

# Industrial Ethernet

Let's connect.

Version 2019



**Weidmüller** 



# Industrial Ethernet

## Solutions for industrial data communications

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Industrial Ethernet Switches

Industrial Security Router / u-link Remote Access Service

Media converter and protocol gateways

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# Active components

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# Passive components

## An overview of our portfolio

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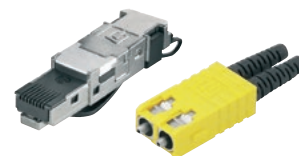
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# Passive components

## Accessories from a single source

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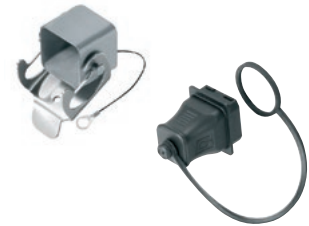
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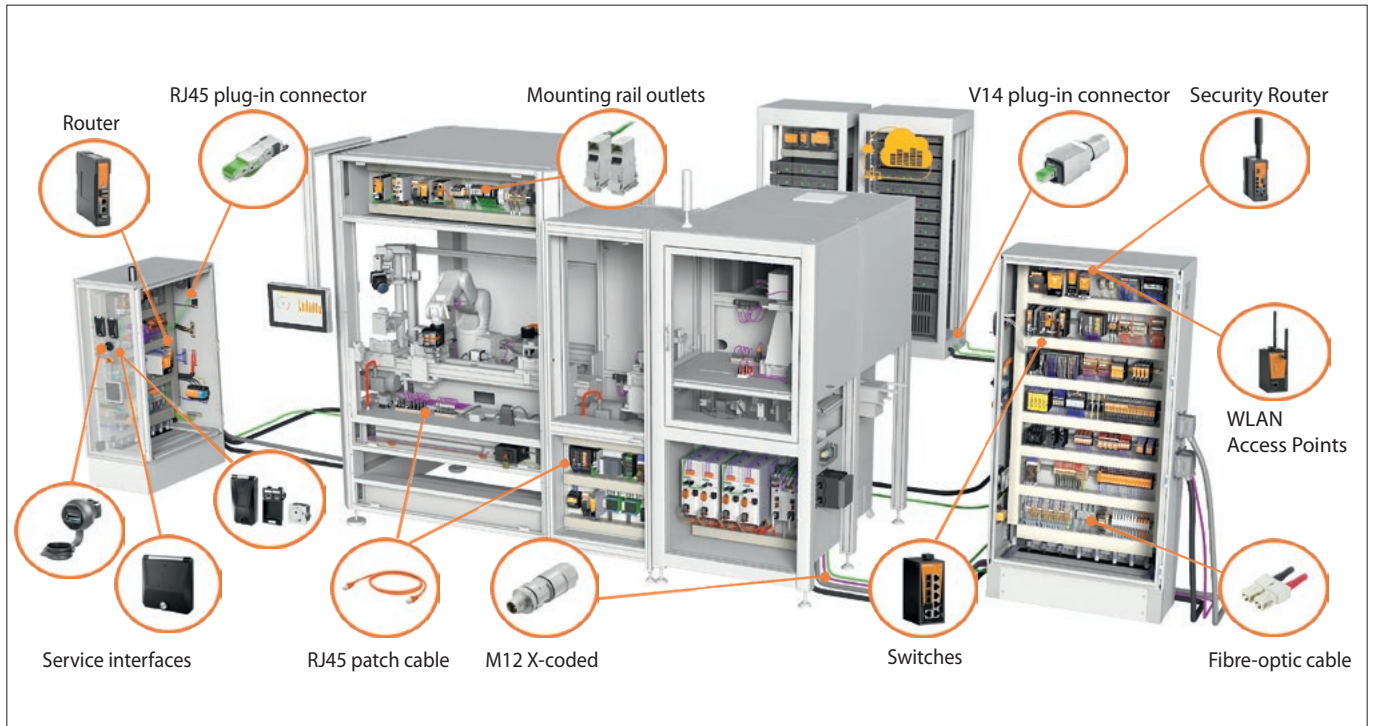






# Intended use for Industrial Ethernet

## A complete range of products for industrial communications infrastructure



The trend to network industrial plant components using Ethernet protocols was already apparent several years ago. Ethernet communication is now well established in all market segments; including automotive, general machine construction, process industry, transportation, energy and even Maritime. The requirements of these differ in terms of protocols, environmental conditions, certifications and standards. As well as being a leading provider of industrial connection and network products, Weidmüller embraces solutions for these differing requirements with a comprehensive and highquality product range of active and passive components for Ethernet communications.

The basic requirements of these industrial markets are high reliability, availability and safeguarding against failure. These are met by extremely high MTBF times of our network components. Using Weidmüller's high-quality STEADYTEC® connector system means that maximum reliability and simple operation is ensured. Indeed, Weidmüller's network components create a complete communications infrastructure for industrial applications in machine construction, process and plant engineering and energy.

## Automotive

### Robust and secure from the control layer to the robot



Car manufacturers in AIDA (the German car manufacturers' automation initiative) are the driver behind the use of Industrial Ethernet in the manufacturing sector, as they clearly prefer the use of PROFINET for communication between machines and equipment parts. To make the most savings in modern communications structures, Industrial Ethernet in the automotive industry is homogeneous, from corporate management level down to production.

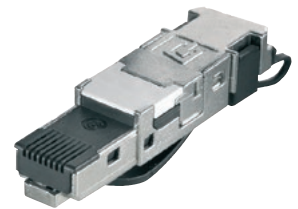
New production plants in North American car production are also being exclusively automated using Industrial Ethernet. Here the real-time Ethernet protocol EtherNet/IP is used. This, in the same way as PROFINET and other protocols, means there are different requirements for the connector systems used and the active network devices.

Extremely harsh environmental conditions – such as may be found where industrial robotics are used, for example – place high requirements on the components used. Cabling needs to be torsion resistant and there are increased EMC demands placed on plug-in connectors and active devices. For these application fields, Weidmüller offers a complete product range consisting of copper and fibre-optic connectors and passive hand-tools that are specifically designed for the requirements of cabling robotic systems.

The use of active devices with powerful redundancy mechanisms is needed to prevent network failures. Weidmüller's managed switches meet these requirements with their particularly fast recovery time of under 20 ms when an error occurs.

# General machine construction

## High-performance solutions, simply integrated



Important aspects of communications in machinery and device construction are networking machine segments and device parts and connecting them to the higher-level office network. Many serial devices are connected to the Ethernet infrastructure to protect investments and because of the various different communication protocols in use. Weidmüller offers active components for this which convert the protocols. By simply integrating devices with serial interfaces, you get protection for your investments in existing automation components.

The volume of data in networks is steadily rising with the applications used, for example with camera-based quality control. Weidmüller easily meets these increased demands with its product range of high-performance Gigabit switches and plug-in connectors capable of 10 Gigabit transfer.

The extensive plug-in connector range also meets the higher demands in terms of EMC as well as shock, vibration and temperature resistance and facilitates easy on-site assembly.

Dragline cable-compatible connection cables from Weidmüller are used on moving parts of complex machines. Hard to reach areas can be covered using the WLAN modules that are available.

