ring:	Fluorocarbon rubber (FKM)
Ambient temperature:	-40°C ... 125°C
Cable entry:	Cable and coupler plug-in connectors for cable outside diameter of 3 ... 14.5 mm, shielded
Type of locking:	M23 SPEEDCON screw locking, cable plug-in connector optionally with M23 x 1 coarse-pitch thread
Mechanical insertion/withdrawal cycles:	Standard: 100, punched-rolled C-HC crimp contacts: up to 500
Protection class:	IP67 in the locked state

Electrical data				
Number of positions		**12**		**17**
Contacts		12		17
Contact Ø	[mm]	1		1
Litz wire cross section, crimp contacts turned	[mm²]	0.08 ... 1.0		0.08 ... 1.0
Litz wire cross section, C-HC crimp contacts punched-rolled	[mm²]	0.06 ... 0.56		0.06 ... 0.56
Cable clamping area	max. Ø [mm]	14.5		14.5
Nominal current per contact at 25°C [1]	[A]	8		8
Specifications according to DIN EN 61984:2009				
Rated voltage	[V AC/DC]	150		100
Test/surge voltage	[kV]	2.5		1.5
Surge voltage category		III		III
Pollution degree [2])		3		3
Installation height	[m]	Up to 3000		Up to 3000
Cable clamping area 3)	max. Ø [mm]	14.5		14.5

[1]) The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2]) The values specified assume that the plug-in connector pair is correctly locked and is only disconnected for testing and maintenance purposes. If the plug-in connector is unlocked and exposed to ambient conditions, and if there is a danger of contamination, the plug-in connector must be sealed using a protective cap ≥ IP54.
[3]) The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selection and testing is the responsibility of the user.

Note:
Unlike plug-in equipment, plug-in connectors must not be plugged or unplugged under load.

Pin assignments and coding

	Contact chamber numbering (view of plug-in side)			
Direction of rotation for contact chamber numbering (view of plug-in side)				
	Clockwise (standard) **R** marked	**Counter-clockwise** (standard) **L** marked	**Counter-clockwise** (reverse) **L marked**	**Clockwise** (reverse) **R** marked
Number of positions	**Pin**	**Socket**	**Pin**	**Socket**
12-pos. N-coding Crimp				
17-pos. N-coding Crimp				

Note:
Standard coding is “N”. Other coding types and numbers of positions available on request

The plug-in connectors can be equipped with pin or socket contacts according to the application.

For reasons of safety, only socket contacts may be used in the live part of the plug.

Selection guide

M23 signal plug-in connector, 12/17-pos., N-coding, up to 8 A/150 V, crimp ranges up to 1 mm²

– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors (device flanges)

Crimp contacts must be ordered separately depending on the connection cross section.

Each housing type can be equipped with pin or socket contacts.

The plug-in connectors can be supplied with clockwise or counter-clockwise contact chamber numbering.

N (0°) and S (20°, on request) coding positions are possible.

The product chart provides an overview of the available components.

Plug-in connector type

Shielded

Cable plug-in connectors

SPEEDCON rapid interlock system, see page 340.

M23 x 1 standard interlocking, see page 341.

Square mounting flange for cable and coupler plug-in connectors for wall mounting, see page 410.

Shielded

Coupler plug-in connectors

see page 342.

Square mounting flange for cable and coupler plug-in connectors for wall mounting, see page 410.

Shielded

Device plug-in connectors

Straight, 4-hole mounting
Ø 3.2,
see page 344.

Contact carriers for snapping in from the device side, straight, 4-hole mounting
Ø 3.2, see page 344.

Angled, rotatable,
flange dimensions 26 mm x 26 mm,
see page 345.

Angled, rotatable,
Flange dimensions 28 mm x 28 mm,
see page 345.

All housing can be fitted with pin or socket crimp contacts

Crimp contacts

Socket contacts

Turned, see page 347.

Punched-rolled, taped,
see page 346.

Pin contacts

Turned, see page 347.

Punched-rolled, taped,
see page 346.

Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Tools/accessories

Crimping tools

Crimping pliers for punched-rolled C-HC crimp contacts,
see page 406.

Crimping pliers with digital display for turned crimp contacts,
see page 407.

Tools/accessories

Contact removal tool for device plug-in connectors with contact carriers for snapping in from the device side,
see page 410.

Color rings for individually marking the plug-in connectors,
see page 412.

Cable plug-in connector, SPEEDCON rapid interlock system

- 12 or 17-pos. versions
- Individual marking of plug-in connectors with color rings

N

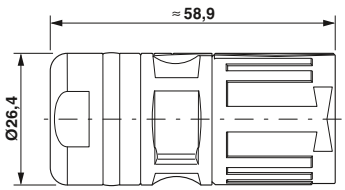
Cable plug-in connector, socket assembly

N

Cable plug-in connector, pin assembly

		Ordering data				Ordering data			
Description	Cable clamping area	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		12-pos.		17-pos.		12-pos.		17-pos.	
Cable plug-in connector, with contact carrier, **without** contacts, **standard** direction of rotation									
Universal gasket	3 mm ... 14.5 mm	**1619472**	1	**1619470**	1	**1619471**	1	**1619469**	1
	4 mm ... 6 mm	**1619466**	1	**1619464**	1	**1619465**	1	**1619463**	1
	6 mm ... 10 mm	**1619460**	1	**1619458**	1	**1619459**	1	**1619457**	1
	10 mm ... 14.5 mm	**1619454**	1	**1619452**	1	**1619453**	1	**1619451**	1
Cable plug-in connector, with contact carrier, **without** contacts, **reverse** direction of rotation									
Universal gasket	3 mm ... 14.5 mm	**1619474**	1			**1619473**	1		
	4 mm ... 6 mm	**1619468**	1			**1619467**	1		
	6 mm ... 10 mm	**1619462**	1			**1619461**	1		
	10 mm ... 14.5 mm	**1619456**	1			**1619455**	1		

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 346 onwards See page 412	For pin contacts, see page 346 onwards See page 412



Cable plug-in connector, M23 standard interlocking

- M23 standard knurled nut
- 12 or 17-pos. versions
- Individual marking of plug-in connectors with color rings

N

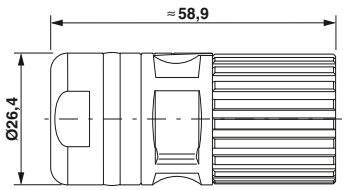
Cable plug-in connector, socket assembly

N

Cable plug-in connector, pin assembly

Description	Cable clamping area	Ordering data: Order No. (12-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.	Ordering data: Order No. (12-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.
Cable plug-in connector housing, with contact carrier, **without** contacts, **standard** direction of rotation									
Universal gasket	3 mm ... 14.5 mm	**1619631**	1	**1619629**	1	**1619630**	1	**1619628**	1
	4 mm ... 6 mm	**1619625**	1	**1619623**	1	**1619624**	1	**1619619**	1
	6 mm ... 10 mm	**1619616**	1	**1619614**	1	**1619615**	1	**1619613**	1
	10 mm ... 14.5 mm	**1619610**	1	**1619608**	1	**1619609**	1	**1619607**	1
Cable plug-in connector housing, with contact carrier, **without** contacts, **reverse** direction of rotation									
Universal gasket	3 mm ... 14.5 mm	**1619633**	1			**1619632**	1		
	4 mm ... 6 mm	**1619627**	1			**1619626**	1		
	6 mm ... 10 mm	**1619618**	1			**1619617**	1		
	10 mm ... 14.5 mm	**1619612**	1			**1619611**	1		

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 346 onwards See page 412	For pin contacts, see page 346 onwards See page 412



Coupler plug-in connector

- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- 12 or 17-pos. versions
- Individual marking of plug-in connectors with color rings

N

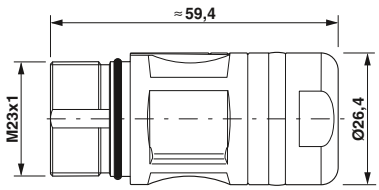
Coupler plug-in connector, socket assembly

N

Coupler plug-in connector, pin assembly

Description	Cable clamping area	Ordering data: Order No. (12-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.	Ordering data: Order No. (12-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.
Coupler plug-in connector housing, with contact carrier, **without** contacts, **standard** direction of rotation									
Universal gasket	3 mm ... 14.5 mm	**1620016**	1	**1620014**	1	**1620015**	1	**1620013**	1
	4 mm ... 6 mm	**1620009**	1	**1620007**	1	**1620008**	1	**1620006**	1
	6 mm ... 10 mm	**1620003**	1	**1620001**	1	**1620002**	1	**1620000**	1
	10 mm ... 14.5 mm	**1619997**	1	**1619995**	1	**1619996**	1	**1619994**	1
Coupler plug-in connector housing, with contact carrier, **without** contacts, **reverse** direction of rotation									
Universal gasket	3 mm ... 14.5 mm	**1620018**	1			**1620017**	1		
	4 mm ... 6 mm	**1620011**	1			**1620010**	1		
	6 mm ... 10 mm	**1620005**	1			**1620004**	1		
	10 mm ... 14.5 mm	**1619999**	1			**1619998**	1		

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 346 onwards See page 412	For pin contacts, see page 346 onwards See page 412



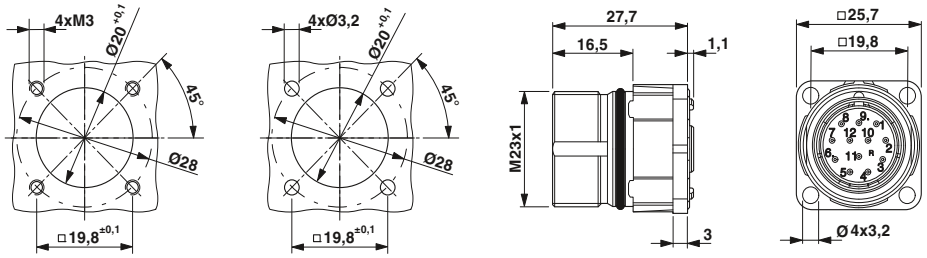
Device plug-in connectors, straight, front mounting

- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- Contact insert for support on the device or can be snapped in

Device plug-in connector, straight, socket assembly

Device plug-in connector, straight, pin assembly

Description	Ordering data				Ordering data			
	Order No.	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	12-pos.		**17-pos.**		**12-pos.**		**17-pos.**	
Device plug-in connector, straight, with contact carrier, **without** contacts, 4-hole fastening with **Ø 3.2 mm**								
Standard direction of rotation	**1607283**	1	**1607892**	1	**1607236**	1	**1607860**	1
Reverse direction of rotation	**1607307**	1			**1607260**	1		
Device plug-in connector, straight, with contact carrier, **without** contacts, 4-hole fastening with **Ø 3.2 mm**, contact insert **can be snapped in**								
Standard direction of rotation	**1607830**	1	**1607893**	1	**1607804**	1	**1607863**	1
Reverse direction of rotation	**1607844**	1			**1607817**	1		
	Accessories				**Accessories**			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 346 onwards See page 412				For pin contacts, see page 346 onwards See page 412			



Installation dimensions

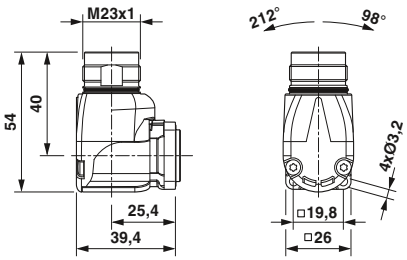
Device plug-in connectors, angled, rotatable, front mounting

- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- Flange dimensions 26 mm x 26 mm or 28 mm x 28 mm

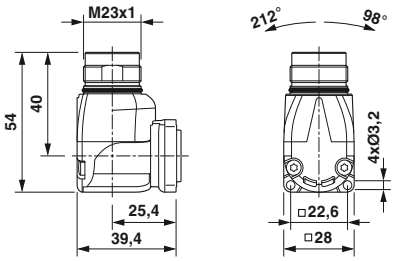
Device plug-in connector, angled, rotatable, for socket contacts

Device plug-in connector, angled, rotatable, for pin contacts

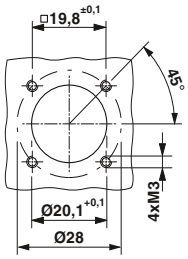
	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	12-pos.		**17-pos.**		**12-pos.**		**17-pos.**	
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts, flange dimensions: **26 mm x 26 mm**								
Standard direction of rotation	**1607280**	1	**1607345**	1	**1607233**	1	**1607328**	1
Reverse direction of rotation	**1607304**	1			**1607257**	1		
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts, flange dimensions: **28 mm x 28 mm**								
Standard direction of rotation	**1607827**	1	**1607887**	1	**1607802**	1	**1607852**	1
Reverse direction of rotation	**1607842**	1			**1607814**	1		
	Accessories				**Accessories**			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 346 onwards See page 412				For pin contacts, see page 346 onwards See page 412			



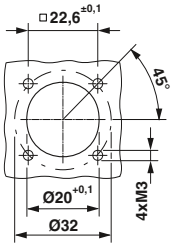
Flange dimensions 26 mm x 26 mm



Flange dimensions 28 mm x 28 mm



Installation dimensions



Installation dimensions

Crimp contacts, punched-rolled

C-HC® are punched-rolled contacts. They are designed for high insertion/ withdrawal cycles.

The contacts are available taped on rolls for manual or automatic processing.

Note: depending on the litz wire used, the connection cross sections (crimp ranges) may deviate from the listed values. For reasons of safety, only socket contacts may be used in the live part of the plug.

C-HC socket contacts

C-HC pin contacts

Description	Connection cross section [mm²]	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.
Crimp contacts, C-HC punched-rolled, Ø 1.0 mm, **2500 pcs./roll**							
	0.06 mm² ... 0.25 mm²	**SF-10KS320**	**1607031**	1	**SF-10KP320**	**1615961**	1
	0.2 mm² ... 0.56 mm²	**SF-10KS350**	**1607032**	1	**SF-10KP350**	**1615963**	1
Crimp contact C-HC punched-rolled, Ø 1.0 mm, **10,000 pcs./roll**							
	0.06 mm² ... 0.25 mm²	**SF-10KS330**	**1607358**	1	**SF-10KP330**	**1615962**	1
	0.2 mm² ... 0.56 mm²	**SF-10KS360**	**1607361**	1	**SF-10KP360**	**1615964**	1
		Accessories			**Accessories**		
Crimping tools		Order separately, see page 406 onwards			Order separately, see page 406 onwards		

Crimp contacts, turned

M23 feedback plug-in connectors are fitted with 12 or 17 SF series signal contacts with Ø 1 mm depending on the number of positions.

These contacts are also used with M23 power plug-in connectors as signal contacts. This simplifies handling and warehousing considerably.

Note: depending on the litz wire used, the connection cross sections (crimp ranges) can differ from the values mentioned below.

Crimp contacts socket

Crimp contacts pin

Description	Connection cross section [mm²]	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.
Contact socket Ø 1.0 mm							
	0.06 ... 0.2	**SF-6CS2000**	**1605562**	100			
	0.14 ... 0.5	**SF-10KS004**	**1607356**	100			
	0.5 ... 1.0	**SF-6AS2000**	**1605557**	100			
Contact pin Ø 1.0 mm							
	0.06 ... 0.2				**SF-6CP2000**	**1605559**	100
	0.14 ... 0.5				**SF-10KP004**	**1607355**	100
	0.5 ... 1.0				**SF-6AP2000**	**1605554**	100
		Accessories			**Accessories**		
Crimping tools		Order separately, see page 407			Order separately, see page 407		

Notes:
Every plug-in connector housing type can be fitted with pin or socket contacts.

For reasons of safety, only socket contacts may be used in the live part of the plug.

Mechanical and electrical data

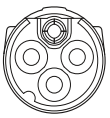
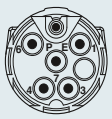
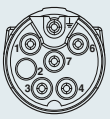
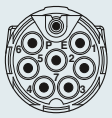
Mechanical data	
Housing material:	Copper zinc alloy (CuZn), die-cast zinc (GD-Zn)
Housing surface:	Nickel-plated/thick layer passivated (can be coated)
Insulating body:	Polyamide (PA 66)
Contact material:	Copper zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold coating (Au)
Contact connection method:	Crimp version
Sealing and O-ring:	Fluorocarbon rubber (FKM)
Ambient temperature:	-40°C ... 125°C
Cable entry:	Cable and coupler plug-in connectors for cable outside diameter of 3.5 - 11 mm, shielded (M17 Compact) 5 - 12.5 mm, shielded (M17)
Type of locking:	M17 SPEEDCON rapid interlock system, cable plug-in connector Optionally with M17 x 1 coarse-pitch thread
Mechanical insertion/withdrawal cycles:	Standard: 100, punched-rolled C-HC crimp contacts: up to 500
Protection class:	IP67 in the locked state

Electrical data

Number of positions		4 (3+PE)	6 (5+PE)	7 (6+PE)	8 (7+PE)	9 (5+3+PE)		
Contacts		3 + PE	5 + PE	6 + PE	7 + PE	5	+ 3	+ PE
Contact Ø	[mm]	2	1	1	1	0.6	1	1
Litz wire cross section, crimp contacts Turned	[mm²]	0.25 ... 2.5	0.06 ... 1.0	0.06 ... 1.0	0.06 ... 1.0	0.06 ... 0.5	0.06 ... 1.0	0.06 ... 1.0
Litz wire cross section, C-HC crimp contacts Punched-rolled	[mm²]	–	0.08 ... 0.56	0.06 ... 0.56	0.06 ... 0.56	–	–	–
Nominal current per contact at 25°C [1]		20 (25)[2]	14	14	14	3.6	14	–
Specifications according to DIN EN 61984:2009								–
Rated voltage	[V AC/DC]	630	630	630	630	60	630	–
Test/surge voltage	[kV AC]	6	6	6	6	1.5	6	–
Surge voltage category		III	III	III	III		III	
Pollution degree [3]		3	3	3	3		3	
Installation height	[m]	Up to 3000	Up to 3000	Up to 3000	Up to 3000		Up to 3000	
Cable clamping area [4]	max. Ø [mm]	12.5	12.5	12.5	12.5		12.5	

[1] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2] 25 A in the case of assignment with 3 x 2.5 mm²
[3] The values specified assume that the plug-in connector pair is correctly locked and is only disconnected for testing and maintenance purposes. If the plug-in connector is unlocked and exposed to ambient conditions, and if there is a danger of contamination, the plug-in connector must be sealed using a protective cap ≥ IP54.
[4] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selection and testing is the responsibility of the user.

Pin assignments and coding

	Contact chamber numbering (view of plug-in side)	
Number of positions	**Pin**	**Socket**
4-pos. (3+PE) Crimp	⏚ *	 ⏚ *
6-pos. (5+PE) (Contact chambers 2+5 closed) Crimp	 ⏚ *	 ⏚ *
7-pos. (6+PE) Crimp	⏚ *	⏚ *
8-pos. (7+PE) Crimp	 ⏚ *	⏚ *
9-pos. (5+3+PE) Crimp	⏚ *	⏚ *
	* with grounding spring **PE leading**	* with grounding spring **PE leading**

Note:
The plug-in connectors can be equipped with pin or socket contacts according to the application.

For reasons of safety, only socket contacts may be used in the live part of the plug.

Selection guide

M17 power plug-in connectors, 4/6/7/8/9-pos., up to 20 A/630 V, crimp ranges: 0.06 mm² to 2.5 mm²

– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors (device flanges)

The plug-in connectors are supplied fully pre-assembled and are complemented by the respective crimp contacts.

Each housing type can be equipped with pin or socket contacts. Cable plug-in connectors can be optionally equipped with SPEEDCON rapid interlock system or with M17 x 1 coarse-pitch thread. The plug-in connectors with external thread are fully compatible with standard threads and the SPEEDCON rapid interlock system.

The product chart provides an overview of the available components.

Plug-in connector type

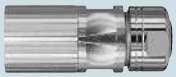
Shielded

Cable plug-in connector

SPEEDCON rapid interlock system, M17 Compact, see page 352.

M17, see page 356.

M17 x 1 standard interlocking, M17, see page 357.



Square mounting flange for cable and coupler plug-in connectors for wall mounting, see page 410.

Shielded

Coupler plug-in connector/panel feed-through

Coupler plug-in connector M17 Compact, see page 353.

M17, see page 358.

Panel feed-through M17 Compact, see page 354.

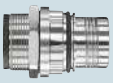
Shielded

Device plug-in connector

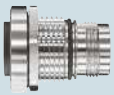
Straight, M17 Compact, see page 355.

Straight, M17, see page 359.

Straight, with central fastening thread, front mounting, M17, see page 361.



Straight, with central fastening thread, rear mounting, M17, see page 361.



Angled, rotatable, M17, see page 360.

All housing can be fitted with pin or socket crimp contacts

Crimp contacts

Socket contacts

Turned, see page 363.

Punched-rolled, taped,
see page 362.

Pin contacts

Turned, see page 363.

Punched-rolled, taped,
see page 362.

Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Tools/accessories

Crimping tools

Crimping pliers for punched-rolled C-HC crimp contacts,
see page 406.

Crimping pliers with digital display for turned crimp contacts,
see page 407.

Tools/accessories

Contact removal tool for device plug-in connectors with contact carriers for snapping in from the device side,
see page 410.

Color rings for individually marking the plug-in connectors,
see page 412.

M17 Compact cable plug-in connector

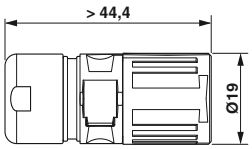
– High packing density in a compact product
– Individual marking of plug-in connectors with color rings

3+PE, 5+PE, 6+PE-pos.

7+PE, 5+3+PE-pos.