## Machinery - in detail

Your robots are always in action

We enable them to let you know what they are up to



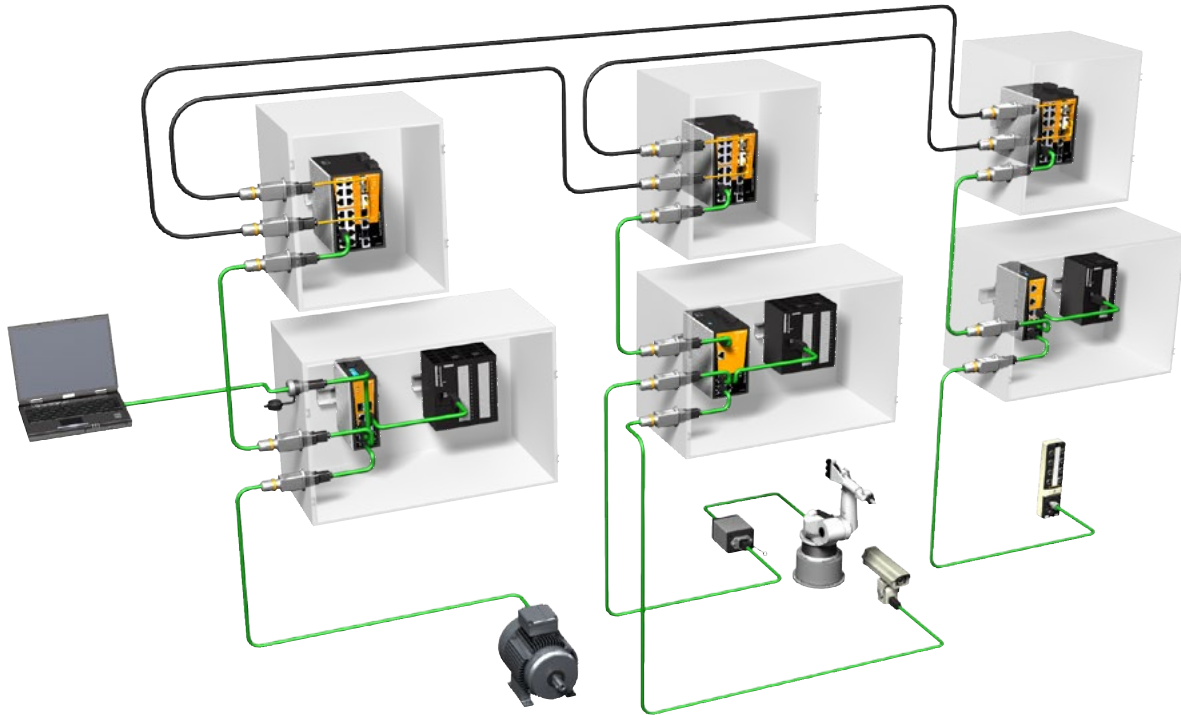
You require a seamless flow of information to optimise the output and efficiency of your production cells – from networking the communication between machine segments, to the exchange of information with higher-level office networks. In this way you can constantly monitor the activities of your robots.

To provide you with seamless communication without media disruption, we offer you a comprehensive Industrial Ethernet product portfolio from field to control level – with significant advantages. Thanks to the innovative **STEADYTEC®** technology used, our plug-in connectors create the basis for reliable and standardised connection solutions in data communication, both in the office and in harsh production environments. With functions such as high-speed ring

redundancy or redundant power supply, our active Industrial Ethernet components guarantee uninterrupted operation of your production network.

Extensive network management functions effectively handle your data traffic. Our Power-over-Ethernet switches supply the operating voltage to the cameras that monitor your manufacturing processes, in parallel to data traffic.

With these and many other functions, our multifaceted Industrial Ethernet portfolio supports your communication at control, infrastructure and machine levels. This means that channels of communication with your robots are always open. Let's connect.



### Plug-in connectors and cabling system

- IEC-standardised connector, in variants 1, 4, 5, 6 and 14
- All in Cat. 6<sub>A</sub> and with **STEADYTEC**<sup>®</sup> technology
- Cables pre-assembled and sold by the metre
- Copper and fibre-optic cables
- IP20 and IP67
- All relevant Industrial Ethernet industrial connections
- Comprehensive range of accessories

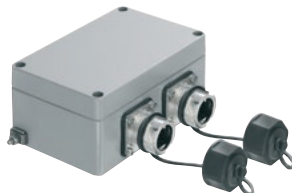


### Active Industrial Ethernet components

- Unmanaged switches (Fast Ethernet, Gigabit Ethernet)
- Managed switches (Fast Ethernet, Gigabit Ethernet)
- Power-over-Ethernet switches
- Media converters (copper, fibre-optic cables)
- Serial/Ethernet converters
- Modbus TCP/RTU Gateway
- Industrial WLAN components
- Industrial security routers

## For use in the process industry

### Optimized for use in hazardous areas



Weidmüller's network components for the process industry allow their use in explosion hazard areas with their certification - Class 1 Div. 2 and ATEX. The active components have high fault-tolerance and ensure high system availability with redundancy mechanisms like trunking and ring-redundancy as well as RSTP.

Long distances can be bridged using fibre-optic media in large process plants. There are requirements like high protection class when you use components in the field. The harsh environments in process plants are characterised by high temperature variations, vibrations, rain and dust, as well as electromagnetic influences. Weidmüller's active and passive Ethernet components are well able to withstand these influences.

It is particularly important to make sure the communication between various areas of the plant is secure. Weidmüller's Ethernet switches support network management and security functions like IGMP Snooping, IEEE 802.1X, QoS and VLAN.

This means that the devices form a secure and efficient communications bridge to the office, from the plant to the controller and then out to the wider IT network.

## Use in the shipbuilding industry

### Extremely reliable in harsh environments



While autonomous navigation is gaining importance in shipping, the comfort requirements of crew and passengers are increasing too. Therefore, ships are equipped with increasingly more complex network solutions which need to be managed intelligently. In addition to higher bandwidth, more and more components have to support QoS, and prioritisation measures, network segmentation functions, and redundancy mechanisms.

Weidmüller supplies switches, routers, and connection elements in a broad range including connectors, DIN rail outlet, and maintenance interfaces that function reliably and are optimally suited to the harsh environmental conditions. A large part of Weidmüller's Industrial Ethernet portfolio is DNV GL certified.

DNV GL certified routers from Weidmüller perfectly secure your onboard networks by separating critical from non-critical networks. For example, the drive network and entertainment system can operate independently from one another. On the bridge, for example, Weidmüller routers enable ship communication via 4G networks, which reduces the use of expensive satellite connections. At the same time, it provides remote access and important status parameters.

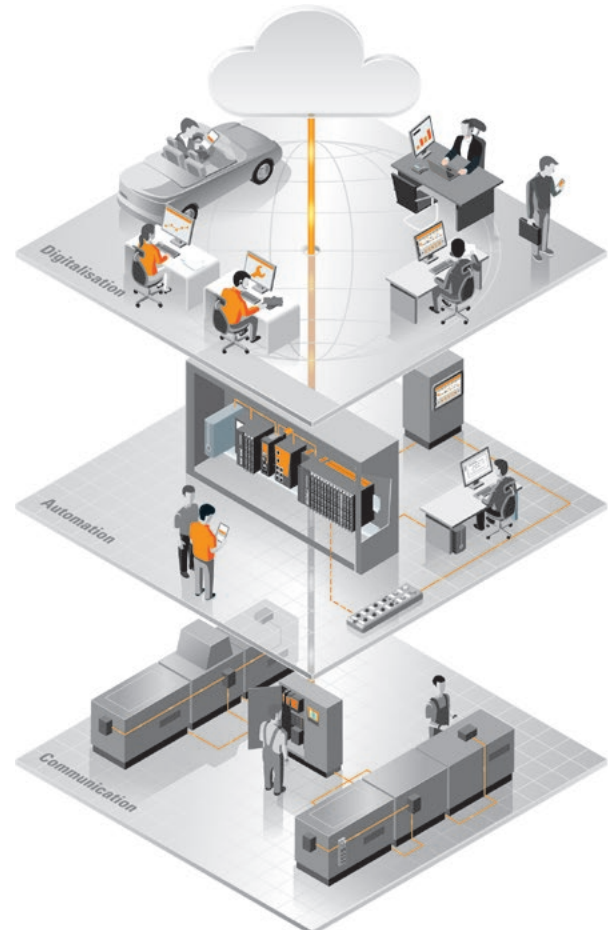


# Digitalisation and security

## High speed with perfect protection

Weidmüller's Industrial Ethernet portfolio supports you both in the implementation of classic industrial applications and in communication from the sensor to the cloud. Weidmüller's u-link Remote Access Service enables worldwide access to systems with Weidmüller Industrial Security Routers via the u-link portal. The routers allow Internet connections via mobile radio or Ethernet with static or dynamic routing via OSPF, RIP, and RIPv2.

At the automation level, switches with redundancy mechanisms ensure reliable data traffic at gigabit speed – regardless of whether the lines are fibre or copper. Industrial security routers segment the networks and protect against unauthorised communication. At the sensor level, unmanaged switches link various devices cost-effectively. Signals from serial devices can be converted for Ethernet communication to feed them into the network.



Security risks increase with the number of devices that are integrated into networks. The Weidmüller product portfolio supports you in designing secure networks from maintenance access to the communication level. Lockable service interfaces FrontCom® protect against unauthorised physical access. IGMP snooping and GMRP prevent flooding, while VLAN functionality intelligently distributes networks. Network segmentation solutions and firewalling via security routers complete Weidmüller's integrated cybersecurity solution and allow secure remote access.





# Active components

## Introduction

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# Active components

## Solutions for global industrial use

**A** Ethernet technology is an established standard in office communication and has existed for many years. Without it, effective communications between equipment such as PCs, printers, data servers, etc. would not be possible.

In recent years this technology has been expanded under the term Industrial Ethernet and implemented in automation systems. The common goal of both manufacturer and user is to make the networking of automation system components easier and more effective. To make process data and diagnostic functions device-independent when exchanged between network participants, all equipment in a plant should be linked with just one bus technology.

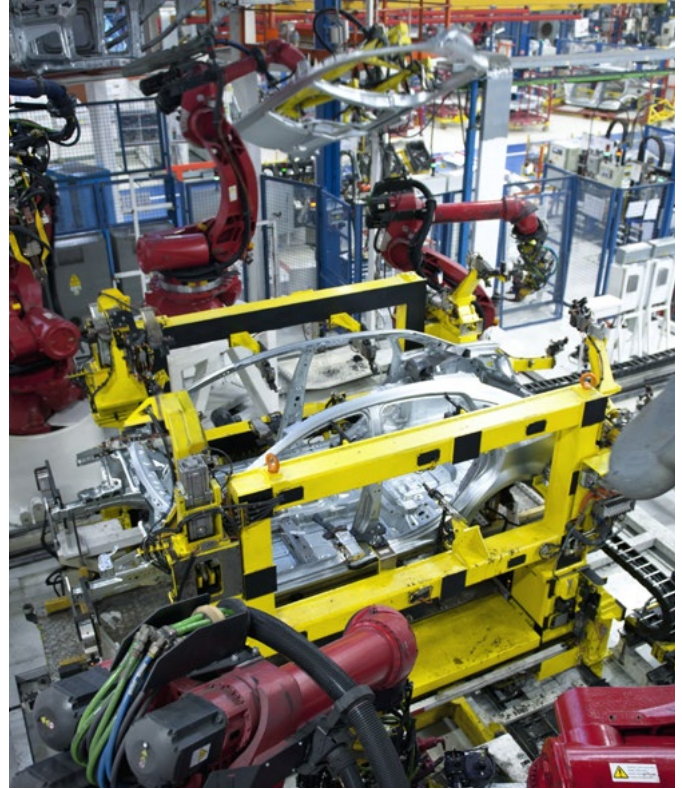
Industrial applications, however, differ significantly from office applications. In addition, there are normally much higher demands placed on the communication devices in the industrial setting. These include:

- Installation conditions
- Environmental conditions
- Protocols
- Approvals

Weidmüller's Industrial Ethernet components meet all of these requirements as they have the properties listed below:

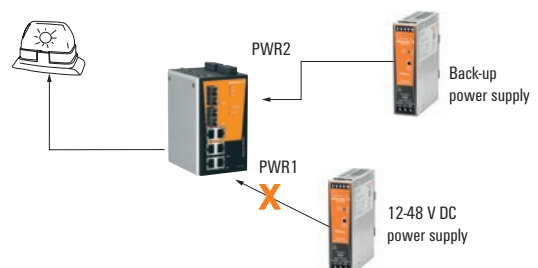
- Reliable (redundant) power supply for uninterrupted network operation
- Resistance to extreme temperatures
- Immune to electromagnetically caused malfunctions
- Insensitive to vibration, shock and corrosive environments
- Conformity with various certification standards
- Longevity

These rugged devices can therefore be used world-wide in different industries and applications.



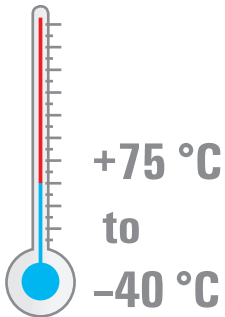
### Stable and versatile power supply inputs for industrial applications

The redundant voltage inputs provide reliable functionality of the whole system. If a power supply fails, the redundant power source takes over the energy supply. All of Weidmüller's Industrial Ethernet components have a wide input voltage range of at least 12 to 48 V DC (Basic Line switches 9.6 to 60 V DC). They can also work with large fluctuations in voltage. For instance, with a rated 48 V DC input, a fluctuation of +20 % is acceptable and yet, in one of 12 V DC, a voltage drop of up to 20 % presents no problems for the attached devices.



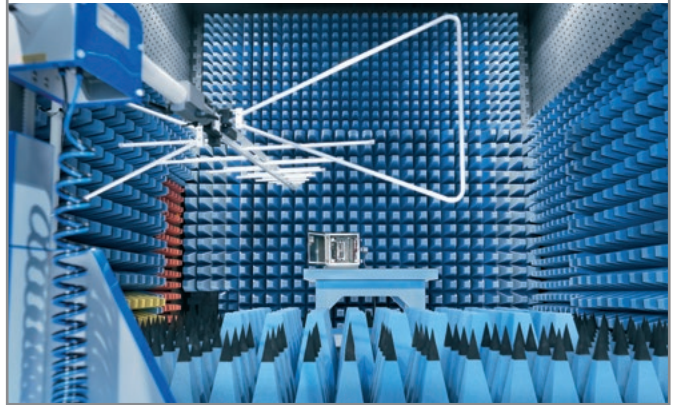
### Suitable for use in extreme temperature environments

Industrial environments often experience extreme temperature conditions. This means that devices are needed which can operate flawlessly with the vast temperature fluctuations. All of our Industrial Ethernet components undergo a burn-in test over several hours to ensure they function properly at the guaranteed temperature ranges (e.g. -40 °C to +75 °C).



### Outstanding immunity to electromagnetic interference

The robust design of Weidmüller's Industrial Ethernet components also includes excellent electromagnetic compatibility and fully complies with the requirements and standards.



### Certified to industry standards

An extensive range of certifications confirm the reliability of Weidmüller's Industrial Ethernet components

- UL 508 and UL 60950-1
- Class I, Division 2 / ATEX Zone 2 for safe use in hazardous areas
- DNV/GL approval for use in maritime settings



### Durability and reliability

- Many of the Weidmüller Ethernet components have relay outputs. These can be used for alarm signal notification (e.g. power failures or port problems). This means that, in emergencies, it is possible to react quickly to any failures.
- Weidmüller's unmanaged switches are protected from receiving too many broadcast packets. The switches discard broadcast or multicast packets if they exceed a threshold level in a given time. They then receive further broadcast and multicast packets after a given time has past, until the threshold level is reached again.
- All Weidmüller active Industrial Ethernet components are designed for a long service life and this can be seen from the high MTBF value. Weidmüller also guarantees its Industrial Ethernet components for a period of five years.

# The ideal solution, whatever your needs

## Our Basic, Value and Premium Line product ranges

### Basic Line



Weidmüller's Basic Line series consists of unmanaged Plug & Play switches in a rugged IP30 rated aluminium housing. The devices are available with Fast Ethernet and Gigabit Ethernet and provide an economical solution for Industrial Ethernet networks. One model is equipped with Fast Ethernet and Power-over-Ethernet ports. All devices have been developed for applications in harsh industrial environments and have international approvals such as CE, cULus, Class I Div. 2 / Atex and DNV / GL and are thus internationally available for different applications.

- Plug & Play switches in a rugged aluminium housing (IP30)
- Compact design
- Cost efficient entry-level switches
- Fast Ethernet variants with 5 and 8 Ports
- Versions with copper or fibre-optic interface (multimode and single-mode)
- 5 port Full-Gigabit Plug & Play Switch
- Power-over-Ethernet switch with 6 Fast Ethernet ports, thereof 4 PoE+ ports
- Approvals: cULus, Class I Div. 2 / Atex, DNV / GL

### Value Line



Weidmüller's Value Line series consists of unmanaged and managed switches in a high quality IP30 rated metal housing. The devices are available with Fast Ethernet and Gigabit Ethernet ports. Value Line managed switches support a variety of useful management functions, such as fast ring redundancy, VLAN, QoS, RMON, bandwidth management, port mirroring and warning by email message or relay. The ring redundancy can be set up easily using the web-based management interface, or with the DIP switches located on the top panel of the switches.

- Unmanaged Plug & Play switches in a high quality metal housing (IP30)
- Price-sensitive mid-range class
- Managed switches for entry into configurable network infrastructure
- Unmanaged 8 port Full-Gigabit switches
- Approvals: cULus, Class I Div. 2 / Atex, DNV / GL

## Premium Line



Weidmüller's Premium Line series completes the switch range for the high-end sector and is particularly suitable for complex network solutions with high traffic levels. The devices are available in different versions, ie. number of ports, transmission rate (Fast and Gigabit Ethernet) and the Type of connection (copper and fibre-optic). With their advanced ring redundancy technology (recovery time  $\leq 20$  ms), these devices increase the reliability and availability of your industrial network. The option to use SFP transceivers offer a high degree of flexibility and the Gigabit variants also allow their use in networks with high traffic loads.