		Ordering data						Ordering data					
Description	Cable clamping area	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Cable plug-in connector, with contact carrier, without contacts, for socket assembly													
	3.5 mm ... 5.5 mm	**1618312**	1	**1618621**	1	**1618632**	1	**1618633**	1	**1618674**	1		
	5 mm ... 9 mm	**1618408**	1	**1618620**	1	**1618631**	1	**1618634**	1	**1618675**	1		
	9 mm ... 11 mm	**1618603**	1	**1618619**	1	**1618630**	1	**1618635**	1	**1618676**	1		
Cable plug-in connector, with contact carrier, without contacts, for pin assembly													
	3.5 mm ... 5.5 mm	**1618602**	1	**1618614**	1	**1618622**	1	**1618640**	1	**1618681**	1		
	5 mm ... 9 mm	**1618574**	1	**1618615**	1	**1618623**	1	**1618639**	1	**1618680**	1		
	9 mm ... 11 mm	**1618575**	1	**1618616**	1	**1618624**	1	**1618638**	1	**1618679**	1		

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412	Order separately, see page 362 onwards See page 412



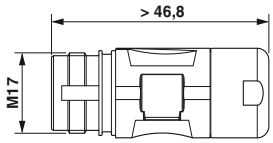
M17 Compact coupler plug-in connector

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings

3+PE, 5+PE, 6+PE-pos.

7+PE, 5+3+PE-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Coupler plug-in connector, with contact carrier, **without** contacts, for **socket assembly**													
	3.5 mm ... 5.5 mm	**1618695**	1	**1618696**	1	**1618708**	1	**1618716**	1	**1618748**	1		
	5 mm ... 9 mm	**1618694**	1	**1618697**	1	**1618709**	1	**1618717**	1	**1618749**	1		
	9 mm ... 11 mm	**1618693**	1	**1618698**	1	**1618710**	1	**1618718**	1	**1618750**	1		
Coupler plug-in connector, with contact carrier, **without** contacts, for **pin assembly**													
	3.5 mm ... 5.5 mm	**1620614**	1	**1618703**	1	**1618704**	1	**1618712**	1	**1618740**	1		
	5 mm ... 9 mm	**1618406**	1	**1618702**	1	**1618705**	1	**1618713**	1	**1618741**	1		
	9 mm ... 11 mm	**1618690**	1	**1618701**	1	**1618706**	1	**1618714**	1	**1618742**	1		
		Accessories						Accessories					
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		Order separately, see page 362 onwards See page 412						Order separately, see page 362 onwards See page 412					



M17 Compact panel feed-through

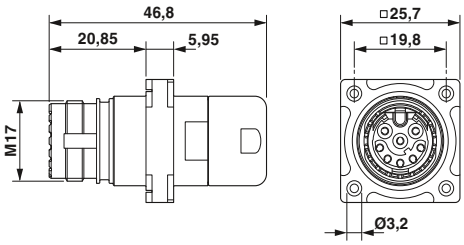
- Panel feed-throughs suitable for front and rear mounting
- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings
- **Flange dimensions 25.7 mm x 25.7 mm**

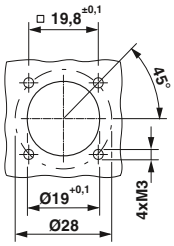
3+PE, 5+PE, 6+PE-pos.

7+PE, 5+3+PE-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Panel feed-through, with contact carrier, **without** contacts, for **socket assembly**													
	3.5 mm ... 5.5 mm	**1618762**	1	**1618772**	1	**1618780**	1	**1618787**	1	**1618825**	1		
	5 mm ... 9 mm	**1618763**	1	**1618773**	1	**1618781**	1	**1618786**	1	**1618824**	1		
	9 mm ... 11 mm	**1618764**	1	**1618774**	1	**1618782**	1	**1618785**	1	**1618823**	1		
Panel feed-through, with contact carrier, **without** contacts, for **pin assembly**													
	3.5 mm ... 5.5 mm	**1618402**	1	**1618767**	1	**1618776**	1	**1618788**	1	**1618818**	1		
	5 mm ... 9 mm	**1618407**	1	**1618768**	1	**1618777**	1	**1618790**	1	**1618819**	1		
	9 mm ... 11 mm	**1618760**	1	**1618769**	1	**1618778**	1	**1618791**	1	**1618820**	1		

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412	Order separately, see page 362 onwards See page 412





Installation dimensions

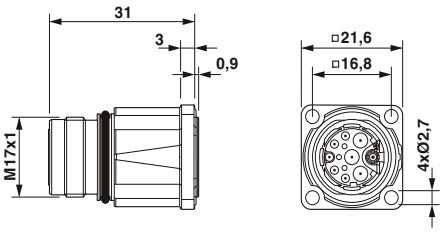
M17 Compact device plug-in connectors, front mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings
- **Flange dimensions 21.6 mm x 21.6 mm**

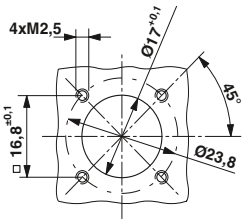
3+PE, 5+PE, 6+PE-pos.

7+PE, 5+3+PE-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly** **Contact insert for support on the device**	1607694	1	1607728	1	1613589	1	1607769	1	1613631	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly** **Contact insert for support on the device**	1607675	1	1607711	1	1613570	1	1607747	1	1613612	1		
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly** **Contact insert can be snapped in**	1607692	1	1607727	1	1613588	1	1607768	1	1613630	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly** **Contact insert can be snapped in**	1607674	1	1607710	1	1613569	1	1607746	1	1613611	1		
	Accessories						Accessories					
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412						Order separately, see page 362 onwards See page 412					



Flange dimensions 21.6 mm x 21.6 mm



Installation dimensions

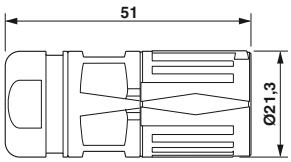
Cable plug-in connector, SPEEDCON rapid interlock system

- SPEEDCON rapid interlock system or M17 standard interlocking
- Standard knurled nuts compatible with mating plugs with SPEEDCON or M17 standard external thread
- Individual marking of plug-in connectors with color rings

3+PE, 5+PE, 6+PE-pos.

7+PE, 5+3+PE-pos.

		Ordering data						Ordering data					
Description	Cable clamping area	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Cable plug-in connector, with contact carrier, **without** contacts, for **socket assembly**													
	5 mm ... 8 mm	**1607683**	1	**1607718**	1	**1613578**	1	**1607756**	1	**1613620**	1		
	8 mm ... 10 mm	**1607685**	1	**1607720**	1	**1613580**	1	**1607759**	1	**1613622**	1		
	10 mm ... 12.5 mm	**1624538**	1	**1624544**	1	**1624550**	1	**1624556**	1	**1624639**	1		
Cable plug-in connector, with contact carrier, **without** contacts, for **pin assembly**													
	5 mm ... 8 mm	**1607665**	1	**1607700**	1	**1613559**	1	**1607736**	1	**1613601**	1		
	8 mm ... 10 mm	**1607667**	1	**1607702**	1	**1613561**	1	**1607738**	1	**1613603**	1		
	10 mm ... 12.5 mm	**1624535**	1	**1624541**	1	**1624547**	1	**1624553**	1	**1624637**	1		
		Accessories						Accessories					
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		Order separately, see page 362 onwards See page 412						Order separately, see page 362 onwards See page 412					



Cable plug-in connector, M17 standard interlocking

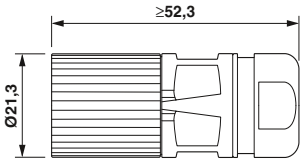
- Standard knurled nuts compatible with mating plugs with SPEEDCON or M17 standard external thread
- Individual marking of plug-in connectors with color rings

3+PE, 5+PE, 6+PE-pos.

7+PE, 5+3+PE-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Cable plug-in connector, with contact carrier, **without** contacts, for **socket assembly**													
	5 mm ... 8 mm	**1607682**	1	**1607717**	1	**1613577**	1	**1607755**	1	**1613619**	1		
	8 mm ... 10 mm	**1607684**	1	**1607719**	1	**1613579**	1	**1607758**	1	**1613621**	1		
	10 mm ... 12.5 mm	**1624537**	1	**1624534**	1	**1624549**	1	**1624555**	1	**1624638**	1		
Cable plug-in connector, with contact carrier, **without** contacts, for **pin assembly**													
	5 mm ... 8 mm	**1607663**	1	**1607699**	1	**1613558**	1	**1607735**	1	**1613600**	1		
	8 mm ... 10 mm	**1607666**	1	**1607701**	1	**1613560**	1	**1607737**	1	**1613602**	1		
	10 mm ... 12.5 mm	**1624534**	1	**1624540**	1	**1624546**	1	**1624552**	1	**1624636**	1		

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412	Order separately, see page 362 onwards See page 412



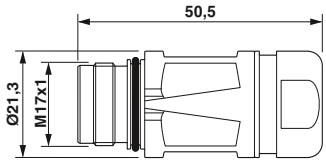
Coupler plug-in connector

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings

3+PE, 5+PE, 6+PE-pos.

7+PE, 5+3+PE-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Coupler plug-in connector, with contact carrier, **without** contacts, for **socket assembly**													
	5 mm ... 8 mm	**1607688**	1	**1607723**	1	**1613583**	1	**1607764**	1	**1613625**	1		
	8 mm ... 10 mm	**1607689**	1	**1607724**	1	**1613584**	1	**1607765**	1	**1613626**	1		
	10 mm ... 12.5 mm	**1624539**	1	**1624545**	1	**1624551**	1	**1624557**	1	**1624654**	1		
Coupler plug-in connector, with contact carrier, **without** contacts, for **pin assembly**													
	5 mm ... 8 mm	**1607670**	1	**1607706**	1	**1613564**	1	**1607741**	1	**1613606**	1		
	8 mm ... 10 mm	**1607671**	1	**1607707**	1	**1613565**	1	**1607742**	1	**1613607**	1		
	10 mm ... 12.5 mm	**1624536**	1	**1624542**	1	**1624548**	1	**1624554**	1	**1624653**	1		
		Accessories						Accessories					
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		Order separately, see page 362 onwards See page 412						Order separately, see page 362 onwards See page 412					



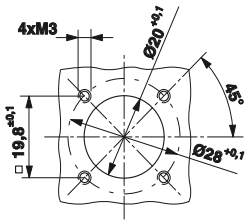
Device plug-in connector, straight, front mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Contact insert for support on the device or can be snapped in
- Individual marking of plug-in connectors with color rings
- **Flange dimensions 25.7 mm x 25.7 mm**

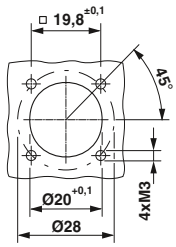
3+PE, 5+PE, 6+PE-pos.

7+PE, 5+3+PE-pos.

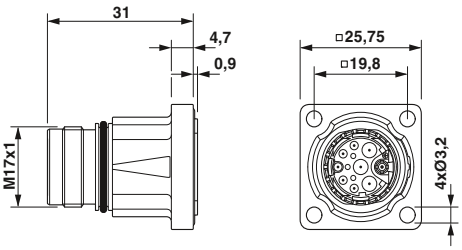
Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly** Contact insert for support on the device	1619189	1	1619191	1	1619193	1	1619195	1	1620459	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly** Contact insert for support on the device	1619186	1	1619190	1	1619192	1	1619194	1	1620460	1		
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly** Contact insert can be snapped in	1619212	1	1619214	1	1619216	1	1619218	1	1620461	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly** Contact insert can be snapped in	1619209	1	1619213	1	1619215	1	1619217	1	1620462	1		
	Accessories						Accessories					
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412						Order separately, see page 362 onwards See page 412					



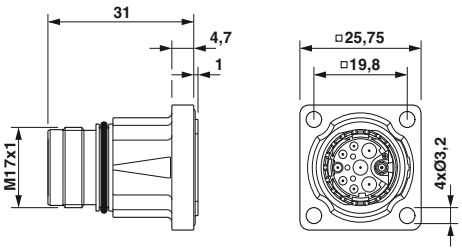
Installation dimensions



Installation dimensions



Contact insert for support on the device



Contact insert can be snapped in

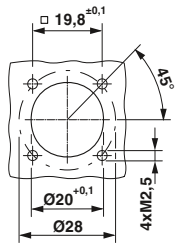
Device plug-in connector, angled, rotatable, front mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Housing can be freely rotated up to 308°
- Individual marking of plug-in connectors with color rings
- Flange versions for M2.5/M3 attachment
- **Flange dimensions 25.7 mm x 25.7 mm**

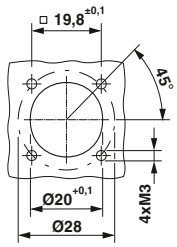
3+PE, 5+PE, 6+PE-pos.

7+PE, 5+3+PE-pos.

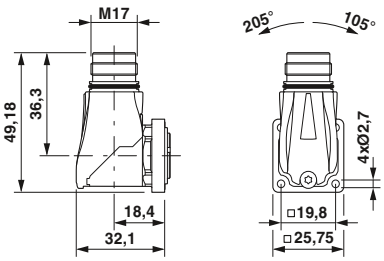
Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts, for **socket contacts**												
Fixing with M2.5	1620428	1	1620432	1	1620434	1	1620436	1	1620438	1		
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts, for **pin contacts**												
Fixing with M2.5	1620427	1	1620431	1	1620433	1	1620435	1	1620437	1		
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts, for **socket contacts**												
Fixing with M3	1620443	1	1620447	1	1620449	1	1620451	1	1620453	1		
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts, for **pin contacts**												
Fixing with M3	1620444	1	1620448	1	1620450	1	1620452	1	1620454	1		
	Accessories						Accessories					
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412						Order separately, see page 362 onwards See page 412					



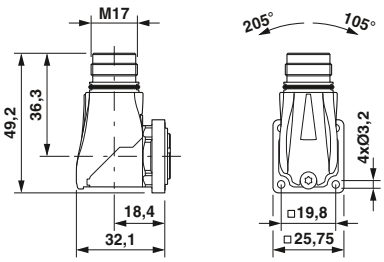
Installation dimensions



Installation dimensions



Fixing with M2.5



Fixing with M3

Device plug-in connector, central fastening thread, front/rear mounting

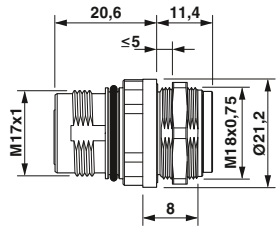
- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Contact carrier snapped in from the device side
- Individual marking of plug-in connectors with color rings

3+PE, 5+PE, 6+PE-pos.

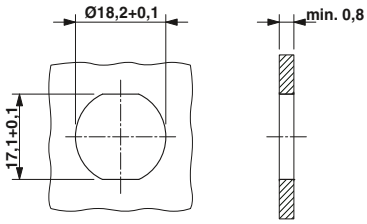
7+PE, 5+3+PE-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Device plug-in connector, **front mounting**, M18 x 0.75 fastening thread, with contact carrier, without contacts, **for socket assembly**	1613546	1	1613550	1	1613572	1	1613592	1	1613614	1		
Device plug-in connector, **front mounting**, M18 x 0.75 fastening thread, with contact carrier, without contacts, **for pin contacts**	1613544	1	1613548	1	1613553	1	1613590	1	1613595	1		
Device plug-in connector, **rear mounting**, M20 x 1.5 fastening thread, with contact carrier, without contacts, **for socket contacts**	1613547	1	1613551	1	1613587	1	1613593	1	1613629	1		
Device plug-in connector, **rear mounting**, M20 x 1.5 fastening thread, with contact carrier, without contacts, **for pin contacts**	1613545	1	1613549	1	1613568	1	1613591	1	1613610	1		

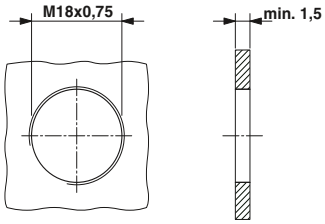
Description	Accessories			Accessories		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Locking nut, for mounting bore holes and anti-rotation protection						
M18 x 0.75	ST-E2015151	1613831	10	ST-E2015151	1613831	10
M20 x 1.5	RC-13041	1600417	10	RC-13041	1600417	10
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412			Order separately, see page 362 onwards See page 412		



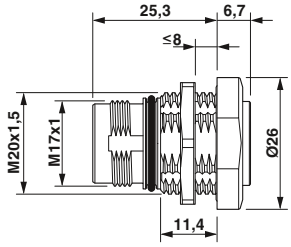
Front mounting, M18 x 0.75, order locking nut separately



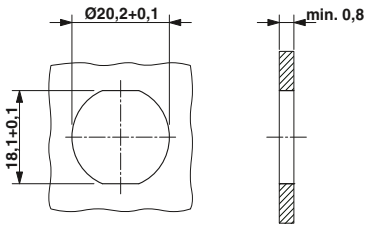
Installation dimensions: mounting with anti-rotation protection and locking nut



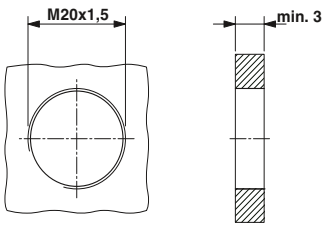
Installation dimensions: mounting with thread



Rear mounting, M20 x 1.5, order locking nut separately



Installation dimensions: mounting with anti-rotation protection and locking nut



Installation dimensions: mounting with thread

Crimp contacts, punched-rolled

C-HC® are punched-rolled contacts. They are designed for high insertion/withdrawal cycles.

The contacts are available taped on rolls for manual or automatic processing.

Note: depending on the litz wire used, the connection cross sections (crimp ranges) may deviate from the listed values. For reasons of safety, only socket contacts may be used in the live part of the plug.

C-HC socket contacts

C-HC pin contacts

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Crimp contacts, C-HC punched-rolled, Ø 1.0 mm, **2500 pcs./roll**							
	0.06 mm² ... 0.25 mm²	**SF-10KS320**	**1607031**	1	**SF-10KP320**	**1615961**	1
	0.2 mm² ... 0.56 mm²	**SF-10KS350**	**1607032**	1	**SF-10KP350**	**1615963**	1
Crimp contact C-HC punched-rolled, Ø 1.0 mm, **10,000 pcs./roll**							
	0.06 mm² ... 0.25 mm²	**SF-10KS330**	**1607358**	1	**SF-10KP330**	**1615962**	1
	0.2 mm² ... 0.56 mm²	**SF-10KS360**	**1607361**	1	**SF-10KP360**	**1615964**	1
		Accessories			**Accessories**		
Crimping tools		Order separately, see page 406 onwards			Order separately, see page 406 onwards		

Contact diameter

Number of positions	Number of contacts	Contact Ø [mm]
4(3+PE)	4	2
6(5+PE)	6	1
7(6+PE)	7	1
8(7+PE)	8	1
9(5+3+PE)	5+3+PE	0.6+1+1
17	17	0.6

Crimp contacts, turned

M17 power plug-in connectors are fitted with contacts with Ø 2 mm, Ø 1 mm or Ø 0.6 mm depending on the number of positions (see table below).

Note: depending on the litz wire used, the connection cross sections (crimp ranges) may deviate from the listed values. For reasons of safety, only socket contacts may be used in the live part of the plug.

Crimp contacts socket

Crimp contacts pin

Description	Connection cross section [mm²]	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.
Contact socket Ø 2.0 mm							
	0,25 ... 1,0	**ST-20KS010**	**1607657**	50			
	1.0 ... 2.5	**ST-20KS020**	**1607658**	50			
Contact socket Ø 1.0 mm							
	0.06 mm² ... 0.25 mm²	**ST-10KS010**	**1618239**	100			
	0.34 mm² ... 0.5 mm²	**ST-10KS020**	**1618251**	100			
	0.5 mm² ... 1.0 mm²	**ST-10KS030**	**1618254**	100			
Contact socket Ø 0.6 mm							
	0.06 mm² ... 0.25 mm²	**ST-06KS010**	**1607580**	100			
	0.14 mm² ... 0.34 mm²	**ST-06KS020**	**1607581**	100			
	0.34 mm² ... 0.50 mm²	**ST-06KS030**	**1607582**	100			
Contact pin Ø 2.0 mm							
	0,25 ... 1,0				**ST-20KP010**	**1607655**	50
	1.0 ... 2.5				**ST-20KP020**	**1607656**	50
Contact pin Ø 1.0 mm							
	0.06 mm² ... 0.25 mm²				**ST-10KP010**	**1618255**	100
	0.34 mm² ... 0.5 mm²				**ST-10KP020**	**1618256**	100
	0.5 mm² ... 1.0 mm²				**ST-10KP030**	**1618261**	100
Contact pin Ø 0.6 mm							
	0.06 mm² ... 0.25 mm²				**ST-06KP010**	**1607577**	100
	0.14 mm² ... 0.34 mm²				**ST-06KP020**	**1607578**	100
	0.34 mm² ... 0.50 mm²				**ST-06KP030**	**1607579**	100
		Accessories			**Accessories**		
Crimping tools		Order separately, see page 407			Order separately, see page 407		

Contact diameter

Number of positions	Number of contacts	Contact Ø [mm]
4(3+PE)	4	2
6(5+PE)	6	1
7(6+PE)	7	1
8(7+PE)	8	1
9(5+3+PE)	5+3+PE	0.6+1+1
17	17	0.6

Mechanical and electrical data

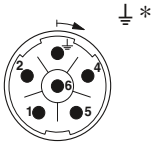
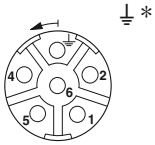
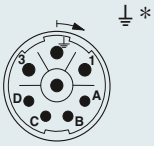
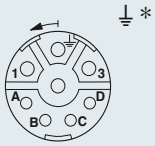
Mechanical data	
Housing material:	Copper zinc alloy (CuZn), die-cast zinc (GD-Zn)
Housing surface:	Nickel-plated/thick layer passivated (can be coated)
Insulating body:	Polyamide (PA 66)
Contact material:	Copper zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold coating (Au)
Contact connection method:	Crimp version
Sealing and O-ring:	Fluorocarbon rubber (FKM)
Ambient temperature:	-40°C ... 125°C
Cable entry:	Cable and coupler plug-in connectors for cable outside diameter of 7.5 - 18 mm, shielded
Type of locking:	M23 SPEEDCON screw locking, cable plug-in connector optional M23 x 1 coarse-pitch thread
Mechanical insertion/withdrawal cycles:	Standard: 100
Protection class:	IP67 in the locked state

Electrical data

Number of positions		**6 (5+PE)**	**8 (4+3+PE)**				
Contacts		5 + PE	4	+	3	+	PE
Contact Ø	[mm]	2	1		2		2
Litz wire cross sections							
Short version, cable Ø max. 14 mm	[mm²]	0.25 ... 2.5	0.06 ... 1.0		0.25 ... 2.5		0.25 ... 2.5
Long version, cable Ø max. 18 mm	[mm²]	0.25 ... 4.0	0.06 ... 1.0		0.25 ... 4.0		0.25 ... 4.0
Device plug-in connectors	[mm²]	0.25 ... 4.0	0.06 ... 1.0		0.25 ... 4.0		0.25 ... 4.0
Nominal current per contact at 25°C [1]		30	9		30		–
Specifications according to DIN EN 61984:2009							–
Rated voltage	[V AC/DC]	630[2]	250		630[2]		–
Test/surge voltage	[kV AC]	6	4		6		–
Surge voltage category		III			III		
Pollution degree [3]		3			3		
Installation height	[m]	Up to 3000			Up to 3000		
Cable clamping area 4)	max. Ø [mm]	18			18		

[1] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2] 400 V when equipped with punched-rolled C-HC contacts
[3] The values specified assume that the plug-in connector pair is correctly locked and is only disconnected for testing and maintenance purposes. If the plug-in connector is unlocked and exposed to ambient conditions, and if there is a danger of contamination, the plug-in connector must be sealed using a protective cap ≥ IP54.
[4] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selection and testing is the responsibility of the user.