- Managed Fast Ethernet variants in a high quality metal housing (IP30)
- Variants with 10 or 18 ports and Gigabit uplink ports
- Full-Gigabit switch with 9 ports
- Supports all standard protocols in TCP/IP-based industrial networks (e.g. EtherNet/IP, Modbus/TCP)
- Built-in redundancy mechanisms (recovery time  $\leq 20$  ms) for increased reliability in network ring structures
- Approvals: cULus, Class I Div. 2 / Atex, DNV / GL

## Industrial Security Routers



Weidmüller Industrial Security Routers protect modern industrial network structures. They separate the network into different IP address spaces, integrate systems into the network via 1:1 NAT, and exclude harmful data traffic via a firewall. Our routers support static and dynamic routing with different protocols as well as the mobile radio standard LTE/4G.

In addition to our web-based remote maintenance solution u-link, our routers support OpenVPN and IPsec to enable remote access to the systems. With Gigabit Ethernet interfaces and the 4G standard with up to 100 Mbit/s download and 50 Mbit/s upload speed, our routers are optimal for the high data volume in Industrial IoT.

- Routing and firewall individually adjustable for each port
- Gigabit Ethernet interfaces
- SPI firewall
- High-quality metal housing
- Status messages and control via SMS
- Support of VPN technology
- Certification according to DNV GL

## Switches – quick-finder

Ports total		5					6			8			
Ports RJ-45: 10/100Mbit	5			4	3		1	2		8		5	6
Ports RJ-45: 10/100/1000Mbit		up to 5 <sup>e)</sup>				1					8		
Ports RJ-45: 10/100Mbit (PoE+)							4	4	4				
Ports RJ-45: 10/100/1000Mbit (PoE+)					4	4							
Ports M12: 10/100Mbit	5												
Ports SC/ST-LWL: 100Mbit			1	2			1		2			3	2
Ports SFP-LC: 100/1000Mbit		up to 1 <sup>b)</sup>											
Ports SFP-LC: 1000Mbit						1							
Order No.	Type												
<b>Industrial Ethernet Switches</b>													
1504410000	IE-SW-IP67-5M12	●											
1504420000	IE-SW-IP67T-5M12	●											
1240840000	IE-SW-BL05-5TX	●											
1240850000	IE-SW-BL05T-5TX	●											
2435400000	IE-SW-BL05-4GT-1GS		●										
2435410000	IE-SW-BL05T-4GT-1GS		●										
1504320000	IE-SW-BL05-1GT-4GTPoE				●								
1504340000	IE-SW-BL05T-1GT-4GTPoE				●								
1504360000	IE-SW-BL05-1GS-4GTPoE					●							
1504380000	IE-SW-BL05T-1GS-4GTPoE					●							
1240870000	IE-SW-BL05-4TX-1SCS			●									
1286530000	IE-SW-BL05T-4TX-1SCS			●									
1240880000	IE-SW-BL05-4TX-1ST			●									
1286540000	IE-SW-BL05T-4TX-1ST			●									
1240890000	IE-SW-BL05-4TX-1SC			●									
1286550000	IE-SW-BL05T-4TX-1SC			●									
1241380000	IE-SW-BL06-2TX-4PoE							●					
1286920000	IE-SW-BL06T-2TX-4PoE							●					
1504210000	IE-SW-BL06-4PoE-2SC								●				
1504220000	IE-SW-BL06T-4PoE-2SC								●				
1504230000	IE-SW-BL06-4PoE-2ST								●				
1504240000	IE-SW-BL06T-4PoE-2ST								●				
1504250000	IE-SW-BL06-1TX-4PoE-1SC						●						
1504260000	IE-SW-BL06T-1TX-4PoE-1SC						●						
1504270000	IE-SW-BL06-1TX-4PoE-1ST						●						
1504290000	IE-SW-BL06T-1TX-4PoE-1ST						●						
1240900000	IE-SW-BL08-8TX									●			
1286560000	IE-SW-BL08T-8TX									●			
1240910000	IE-SW-BL08-6TX-2SC											●	
1240920000	IE-SW-BL08T-6TX-2SC											●	
1240930000	IE-SW-BL08-6TX-2ST											●	
1286570000	IE-SW-BL08T-6TX-2ST											●	
1412070000	IE-SW-BL08-7TX-1SC												●
1412080000	IE-SW-BL08T-7TX-1SC												●
1412090000	IE-SW-BL08-7TX-1ST												●

a) Two of its ports designed as combo-ports. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP ports as required

b) Designed as combo-ports. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP ports as required

c) Five of its ports designed as combo-ports. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP ports as required

d) Designed as combo-ports. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP ports as required

e) One of its ports designed as a combo-port. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP port as required





## Switches – quick-finder

Ports total		5					6		8			
Ports RJ-45: 10/100Mbit	5			4	3		1		8		5	6
Ports RJ-45: 10/100/1000Mbit		up to 5 <sup>a)</sup>				1			8			
Ports RJ-45: 10/100Mbit (PoE+)							4	4				
Ports RJ-45: 10/100/1000Mbit (PoE+)					4	4						
Ports M12: 10/100Mbit	5											
Ports SC/ST-LWL: 100Mbit				1	2		1	2			3	2
Ports SFP-LC: 100/1000Mbit		up to 1 <sup>b)</sup>										
Ports SFP-LC: 1000Mbit						1						
Order No.	Type											
<b>Industrial Ethernet Switches</b>												
1412100000	IE-SW-BL08T-7TX-1ST											
1240950000	IE-SW-BL08-7TX-1SCS											
1286580000	IE-SW-BL08T-7TX-1SCS											
1412110000	IE-SW-BL08-6TX-2SCS											●
1412120000	IE-SW-BL08T-6TX-2SCS											●
1241270000	IE-SW-VL08-8GT									●		
1286860000	IE-SW-VL08T-8GT									●		
1241280000	IE-SW-VL08-6GT-2GS											
1286870000	IE-SW-VL08T-6GT-2GS											
1240980000	IE-SW-VL09T-6TX-3SC											
1241000000	IE-SW-VL16-16TX											
1286590000	IE-SW-VL16T-16TX											
1241030000	IE-SW-VL16-14TX-2SC											
1286610000	IE-SW-VL16T-14TX-2SC											
1241050000	IE-SW-VL16-14TX-2ST											
1286620000	IE-SW-VL16T-14TX-2ST											
1504280000	IE-SW-VL05M-5TX	●										
1504310000	IE-SW-VL05MT-5TX	●										
1504330000	IE-SW-VL05M-3TX-2SC											●
1504350000	IE-SW-VL05MT-3TX-2SC											●
1504370000	IE-SW-VL05M-3TX-2ST											●
1504390000	IE-SW-VL05MT-3TX-2ST											●
1240940000	IE-SW-VL08MT-8TX									●		
1240970000	IE-SW-VL08MT-5TX-3SC										●	
1345240000	IE-SW-VL08MT-5TX-1SC-2SCS										●	
1344770000	IE-SW-VL08MT-6TX-2SC											●
1240990000	IE-SW-VL08MT-6TX-2ST											●
1241020000	IE-SW-VL08MT-6TX-2SCS											●
1241040000	IE-SW-PL08M-8TX									●		
1286780000	IE-SW-PL08MT-8TX									●		
1241070000	IE-SW-PL08M-6TX-2SC											●
1286790000	IE-SW-PL08MT-6TX-2SC											●
1241080000	IE-SW-PL08M-6TX-2ST											●
1286800000	IE-SW-PL08MT-6TX-2ST											●
1241090000	IE-SW-PL08M-6TX-2SCS											●

a) Two of its ports designed as combo-ports. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP ports as required

b) Designed as combo-ports. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP ports as required

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e) One of its ports designed as a combo-port. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP port as required

	8	9	10	16	18
	7	6	7	16	14
	up to 8 <sup>a)</sup>	up to 9 <sup>c)</sup>	3	1	up to 2 <sup>d)</sup> up to 2 <sup>d)</sup>
	1	3		2	2
	up to 2 <sup>b)</sup>	up to 5 <sup>b)</sup>	2	up to 2 <sup>d)</sup>	up to 2 <sup>d)</sup>

	Temperature	Fibre-optic interface	Page
●	-40 ... +75 °C	ST-Multimode	B.3
●	-10 ... +60 °C	SC-Singlemode	B.3
●	-40 ... +75 °C	SC-Singlemode	B.3
●	-10 ... +60 °C	SC-Singlemode	B.3
●	-40 ... +75 °C	SC-Singlemode	B.3
●	-10 ... +60 °C	-	B.6
●	-40 ... +75 °C	-	B.6
●	-10 ... +60 °C	SFP-Slot	B.6
●	-40 ... +75 °C	SFP-Slot	B.6
●	-40 ... +75 °C	SC-Multimode	B.4
●	-10 ... +60 °C	-	B.4
●	-40 ... +75 °C	-	B.4
●	-10 ... +60 °C	SC-Multimode	B.4
●	-40 ... +75 °C	SC-Multimode	B.4
●	-10 ... +60 °C	ST-Multimode	B.4
●	-40 ... +75 °C	ST-Multimode	B.4
●	-10 ... +60 °C	-	B.13
●	-40 ... +75 °C	-	B.13
●	-10 ... +60 °C	SC-Multimode	B.13
●	-40 ... +75 °C	SC-Multimode	B.13
●	-10 ... +60 °C	ST-Multimode	B.13
●	-40 ... +75 °C	ST-Multimode	B.13
●	-40 ... +75 °C	-	B.14
●	-40 ... +75 °C	SC-Multimode	B.14
●	-40 ... +75 °C	SC-Multimode/SC-Singelmode	B.14
●	-40 ... +75 °C	SC-Multimode	B.14
●	-40 ... +75 °C	ST-Multimode	B.14
●	-40 ... +75 °C	SC-Singlemode	B.14
●	-10 ... +60 °C	-	B.15
●	-40 ... +75 °C	-	B.15
●	-10 ... +60 °C	SC-Multimode	B.15
●	-40 ... +75 °C	SC-Multimode	B.15
●	-10 ... +60 °C	ST-Multimode	B.15
●	-40 ... +75 °C	ST-Multimode	B.15
●	-10 ... +60 °C	SC-Singlemode	B.15

Layer 2 - Unmanaged  
Layer 2 - Managed

## Switches – quick-finder

Ports total		5					6		8			
Ports RJ-45: 10/100Mbit	5			4	3		1		8		5	6
Ports RJ-45: 10/100/1000Mbit		up to 5 <sup>e)</sup>				1			8			
Ports RJ-45: 10/100Mbit (PoE+)							4	4				
Ports RJ-45: 10/100/1000Mbit (PoE+)					4	4						
Ports M12: 10/100Mbit	5											
Ports SC/ST-LWL: 100Mbit				1	2		1	2			3	2
Ports SFP-LC: 100/1000Mbit		up to 1 <sup>b)</sup>										
Ports SFP-LC: 1000Mbit						1						
Order No.	Type											
<b>Industrial Ethernet Switches</b>												
1286810000	IE-SW-PL08MT-6TX-2SCS											●
1241100000	IE-SW-PL16M-16TX											
1286820000	IE-SW-PL16MT-16TX											
1241120000	IE-SW-PL16M-14TX-2SC											
1286830000	IE-SW-PL16MT-14TX-2SC											
1241130000	IE-SW-PL16M-14TX-2ST											
1286840000	IE-SW-PL16MT-14TX-2ST											
1241290000	IE-SW-PL10M-3GT-7TX											
1286930000	IE-SW-PL10MT-3GT-7TX											
1241300000	IE-SW-PL10M-1GT-2GS-7TX											
1286940000	IE-SW-PL10MT-1GT-2GS-7TX											
1241320000	IE-SW-PL18M-2GC-16TX											
1286970000	IE-SW-PL18MT-2GC-16TX											
1241330000	IE-SW-PL18M-2GC-14TX2SC											
1286990000	IE-SW-PL18MT-2GC-14TX2SC											
1241340000	IE-SW-PL18M-2GC-14TX2ST											
1287000000	IE-SW-PL18MT-2GC-14TX2ST											
1241350000	IE-SW-PL18M-2GC-14TX2SCS											
1287010000	IE-SW-PL18MT-2GC-14TX2SCS											
1241370000	IE-SW-PL09M-5GC-4GT											
1287020000	IE-SW-PL09MT-5GC-4GT											

a) Two of its ports designed as combo-ports. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP ports as required

b) Designed as combo-ports. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP ports as required

c) Five of its ports designed as combo-ports. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP ports as required

d) Designed as combo-ports. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP ports as required

e) One of its ports designed as a combo-port. Can be used as 10/100/1000BaseT(X) or 100/1000BaseSFP port as required





# Industrial Ethernet Switches

## Overview

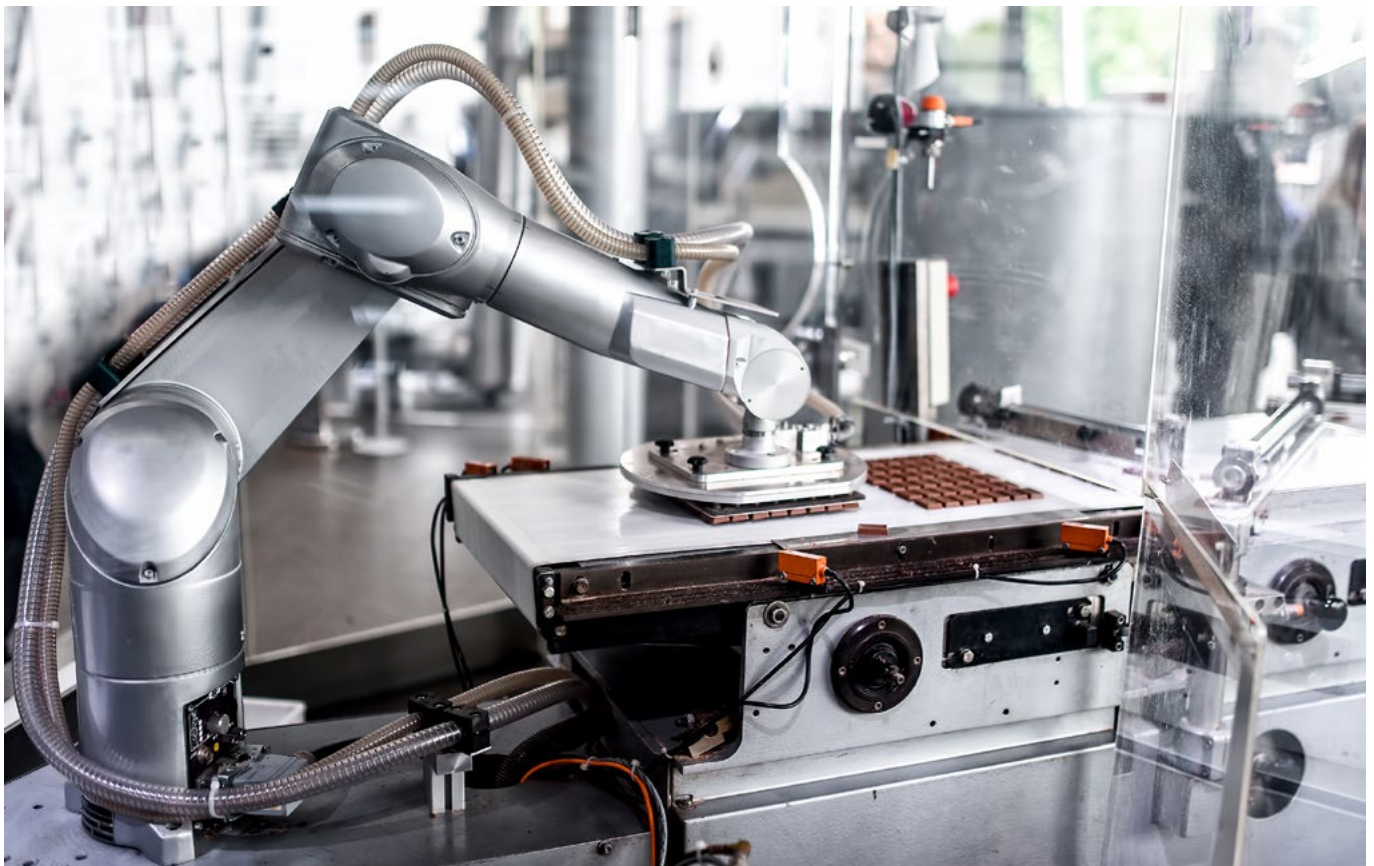
<b>Industrial Ethernet Switches</b>	Unmanaged Switches	B.2
	Unmanaged Switches Fast Ethernet	B.3
	Unmanaged Switches Gigabit Ethernet	B.6
	Managed Switches introduction	B.8
	Managed Switches Fast Ethernet	B.13
	Managed Switches Fast/Gigabit Ethernet	B.16
	Managed Switches Gigabit Ethernet	B.18
	Power over Ethernet Switches	B.19
	Unmanaged Switches Fast Ethernet - Power over Ethernet	B.20
	Unmanaged Switches Gigabit Ethernet - Power over Ethernet	B.21

# Unmanaged Switches

## Adaptable and universal

**B** Switches are the basic coupling elements in Ethernet networks. They connect the Ethernet participants together. In an Ethernet network the communication basically originates from the participants. The switches connect the participants together and enable the communication. Unmanaged switches are the simplest active network component. They do not need to be configured and are therefore very flexible. They use the basic standard protocols, such as auto-negotiation, auto-crossing, and flow-control and can automatically adjust to the different transmission speeds or connector wiring.