Pin assignments and coding

	Contact chamber numbering (view of plug-in side)			
Number of positions	**Pin**		**Socket**	
6-pos. **(5 + PE)** Crimp		* with grounding spring, **Pos. 3 leading**		* with grounding spring, Pos. 3
8-pos. **(4 + 3 + PE)** Crimp		* with grounding spring, Pos. 2		* with grounding spring, **Pos. 2 leading**

Selection guide

M23 power plug-in connector up to 30 A/630 V, crimp ranges up to 4 mm²

- Cable plug-in connectors
- Coupler plug-in connectors
- Device plug-in connectors (device flanges)
- Feed-throughs/panel feed-throughs

The plug-in connectors are supplied fully pre-assembled and are complemented by the respective crimp contacts.

The product chart provides an overview of the available components.

Plug-in connector type

Shielded

Cable plug-in connectors

Short,
SPEEDCON rapid interlock system,
see page 368.

M23 x 1 standard interlocking,
see page 368.

Long,
SPEEDCON rapid interlock system,
see page 368.

M23 x 1 standard interlocking,
see page 368.

Device plug-in connectors with knurled nut

Straight,
see page 371.

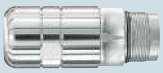
Angled,
see page 371.

Shielded

Coupler plug-in connectors

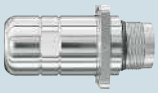
Short,
see page 369.

Long,
see page 369.



With mounting flange
Short, see page 372.

With mounting flange
Long, see page 372.



Shielded

Device plug-in connectors

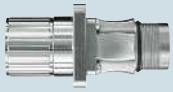
Straight,
see page 370.

Angled, rotatable,
flange dimensions 26 mm x 26 mm,
see page 370.

Angled, rotatable,
flange dimensions 28 mm x 28 mm
see page 370.

Panel feed-through

External socket - internal pin,
see page 373.



Panel feed-throughs are fully wired at the time of delivery

Crimp contacts

Socket contacts

Turned, see page 374.

Socket contacts

Pin contacts

Turned, see page 374.

Pin contacts

Tools/accessories

Crimping pliers with digital display for turned crimp contacts,
see page 407.

Accessories

Color rings for individually marking the plug-in connectors,
see page 412.

Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Cable plug-in connectors, long and short design

- SPEEDCON rapid interlock system or M23 standard interlocking
- Standard knurled nuts compatible with mating plugs with SPEEDCON or M23 standard external thread
- Individual marking of plug-in connectors with color rings

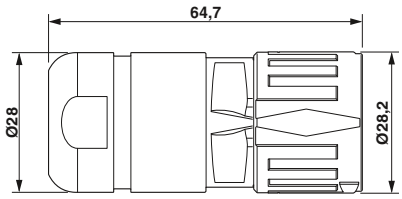
N

Cable plug-in connector, SPEEDCON

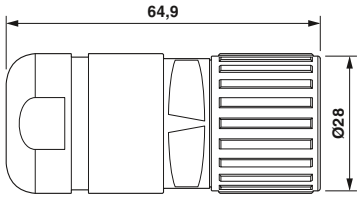
Cable plug-in connector, M23 standard interlocking

Description	Cable clamping area	Ordering data: Order No. (5+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (4+3+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (5+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (4+3+PE-pos.)	Pcs. / Pkt.
Cable plug-in connector, **short**, with contact carrier, **without** contacts, **for cable Ø 7.5 mm to 14 mm,** connection cross section up to 2.5 mm²									
Universal gasket	7.5 mm ... 14 mm	**1618197**	1	**1618207**	1	**1605532**	1	**1605602**	1
	7.5 mm ... 9 mm	**1618194**	1	**1618204**	1	**1605524**	1	**1605595**	1
	9 mm ... 11 mm	**1618195**	1	**1618205**	1	**1605526**	1	**1605596**	1
	11 mm ... 14 mm	**1618196**	1	**1618206**	1	**1605529**	1	**1605597**	1
Cable plug-in connector, **long,** with contact carrier, **without** contacts, **for cable Ø 7.5 mm to 18 mm,** connection cross section up to 4 mm²									
Universal gasket	7.5 mm ... 18 mm	**1618202**	1	**1618212**	1	**1605549**	1	**1605617**	1
	7.5 mm ... 9 mm	**1618201**	1	**1618211**	1	**1605548**	1	**1605614**	1
	9 mm ... 12 mm	**1618200**	1	**1618210**	1	**1605546**	1	**1605610**	1
	12 mm ... 15 mm	**1618199**	1	**1618209**	1	**1605545**	1	**1605607**	1
	15 mm ... 18 mm	**1618198**	1	**1618208**	1	**1605543**	1	**1605605**	1

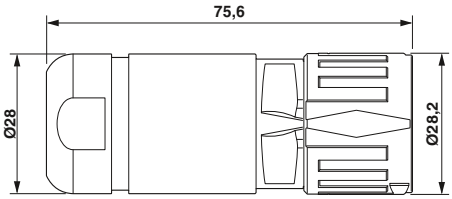
	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 374 See page 412	For socket contacts, see page 374 See page 412



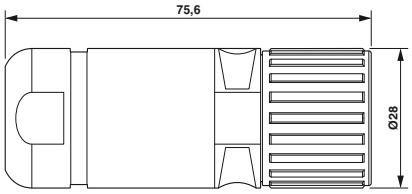
Short design



Short design



Long design



Long design

Coupler plug-in connectors, long and short design

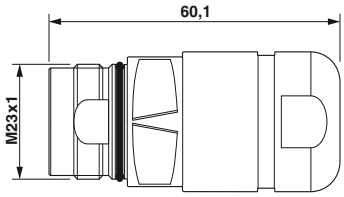
- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- Individual marking of plug-in connectors with color rings

Coupler plug-in connector, short

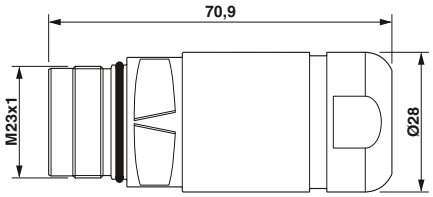
Coupler plug-in connector, long

Description	Cable clamping area	Ordering data: Order No. (5+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (4+3+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (5+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (4+3+PE-pos.)	Pcs. / Pkt.
Coupler plug-in connector, **short**, with contact carrier, **without** contacts, **for cable Ø 7.5 mm to 14 mm,** connection cross section up to 2.5 mm²									
Universal gasket	7.5 mm ... 14 mm	**1605499**	1	**1605575**	1				
	7.5 mm ... 9 mm	**1605494**	1	**1605568**	1				
	9 mm ... 11 mm	**1605496**	1	**1605570**	1				
	11 mm ... 14 mm	**1605498**	1	**1605571**	1				
Coupler plug-in connector, **long,** with contact carrier, **without** contacts, **for cable Ø 7.5 mm to 18 mm,** connection cross section up to 4 mm²									
Universal gasket	7.5 mm ... 18 mm					**1605510**	1	**1605583**	1
	7.5 mm ... 9 mm					**1605509**	1	**1605582**	1
	9 mm ... 12 mm					**1605508**	1	**1605581**	1
	12 mm ... 15 mm					**1605507**	1	**1605580**	1
	15 mm ... 18 mm					**1605505**	1	**1605578**	1

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For pin contacts, see page 374 See page 412	For pin contacts, see page 374 See page 412



Short design



Long design

Device plug-in connector, straight and angled, rotatable

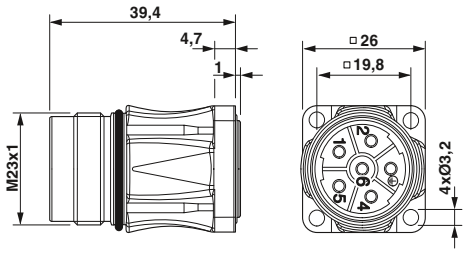
– Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts

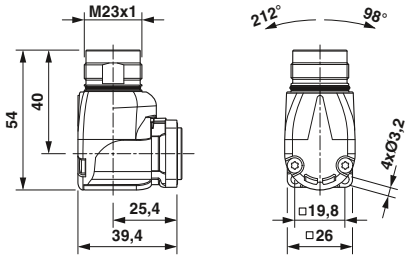
Device plug-in connector, straight

Device plug-in connector, angled rotatable

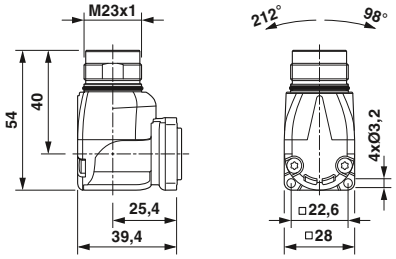
	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	5+PE-pos.		4+3+PE-pos.		5+PE-pos.		4+3+PE-pos.	
Device plug-in connector with contact carrier **without** contacts								
Flange dimensions: 26 mm x 26 mm	1605520	1	1605589	1	1620657	1	1620660	1
Device plug-in connector, with **reinforced contact carrier** (black) for angled mating plugs, **without** contacts								
Flange dimensions: 26 mm x 26 mm	1620619	1	1620620	1				
Device plug-in connector with contact carrier **without** contacts								
Flange dimensions: 28 mm x 28 mm					1620661	1	1620662	1

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For pin contacts, see page 374 See page 412	For pin contacts, see page 374 See page 412

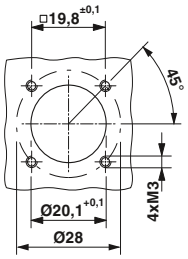




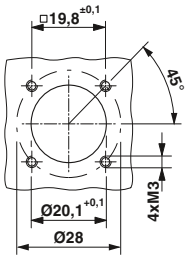
Flange dimensions 26 mm x 26 mm



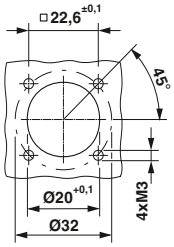
Flange dimensions 28 mm x 28 mm



Installation dimensions



Installation dimensions



Installation dimensions

Device plug-in connector with knurled nut

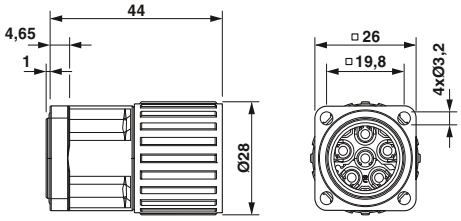
Device plug-in connectors with knurled nuts must be equipped with socket contacts.

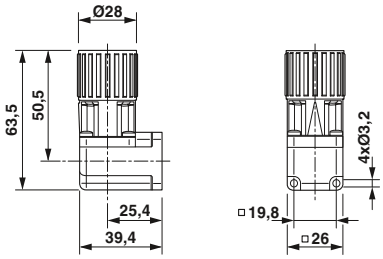
– Standard knurled nuts compatible with mating plugs with SPEEDCON or M23 standard external thread

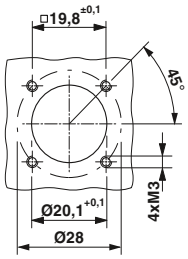
Device plug-in connector with knurled nut, straight

Device plug-in connector with knurled nut, angled, fixed

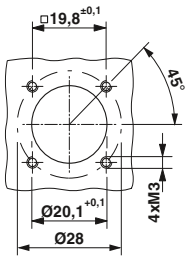
	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	5+PE-pos.		4+3+PE-pos.		5+PE-pos.		4+3+PE-pos.	
Device plug-in connector with knurled nut, **straight**, with contact carrier, without contacts	1607082	1	1605622	1				
Device plug-in connector with knurled nut, **angled, fixed**, with contact carrier, without contacts					1607405	1	1607429	1
	Accessories				**Accessories**			
Crimp contacts	For socket contacts, see page 374				For socket contacts, see page 374			







Installation dimensions



Installation dimensions

Panel feed-through, long and short design

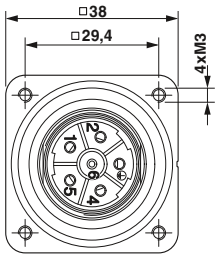
- Rear mounting
- Compatible with mating plugs with M23 standard knurled nuts

Panel feed-through, short

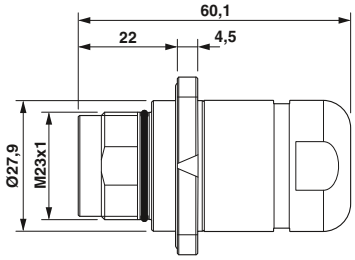
Panel feed-through, long

Description	Cable clamping area	Ordering data: Order No. (5+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (4+3+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (5+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (4+3+PE-pos.)	Pcs. / Pkt.
Panel feed-through, short with contact carrier, without contacts, for cable Ø 7.5 to 14 mm, connection cross section up to 2.5 mm²									
Universal gasket	7.5 mm ... 14 mm	**1605517**	1	**1607051**	1				
	7.5 mm ... 9 mm	**1605516**	1	**1607048**	1				
	9 mm ... 11 mm	**1607037**	1	**1607049**	1				
	11 mm ... 14 mm	**1607038**	1	**1607050**	1				
Panel feed-through, long with contact carrier, without contacts, for cable Ø 7.5 to 18 mm, connection cross section up to 4 mm²									
Universal gasket	7.5 mm ... 18 mm					**1605518**	1	**1607056**	1
	7.5 mm ... 9 mm					**1607042**	1	**1607055**	1
	9 mm ... 12 mm					**1607041**	1	**1607054**	1
	12 mm ... 15 mm					**1607040**	1	**1607053**	1
	15 mm ... 18 mm					**1607039**	1	**1607052**	1

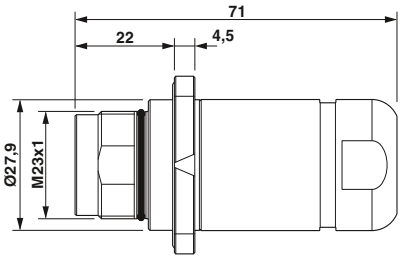
	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For pin contacts, see page 374 See page 412	For pin contacts, see page 374 See page 412



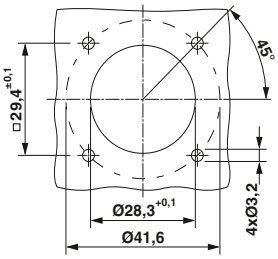
Flange dimensions for short and long design



Short design



Long design



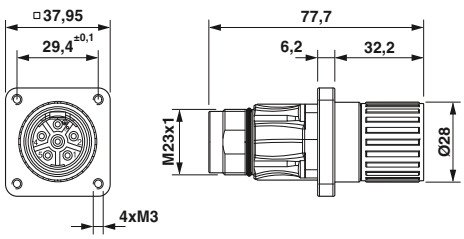
Installation dimensions for short and long design

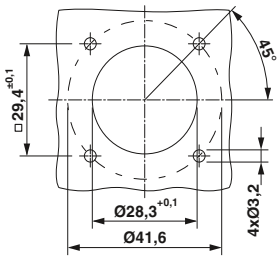
Panel feed-through, fully wired

- Front mounting
- Internally fully wired and fitted with contacts
- Compatible with mating plugs with M23 standard knurled nuts

Panel feed-through, pin/socket

	Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	5+PE-pos.		**4+3+PE-pos.**	
Panel feed-through, pin inside - socket outside, fully wired				
	1605492	1	**1605567**	1





Installation dimensions

Crimp contacts, turned

The 6-pos. (5+PE) versions are assembled with 2 mm Ø contacts. The 8-pos. (4+3+PE) versions are equipped with four 1 mm Ø signal contacts and four 2 mm Ø contacts.

Note: observe the crimp ranges for cable and coupler plug-in connectors.

– Short version: connection cross sections up to 2.5 mm², max. cable diameter of 14 mm
– Long version: connection cross sections up to 4 mm², max. cable diameter of 18 mm

Crimp contacts, socket

Crimp contacts, pin

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Contacts, socket Ø 2.0 mm for cable and device plug-in connectors with knurled nuts, power and PE contacts							
	0.25 ... 1.0	**SF-7PS2000**	**1605636**	50			
	0.75 ... 1.5	**SF-7NS2000**	**1605631**	50			
	1.0 ... 2.5	**SF-7QS2000**	**1605643**	50			
	4.0	**SF-7MS2000**	**1605628**	50			
Contacts, socket Ø 1.0 mm for cable and device plug-in connectors with knurled nuts, signal contacts							
	0.06 ... 0.2	**SF-6CS2000**	**1605562**	100			
	0.14 ... 0.5	**SF-10KS004**	**1607356**	100			
	0.5 ... 1.0	**SF-6AS2000**	**1605557**	100			
Contacts, pin Ø 2.0 mm for coupler plug-in connectors, power and PE contacts							
	0.14 ... 0.25				**SF-7RP2000**	**1605646**	50
	0.25 ... 1.0				**SF-7PP2000**	**1605634**	50
	0.75 ... 1.5				**SF-20KP004**	**1607376**	50
	1.0 ... 2.5				**SF-7QP2000**	**1605639**	50
	4.0				**SF-7MP2000**	**1605626**	50
Contacts, pin Ø 1.0 mm for coupler plug-in connectors, signal contacts							
	0.06 ... 0.2				**SF-6CP2000**	**1605559**	100
	0.14 ... 0.5				**SF-10KP004**	**1607355**	100
	0.5 ... 1.0				**SF-6AP2000**	**1605554**	100
Contacts, pin Ø 2.0 mm for device plug-in connectors, power and PE contacts							
	0.14 ... 0.25				**SF-7RP2000**	**1605646**	50
	0.25 ... 1.0				**SF-7PP2000**	**1605634**	50
	0.75 ... 1.5				**SF-20KP004**	**1607376**	50
	1.0 ... 2.5				**SF-7QP2000**	**1605639**	50
	4.0				**SF-7MP2000**	**1605626**	50
Contacts, pin Ø 1.0 mm for device plug-in connectors, signal contacts							
	0.06 ... 0.2				**SF-6CP2000**	**1605559**	100
	0.14 ... 0.5				**SF-10KP004**	**1607355**	100
	0.5 ... 1.0				**SF-6AP2000**	**1605554**	100
		Accessories			**Accessories**		
Crimping tools		Order separately, see page 407 onwards			Order separately, see page 407 onwards		

Contact diameter

Number of positions	Number of contacts	Contact Ø [mm]
6(5+PE)	5+PE	2+2
8(4+3+PE)	4+3+PE	1+2+2

Mechanical and electrical data

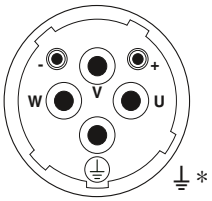
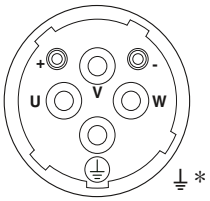
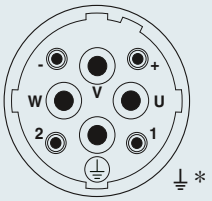
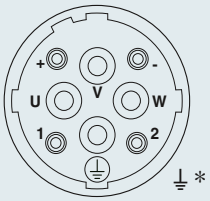
Mechanical data	
Housing material:	Copper zinc alloy (CuZn), die-cast zinc (GD-Zn)
Housing surface:	Nickel-plated/thick layer passivated (can be coated)
Insulating body:	Polyamide (PA 66)
Contact material:	Copper zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold coating (Au)
Contact connection method:	Crimp version
Sealing and O-ring:	Fluorocarbon rubber (FKM)
Ambient temperature:	-40°C ... 125°C
Cable entry:	Cable outside diameter 9.0 - 26.5 mm, shielded
Type of locking:	M40 SPEEDCON rapid interlock system, cable plug-in connector optionally with M40 x 1.5 coarse-pitch thread
Mechanical insertion/withdrawal cycles:	Standard: 50
Protection class	IP67 in the locked state

Electrical data

Number of positions		**6 (2+3+PE)**					**8 (4+3+PE)**				
Contacts		2	+	3	+	PE	4	+	3	+	PE
Contact Ø	[mm]	2.0		3.6		3.6	2.0		3.6		3.6
Litz wire cross sections											
Cable and coupler plug-in connectors	[mm²]	0.14 ... 4.0		0.75 ... 16		0.75 ... 16	0.14 ... 4.0		0.75 ... 16		0.75 ... 16
Device plug-in connectors	[mm²]	0.14 ... 4.0		0.75 ... 10		0.75 ... 10	0.14 ... 4.0		0.75 ... 10		0.75 ... 10
Nominal current per contact at 25°C [1]	[A]	30		70		–	30		70		–
Specifications according to DIN EN 61984:2009											
Rated voltage	[V AC/DC]	250		630		–	250		630		–
Test/surge voltage	[kV]	4		6		–	4		6		–
Surge voltage category				III					III		
Pollution degree				3					3		
Installation height	[m]			Up to 3000					Up to 3000		
Cable clamping area [2]	max. Ø [mm]			26.5					26.5		

[1] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selecting and testing is the responsibility of the user.