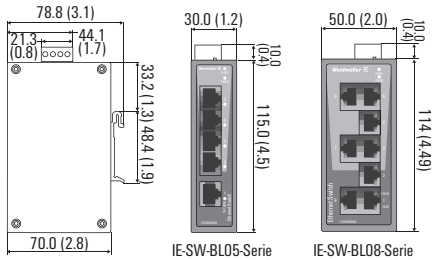
Unmanaged switches are protocol transparent. Each port on the switch creates an individual collision domain. The use of twisted-pair cabling with an RJ45 interface or fibre-optic cable based on the IEEE 802.3 specification interfaces are supported by all Weidmüller switches.





**5 and 8-Port unmanaged Fast Ethernet Switches**

- Two redundant voltage inputs 12/24/48 V DC (9.6 to 60 V DC)
- IP30 aluminium housing
- Rugged hardware design well suited for hazardous locations (Class I Div. 2 /ATEX Zone 2) and maritime environments (DNV-GL)
- -40°C to 75°C operating temperature range (T models)



**Technical data**

<b>Technology</b>			
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT (X) and 100BaseFX IEEE 802.3x for Flow Control		
Processing Type	Store and Forward		
Flow Control	IEEE 802.3x flow control, back pressure flow control		
<b>Switch Properties</b>			
MAC Table Size	IE-SW-BL05-Series: 1K / IE-SW-BL08-Series: 2K		
Packet Buffer Size	IE-SW-BL05-Series: 384 kbit / IE-SW-BL08-Series: 768 kbit		
<b>Interface</b>			
Fibre Ports	100BaseFX (SC/ST-duplex connection)		
RJ45 Ports	10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection		
DIP Switches	Enable/Disable broadcast storm protection		
<b>Specification optical fiber</b>			
Transceiver Type	100Base FX		
	Multi-Mode      Single-Mode		
Fiber Cable Type	OM1      50/125 µm      800 MHz*km      G.652		
	Typical Distance	4 km      5 km      40 km	
Wave-length	Typical (nm)	1300	1310
	TX Range (nm)	1260 to 1360	1280 to 1340
	RX Range (nm)	1100 to 1600	1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20	0 to -5
	RX Range (dBm)	-3 to -32	-3 to -34
	Link-Budget (dB)	12	29
	Dispersion Penalty (dB)	3	1
<b>Note:</b> When connecting a single-mode fiber transceiver over a short distance, we recommend using an attenuator to prevent the transceiver from being damaged by excessive optical power.			
<b>Power Requirements</b>			
Input Voltage	12/24/48 V DC (9.6 to 60 V DC), two redundant inputs		
Input Current	IE SW BL05 5TX: 0.09 A at 24 V IE SW BL05 1SC/1ST/1SCS: 0.1 A at 24 V IE SW BL08 8TX: 0.11 A at 24 V IE SW BL08 2SC/2ST/2SCS: 0.15 A at 24 V IE SW BL08 1SC/1ST/1SCS: 0.11 A at 24 V		
Overload current protection	1.1 A		
Connection	1 removable 4-contact terminal block		
Reverse Polarity Protection	Present		
<b>Physical Characteristics</b>			
Housing	Aluminum, IP30 protection		
Dimensions (W x H x D)	IE-SW-BL05-Series: 30 x 115 x 70 mm (1.18 x 4.52 x 2.76 in) IE-SW-BL08-Series: 50 x 114 x 70 mm (1.96 x 4.52 x 2.76 in)		
Weight	IE-SW-BL05-5TX: 175 g / IE-SW-BL08-8TX: 275 g		
Installation	DIN rail, wall (with optional mounting kit)		
<b>Environmental Limits</b>			
Operating Temperature	Standard Models: -10 to 60 °C (14 to 140 °F) Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)		
Storage Temperature	-40 to 85 °C (-40 to 185 °F)		
Ambient Relative Humidity	5 to 95 % (non-condensing)		
<b>Regulatory Approvals</b>			
Safety	UL 508		

<b>Regulatory Approvals</b>	
Hazardous Location	UL/cUL Class I, Division 2, Groups A, B, C and D; ATEX Zone 2 Ex nA IIC T4 Gc
EMV	EN 55032/24 / CISPR 32 FCC Part 15B Class A IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8
Maritime	DNV-GL (not for 1412110000, 1412120000, 1412070000, 1412080000, 1412090000, 1412100000)
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

<b>MTBF (meantime between failures)</b>	
Time	IE-SW-BL05-Series: 3,040,784 hrs, IE-SW-BL08-Series: 2,701,531 hrs
Database	Telcordia (Bellcore), GB
<b>Warranty</b>	
Warranty Period	5 years

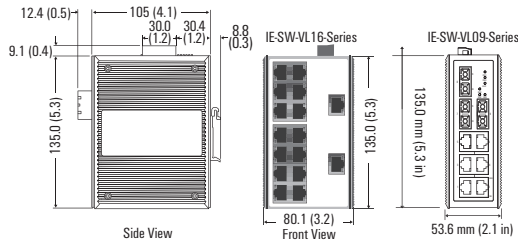
<b>Ordering Information</b>			
Version	Model Type	Operating Temperature	Order No.
5 * RJ45	IE-SW-BL05-5TX	-10 to +60 °C	1240840000
	IE-SW-BL05T-5TX	-40 to +75 °C	1240850000
4 * RJ45, 1 * SC-Multimode	IE-SW-BL05-4TX-1SC	-10 to +60 °C	1240890000
	IE-SW-BL05T-4TX-1SC	-40 to +75 °C	1286550000
4 * RJ45, 1 * ST-Multimode	IE-SW-BL05-4TX-1ST	-10 to +60 °C	1240880000
	IE-SW-BL05T-4TX-1ST	-40 to +75 °C	1286540000
4 * RJ45, 1 * SC-Singlemode	IE-SW-BL05-4TX-1SCS	-10 to +60 °C	1240870000
	IE-SW-BL05T-4TX-1SCS	-40 to +75 °C	1286530000
8 * RJ45	IE-SW-BL08-8TX	-10 to +60 °C	1240900000
	IE-SW-BL08T-8TX	-40 to +75 °C	1286560000
6 * RJ45, 2 * SC-Multimode	IE-SW-BL08-6TX-2SC	-10 to +60 °C	1240910000
	IE-SW-BL08T-6TX-2SC	-40 to +75 °C	1240920000
6 * RJ45, 2 * ST-Multimode	IE-SW-BL08-6TX-2ST	-10 to +60 °C	1240930000
	IE-SW-BL08T-6TX-2ST	-40 to +75 °C	1286570000
6 * RJ45, 2 * SC-Singlemode	IE-SW-BL08-6TX-2SCS	-10 to +60 °C	1412110000
	IE-SW-BL08T-6TX-2SCS	-40 to +75 °C	1412120000
7 * RJ45, 1 * SC-Multimode	IE-SW-BL08-7TX-1SC	-10 to +60 °C	1412070000
	IE-SW-BL08T-7TX-1SC	-40 to +75 °C	1412080000
7 * RJ45, 1 * ST-Multimode	IE-SW-BL08-7TX-1ST	-10 to +60 °C	1412090000
	IE-SW-BL08T-7TX-1ST	-40 to +75 °C	1412100000
7 * RJ45, 1 * SC-Singlemode	IE-SW-BL08-7TX-1SCS	-10 to +60 °C	1240950000
	IE-SW-BL08T-7TX-1SCS	-40 to +75 °C	1286580000

<b>Accessories</b>		
Model Type	Order No.	
19" Rack Mounting Kit	RM-KIT	1241440000
Wall mounting kit for IE-SW-BL05 series	IE-WALLMOUNT-KIT-30M	1504450000
Wall mounting kit for IE-SW-BL08 series	IE-WALLMOUNT-KIT-46MM	1504440000

## Unmanaged Switches Fast Ethernet – Value Line

### 9 and 16-Port unmanaged Fast Ethernet Switches

- Two redundant voltage inputs 12/24/48 V DC (9.6 to 60 V DC)
- Warning of relay output in the event of power failure and port error
- Broadcast storm protection
- -40 °C to 75 °C operating temperature range (T models)



### Technical data

Technology		
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for Flow Control	
Processing Type	Store and Forward	
Flow Control	IEEE 802.3x flow control, back pressure flow control	
Switch Properties		
MAC Table Size	IE-SW-VL09-Series: 1K, IE-SW-VL16-Series: 4K	
Packet Buffer Size	IE-SW-VL09-Series: 512 kbit IE-SW-VL16-Series: 1.25 Mbit	
Interface		
Fibre Ports	100BaseFX (SC/ST-duplex connection)	
RJ45 Ports	10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection	
DIP Switches	Port fault alarm	
Alarm Contact	Broadcast storm protection enable/disable (IE-SW-VL16 series) 1 relay output with current carrying capacity of 1 A at 24 V DC	
Specification optical fiber		
Transceiver Type	100Base FX Multi-Mode	
Fiber Cable Type	OM1 50/125 µm 800 MHz*km	
Typical Distance	4 km 5 km	
Wave-length	Typical (nm)	1300
	TX Range (nm)	1260 to 1360
	RX Range (nm)	1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20
	RX Range (dBm)	-3 to -32
Power	Link-Budget (dB)	12
	Dispersion Penalty (dB)	3
Power Requirements		
Input Voltage	12/24/48 V DC (9.6 to 60 V DC), two redundant inputs	
Input Current	IE-SW-VL09T-6TX-3SC: 0.26 A at 24 V IE-SW-VL16-16TX: 0.26 A at 24 V IE-SW-VL16 SC/ST: 0.40 A at 24 V	
Overload Current Protection	1.6 A	
Connection	1 removable 6-pin terminal blocks	
Reverse Polarity Protection	Present	
Physical Characteristics		
Housing	Metal, IP30 protection	
Dimensions (W x H x D)	IE-SW-VL09-Series: 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in) IE-SW-VL16-Series: 80.5 x 135 x 105 mm (3.16 x 5.31 x 4.13 in)	
Weight	IE-SW-VL09-Series: 790 g IE-SW-VL16-Series: 1140 g	

### Physical Characteristics

Installation DIN-Rail, wall (with optional mounting kit)

### Environmental Limits

Operating Temperature Standard Models: 0 to 60 °C (32 to 140 °F)  
Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)

Storage Temperature -40 to 85 °C (-40 to 185 °F)

Ambient Relative Humidity 5 to 95 % (non-condensing)

### Regulatory Approvals

Safety UL 508, UL 60950-1, EN 60950-1

Hazardous Location UL/cUL Class I, Division 2, Groups A, B, C and D; ATEX Zone 2 Ex nA nC IIC T4 Gc

EMC EN 55032/24  
CISPR 32, FCC Part 15B Class A  
IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV  
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m  
IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV  
IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV  
IEC 61000-4-6 CS: 10 V  
IEC 61000-4-8

Maritime DNV-GL (not for 1240980000)

Shock IEC 60068-2-27

Freefall IEC 60068-2-32

Vibration IEC 60068-2-6

### MTBF (mean time between failures)

Time IE-SW-VL09-Series: 2,388,799 hrs

IE-SW-VL16-Series: 2,290,506 hrs

Database Telcordia (Bellcore), GB

### Warranty

Warranty Period 5 years

### Ordering Information

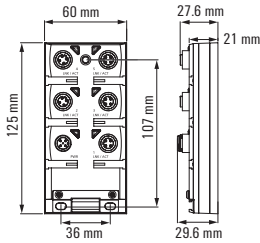
Version	Model Type	Operating Temperature	Order No.
16 * RJ45	IE-SW-VL16-16TX	0 to +60 °C	1241000000
	IE-SW-VL16T-16TX	-40 to +75 °C	1286590000
6 * RJ45, 3 * SC-Multimode	IE-SW-VL09T-6TX-3SC	-40 to +75 °C	1240980000
14 * RJ45, 2 * SC-Multimode	IE-SW-VL16-14TX-2SC	0 to +60 °C	1241030000
	IE-SW-VL16T-14TX-2SC	-40 to +75 °C	1286610000
14 * RJ45, 2 * ST-Multimode	IE-SW-VL16-14TX-2ST	0 to +60 °C	1241050000
	IE-SW-VL16T-14TX-2ST	-40 to +75 °C	1286620000

### Accessories

	Model Type	Order No.
19" Rack Mounting Kit	RM-KIT	1241440000
Wall mounting kit	IE-WALLMOUNT-KIT-46MM	1504440000

**5-Port IP67 unmanaged Fast Ethernet Switches**

- M12 connection system and IP67 protected housing
- 10/100BaseT (X), 4-pin M12 (D-coded)
- Full/half duplex mode and auto MDI/MDI-X
- Input voltage 12 to 45 V DC, 18 to 30 V AC



**Technical data**

Technology	
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT (X) IEEE 802.3x for Flow Control
Processing Type	Store and Forward
Flow Control	IEEE 802.3x flow control, back pressure flow control
Switch Properties	
MAC Table Size	2 K
Packet Buffer Size	384 Kbit
Interface	
M12-Ports	10/100BaseT (X) auto negotiation, full/half duplex mode and auto MDI/MDI-X connection, 4-pin, D-coded
Power Requirements	
Input Voltage	24/36 V DC (12 to 45 V DC), 18 to 30 V AC (47 to 63 Hz), one input
Input Current	0.28 A to 24 V AC 0.10 A to 24 V DC 0.08 A to 36 V DC
Overload Current Protection	1.1 A
Connection	1 x M12 socket, A-coded
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	Plastic, IP67 protection, encapsulated
Dimensions (W x H x D)	60 x 125 x 29.6 mm (2.36 x 4.92 x 1.09 Zoll)
Weight	270 g
Installation	Wall mounting, screwed
Environmental Limits	
Operating Temperature	Standard Models: -25 to 60 °C (-13 to 140 °F) Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 to 95 % (non-condensing)

**Regulatory Approvals**

Safety	UL 508
EMC	FCC Part 15B Class A
	EN 55032 Class A
	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV
	IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m
	IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV
	IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV
	IEC 61000-4-6 CS: 10 V
	IEC 61000-4-8
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
MTBF (mean time between failures)	
Time	3,451,678 hrs
Database	Telcordia (Bellcore), GB
Warranty	
Warranty Period	5 years

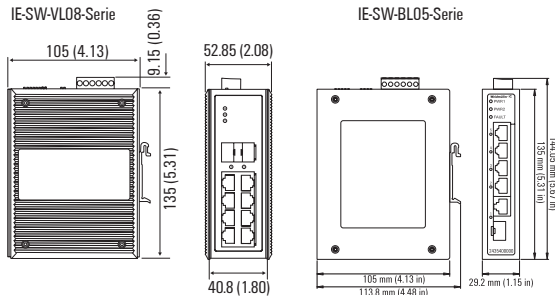
**Ordering data**

Version	Model Type	Operating Temperature	Order No.
5 * M12 10/100BaseT(X)	IE-SW-IP67-5M12	-25 to +60 °C	1504410000
	IE-SW-IP67T-5M12	-40 to +75 °C	1504420000

## Unmanaged Switches Gigabit Ethernet – Basic/Value Line

### 5 and 8-Port unmanaged Gigabit Ethernet Switches

- Gigabit Ethernet on all ports
- Variants with slots for SFP transceivers
- Redundant dual 12/24/48 V DC power inputs
- Relay output warning for power failure and port break alarm
- Broadcast storm protection
- Supports jumbo frame transmission



### Technical data

Technology	
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT (X) and 100BaseFX IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseX IEEE 802.3x for flow control IEEE 802.3az for energy-efficient Ethernet
Processing Type	Store and Forward
Flow Control	IEEE 802.3x flow control, back pressure flow control
Switch Properties	
MAC Table Size	8 K
Packet Buffer Size	IE-SW-BL05-4GT-Series: 1 Mbit IE-SW-VL08-Series: 4 Mbit
Jumbo frame support	IE-SW-BL05-4GT-Series: 10 KByte IE-SW-VL08-Series: 9.6 KByte
Interface	
Fibre Ports	100/1000BaseSFP
RJ45 Ports	10/100/1000BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection
DIP Switches	Port fault alarm enable/disable Broadcast storm protection enable/disable Jumbo frame support enable/disable IEEE 802.3az energy saving enable/disable Switching between 100BaseSFP and 1000BaseSFP at SFP slot
Alarm Contact	1 relay output with current carrying capacity of 1 A at 24 V DC
Power Requirements	
Input Voltage	12/24/48 V DC (9.6 to 60 V DC), redundant dual inputs
Input Current	IE-SW-BL05-4GT-1GS: 0.14 A at 24 V IE-SW-VL08-8GT: 0.29 A at 24 V IE-SW-VL08-6GT-2GS: 0.31 A at 24 V
Connection	1 removable 6-contact terminal block
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	Metal, IP30 protection
Dimensions (W x H x D)	IE-SW-BL05-4GT-Series: 29 x 135 x 105 mm (1.14 x 5.31 x 4.13 in) IE-SW-VL08-xGT: 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)
Weight	IE-SW-BL05-4GT-Series: 290 g IE-SW-VL08-Series: 630 g
Installation	DIN-Rail, wall (with optional mounting kit)
Environmental Limits	
Operating Temperature	Standard Models: -10 to 60 °C (14 to 140 °F) Wide Temp. Models: -40 to 75 °C (-40 to 167 °F) (on request)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 to 95 % (non-condensing)
Regulatory Approvals	
Safety	UL 508
Hazardous Location	UL/cUL Class I, Division 2, Groups A, B, C, and D; ATEX Zone 2 Ex nA nC IIC T4 Gc