Pin assignments and coding

	Contact chamber numbering (view of plug-in side)	
Number of positions	**Pin**	**Socket**
6-pos. **(2 + 3 + PE)** Crimp		
8-pos. **(4 + 3 + PE)** Crimp		

* with grounding spring

Selection guide

M40 power plug-in connectors up to 70 A/630 V, crimp ranges up to 16 mm²

– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors (device flanges)
– Feed-throughs/panel feed-throughs

The plug-in connectors are supplied fully pre-assembled and are complemented by the respective crimp contacts.

In order to specify an M40 power plug-in connector for the cable and device plug-in connector side, the fully pre-assembled plug housing is supplemented by the corresponding crimp contacts. M40 plug-in connectors with knurled nuts can be optionally supplied with SPEEDCON rapid interlock system or with M40 x 1.5 coarse-pitch thread.

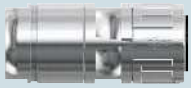
The product chart provides an overview of the available components.

Plug-in connector type

Shielded

Cable plug-in connectors

SPEEDCON rapid interlock system, see page 380.



Mounting flange for wall mounting, see page 410.

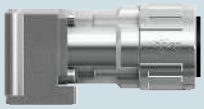
M40 x 1.5 standard interlocking, see page 380.

Shielded

Device plug-in connectors with knurled nut

Straight, see page 382.

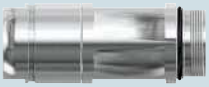
Angled, see page 383.



Shielded

Coupler plug-in connectors

See page 380.



Device plug-in connectors

Angled, rotatable, M17, see page 384.

Straight, see page 381.

Socket contacts

Pin contacts

Crimp contacts

Socket contacts

Turned, see page 385.

Pin contacts

Turned, see page 385.

Tools/accessories

Crimping tools

Crimping pliers, see page 407.

Crimping pliers with digital display for turned crimp contacts,
see page 407.

Accessories

Color rings for individually marking the plug-in connectors,
see page 412.

Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Cable plug-in connector

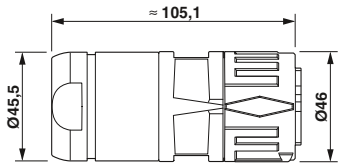
- SPEEDCON rapid interlock system or M40 standard interlocking
- Standard knurled nuts compatible with mating plugs with SPEEDCON or M40 standard external thread
- Individual marking of plug-in connectors with color rings

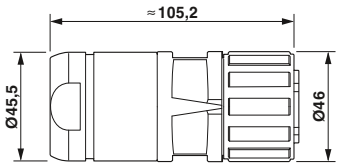
Cable plug-in connector, SPEEDCON

Cable plug-in connector

Description	Cable clamping area	Ordering data: Order No. (2+3+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (4+3+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (2+3+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (4+3+PE-pos.)	Pcs. / Pkt.
Cable plug-in connector housing, with contact carrier, **without** contacts, connection cross section up to 16 mm²									
	9 mm ... 14 mm	**1613428**	1	**1613434**	1	**1613518**	1	**1613528**	1
	14 mm ... 20.5 mm	**1613429**	1	**1613435**	1	**1613519**	1	**1613529**	1
	20.5 mm ... 26.5 mm	**1613430**	1	**1613436**	1	**1613520**	1	**1613530**	1

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 385 See page 412	For socket contacts, see page 385 See page 412





Coupler and device plug-in connectors

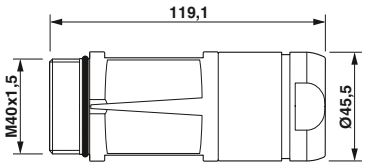
- Compatible with mating plugs with SPEEDCON or M40 standard knurled nuts
- Individual marking of plug-in connectors with color rings

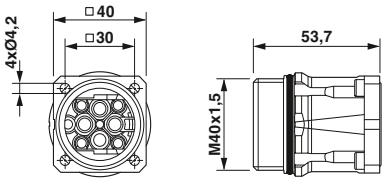
Coupler plug-in connector

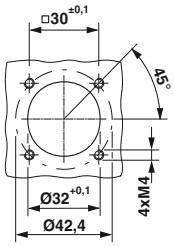
Device plug-in connector, straight

Description	Cable clamping area	Ordering data: Order No. (2+3+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (4+3+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (2+3+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (4+3+PE-pos.)	Pcs. / Pkt.
Coupler plug-in connector, with contact carrier, **without** contacts, connection cross section up to 16 mm²									
	9 mm ... 14 mm	**1613425**	1	**1613431**	1				
	14 mm ... 20.5 mm	**1613426**	1	**1613432**	1				
	20.5 mm ... 26.5 mm	**1613427**	1	**1613433**	1				
Device plug-in connector, straight, with contact carrier, **without** contacts Connection cross section up to 10 mm²						**1613517**	1	**1613527**	1

	Accessories: 2+3+PE-pos.	Accessories: 4+3+PE-pos.
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For pin contacts, see page 385 See page 412	For pin contacts, see page 385 See page 412







Installation dimensions

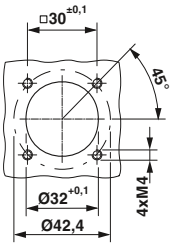
Device plug-in connector with knurled nut

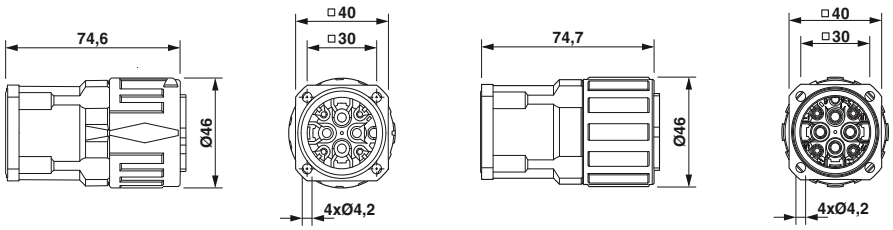
- SPEEDCON rapid interlock system or M40 standard interlocking
- Standard knurled nuts compatible with mating plugs with SPEEDCON or M40 standard external thread
- Device plug-in connectors with knurled nuts must be fitted with socket contacts

Device plug-in connector with knurled nut, straight, SPEEDCON

Device plug-in connector with knurled nut, straight

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	2+3+PE-pos.		**4+3+PE-pos.**		**2+3+PE-pos.**		**4+3+PE-pos.**	
Device plug-in connector with SPEEDCON knurled nut, **straight,** with contact carrier, **without** contacts Connection cross section up to 16 mm²	**1613524**	1	**1613534**	1				
Device plug-in connector with standard knurled nut, **straight,** with contact carrier, **without** contacts Connection cross section up to 16 mm²					**1605823**	1	**1605865**	1
	Accessories				**Accessories**			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 385 See page 412				For socket contacts, see page 385 See page 412			





Installation dimensions

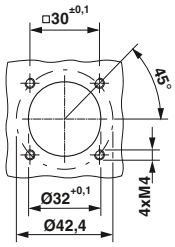
Device plug-in connector with knurled nut

Device plug-in connectors with knurled nuts must be equipped with socket contacts.

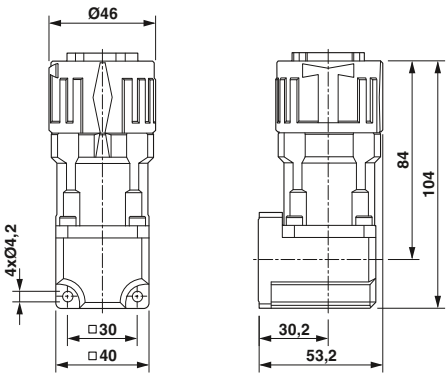
Device plug-in connector with knurled nut, angled, SPEEDCON

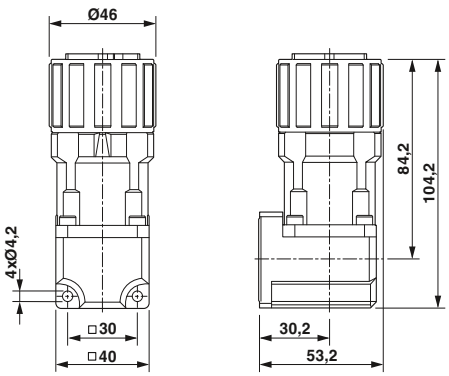
Device plug-in connector with knurled nut, angled

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	2+3+PE-pos.		**4+3+PE-pos.**		**2+3+PE-pos.**		**4+3+PE-pos.**	
Device plug-in connector with SPEEDCON knurled nut, **angled,** with contact carrier, **without** contacts								
Connection cross section up to 16 mm²	**1613525**	1	**1613535**	1				
Device plug-in connector with knurled nut, **angled,** with contact carrier, **without** contacts								
Connection cross section up to 16 mm²					**1607532**	1	**1607543**	1
	Accessories				**Accessories**			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 385 See page 412				For socket contacts, see page 385 See page 412			



Installation dimensions





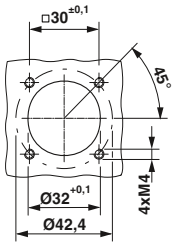
Device plug-in connector, angled, rotatable

- Compatible with mating plugs with SPEEDCON or M40 standard knurled nuts
- The rotatable angled housing can be rotated freely through 310°
- Individual marking of plug-in connectors with color rings

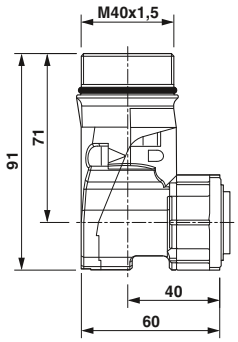
Device plug-in connector, angled rotatable

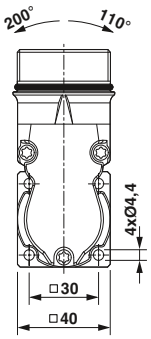
	Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	2+3+PE-pos.		**4+3+PE-pos.**	
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts Connection cross section up to 10 mm²	**1620663**	1	**1620664**	1

	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For pin contacts, see page 385 See page 412



Installation dimensions





Crimp contacts, turned

The 6-pos. (2+3+PE) versions are equipped with two Ø 2 mm signal contacts and four 3.6 mm contacts (three power, 1 PE contact).

The 8-pos. (4+3+PE) versions are equipped with four 2 mm signal contacts and four 3.6 mm contacts (three power, 1 PE contact).

Note: depending on the litz wire used, the connection cross sections (crimp ranges) can differ from the values mentioned below.

Crimp contacts, socket

Crimp contacts, pin

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Contacts, socket Ø 3.6 mm, for cable and device plug-in connectors with knurled nuts, power and PE contacts							
	1.0 ... 2.5	**SM-36KS001**	**1605756**	20			
	2.5 ... 4.0	**SM-36KS002**	**1605758**	20			
	4.0 ... 6.0	**SM-36KS003**	**1605760**	20			
	6.0 ... 10.0 (16.0)	**SM-36KS004**	**1605762**	20			
Contacts, socket Ø 2.0 mm, for cable and device plug-in connectors with knurled nuts, signal contacts							
	0.25 ... 1.0	**SF-7PS2000**	**1605636**	50			
	0.75 ... 1.5	**SF-7NS2000**	**1605631**	50			
	1.0 ... 2.5	**SF-7QS2000**	**1605643**	50			
	4.0	**SF-7MS2000**	**1605628**	50			
Contacts, pin Ø 3.6 mm, for coupler plug-in connectors, power and PE contacts							
	1.0 ... 2.5				**SM-36KP005**	**1605749**	20
	2.5 ... 4.0				**SM-36KP006**	**1605750**	20
	4.0 ... 6.0				**SM-36KP008**	**1605754**	20
	6.0 ... 10.0 (16.0)				**SM-36KP007**	**1605752**	20
Contacts, pin Ø 2.0 mm, for coupler plug-in connectors, signal contacts							
	0.25 ... 1.0				**SM-20KP006**	**1605738**	50
	0.75 ... 1.5				**SM-20KP005**	**1605736**	50
	1.0 ... 2.5				**SM-20KP007**	**1605739**	50
	4.0				**SM-20KP008**	**1605741**	50
Contacts, pin Ø 3.6 mm, for device plug-in connectors, power and PE contacts							
	0.75 ... 1.5				**SM-36KP001**	**1605743**	20
	1.0 ... 2.5				**SM-36KP009**	**1607057**	20
	1.0 ... 4.0				**SM-36KP002**	**1605744**	20
	4.0 ... 6.0				**SM-36KP003**	**1605745**	20
	6.0 ... 10.0				**SM-36KP004**	**1605747**	20
Contacts, pin Ø 2.0 mm, for device plug-in connectors, signal contacts							
	0.14 ... 0.25				**SF-7RP2000**	**1605646**	50
	0.25 ... 1.0				**SF-7PP2000**	**1605634**	50
	0.75 ... 1.5				**SF-20KP004**	**1607376**	50
	1.0 ... 2.5				**SF-7QP2000**	**1605639**	50
	4.0				**SF-7MP2000**	**1605626**	50

	Accessories	Accessories
Crimping tools	Order separately, see page 407	Order separately, see page 407

Number of positions	Number of contacts	Contact Ø [mm]
6(2+3+PE)	2+3+PE	2+3,6+3,6
8(4+3+PE)	4+3+PE	2+3,6+3,6

Mechanical and electrical data

Mechanical data	
Housing material:	Aluminum
Housing surface:	Aluminum, anodized
Insulating body:	Polyamide (PA 66)
Contact surface:	Power and PE contacts: silver-plated (Ag), signal contacts: gold-plated (Au)
Contact connection method:	Crimp version
Sealing and O-ring:	Fluorocarbon rubber (FPM)
Ambient temperature:	-40°C ... 120°C
Cable entry:	Cable and coupler plug-in connectors for cable outside diameter of 17 - 36 mm, shielded
Type of locking:	M58 x 2 screw locking
Mechanical insertion/withdrawal cycles:	Standard: 100
Protection class:	IP67 in the locked state

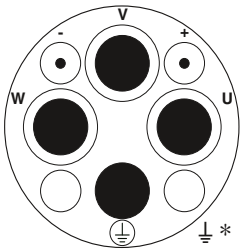
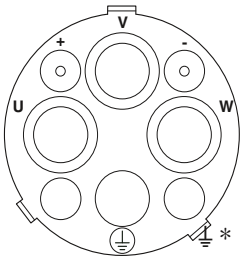
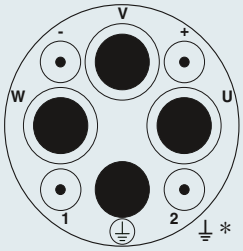
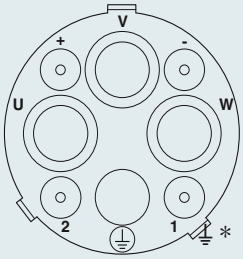
Electrical data

Number of positions		**6 (2+3+PE)**					**8 (4+3+PE)**				
Contacts		2	+	3	+	PE	4	+	3	+	PE
Contact Ø	[mm]	1.6		10		10	1.6		10		10
Litz wire cross section											
Crimp contacts, turned	[mm²]	0.75 ... 1.5		10 ... 50		10 ... 50	0.75 ... 1.5		10 ... 50		10 ... 50
Nominal current per contact at 25°C [1]	[A]	12		150		–	12		150		–
Specifications according to DIN EN 61984:2009											
Rated voltage	[V AC/DC]	250		630		–	250		630		–
Test/surge voltage	[kV AC]	4		6		–	4		6		–
Surge voltage category				III					III		
Pollution degree				3					3		
Installation height	[m]			Up to 2000					Up to 2000		
Cable clamping area [2]	max. Ø [mm]			36					36		

[1] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selecting and testing is the responsibility of the user.

Note:
Unlike plug-in equipment, plug-in connectors must not be plugged or unplugged under load.

Pin assignments and coding

	Contact chamber numbering (view of plug-in side)	
Number of positions	**Pin**	**Socket**
6-pos. **(2 + 3 + PE)** Crimp		
8-pos. **(4 + 3 + PE)** Crimp		

*** with grounding spring, PE leading**

Selection guide

M58 power plug-in connectors up to 150 A/630 V, crimp ranges up to 50 mm²

– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors, straight

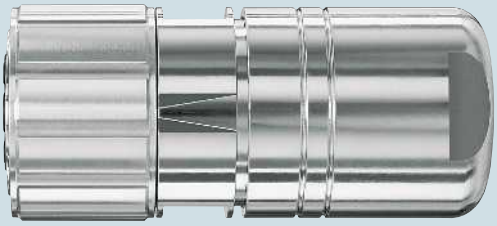
The power plug-in connectors are supplied fully pre-assembled and are complemented by the respective crimp contacts.

The product chart provides an overview of the available components.

Plug-in connector type

Shielded

Cable plug-in connectors



See page 390.

Shielded

Coupler plug-in connectors

See page 390.

Shielded

Device plug-in connectors

See page 391.

Crimp contacts

Socket contacts

Turned, see page 392.

Socket contacts

Pin contacts

Turned, see page 392.

Pin contacts

Pin contacts

Tools/accessories

Crimping tools

Crimping device for power and PE contacts Ø 10 mm,
see page 408.

Crimping pliers, for signal contacts Ø 1.6 mm,
see page 408.

Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

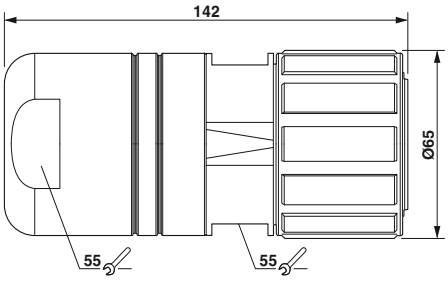
Cable and coupler plug-in connectors

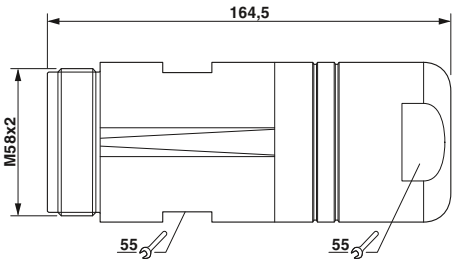
- High transmission capacities of up to 630 V and 150 A
- Connection cross sections up to 50 mm²
- Cable clamping area from 17 mm to 36 mm

Cable plug-in connector

Coupler plug-in connector

Description	Cable clamping area	Ordering data: Order No. (2+3+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (4+3+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (2+3+PE-pos.)	Pcs. / Pkt.	Ordering data: Order No. (4+3+PE-pos.)	Pcs. / Pkt.
Plug-in connector housing, with contact carrier, **without** contacts, for cable diameter:									
	17 mm ... 25 mm	**1607503**	1	**1607508**	1	**1607500**	1	**1607506**	1
	25 mm ... 36 mm	**1607501**	1	**1607507**	1	**1607499**	1	**1607505**	1
		Accessories				**Accessories**			
Crimp contacts		For socket contacts, see page 392				For pin contacts, see page 392			





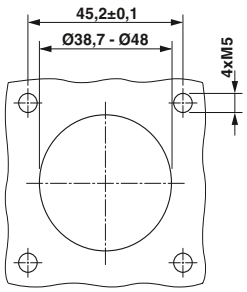
Device plug-in connector for front mounting

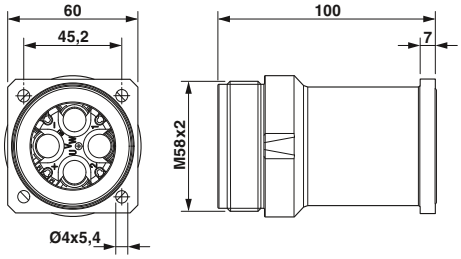
Coupler and device plug-in connectors must be fitted with pin contacts, cable plug-in connectors must be fitted with socket contacts.

Device plug-in connector, straight

	Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	2+3+PE-pos.		**4+3+PE-pos.**	
Device plug-in connector, straight, with contact carrier, **without** contacts	**1615686**	1	**1615687**	1

	Accessories
Crimp contacts	For pin contacts, see page 392





Installation dimensions

Crimp contacts, turned

The 6-pos. (2+3+PE) versions are equipped with two Ø 1.6 mm signal contacts and four 10 mm contacts (three power, 1 PE contact).

The 8-pos. (4+3+PE) versions are equipped with four 1.6 mm signal contacts and four 10 mm contacts (three power, 1 PE contact).

Note: depending on the litz wire used, the connection cross sections (crimp ranges) can differ from the values mentioned below.

Crimp contacts, socket

Crimp contacts, pin

Description	Connection cross section [mm²]	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.
Contacts, socket Ø 10.0 mm for cable plug-in connectors, power and PE contacts							
	10.0	**SL-1CKS010**	**1607916**	4			
	16.0	**SL-1CKS020**	**1607917**	4			
	25.0	**SL-1CKS030**	**1607918**	4			
	35.0	**SL-1CKS040**	**1607919**	4			
	50.0	**SL-1CKS050**	**1607920**	4			
Contacts, socket Ø 1.6 mm for cable plug-in connectors, signal contacts							
	0.75 ... 1.5	**SL-16KS010**	**1607956**	4			
Contacts, pin Ø 10.0 mm for coupler and device plug-in connectors, power and PE contacts							
	10.0				**SL-1CKP010**	**1607911**	4
	16.0				**SL-1CKP020**	**1607912**	4
	25.0				**SL-1CKP030**	**1607913**	4
	35.0				**SL-1CKP040**	**1607914**	4
	50.0				**SL-1CKP050**	**1607915**	4
Contacts, pin Ø 1.6 mm for coupler and device plug-in connectors, signal contacts							
	0.75 ... 1.5				**SL-16KP010**	**1607909**	4
		Accessories			**Accessories**		
Crimping tools		Order separately, see page 408 onwards			Order separately, see page 408 onwards		

Number of positions	Number of contacts	Contact Ø [mm]
6(2+3+PE)	2+3+PE	1,6+10+10
8(4+3+PE)	4+3+PE	1,6+10+10

Signal/power plug-in connectors, plastic molded

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 counter direction 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 5 m 10 m	**1624780** **1624781** **1624782**	2 m 5 m 10 m	**1619247** **1619248** **1619249**	2 m 5 m 10 m	**1619280** **1619281** **1619282**
M17, 17-pos., pin	2 m 5 m 10 m	**1624778** **1624783** **1624784**				
M23, 12-pos., pin			2 m 5 m 10 m	**1619289** **1619290** **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**		

Signal/power plug-in connectors, plastic molded

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-position, Socket, 630 V, 18 A		M17, 3+PE-position, Socket, 630 V, 26 A		M17, 5+PE-position, 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	1619298 1619299 1619300	2 m 5 m 10 m	1619301 1619302 1619303	2 m 5 m 10 m	1619307 1619308 1619309
M17, 3+PE-pos., pin	2 m 5 m 10 m	1619304 1619305 1619306	2 m 5 m 10 m	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 PE - green/yellow"		**Flexible:** -20°C ... 60°C **Fixed:** -40°C ... 80°C
B01 Servo	Orange	Shielded, 4 x 2.50	TPU/TPM			**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 PE - green/yellow	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			**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 PE - green/yellow	A - black 5 (brake) B - black 6 (brake) C - black 7 (motor temp. +) D - black 8 (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			**Flexible:** -20°C ... 60°C **Fixed:** -40°C ... 80°C

M17, 5+PE-position, Socket, 630 V, 15 A		M17, 7+PE-position, Socket, 630 V, 12 A		M17, 7+PE-position, Socket, 630 V, 15 A	
C01		D00		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**

Signal/power plug-in connectors, plastic molded

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-position, Socket, 630 V, 34 A		M23, 4+PE-position, Socket, 630 V, 34 A		M23, 5+PE-position, Socket, 630 V, 18 A	
	A00		A01		C02	
	Ordering data		Ordering data		Ordering data	
		Order no.		Order no.		Order no.
Free end	2 m 5 m 10 m	1624771 1619622 1624772	2 m 5 m 10 m	1625776 1625777 1625775	2 m 5 m 10 m	1618957 1618958 1618959
M23, 3+PE-pos., pin	2 m 5 m 10 m	1624773 1619606 1624774				
M23, 4+PE-pos., pin			2 m 5 m 10 m	1625779 1625781 1625780		
M23, 5+PE-pos., pin					2 m 5 m 10 m	1618964 1618965 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-position, Socket, 630 V, 18 A		M23, 5+PE-position, Socket, 630 V, 26 A		M23, 5+PE-position, 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**		

Signal/power plug-in connectors, plastic molded

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	2 m	1620421	2 m	1620402
	5 m	1620400	5 m	1620422	5 m	1620404
	10 m	1620401	10 m	1620423	10 m	1620405
M23, 4+3+PE-pos., pin	2 m	1620409			2 m	1620412
	5 m	1620410			5 m	1620413
	10 m	1620411			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 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
D03 servo	Orange	Shielded, 4 x 2.5 + 2 x 2 x 0.75	PUR/TPM			**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**

Signal/power plug-in connectors, plastic molded

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 5 m 10 m	**1619329** **1620309** **1620310**	2 m 5 m 10 m	**1620311** **1620313** **1620314**	2 m 5 m 10 m	**1620316** **1620317** **1620318**
M40, 2+3+PE-pos., pin	2 m 5 m 10 m	**1620345** **1620346** **1620347**	2 m 5 m 10 m	**1620348** **1620349** **1620375**	2 m 5 m 10 m	**1620376** **1620377** **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**	2 m	**1620322**	2 m	**1620325**	2 m	**1620339**	2 m	**1620342**
5 m	**1620320**	5 m	**1620323**	5 m	**1620337**	5 m	**1620340**	5 m	**1620343**
10 m	**1620321**	10 m	**1620324**	10 m	**1620338**	10 m	**1620341**	10 m	**1620344**
2 m	**1620379**								
5 m	**1620380**								
10 m	**1620381**								
		2 m	**1620382**	2 m	**1620385**	2 m	**1620390**	2 m	**1620393**
		5 m	**1620383**	5 m	**1620386**	5 m	**1620391**	5 m	**1620394**
		10 m	**1620384**	10 m	**1620387**	10 m	**1620392**	10 m	**1620395**

Tools and accessories for M23 signal plug-in connectors

For RC crimp contacts, RC-Z2130 and RC-Z2514 crimping pliers are used for rolled or turned crimp contacts.

RC-Z2514 crimping pliers with 4-arbor pressing are suitable for crimping turned RC contacts. Detailed operating instructions are included in the packaging.

Crimping tools for rolled/turned contacts

Contact insertion/contact removal tool

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Crimping pliers for rolled RC crimp contacts Ø 1 mm						
Litz wire cross section of 0.08 ... 0.56 mm²	**RC-Z2130**	**1604267**	1			
Crimping pliers for turned RC crimp contacts Ø 1 mm / Ø 1.5 mm / Ø 2 mm						
Litz wire cross section of 0.08 ... 2.5 mm²	**RC-Z2514**	**1614590**	1			
Insertion and contact removal tool for RC crimp contacts						
Socket/plug Ø 1 mm				**RC-Z2494**	**1614123**	1
Socket/plug Ø 1.5 mm				**RC-Z2274**	**1604409**	1
Socket/plug Ø 2 mm				**RC-Z2490**	**1611803**	1

Crimping tools for punched-rolled C-HC crimp contacts

The manual crimping pliers are suitable for single processing. For processing taped products, a bench-mounted electric crimping device with integrated feed mechanism is available.

– The SF-Z0041 adapter enables tools for the manual crimping pliers for single processing to be used with the electric crimping device.

Manual crimping tools for punched-rolled C-HC crimp contacts

Electrical crimping device for punched-rolled C-HC crimp contacts

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Manual crimping pliers, basic tool for individual processing						
for C-HC crimp contacts	SF-Z0029	1607458	1			
Tool head for crimping pliers SF-Z0029, for C-HC crimp contacts						
Contacts **Ø 2 mm**	SF-Z0030	1607459	1			
Contacts **Ø 1 mm**	SF-Z0031	1607461	1			
Electric crimping device, for processing taped products						
for C-HC crimp contacts				SF-Z0032	1607462	1
Tool head for electrical crimping device SF-Z0032, for C-HC crimp contacts, processing for taped products						
Contacts **Ø 2.0 mm** / connection **1.0 mm²**				SF-Z0033	1607463	1
Contacts **Ø 2.0 mm** / connection **1.5 mm²**				SF-Z0047	1614689	1
Contacts **Ø 2.0 mm** / connection **2.5 mm²**				SF-Z0035	1607465	1
Contacts **Ø 1.0 mm** / connection **0.08 ... 0.2 mm²**				SF-Z0039	1607470	1
Contacts **Ø 1.0 mm** / connection **0.2 ... 0.56 mm²**				SF-Z0040	1607471	1
Media hub for electrical crimping device SF-Z0032 for accommodating rolls up to Ø 60 cm				SF-Z0052	1615413	1
Adapter for electrical crimping device SF-Z0032, for accommodating tool heads **for single processing**				SF-Z0041	1607472	1

Crimping tools for turned contacts

The crimping pliers are suitable for crimping turned contacts with Ø 0.6 mm, Ø 1 mm, Ø 2 mm, and Ø 3.6 mm (excl. M23 signal plug-in connectors). For large litz wire cross sections, a pneumatic crimping tool is available.

Notes:

For crimping tools for M23 signal plug-in connectors, see page 404

Manual crimping pliers

Crimping tool, pneumatic

Description	Litz wire cross section [mm²]	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.
Manual crimping pliers with digital display for turned crimp contacts with Ø 1 mm, Ø 2 mm, Ø 3.6 mm	0.06 ... 6	**SF-Z0025**	**1607452**	1			
Positioners for crimping the SF-6FS2000 / SF-6DP2000 contacts with a connection cross section of 1.5 mm²		**SF-Z0042**	**1613666**	1			
Manual crimping pliers with digital display for turned crimp contacts with Ø 2 mm, Ø 3.6 mm	1.5 ... 10	**SF-Z0026**	**1607454**	1			
Manual crimping pliers with digital display for turned crimp contacts with Ø 0.6 mm, Ø 1 mm, Ø 2 mm	0.06 ... 2.5	**SF-Z0054**	**1615585**	1			
Crimping tool, pneumatic for turned crimp contacts with Ø 3.6 mm	6.0 ... 16				**SF-Z0014**	**1607446**	1
Crimp head for crimping tool, pneumatic					**SF-Z0003**	**1605657**	1
Positioner for crimp head **SF-Z0003**, for device plug-in connectors	**"D" marking**				**SF-Z0011**	**1605675**	1
Positioner for crimp head **SF-Z0003**, for cable and coupler plug-in connectors	**"F" marking**				**SF-Z0013**	**1605681**	1

Crimping tools for turned contacts for M58 power plug-in connectors

For turned crimp contacts with Ø 1.6 mm for M58 power plug-in connectors, SF-Z0025 manual crimping pliers are used. For user-friendly crimping of contacts with Ø 10 mm, the SL-Z0007 electric crimping tool is available.

Crimping stamps for processing contacts with Ø 10 mm are used in pairs. The stamps are tailored to the connection cross sections and marked.

Electro-hydraulic crimping device

Manual crimping pliers

Description	Connection cross section [mm²]	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.
Electro-hydraulic crimping device incl. charger and rechargeable battery, for Litz wire cross section of 10 ... 50 mm² (power and PE contacts Ø 10 mm)		**SL-Z0007**	**1613484**	1			
Crimping stamp for crimping device SL-Z0007	10	**SL-Z0011**	**1613488**	1			
Crimping stamp for crimping device SL-Z0007	16	**SL-Z0012**	**1613489**	1			
Crimping stamp for crimping device SL-Z0007	25	**SL-Z0013**	**1613490**	1			
Crimping stamp for crimping device SL-Z0007	35	**SL-Z0014**	**1613491**	1			
Crimping stamp for crimping device SL-Z0007	50	**SL-Z0015**	**1613492**	1			
Crimping tool with digital display	0.06 ... 6				**SF-Z0025**	**1607452**	1
Accessories for electro-hydraulic crimping device SL-Z0007							
Replacement battery		**SL-Z0008**	**1613485**	1			
Table bracket incl. foot actuation switch		**SL-Z0010**	**1613487**	1			

Notes:
The manual crimping pliers SF-Z0025 with digital display are also suitable for crimping turned crimp contacts ST / SF / SM.

Special wrench

The torque screwdriver is specially adapted to the M23 circular plug-in connectors and simplifies the process of tightening and loosening the knurled nut safely even in places where space is restricted.

The tool consists of a hook wrench as well as a torque screwdriver with a fixed torque of 2.5 Nm.

Torque screwdriver for M23 plug-in connectors with knurled nuts

Special wrench for screwing the adapter

Description	Wrench size [mm]	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.
Torque screwdriver incl. hook wrench							
For M23 plug-in connectors with knurled nuts		**SF-Z0028**	**1607456**	1			
Replacement hook wrench for torque screwdriver		**SF-Z0027**	**1607455**	1			
Special wrench for cable/coupler plug-in connectors for screwing the adapter. Connection dimensions for torque wrench: 8.9 mm x 11.9 mm							
For M17 plug-in connectors, WAF 19					**ST-Z0012**	**1613667**	1
For M23 plug-in connectors, WAF 24					**RF-Z0007**	**1614347**	1
For M40 plug-in connectors, WAF 41					**SM-Z0012**	**1614349**	1
For M58 plug-in connectors, WAF 55					**SL-Z0016**	**1614348**	1

Contact removal tools, square mounting flange

The removal tool is used for contact carriers which are snapped into the housing without rear support. They are removed from the plug-in side using the removal tool.

The square mounting flange is used for cable and coupler plug-in connectors. In this way, the product range is easily extended to include plug-in connectors as panel feed-throughs.

Contact removal tool for snap-in contact carriers

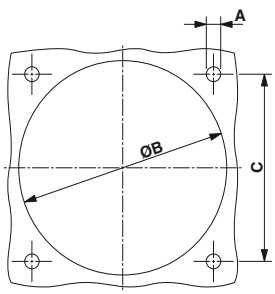
Square mounting flange for cable/coupler plug-in connector for wall mounting

	Ordering data			Ordering data		
Description Wall mounting	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Contact removal tool for contact carriers, device plug-in connectors						
For M17 signal/power plug-in connectors	**ST-Z0001**	**1607770**	1			
For M23 feedback plug-in connectors	**RF-Z0001**	**1607904**	1			
For M23 signal plug-in connectors	**CA-Z0001**	**1620699**	1			
Square mounting flange, metal, with O-ring seal, for M17 (excl. M17 Compact) cable and coupler plug-in connectors for wall mounting						
4 x Ø 2.7 mm				**ST-Z0002**	**1607771**	1
4 x M3				**ST-Z0003**	**1607772**	1
Square mounting flange, metal, without seal, for M17 (excl. M17 Compact) cable and coupler plug-in connectors for wall mounting						
4 x Ø 2.7 mm				**ST-Z0004**	**1607773**	1
4 x M3				**ST-Z0005**	**1607775**	1
Square mounting flange, metal, with O-ring seal, for M23 feedback, cable, and coupler plug-in connectors for wall mounting						
4 x M3				**RF-Z0003**	**1607905**	1
Square mounting flange, metal, with O-ring seal, for M58 cable and coupler plug-in connectors for wall mounting						
4 x Ø 4.3 mm				**SM-Z0003**	**1607935**	1
Square mounting flange, metal, without seal, for M58 cable and coupler plug-in connectors for wall mounting						
4 x Ø 4.3 mm				**SM-Z0004**	**1607937**	1

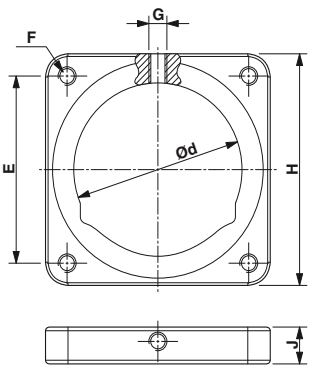
Installation dimensions for square mounting flanges

Type	Installation dimensions			Flange dimensions					
	A	B	C	D	E	F	G	H	J
ST-Z0002 ST-Z0003 ST-Z0004 ST-Z0005	4 x M2.5/∅ 3.2	∅ 22.9 + 0.2	□ 22.6 ±0.1	∅ 21.6	□ 22.6 ±0.1	4 x M3/∅ 2.7	M2.5	□ 28.0 ±0.1	5
RF-Z0003	4 x ∅ 3.2	∅ 27.9 ±0.1	□ 28.3 ±0.1	∅ 26.2	□ 28.3 ±0.1	4 x M3	M3	□ 35.0	6
SM-Z0003 SM-Z0004	4 x M4/∅ 4.2	∅ 46.1 ±0.1	□ 42.4 ±0.1	∅ 45.0	□ 42.4 ±0.1	4 x ∅ 4.3	M3	□ 55.0 ±0.1	5.5

Installation dimensions



Flange dimensions



Note:
For insulating wall mounting, plastic mounting flanges are available on request.

Color rings

The color rings are used for individually marking the plug-in connectors

Color rings for marking plug-in connectors with cable entry

Color rings for marking device plug-in connectors

Description	Color	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.
Color rings for M17 plug-in connectors, 50 pcs. in set							
	Green	**ST-Z0016**	**1617993**	50	**ST-Z0019**	**1620621**	50
	Orange	**ST-Z0017**	**1618049**	50	**ST-Z0020**	**1620622**	50
	Black	**ST-Z0018**	**1618050**	50	**ST-Z0021**	**1620623**	50
Color rings for M23 signal plug-in connectors, 50 pcs. in set							
	Green	**RF-Z0014**	**1620588**	50			
	Orange	**RF-Z0015**	**1620592**	50			
	Black	**RF-Z0016**	**1620593**	50			
Color rings for M23 signal device plug-in connectors, front mounting, Pg13.5 and M20 fastening thread/rear mounting, central fastening thread, 50 pcs. in set							
	Green				**CA-Z0110**	**1620700**	50
	Orange				**CA-Z0111**	**1620701**	50
	Black				**CA-Z0112**	**1620702**	50
Color rings for M23 signal device plug-in connectors, front mounting, flange dimensions: 25 mm x 25 mm, 50 pcs. in set							
	Green				**CA-Z0120**	**1620704**	50
	Orange				**CA-Z0121**	**1620705**	50
	Black				**CA-Z0122**	**1620706**	50
Color rings for M23 feedback plug-in connectors, 50 pcs. in set							
	Green	**RF-Z0014**	**1620588**	50	**RF-Z0017**	**1620624**	50
	Orange	**RF-Z0015**	**1620592**	50	**RF-Z0018**	**1620625**	50
	Black	**RF-Z0016**	**1620593**	50	**RF-Z0019**	**1620626**	50
Color rings for M23 power plug-in connectors, 50 pcs. in set							
	Green	**SF-Z0064**	**1620585**	50	**RF-Z0017**	**1620624**	50
	Orange	**SF-Z0065**	**1620586**	50	**RF-Z0018**	**1620625**	50
	Black	**SF-Z0066**	**1620587**	50	**RF-Z0019**	**1620626**	50
Color rings for M40 plug-in connectors, 50 pcs. in set							
	Green	**SM-Z0025**	**1620558**	50	**SM-Z0028**	**1620627**	50
	Orange	**SM-Z0026**	**1620559**	50	**SM-Z0029**	**1620628**	50
	Black	**SM-Z0027**	**1620560**	50	**SM-Z0030**	**1620629**	50

Dust protection caps, plastic

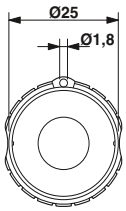
A range of protective caps is available for signal and power plug-in connectors to protect the contact elements in the case of a separate plug connection.

These prevent penetration of dust and humidity.

Plastic protective caps enable IP40 protection to be achieved when locked.

Plastic dust protection caps

		Ordering data		
Description	Degree of protection when locked	Type	Order No.	Pcs. / Pkt.
Plastic dust protection cap, for signal/power plug-in connectors, with M17 external thread	IP40	ST-Z0006	1607776	25
Plastic dust protection cap, for signal/power plug-in connectors, with M17 knurled nut (SPEEDCON and standard)	IP40	ST-Z0007	1607777	25
Plastic dust protection cap with lug for signal/power plug-in connectors with M23 external thread	IP40	SF-Z0019	1607449	25
Plastic dust protection cap, for signal/power plug-in connectors, with M23 knurled nut	IP40	RC-Z2058	1604223	25
Plastic dust protection cap, for signal/power plug-in connectors, with M23 external thread	IP40	RC-Z2059	1604225	25
Plastic dust protection cap, anti-static, black, for signal/power plug-in connectors, with M23 knurled nut	IP40	RC-Z2468	1611796	25
Plastic dust protection cap, anti-static, black, for signal/power plug-in connectors with M23 external thread	IP40	RC-Z2469	1611797	25
Plastic dust protection cap for power plug-in connectors with M40 external thread	IP40	SM-Z0001	1605866	25
Plastic dust protection cap for power plug-in connectors with M58 external thread	IP40	SL-Z0005	1607926	25



SF-Z0019, eye for fixing rope

Dust protection caps, metal

Metal protective caps are available for applications that require a higher degree of protection. These enable IP67 protection to be achieved when locked.

The wire is fixed to the housing panel and prevents the metal protective caps from being lost.

Metal dust protection caps

Description	Degree of protection when locked	Ordering data: Type	Order No.	Pcs. / Pkt.
Metal dust protection cap, for power plug-in connectors with M23 external thread	IP67	**SC-Z2319**	**1605456**	10
Metal dust protection cap with steel wire, for power plug-in connectors with M23 external thread	IP67	**SC-Z2320**	**1605457**	10
Metal dust protection cap with steel wire, for power plug-in connectors with M23 knurled nut	IP67	**SC-Z2322**	**1605459**	10
Metal dust protection cap, for signal plug-in connectors, with M23 external thread	IP67	**RC-Z2104**	**1604260**	10
Metal dust protection cap with steel wire, for signal plug-in connectors with M23 external thread	IP67	**RC-Z2068**	**1604236**	10
Metal dust protection cap with steel wire, for signal plug-in connectors, with M23 knurled nut	IP67	**RC-Z2062**	**1604228**	10

Photovoltaic plug-in connectors

SUNCLIX – the unique connection system for photovoltaics

Are you looking for innovative and reliable connection technology for your PV modules, inverters or for cabling complete PV systems?

We have the right connection solution for you – from connection technology for junction boxes through DC plug-in connectors for field cabling to device connection for power. The tailored, high-quality components contribute to the long-term and increased availability of your system.

SUNCLIX – DC plug-in connectors with fast connection

The one-piece DC plug-in connectors can be connected quickly and easily by means of spring technology without using special tools. The unique spring technology ensures reliable and long-term stable contacting of the conductors.

Miniature plug-in system for building-integrated photovoltaics - BIPV

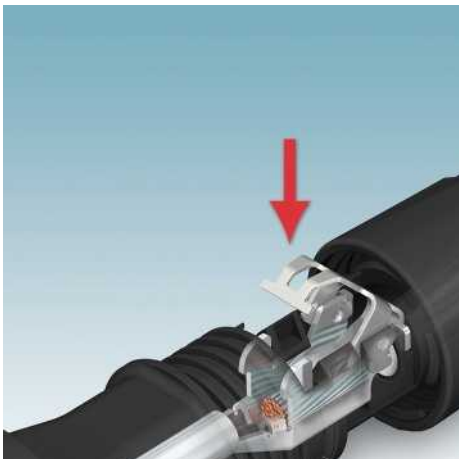
Absorb solar energy not only from the roof of a building, but from its entire surface.

Phoenix Contact has developed a new DC plug-in system in miniature format for this new trend in energy production using photovoltaics. In this way, the facade of a building is efficiently used to produce energy.

Product range overview	**418**
Device plug-in connectors	**420**
DC plug-in connectors	**422**
Y plug-in connectors	**424**
Cables	**425**
Building-integrated photovoltaic applications (BIPV)	**426**
PCB connection for PV applications	**428**

Assembly

– Insert the stripped PV conductor



– Press down on the spring and snap in

– Tighten the screw connection
- and you're done!

SUNCLIX DC device plug-in connectors
– see page 420

SUNCLIX DC plug-in connectors, 2.5 mm² to 16 mm², can be assembled
– see page 422

SUNCLIX Y-distributors
– see page 424

Photovoltaic cables
– see page 425

PCB connection
– see page 428

SUNCLIX building-integrated photovoltaic applications
– see page 426

Release

– Can only be released using a screwdriver

SUNCLIX DC device plug-in connectors

- With connected cable as standard
- IP65 when not plugged in
- Anti-rotation protection with coding
- For voltage up to 1500 V

Notes:
Further cable types and lengths are available on request

With 0.13 m litz wire

Technical data

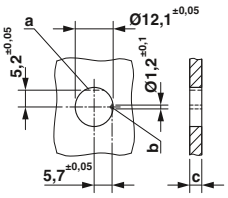
General data			
Degree of protection	IP65 / IP66 / IP68 (2m / 24h)		
Electrical data			
Rated voltage	1500 V		
Nominal current I_N	27 A	40 A	
Conductor cross section	2.5 mm^2	4 mm^2	6 mm^2
Temperature data			
Ambient temperature (operation)	-40 °C ... 85 °C		

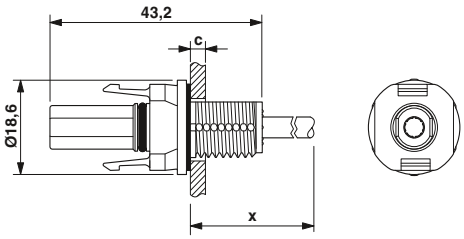
Ordering data

Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
DC device plug-in connector						
Socket (+)	**1805135**	50	**1805151**	50	**1805177**	50
Plug (-)	**1805148**	50	**1805164**	50	**1805180**	50

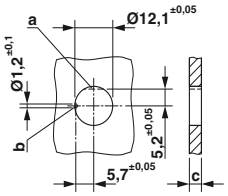
Accessories

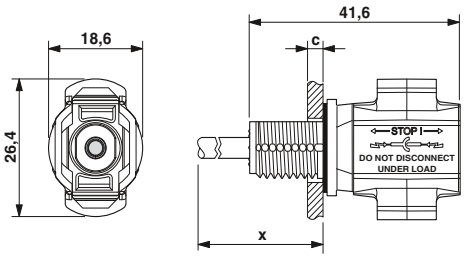
Nut for attaching SUNCLIX device plug-in connectors	**PV-FT-C NUT BK**	**1775880**	100
Protective cap for SUNCLIX photovoltaic plug-in connector; degree of protection: IP67	**PV-C PROTECTION CAP**	**1785430**	100
Flat gasket for photovoltaic plug-in connector	**PV-FT-FLAT GASKET**	**1705561**	1000





Dimension: socket (+), dimension x = cable length





Dimension: pin (-), dimension x = cable length

SUNCLIX DC device plug-in connectors for self-assembly

Plastic housing
– Anti-rotation protection with coding
– For voltage up to 1500 V

Contacts for crimp connection
– Contacts on roll

	Technical data		Technical data	
General data				
Degree of protection (when plugged in)	-		IP66 / IP68 (2m / 24h)	
Electrical data				
Rated voltage	1500 V	-	1500 V	
Rated current	-		40 A (for 4 mm²)	40 A (for 6 mm²)
Connection capacity	-		2.5 mm² ... 4 mm²	6 mm²
Temperature data				
Ambient temperature (operation)	-40 °C ... 85 °C	-	-40 °C ... 85 °C	

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
Plastic housing								
Socket (+)	**1704926**	50						
Plug (-)	**1704925**	50						
Metal contact								
Socket (+)					**1704930**	1000	**1704931**	1000
Plug (-)					**1704927**	1000	**1704928**	1000

	Accessories			Accessories		
Nut for attaching SUNCLIX device plug-in connectors	**PV-FT-C NUT BK**	**1775880**	100			
Protective cap for SUNCLIX photovoltaic plug-in connector; degree of protection: IP67	**PV-C PROTECTION CAP**	**1785430**	100			
Flat gasket for photovoltaic plug-in connector	**PV-FT-FLAT GASKET**	**1705561**	1000			
Test pin for SUNCLIX device plug-in connectors for free assembly	**PV-FT-TEST PIN**	**1705589**	1			

SUNCLIX DC plug-in connectors

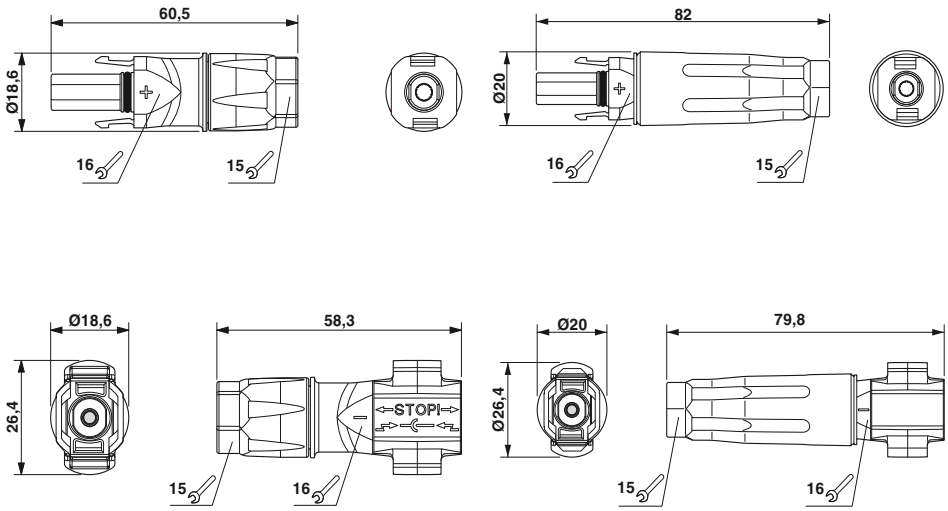
- Quick and easy connection without special tools
- Reliable and long-term stable contacting of the conductors, thanks to proven spring technology

SUNCLIX,
1100 V, 2.5 to 6 mm²

SUNCLIX,
1500 V, 2.5 to 6 mm²

	Technical data	Technical data
General data		
Degree of protection	IP66 / IP68 (2m / 24h)	IP66 / IP68 (2m / 24h)
Connection method	Spring-cage	Spring-cage
Electrical data		
Rated voltage	1100 V	1500 V
Nominal current I_N	40 A (from 4 mm²; 27.5 A for 2.5 mm²)	40 A (from 4 mm²; 27.5 A for 2.5 mm²)
Connection capacity	2.5 mm² ... 6 mm²	2.5 mm² ... 6 mm²
Temperature data		
Ambient temperature (operation)	-40 °C ... 85 °C	-40 °C ... 85 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
DC plug-in connectors						
Socket (+)	**PV-CF-S 2,5-6 (+)**	**1774674**	50	**PV-C1F-S 2,5-6 (+)**	**1789821**	50
Plug (-)	**PV-CM-S 2,5-6 (-)**	**1774687**	50	**PV-C1M-S 2,5-6 (-)**	**1789834**	50
	Accessories			**Accessories**		
Protective cap for SUNCLIX photovoltaic plug-in connector; degree of protection: IP67	**PV-C PROTECTION CAP**	**1785430**	100	**PV-C PROTECTION CAP**	**1785430**	100
Filler plug for protection against dust and humidity	**PV-C PLUG**	**1775631**	200			
Screwdriver	**SZF 1-0,6X3,5**	**1204517**	10	**SZF 1-0,6X3,5**	**1204517**	10
Stripping tool, for standard 2.5, 4, and 6 mm² solar cables, with 15 mm length stop, for SUNCLIX field connectors	**WIREFOX-D SR 6-1**	**1212511**	1	**WIREFOX-D SR 6-1**	**1212511**	1



SUNCLIX,
1500 V, 6 to 16 mm²

Technical data

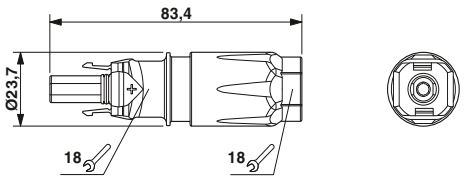
IP66 / IP68 (2m / 24h)
Spring-cage
1500 V
65 A (at 16 mm²; 40 A at 6 mm²; 50 A at 10 mm²)
6 mm² ... 16 mm²
-40 °C ... 85 °C

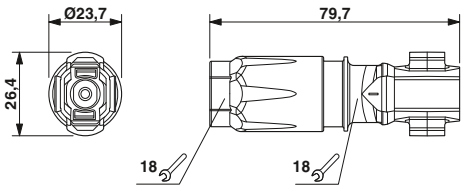
Ordering data

Type	Order No.	Pcs. / Pkt.
PV-CF-S 6-16 (+)	**1790784**	25
PV-CM-S 6-16 (-)	**1790797**	25

Accessories

PV-C PROTECTION CAP	**1785430**	100
PV-C PLUG	**1775631**	200
SZF 1-0,6X3,5	**1204517**	10





SUNCLIX DC accessories

Y-distributors
- Flexible and compact configuration
- Customer-specific configurations on request
- Variable cable lengths, number of branches, cable cross section, and processing of free cable ends

DC test plugs
- Can be released without tools
- For test applications with high insertion/withdrawal cycles

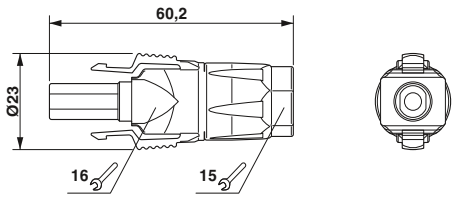
Y-distributor

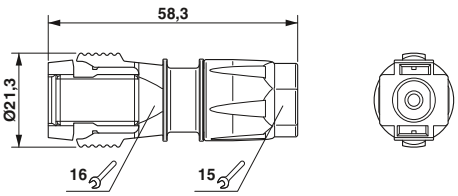
DC test plug

	Technical data		Technical data	
	4 mm²	6 mm²	Socket (+)	Pin (-)
General data				
Degree of protection	IP66 / IP68 (2m / 24h)		IP20	
Electrical data				
Rated voltage	1100 V		1100 V	
Nominal current I_N	40 A (observe derating)		40 A	
Conductor cross section	4 mm²	6 mm²	10 mm²	
Insertion/withdrawal cycles	-		≥ 4000	
Temperature data				
Ambient temperature (operation)	-40 °C ... 85 °C		-20 °C ... 55 °C	

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	4 mm²		6 mm²		Socket (+)		Pin (-)	
Y-distributor, length of each individual cable: 0.12 m								
Plug (-) to 2 x socket (+)	**1795019**	10	**1787726**	10				
Socket (+) to 2 x plug (-)	**1795022**	10	**1787739**	10				
DC test plug, can be released without tools, for test applications with high insertion/withdrawal cycles					**1780451**	50	**1780464**	50

	Accessories	Accessories
	For dimensional drawings, see www.phoenixcontact.net/products	





Solar cables

- Suitable for fixed and flexible routing
- Insulating and sheath material offers excellent resistance to weather, UV, and wear
- PV1-F cable certified by TÜV and VDE

	Technical data
Temperature data	
Ambient temperature (operation)	-40 °C ... 90 °C

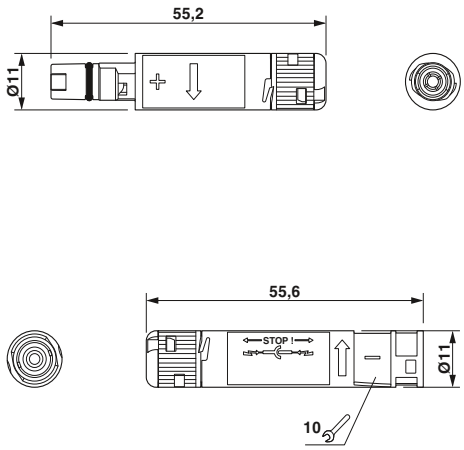
Description	Type	Order No.	Pcs. / Pkt.
Solar cable, tin-plated single litz wires, 100 m ring, **cross section:**			
2.5 mm²	**PV-1P-100,0/S01-2,5**	**1459509**	1
4 mm²	**PV-1P-100,0/S02-4,0**	**1459511**	1
6 mm²	**PV-1P-100,0/S03-6,0**	**1459524**	1
10 mm²	**PV-1P-100,0/S04-10,0**	**1459537**	1
Solar cable, tin-plated single litz wires, 500 m drum, **cross section:**			
2.5 mm²	**PV-1P-500,0/S01-2,5**	**1459540**	1
4 mm²	**PV-1P-500,0/S02-4,0**	**1787700**	1
6 mm²	**PV-1P-500,0/S03-6,0**	**1787713**	1
10 mm²	**PV-1P-500,0/S04-10,0**	**1459553**	1
Solar cable, tin-plated single litz wires, 1000 m drum, **cross section:**			
2.5 mm²	**PV-1P-1000,0/S01-2,5**	**1459566**	1
4 mm²	**PV-1P-1000,0/S02-4,0**	**1459579**	1
6 mm²	**PV-1P-1000,0/S03-6,0**	**1459582**	1
10 mm²	**PV-1P-1000,0/S04-10,0**	**1459595**	1

SUNCLIX mini DC plug-in connector

- For building-integrated photovoltaic applications (BIPV)
- Narrow design, just 11 mm in diameter
- Easy to hide in the facade structure
- Quick and easy connection without special tools

	Technical data
General data	
Degree of protection	IP67
Connection method	Pierce connection
Electrical data	
Rated voltage	1000 V
Nominal current I_N	15 A
Connection capacity	2.5 mm^2
Temperature data	
Ambient temperature (operation)	-40 °C ... 85 °C

	Ordering data		
Description	Type	Order No.	Pcs. / Pkt.
DC plug-in connectors			
Socket (+)	**PV-CF-P 2,5(+)**	**1795323**	50
Plug (-)	**PV-CM-P 2,5(-)**	**1795336**	50



SUNCLIX DC diode and junction box

- For building-integrated photovoltaic applications (BIPV)
- Compact design
- Easy to hide in the facade structure
- High density due to molding compound

SUNCLIX diode box

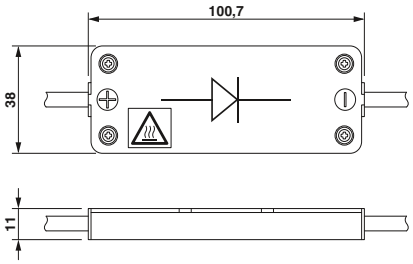
- Optimum heat management

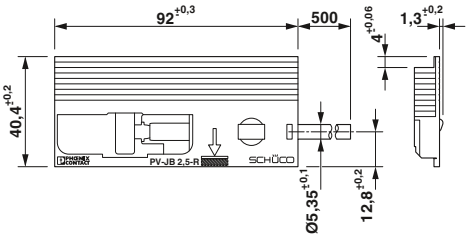
Junction box

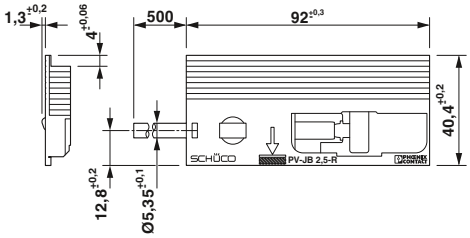
- Ribbon contacting with spring connection

	Technical data	Technical data
General data		
Degree of protection	IP67	-
Connection method	Open cable end	Spring-cage
Electrical data		
Rated voltage	1000 V	1000 V
Reverse voltage	2200 V	-
Nominal current I_N	5 A	15 A
Conductor cross section	2.5 mm²	2.5 mm²
Ribbon connection capacity	-	Width: ≤ 5 mm; thickness: 0.05 ... 0.2 mm
Temperature data		
Ambient temperature (operation)	-40 °C ... 85 °C	-40 °C ... 85 °C

		Ordering data			Ordering data		
Description	Cable length	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
DC string diode							
Free cable end	0.8 m	**PV-DB S20-2,5/0,8-2D**	**1811239**	10			
Pre-assembled with SUNCLIX mini	0.8 m	**PV-DB S20-2,5/0,8-CA**	**1463065**	10			
Module junction box							
Cable outlet right	0.5 m				**PV-JB 2,5/ 1-R 50 PXC**	**1705131**	25
Cable outlet left	0.5 m				**PV-JB 2,5/ 1-L 50 PXC**	**1705132**	25







PCB terminal blocks for PV applications

- PTSPL 6 push-lock spring-cage PCB terminal block without insulating body for conductor cross sections up to 6 mm² and a current carrying capacity of up to 41 A for use in SMT reflow processes
- Connection direction of the conductor horizontal to the PCB
- Low actuation forces
- Delivery form: tape-on-reel packing according to IEC 60286-3 for automated assembly
- PTSPL spring closed for assembly using vacuum pipette
- PTSPLO spring opened for assembly using mechanical gripper
- Standard pin lengths of 2.1 mm and 2.9 mm

Notes:

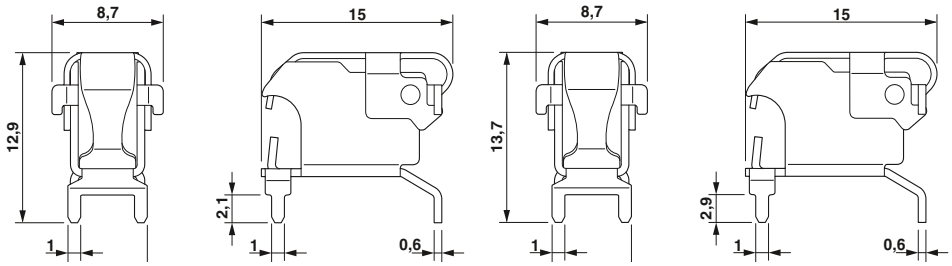
Pick and place pads for taped THR articles usually protrude beyond the components. The PCB layout must ensure that collisions are avoided when components are assembled. Dimensional drawings of tape reels and place pads can be found online at www.phoenixcontact.net/products.

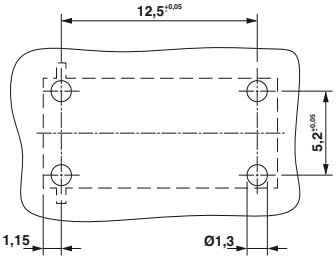
Technical data

Electrical data	
Nominal current I_N	41 A
Connection capacity	2.5 mm² ... 6 mm²

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
PCB terminal block closed			
Solder pin length: 2.1 mm	**PTSPL-6/1-2X2 2,1 R32**	**1704836**	240
Solder pin length: 2.9 mm	**PTSPL-6/1-2X2 2,9 R32**	**1704837**	240
PCB terminal block open			
Solder pin length: 2.1 mm	**PTSPLO-6/1-2X2 2,1 R32**	**1705081**	220
Solder pin length: 2.9 mm	**PTSPLO-6/1-2X2 2,9 R32**	**1705085**	220



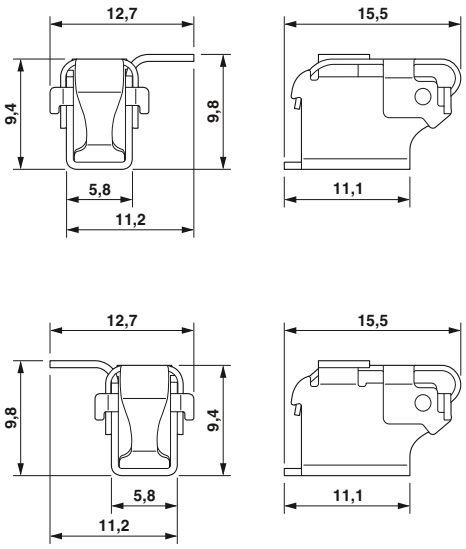


Flush-type spring-cage terminal blocks with welded bracket

- Suitable for applications with leadframe
- Push-lock spring-cage terminal block with welded bracket
- Reliable contacting of conductors, thanks to spring technology, proven a million times over
- Available with welded bracket left or right

	Technical data
Electrical data	
Nominal current I_N	41 A
Connection capacity	2.5 mm² ... 6 mm²

	Ordering data		
Description	Type	Order No.	Pcs. / Pkt.
Spring-cage terminal block			
Welded bracket right	**PV-PTSPL-W/1R**	**1705624**	250
Welded bracket left	**PV-PTSPL-W/1L**	**1705625**	250



PHOENIX CONTACT

Plug-in charging systems for electromobility

PLUSCON power offers a product and technology portfolio that enables the flexible, modular, and efficient implementation of various concepts for your charging infrastructure for different business models. Whether charging on an AC network or fast DC charging – the AC and DC plug-in charging systems from Phoenix Contact are safe, reliable, and user friendly.

Product range overview

Type 2 combined AC/DC charging system (Europe)	**435**
Type 2 AC charging cables (Europe)	**436**
Type 2 (Europe) and GB (China) AC socket outlets	**438**
GB AC charging cables (China)	**440**

The development of a widespread charging infrastructure in conjunction with renewable energy is an important step toward a mobile future. Special charging plugs are used to establish an electrical connection between the electric vehicle and the infrastructure (e.g., a charging station). Internationally standardized charging interfaces ensure uniform connection for charging stations and vehicles.

The PLUSCON power product range from Phoenix Contact offers reliable standard-compliant solutions for a consistent charging interface for all applications.

The matrix below provides an overview of the various plug-in charging systems and standards with the respective pin connector patterns of the vehicle inlet.

Overview of plug-in charging systems

	Type 1/USA	Type 2/Europe	GB/China
Alternating current AC	SAE J1772/IEC 62196-2	IEC 62196-2	GB part 2
Direct current DC	IEC 62196-3	IEC 62196-3	GB part 3/IEC 62196-3
Combined AC/DC charging system	SAE J1772/IEC 62196-3	IEC 62196-3	

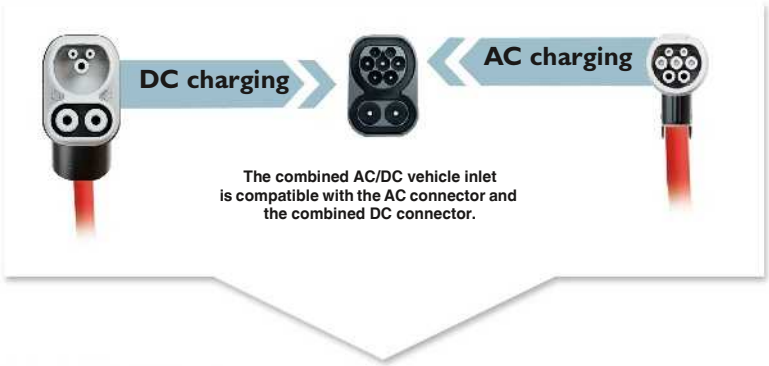
In addition to the type 2 combined AC/DC charging system, the PLUSCON power product range also features plug-in charging systems for AC charging. This includes AC charging cables and the corresponding type 2 and GB socket outlets. The compact design and ergonomic handle design of the charging plug enable convenient and optimal handling during the charging process.

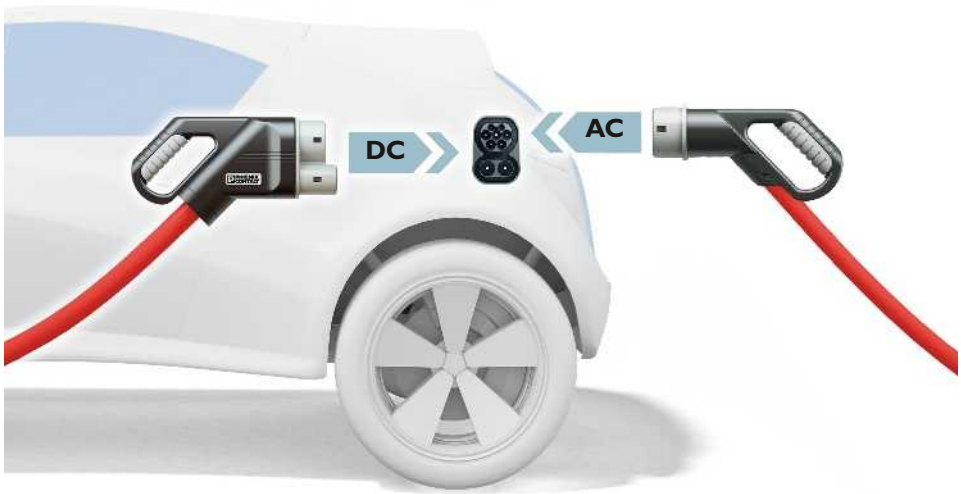
The following charging infrastructure components can be found in Catalog 7 (interface technology and switching devices):
- EV Charge Control charging controller for charging electric vehicles on the AC power grid according to IEC 61851-1
- Optional EV Charge Lock Release add-on module for plug release in the event of mains failure

In addition to the standardized plug-in charging systems, Phoenix Contact also offers high-performance plug-in connectors for DC charging of large battery units. The DC replacement battery concept is particularly suitable for utility vehicles used in local and municipal authorities as well as for fork-lift trucks, transport vehicles, and passenger transport vehicles.

Type 2 combined AC/DC charging system (Europe)

DC charging process | **AC charging process**





The most important requirement for setting up a modern charging infrastructure is a reliable and uniform connection between electric vehicles and charging stations. The electrical energy must be supplied in the form of DC voltage or AC voltage for recharging the batteries.

The type 2 combined AC/DC charging system from Phoenix Contact supports conductive charging of electric vehicles with both DC and AC. It was developed in conjunction with leading automobile manufacturers and represents the ideal charging interface for future electromobility due to its varied charging options. Only one vehicle inlet is required for each charging process in all applications thanks to the universal pin connector pattern.

If AC is used for charging, the energy can be supplied directly from the existing low-voltage network to the integrated AC/DC converter in the vehicle with the type 2 AC connector, see page 436.

In the case of DC charging with the type 2 combined DC connector, the AC/DC converter is located within the charging station and reduces the load on the vehicle. Due to the high current carrying capacity, the battery is charged in a matter of minutes.

Both AC and DC charging processes are supported by control and signal contacts.

The handle's ergonomic design and the low insertion and withdrawal forces mean that the combined DC connector ensures fast, convenient, and easy handling.

N

Type 2 combined AC/DC charging system (Europe)

- Supports fast DC charging
- Safe and secure, thanks to the electromechanical lock between connector and vehicle
- Robust, thanks to the use of high-quality materials

Notes:

Cable length and housing color versions on request.

125 A type 2 combined DC connector

Technical data

Nominal current	125 A
Nominal voltage	850 V DC
Standards	IEC 62196-3 (type 2)
Charging mode	Mode 4
Resistor coding	1500 Ω
Temperature sensor	Pt1000
Ambient temperature (operation)	-30 °C ... 50 °C
Number of power contacts	3
Insertion/withdrawal cycles	> 10000
Insertion/withdrawal force	< 100 N
Type of protection (when plugged in)	IP44
Degree of protection (when not plugged in)	IP20
Cable data	
Cable type	Straight
Cable length	5 m
Cable diameter	28 mm
Cable structure	2 x 50 mm^2 + 1 x 25 mm^2 + 3 x 0.75 mm^2

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Type 2 combined DC charging cable Outer sheath color: black	**EV-T2M4CC-DC125A-5,0M50ESBK001**	**1409060**	1

Type 2 AC charging cables (Europe)

- Convenient handling, thanks to the ergonomic handle design
- Safe and secure, thanks to the electromechanical lock on the charging station and vehicle
- Robust, thanks to the use of high-quality materials

Notes:
Cable length and housing color versions on request.
All connectors and plugs are provided together with a protective cap.

20 A type 2 AC connector, with open cable end

32 A type 2 ac connector, with open cable end

	Technical data		Technical data	
	1-phase	**3-phase**	**1-phase**	**3-phase**
Nominal current	20 A	20 A	32 A	32 A
Nominal voltage	250 V AC	480 V AC	250 V AC	480 V AC
Standards	IEC 62196-2 (type 2)	IEC 62196-2 (type 2)	IEC 62196-2 (type 2)	IEC 62196-2 (type 2)
Charging mode	Mode 3	Mode 3	Mode 3	Mode 3
Resistor coding	680 Ω	680 Ω	220 Ω	220 Ω
Ambient temperature (operation)	-30 °C ... 50 °C	-30 °C ... 50 °C	-30 °C ... 50 °C	-30 °C ... 50 °C
Number of power contacts	3 (L1, N, PE)	5 (L1, L2, L3, N, PE)	3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
Insertion/withdrawal cycles	> 10000	> 10000	> 10000	> 10000
Insertion/withdrawal force	< 100 N	< 100 N	< 100 N	< 100 N
Type of protection (when plugged in)	IP44	IP44	IP44	IP44
Degree of protection (with protective cap)	IP24	IP24	IP24	IP24
Degree of protection (when not plugged in)	IP20	IP20	IP20	IP20
Cable data				
Cable type	Spiraled	Spiraled	Straight	Straight
Cable length	4 m	4 m	4 m	4 m
Cable diameter	10.5 mm ±0.5	13 mm ±0.5	13.9 mm ±0.5	17 mm ±0.5
Cable structure	3 x 2.5 mm² + 1 x 0.5 mm²	5 x 2.5 mm² + 1 x 0.5 mm²	3 x 6 mm² + 1 x 0.5 mm²	5 x 6 mm² + 1 x 0.5 mm²

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	1-phase		**3-phase**		**1-phase**		**3-phase**	
Type 2 AC charging cable								
Outer sheath color: red	**1405194**	1						
Outer sheath color: black	**1405195**	1	**1405197**	1	**1405198**	1	**1405199**	1

20 A type 2 AC connector and plug

20 A type 2 AC connector and plug

32 A type 2 AC connector and plug

Technical data

1-phase	3-phase
20 A	20 A
250 V AC	480 V AC
IEC 62196-2 (type 2)	IEC 62196-2 (type 2)
Mode 3	Mode 3
680 Ω	680 Ω
-30 °C ... 50 °C	-30 °C ... 50 °C
3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
> 10000	> 10000
< 100 N	< 100 N
IP44	IP44
IP24	IP24
IP20	IP20
Straight	Straight
4 m	4 m
10.5 mm ±0.5	13 mm ±0.5
3 x 2.5 mm² + 1 x 0.5 mm²	5 x 2.5 mm² + 1 x 0.5 mm²

Ordering data

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
1-phase		3-phase	
1404876	1		
1405193	1	**1404877**	1

Technical data

1-phase	3-phase
20 A	20 A
250 V AC	480 V AC
IEC 62196-2 (type 2)	IEC 62196-2 (type 2)
Mode 3	Mode 3
680 Ω	680 Ω
-30 °C ... 50 °C	-30 °C ... 50 °C
3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
> 10000	> 10000
< 100 N	< 100 N
IP44	IP44
IP24	IP24
IP20	IP20
Spiraled	Spiraled
4 m	4 m
10.5 mm ±0.5	13 mm ±0.5
3 x 2.5 mm² + 1 x 0.5 mm²	5 x 2.5 mm² + 1 x 0.5 mm²

Ordering data

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
1-phase		3-phase	
1404563	1		
1405192	1	**1404567**	1

Technical data

1-phase	3-phase
32 A	32 A
250 V AC	480 V AC
IEC 62196-2 (type 2)	IEC 62196-2 (type 2)
Mode 3	Mode 3
220 Ω	220 Ω
-30 °C ... 50 °C	-30 °C ... 50 °C
3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
> 10000	> 10000
< 100 N	< 100 N
IP44	IP44
IP24	IP24
IP20	IP20
Straight	Straight
4 m	4 m
13.9 mm ±0.5	17 mm ±0.5
3 x 6 mm² + 1 x 0.5 mm²	5 x 6 mm² + 1 x 0.5 mm²

Ordering data

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
1-phase		3-phase	
1404568	1	**1404569**	1

Type 2 (Europe) and GB (China) AC socket outlets

- Space-saving design
- Secure, thanks to lock actuator
- Querying function for the locking status
- Robust, thanks to the use of high-quality materials

Notes:
All socket outlet versions can be mounted on the housing panel from both the front and the rear (see below).
As an option, the type 2 AC socket outlet can be secured with a hinged cover or a panel mounting frame for both front or rear panel mounting.

N

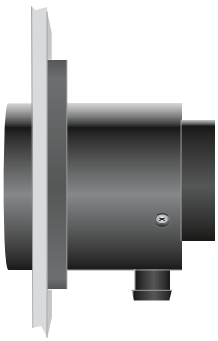
Type 2 AC socket outlet with actuator

N

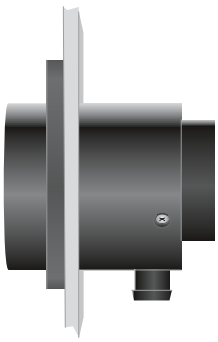
Hinged cover for type 2 AC socket outlet

	Technical data		Technical data	
	3-phase	**3-phase**		
Nominal current	20 A	32 A	-	-
Nominal voltage	480 V AC	480 V AC	-	-
Standards	IEC 62196-2 (type 2)	IEC 62196-2 (type 2)	-	-
Charging mode	Mode 3	Mode 3	-	-
Ambient temperature (operation)	-30 °C ... 50 °C	-30 °C ... 50 °C	-30 °C ... 50 °C	-
Number of power contacts	5 (L1, L2, L3, N, PE)	5 (L1, L2, L3, N, PE)	-	-
Insertion/withdrawal cycles	> 10000	> 10000	-	-
Type of protection (when plugged in)	IP44	IP44	IP44	-
Degree of protection (when not plugged in)	IP20	IP20	IP24	-
Cable data				
Cable type	Single wires	Single wires	-	-
Cable length	0.70 m	0.70 m	-	-
Cable structure	5 x 2.5 mm^2 + 1 x 0.5 mm^2	5 x 6.0 mm^2 + 1 x 0.5 mm^2	-	-
Actuator data				
Mechanical emergency release	Available	Available	-	-
Lock recognition	Available	Available	-	-

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	3-phase		**3-phase**					
AC socket outlet								
With actuator (12 V operating voltage)	**1405213**	1	**1405214**	1				
With actuator (24 V operating voltage)	**1405215**	1	**1405216**	1				
Without actuator								
AC socket outlet accessories								
					1405217	1		



Rear panel mounting



Front mounting

N

Panel mounting frame for type 2 AC socket outlet

N

GB AC socket outlet with actuator

N

GB AC socket outlet without actuator

Technical data					
		1-phase	3-phase	1-phase	3-phase
-	-	32 A	32 A	32 A	32 A
-	-	250 V AC	440 V AC	250 V AC	440 V AC
-	-	GB/T Part 2	GB/T Part 2	GB/T Part 2	GB/T Part 2
-	-	Mode 3	Mode 3	Mode 3	Mode 3
-30 °C ... 50 °C	-	-30 °C ... 50 °C	-30 °C ... 50 °C	-30 °C ... 50 °C	-30 °C ... 50 °C
-	-	3 (L1, N, PE)	5 (L1, L2, L3, N, PE)	3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
-	-	> 10000	> 10000	> 10000	> 10000
IP44	-	IP44	IP44	IP44	IP44
IP20	-	IP20	IP20	IP20	IP20
-	-	Single wires	Single wires	Single wires	Single wires
-	-	0.70 m	0.70 m	0.70 m	0.70 m
-	-	3 x 6.0 mm^2 + 1 x 0.5 mm^2	5 x 6.0 mm^2 + 1 x 0.5 mm^2	3 x 6.0 mm^2 + 1 x 0.5 mm^2	5 x 6.0 mm^2 + 1 x 0.5 mm^2
-	-	Available	Available	Available	Available
-	-	Available	Available	Available	Available

Ordering data											
Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
				1-phase		3-phase		1-phase		3-phase	
				1408171	1	1408172	1				
								1408169	1	1408170	1
1405218	1										

GB AC charging cables (China)

N

N

- Convenient handling, thanks to the ergonomic handle design
- Safe and secure, thanks to the lever-type lock and electric locking bolt on the charging station and vehicle
- Robust, thanks to the use of high-quality materials

Notes:
Cable length versions on request

16 A GB AC connector, with open cable end

32 A GB AC connector, with open cable end

	Technical data		Technical data	
	1-phase		**1-phase**	**3-phase**
Nominal current	16 A	-	32 A	32 A
Nominal voltage	250 V	-	250 V	440 V
Standards	GB/T Part 2	-	GB/T Part 2	GB/T Part 2
Charging mode	Mode 3	-	Mode 3	Mode 3
Resistor coding	680 Ω	-	220 Ω	220 Ω
Ambient temperature (operation)	-30 °C ... 50 °C	-	-30 °C ... 50 °C	-30 °C ... 50 °C
Number of power contacts	3 (L1, N, PE)	-	3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
Insertion/withdrawal cycles	> 10000	-	> 10000	> 10000
Insertion/withdrawal force	< 100 N	-	< 100 N	< 100 N
Type of protection (when plugged in)	IP44	-	IP44	IP44
Degree of protection (when not plugged in)	IP20	-	IP20	IP20
Cable data				
Cable type	Straight	-	Straight	Straight
Cable length	5 m	-	5 m	5 m
Cable diameter	10.5 mm	-	13.9 mm	17.1 mm
Cable structure	3 x 2.5 mm² + 1 x 0.5 mm²	-	3 x 6.0 mm² + 1 x 0.5 mm²	5 x 6.0 mm² + 1 x 0.5 mm²

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	1-phase				**1-phase**		**3-phase**	
GB AC charging cable								
Outer sheath color: orange	**1408166**	1			**1408167**	1	**1408168**	1

N

16 A GB AC connector and plug

Technical data	
1-phase	
16 A	-
250 V	-
GB/T Part 2	-
Mode 3	-
680 Ω	-
-30 °C ... 50 °C	-
3 (L1, N, PE)	-
> 10000	-
< 100 N	-
IP44	-
IP20	-
Straight	-
5 m	-
10.5 mm	-
3 x 2.5 mm² + 1 x 0.5 mm²	-

Ordering data			
Order No.	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
1-phase			
1408161	1		

N

32 A GB AC connector and plug

Technical data	
1-phase	**3-phase**
32 A	32 A
250 V	440 V
GB/T Part 2	GB/T Part 2
Mode 3	Mode 3
220 Ω	220 Ω
-30 °C ... 50 °C	-30 °C ... 50 °C
3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
> 10000	> 10000
< 100 N	< 100 N
IP44	IP44
IP20	IP20
Straight	Straight
5 m	5 m
13.9 mm	17.1 mm
3 x 6.0 mm² + 1 x 0.5 mm²	5 x 6.0 mm² + 1 x 0.5 mm²

Ordering data			
Order No.	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
1-phase		**3-phase**	
1408163	1	**1408165**	1

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 lifecycle.

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	Single-strand		Multi-strand		Fine-strand		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)	Gauge No.	Solid wires			Stranded wires		
[mm²]							AWG	[Ø mm]	[circ. mils]	[mm²]	[Ø mm]	[circ. mils]	[mm²]
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

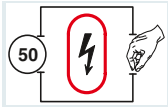
Thread	Torque	Recommended tightening torque	
		CuZn or CuSn screw	Steel screw
	[Nm]	[Nm]	[Nm]
M2.5 (M2.6)	0.4	0.6	0.8
M3	0.5	0.8	1.0
M3.5	0.8	1.2	–
M4	1.2	1.8	2.0
M5	2.0	3	4.5
M6	2.5	4	8

Degrees of protection according to DIN EN 60529

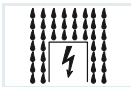
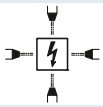
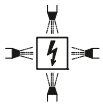
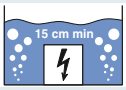
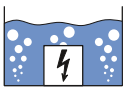
Definition:

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 Ø > 50 mm.
2	Protected against solid foreign objects with Ø 12.5 mm or more		Protected against touching dangerous parts with a finger. Protection against ingress of solid foreign objects with Ø > 12.5 mm.
3	Protected against solid foreign objects with Ø 2.5 mm or more		Protected against touching dangerous parts with a tool. Protection against ingress of solid foreign objects with Ø > 2.5 mm.
4	Protected against solid foreign objects with Ø 1 mm or more		Protected against touching dangerous parts with a wire. Protection against ingress of solid foreign objects with Ø > 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)

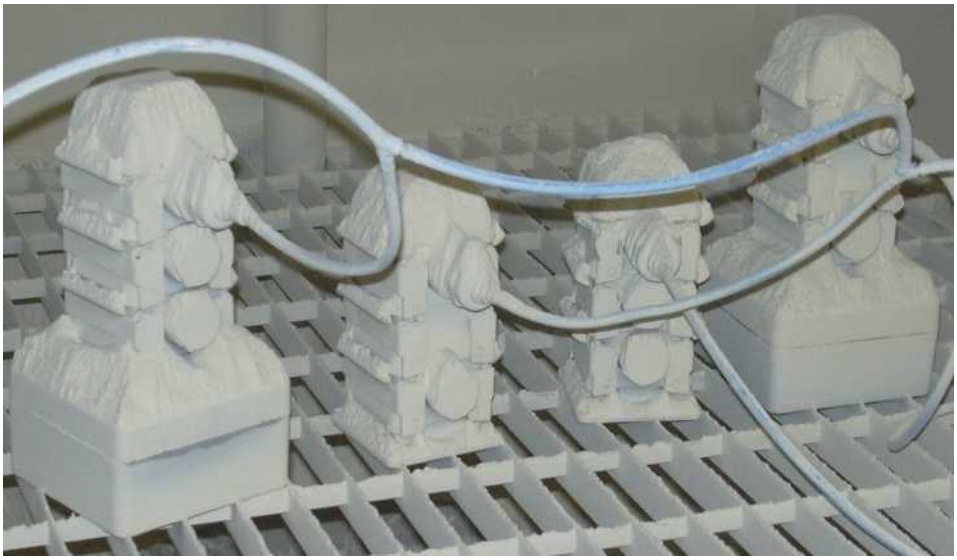
For safety reasons, electrical equipment must be protected against external influences. This is the job of the housing, which protects electrical equipment against contact, ingress of solid objects, dust, and moisture.

The following table contains possible combinations of degrees of protection according to DIN EN 60529 which can be practically applied to housing.

Shock protection	Foreign object protection	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)
			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)



Protected against temporary submersion
(IPx7)

Photo shows DUPLICON test sample during the IP6x dust test

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			

Information

Chemicals	Concentration in %	Temperature in °C	Plastics: 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
Acetate			+	+	+	0	0	-	+	0	0	+	+	-	-	-	-	-
Acetophenone			+	+	+	0	0	-	+	0	0	+	+	-	-	-	-	-
Aldehyde			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
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	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	0	-	+	-	+	-
Hydrochloric acid		20	-				-	0	+	0	0	-	-	-	+	0	+	0
Sulfuric acid	50	50	-	0	-	0	-	-	+	+	-	0	0	+	+	0	+	-
Seawater		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:

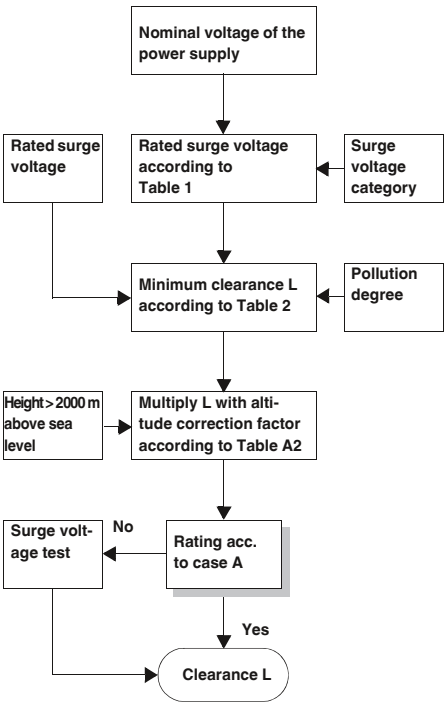
Insulation material group I: 600 ≤ CTI
Insulation material group II: 400 ≤ CTI < 600
Insulation material group IIIa
175 ≤ CTI < 400
Insulation material group IIIb:
100 ≤ CTI < 175

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	[V]	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) Pollution degree [6] 1 [mm]	2 [mm]	3 [mm]	Condition B Homogeneous field (refer to 1.3.14) Pollution degree [6] 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		
0.60	0.06			0.06	0.2 [3]) [4])	
0.80 [2])	0.10		0.8 [4])	0.10		0.8 [4])
1.0	0.15			0.15		
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

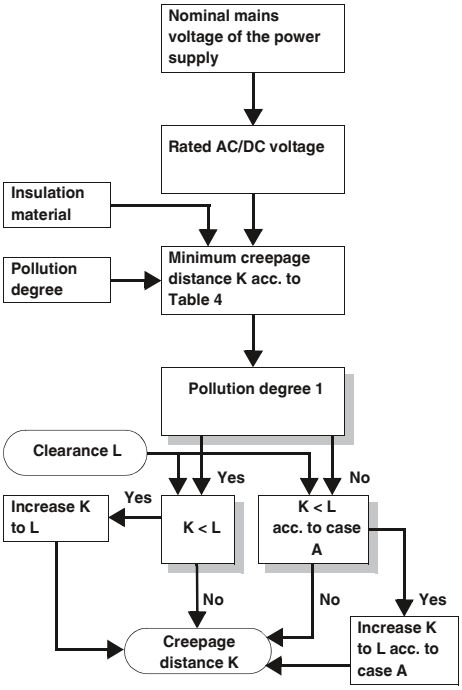
Standard IEC 60947-7-1/ EN 60947-7-1/DIN VDE 0611-1 specifies the test currents for the individual conductor cross sections listed in the adjacent table. The corresponding currents are listed with the connection data for the individual terminal blocks. The type tests for modular terminal blocks are based on this data.

Test currents according to IEC 60947-7-1/EN 60947-7-1, Table 5

Rated cross section	[mm²]	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	[mm²]	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) *) [V]	Voltages for Table 4: for conductor-conductor insulation 1) All systems [V]	Voltages for Table 4: for conductor-ground insulation 1) 3-cond. systems center point grounded [V]
12.5	12.5	–
24 25	25	–
30	32	–
42 48 50 **)	50	–
60	63	–
30 - 60	63	32
100 **)	100	–
110 120	125	–
150 **)	160	–
220	250	–
110 - 220 220 - 240	250	125
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) *) [V]	Voltages for Table 4: for conductor-conductor insulation All systems [V]	Insulation for conductor-ground: Three-phase 4-cond. systems with grounded neutral conductor 2) [V]	Insulation for conductor-ground: Three-phase 3-cond. systems non-grounded 1) or conductor grounded [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 1: All insulation material groups [mm]	Printed circuits, Pollution degree 2: All insulation material groups except IIIb [mm]	Pollution degree 1: All insulation material groups [mm]	Pollution degree 2, Insulation material group I [mm]	Pollution degree 2, Insulation material group II [mm]	Pollution degree 2, Insulation material group III [mm]	Pollution degree 3, Insulation material group I [mm]	Pollution degree 3, Insulation material group II [mm]	Pollution degree 3, Insulation material group 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	0.63	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
CB scheme	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
	Gosudarstvenne Komitet Standartov (GOST)	RU
KEMA KEUR	DEKRA Certification B.V.	NL
ÖVE	Österreichischer Verband für Elektrotechnik	AT
SABS	South African Bureau of Standards	ZA
SEV	electrosuisse SEV Verband für Elektro-, Energie- und Informationstechnik	CH
DVE VDE	Verband Deutscher Elektrotechniker e.V.(VDE) – Approval of drawings – Reports with production monitoring	DE
GS	Berufsgenossenschaft (BG) GS - Geprüfte Sicherheit (tested safety)	DE
TÜV	TÜV Rheinland Industrie Service GmbH	DE

Ex Explosion protection		Country code
FM APPROVED	FM Approvals	US
DEKRA	DEKRA Certification B.V.	NL
PTB	Physikalisch-Technische Bundesanstalt	DE
QS International	QS Schaffhausen	CH
VTT	VTT Expert Services Oy	FI
IBExU	IBExU Institut für Sicherheitstechnik GmbH	DE
	TÜV Rheinland do Brasil	BR
UL	Underwriters Laboratories Inc. (UL)	US
TÜV NORD	TÜV Nord	DE
DEKRA	DEKRA EXAM GmbH	DE

Ship classification societies		Country code
	Bureau Veritas	FR
GL	Germanischer Lloyd AG	DE
Lloyd's Register	Lloyd's Register EMEA	GB
ClassNK	Nippon Kaiji Kyokai	JP
	Det Norske Veritas	NO
	Polski Rejestr Statków	PL
	Russian Maritime Register of Shipping	RU
KR	Korean Register of Shipping	KR
ABS	American Bureau of Shipping	US

Color designations

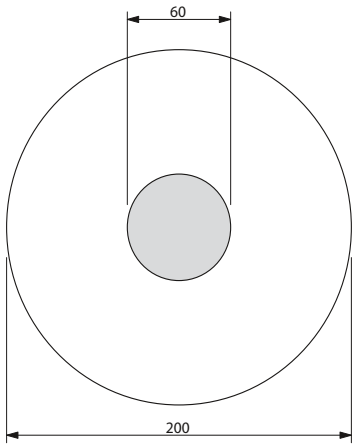
Color	Code
White	WH
Red	RD
Blue	BU
Green	GN
Yellow	YE
Gray	GY
Brown	BN
Orange	OG
Black	BK
Turquoise	TQ
Ivory	IV
Beige	BE
Olive	OL
Violet	VT
Pink	PK
Gold	GD
Silver	SR

Note:

Subject to changes that serve the purpose of technical progress.

Shock protection

Touch proof



Back of hand safety

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)

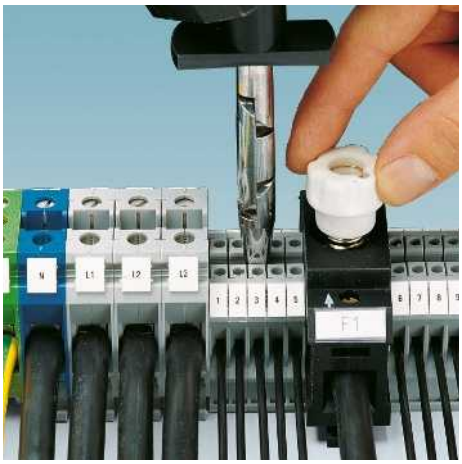
The term "occasional handling" has been introduced for the operation of elements such as pushbuttons, rocker arms or rotary buttons in the proximity of live parts.

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.

C

Type	Order No.	Page
CA-06P1N122S00	1619992	329
CA-06P1N126Y00	1619876	328
CA-06P1N126Z00	1619902	327
CA-06P1N128006	1619749	325
CA-06P1N128006S	1619578	324
CA-06P1N128007	1619723	325
CA-06P1N128007S	1619533	324
CA-06P1N128008	1619658	325
CA-06P1N128008S	1619507	324
CA-06P1N1280DN	1619775	325
CA-06P1N1280DNS	1619604	324
CA-06P1N129006	1620144	326
CA-06P1N129007	1620118	326
CA-06P1N129008	1620045	326
CA-06P1N1290DN	1620171	326
CA-06P1N12HZ00	1619850	332
CA-06P1N222S00	1619954	330
CA-06P1N8A2S00	1619990	329
CA-06P1N8A6Y00	1619874	328
CA-06P1N8A6Z00	1619900	327
CA-06P1N8A8006	1619747	325
CA-06P1N8A8006S	1619576	324
CA-06P1N8A8007	1619721	325
CA-06P1N8A8007S	1619531	324
CA-06P1N8A8008	1619656	325
CA-06P1N8A8008S	1619505	324
CA-06P1N8A80DN	1619773	325
CA-06P1N8A80DNS	1619602	324
CA-06P1N8A9006	1620142	326
CA-06P1N8A9007	1620116	326
CA-06P1N8A9008	1620043	326
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SACC-CI-M12FSD-4CON-L90 SCO	1432457	252
SACC-CI-M12FSD-4CON-SH TOR 32	1457636	257
SACC-CI-M12FSS-4CON-L180 THR PE	1406409	288
SACC-CI-M12FST-4CON-L180 THR	1406411	288
SACC-CI-M12FST-4CON-L180 THR SH	1406412	288
SACC-CI-M12FSX-8CON-L90	1424180	91
SACC-CI-M12FSY-8CON-L90	1424193	91
SACC-CI-M12MS- 12CON-TOR 32	1457571	256
SACC-CI-M12MS- 4CON-SH TOR 32	1457500	257
SACC-CI-M12MS- 4CON-TOR 32	1457490	256
SACC-CI-M12MS- 5CON-SH TOR 32	1457539	257
SACC-CI-M12MS- 5CON-TOR 32	1457526	256
SACC-CI-M12MS- 8CON-SH TOR 32	1457568	257
SACC-CI-M12MS- 8CON-TOR 32	1457555	256
SACC-CI-M12MS-12CON-L180 THR	1441985	256
SACC-CI-M12MS-12CON-L180 THRSH	1442065	257
SACC-CI-M12MS-12CON-L90	1424194	253
SACC-CI-M12MS-12CON-L90 SH	1424198	253
SACC-CI-M12MS-12CON-SH TOR 32	1457584	257
SACC-CI-M12MS-17CON- TOR 32	1457597	256
SACC-CI-M12MS-17CON-L180 THR	1442007	256
SACC-CI-M12MS-17CON-L180 THRSH	1442081	257
SACC-CI-M12MS-17CON-L90	1424196	253
SACC-CI-M12MS-17CON-L90 SH	1424200	253
SACC-CI-M12MS-17CON-SH TOR 32	1457607	257
SACC-CI-M12MS-4CON-L180 THR	1437164	256
SACC-CI-M12MS-4CON-L180 THR SH	1439939	257
SACC-CI-M12MS-4CON-L90 SCO	1436660	252
SACC-CI-M12MS-4CON-L90 SH SCO	1439887	252
SACC-CI-M12MS-5CON-L180 THR	1552227	256
SACC-CI-M12MS-5CON-L180-THR SH	1432350	257
SACC-CI-M12MS-5CON-L90 SCO	1436686	252
SACC-CI-M12MS-5CON-L90 SH SCO	1439890	252
SACC-CI-M12MS-8CON-L180 THR	1552269	256
SACC-CI-M12MS-8CON-L180-THR SH	1557581	257
SACC-CI-M12MS-8CON-L90 SCO	1436987	252
SACC-CI-M12MS-8CON-L90 SH SCO	1437038	252
SACC-CI-M12MSB- 5CON-SH TOR 32	1457542	257
SACC-CI-M12MSB-5CON-L180 THR	1552230	257
SACC-CI-M12MSB-5CON-L90 SH SCO	1436699	252
SACC-CI-M12MSD- 4CON-SH TOR 32	1457513	257
SACC-CI-M12MSD-4CON-L180 THR	1552214	257
SACC-CI-M12MSD-4CON-L90 SH SCO	1436673	252
SACC-CI-M12MSS-4CON-L180 THR PE	1406410	288
SACC-CI-M12MST-4CON-L180 THR	1406396	288
SACC-CI-M12MST-4CON-L180 THR SH	1406397	288
SACC-DSI-FS-12CON-L180 SCO	1559929	246
SACC-DSI-FS-12CON-L180 SCO SH	1436770	247
SACC-DSI-FS-12CON-PG9/0,5 SCO	1430446	242
SACC-DSI-FS-17CON-L180 SCO	1559958	246
SACC-DSI-FS-17CON-L180 SCO SH	1436806	247
SACC-DSI-FS-17CON-PG9/0,5 SCO	1430462	242
SACC-DSI-FS-4CON-L180 SCO	1553462	246
SACC-DSI-FS-4CON-L180/12 SCOSH	1558522	247
SACC-DSI-FS-4CON-L180/SCO SH	1556841	247
SACC-DSI-FS-4CON-PG9/0,5 SCO	1556621	242
SACC-DSI-FS-5CON-L180 SCO	1542761	188
SACC-DSI-FS-5CON-L180/12 SCO	1552285	246
SACC-DSI-FS-5CON-L180/12 SCOSH	1558548	247
SACC-DSI-FS-5CON-L180/SCO SH	1553019	188
SACC-DSI-FS-5CON-PG 9/0,5 SCO	1542729	242
SACC-DSI-FS-8CON-L180 SCO	1542774	246
SACC-DSI-FS-8CON-L180/12 SCO	1408770	246
SACC-DSI-FS-8CON-L180/12 SCOSH	1408771	247
SACC-DSI-FS-8CON-L180/SCO SH	1553860	247
SACC-DSI-FS-8CON-L180/SH TQ	1456543	90
SACC-DSI-FS-8CON-PG 9/0,5 SCO	1542732	242
SACC-DSI-FSB-5CON-L180 SCO	1543650	246
SACC-DSI-FSB-5CON-L180/12 SCO	1552298	246
SACC-DSI-FSB-5CON-L180/12SCOSH	1558564	247
SACC-DSI-FSB-5CON-L180/SCO SH	1553022	188
SACC-DSI-FSB-5CON-PG9/ 0,5 SCO	1543676	242
SACC-DSI-FSD-4CON-L180 SCO	1551503	246
SACC-DSI-FSD-4CON-L180/12 SCO	1552272	246
SACC-DSI-FSD-4CON-L180/12SCOSH	1558506	247
SACC-DSI-FSD-4CON-L180/SCO SH	1553006	247
SACC-DSI-FSD-4CON-L180/SH GN	1456569	90
SACC-DSI-FSD-4CON-L180/SH TQ	1456527	90
SACC-DSI-FSD-4CON-PG9/0,5 SCO	1551529	92
SACC-DSI-FSX-8CON-M16-L180 SCO	1424177	91
SACC-DSI-FSX-8CON-PG9-L180 SCO	1404741	91
SACC-DSI-FSY-8CON-M16-L180 SCO	1407503	91
SACC-DSI-M 8FS-3CON-L180	1694363	226
SACC-DSI-M 8FS-3CON-M12/0,5	1453449	227
SACC-DSI-M 8FS-4CON-L180	1694376	226
SACC-DSI-M 8FS-4CON-M12/0,5	1453452	227
SACC-DSI-M 8FS-6CON-L180	1436534	226
SACC-DSI-M 8FS-6CON-M12/0,5	1453465	227
SACC-DSI-M 8MS-3CON-L180	1694334	226
SACC-DSI-M 8MS-3CON-L180 SH	1455997	229
SACC-DSI-M 8MS-3CON-L90 SH	1456035	228
SACC-DSI-M 8MS-3CON-M 8/0,5	1453478	227
SACC-DSI-M 8MS-4CON-L180	1694347	226
SACC-DSI-M 8MS-4CON-L180 SH	1456019	229
SACC-DSI-M 8MS-4CON-M 8/0,5	1453481	227
SACC-DSI-M 8MS-6CON-L180	1436521	226
SACC-DSI-M 8MS-6CON-L180 SH	1456022	229
SACC-DSI-M 8MS-6CON-M 8/0,5	1453494	227
SACC-DSI-M12FS-12CON-M16	1441833	250
SACC-DSI-M12FS-12CON-M16 SH	1441956	251
SACC-DSI-M12FS-12CON-M16/0,5	1419713	244
SACC-DSI-M12FS-17CON-M16	1441859	250
SACC-DSI-M12FS-17CON-M16 SH	1441972	251
SACC-DSI-M12FS-17CON-M16/0,5	1419739	244
SACC-DSI-M12FS-4CON-L180 VA	1404974	270
SACC-DSI-M12FS-4CON-M16	1419755	250
SACC-DSI-M12FS-4CON-M16 SH	1419771	251
SACC-DSI-M12FS-4CON-M16/0,5	1419632	244
SACC-DSI-M12FS-4CON-PG9/0,5 VA	1405240	270
SACC-DSI-M12FS-5CON-L180 VA	1554733	193
SACC-DSI-M12FS-5CON-L180P	1436330	263
SACC-DSI-M12FS-5CON-L180PSCUP	1436314	263
SACC-DSI-M12FS-5CON-M16	1441778	250
SACC-DSI-M12FS-5CON-M16 SH	1441891	251
SACC-DSI-M12FS-5CON-M16/0,5	1419658	244
SACC-DSI-M12FS-5CON-PG9/0,5 P	1436356	263
SACC-DSI-M12FS-5CON-PG9/0,5 VA	1554717	270
SACC-DSI-M12FS-8CON-L180 VA	1529797	270
SACC-DSI-M12FS-8CON-L180P	1436343	263
SACC-DSI-M12FS-8CON-L180PSCUP	1436327	263
SACC-DSI-M12FS-8CON-M16	1441817	250
SACC-DSI-M12FS-8CON-M16 SH	1441930	251
SACC-DSI-M12FS-8CON-M16/0,5	1419690	244
SACC-DSI-M12FS-8CON-PG9/0,5 P	1436369	263
SACC-DSI-M12FS-8CON-PG9/0,5 VA	1554720	270
SACC-DSI-M12FSB-5CON-M16	1441794	250
SACC-DSI-M12FSB-5CON-M16 SH	1441914	251
SACC-DSI-M12FSB-5CON-M16/0,5	1419674	244
SACC-DSI-M12FSD-4CON-M16	1441752	250
SACC-DSI-M12FSD-4CON-M16 SH	1441875	251
SACC-DSI-M12FSD-4CON-M16/0,5	1419616	244
SACC-DSI-M12FSS-4CON-M16/0,5PE	1424133	286
SACC-DSI-M12FST-4CON-M16/0,5	1424134	286
SACC-DSI-M12MS-12CON-M16	1441820	250
SACC-DSI-M12MS-12CON-M16 SH	1441943	251
SACC-DSI-M12MS-12CON-M16/0,5	1419700	244
SACC-DSI-M12MS-17CON-M16	1441846	250
SACC-DSI-M12MS-17CON-M16 SH	1441969	251
SACC-DSI-M12MS-17CON-M16/0,5	1419726	244
SACC-DSI-M12MS-4CON-L180 VA	1404979	270
SACC-DSI-M12MS-4CON-M16	1419742	250
SACC-DSI-M12MS-4CON-M16 SH	1419768	251
SACC-DSI-M12MS-4CON-M16/0,5	1419629	244
SACC-DSI-M12MS-4CON-PG9/0,5 VA	1405239	270
SACC-DSI-M12MS-5CON-L180 VA	1554746	193
SACC-DSI-M12MS-5CON-M16	1441765	250
SACC-DSI-M12MS-5CON-M16 SH	1441888	251
SACC-DSI-M12MS-5CON-M16/0,5	1419645	244
SACC-DSI-M12MS-5CON-PG9/0,5 VA	1554681	270
SACC-DSI-M12MS-8CON-L180 VA	1529807	270
SACC-DSI-M12MS-8CON-M16	1441804	250
SACC-DSI-M12MS-8CON-M16 SH	1441927	251
SACC-DSI-M12MS-8CON-M16/0,5	1419687	244
SACC-DSI-M12MS-8CON-PG9/0,5 VA	1554694	270
SACC-DSI-M12MSB-5CON-M16	1441781	250
SACC-DSI-M12MSB-5CON-M16 SH	1441901	251
SACC-DSI-M12MSB-5CON-M16/0,5	1419661	244
SACC-DSI-M12MSD-4CON-M16	1441749	250
SACC-DSI-M12MSD-4CON-M16 SH	1441862	251
SACC-DSI-M12MSD-4CON-M16/0,5	1419603	244
SACC-DSI-M12MSS-4CON-M16/0,5PE	1424132	286
SACC-DSI-M12MST-4CON-M16/0,5	1424136	286
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SACC-DSI-M5FS-4CON-L180	1530650	224
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SACC-DSI-M5MS-4CON-L180	1530634	224
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SACC-DSI-MS-12CON-L180 SCO SH	1436783	247
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SACC-DSI-MS-4CON-M12 SCO	1551820	248
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SACC-DSI-MS-5CON-L180/12 SCO	1552311	246
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SACC-DSI-MS-5CON-L180/SCO SH	1553048	188
SACC-DSI-MS-5CON-M12 SCO	1551833	188
SACC-DSI-MS-5CON-M12-SCO SH	1552968	188
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SACC-DSI-MS-8CON-L180 SCO	1542758	246
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SACC-DSIV-FS-8CON-L180-THR SH	1557549	90
SACC-DSIV-FSB-5CON-L180 SCOTHR	1542635	189
SACC-DSIV-FSB-5CON-L90 SCO	1436576	189
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SACC-DSIV-FSD-4CON-L180 SCOTHR	1542648	90
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SACC-E-M 8MS-6CON-M 8/0,5	1542664	225
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SACC-E-M12FS-4CON-M20/0,5	1408436	235
SACC-E-M12FS-4CON-M20/0,5 VA	1408416	269
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SACC-E-M12FS-4CON-PG9/0,5 FFVA	1431429	193
SACC-E-M12FS-5CON-M16/0,5 VA	1458871	268
SACC-E-M12FS-5CON-M20/0,5	1408454	235
SACC-E-M12FS-5CON-M20/0,5 VA	1452071	269
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SACC-E-M12FS-8CON-M20/0,5	1408453	235
SACC-E-M12FS-8CON-M20/0,5 VA	1452110	269
SACC-E-M12FS-8CON-PG 9/0,5 VA	1554607	268
SACC-E-M12FS-8CON-PG9/0,5	1513758	232
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SACC-E-M12MS-4CON-M16/0,5 VA	1405233	268
SACC-E-M12MS-4CON-M20/0,5	1408451	235
SACC-E-M12MS-4CON-M20/0,5 VA	1408415	269
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SACC-E-M12MS-5CON-M16/0,5 P	1436411	241
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