### Regulatory Approvals

EMC	EN 55032/24 CISPR 32, FCC Part 15B Class A IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8
Maritime	DNV-GL
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
MTBF (mean time between failures)	
Time	IE-SW-BL05-4GT-Series: 2,823,446 hrs IE-SW-VL08-Series: 2,424,649 hrs
Database	Telcordia (Bellcore), GB
Warranty	
Warranty Period	5 years

### Ordering Information

Version	Model Type	Operating Temperature	Order No.
4 * RJ45 10/100/1000BaseT(X)	IE-SW-BL05-4GT-1GS	-10 to +60 °C	2435400000
1 * Combo Port (10/100/1000 BaseT(X) or 100/1000BaseSFP)	IE-SW-BL05T-4GT-1GS	-40 to +75 °C	2435410000
8 * RJ45 10/100/1000BaseT(X)	IE-SW-VL08-8GT	-10 to +60 °C	1241270000
	IE-SW-VL08T-8GT	-40 to +75 °C	1286860000
6 * RJ45 10/100/1000BaseT(X),	IE-SW-VL08-6GT-2GS	-10 to +60 °C	1241280000
2 * Combo Port (10/100/1000 BaseT(X) or 100/1000BaseSFP)	IE-SW-VL08T-6GT-2GS	-40 to +75 °C	1286870000

### Accessories

	Model Type	Order No.
19" Rack Mounting Kit	RM-KIT	1241440000
Wall mounting kit	IE-WALLMOUNT-KIT-46MM	1504440000
Wall mounting kit	IE-WALLMOUNT-KIT-30MM	1504450000

### Note

IE-SW-BL05-4GT-1GS and IE-SW-VL08GT-2GS support 1x or 2x 100/1000Base SFP slots. Corresponding SFP modules for Fast/Gigabit Ethernet, see page F.2.



# Managed Switches

## Configurable according to requirements

**B** Managed switches offer extensive control mechanisms for data distribution and bandwidth management to co-ordinate and cope with the different requirements of communication participants in an industrial network. Configuration is either web-based using a simple and intuitive user interface or via a serial console.

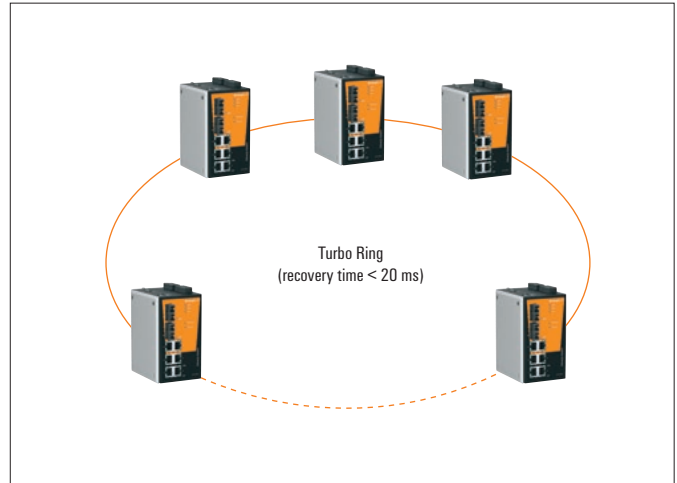
### Powerful and reliable network redundancy

It is particularly important to have network redundancy to ensure system availability in today's Industrial Ethernet infrastructures. This is because in a highly integrated system, a connection error can lead to machine stoppage and thus to production losses. To minimise such risks in a managed Ethernet network, Weidmüller has integrated high-performance redundancy mechanisms into its managed switches. This is in addition to the RSTP/STP standard and port-trunking.



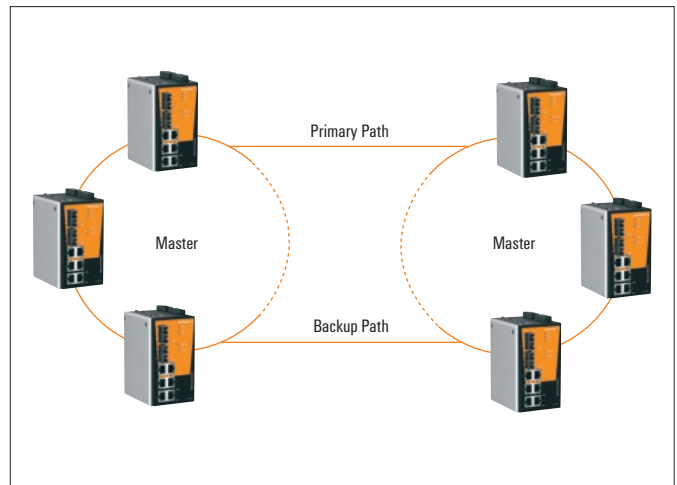
**Ring redundancy**

The Turbo-Ring technology integrated into Weidmüller’s switches allows you to restore a network connection in case of failure in under 20 ms, and this with up to 250 switches in a ring. Turbo-Ring offers three different topology options (Ring-Coupling, Dual-Ring and Dual-Homing) for different application requirements to ensure the maximum possible availability of industrial network applications.



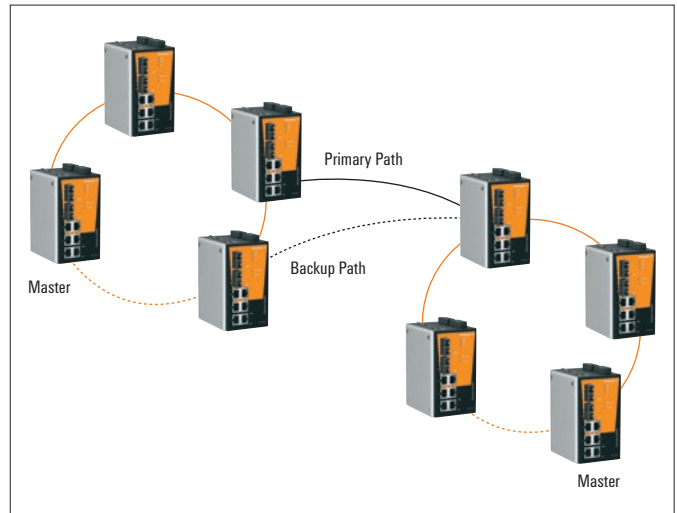
**Ring-Coupling**

In some applications, it is not sensible to have all equipment and devices in a single large redundant ring networked together, as some of the devices may be located in remote parts of the plant. For such structures, Ring-Coupling is ideal. It connects devices in multiple, smaller rings that are connected redundantly and directly with one another.



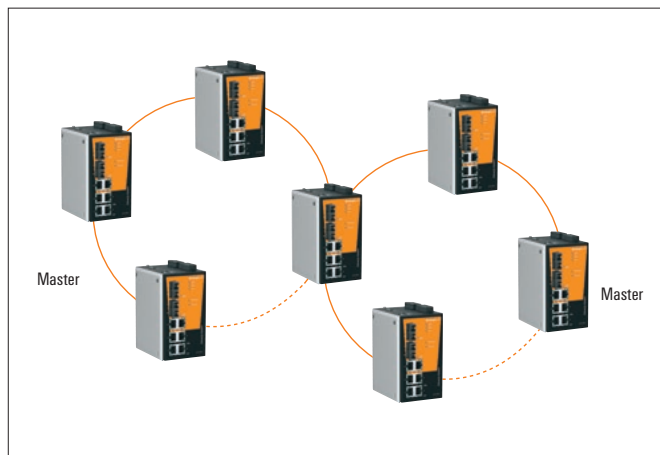
**Dual-Homing**

With Dual-Homing, two separate rings are connected through one managed switch via two independent connection points. The back-up connection is activated if the primary connection fails.



**Dual-Ring**

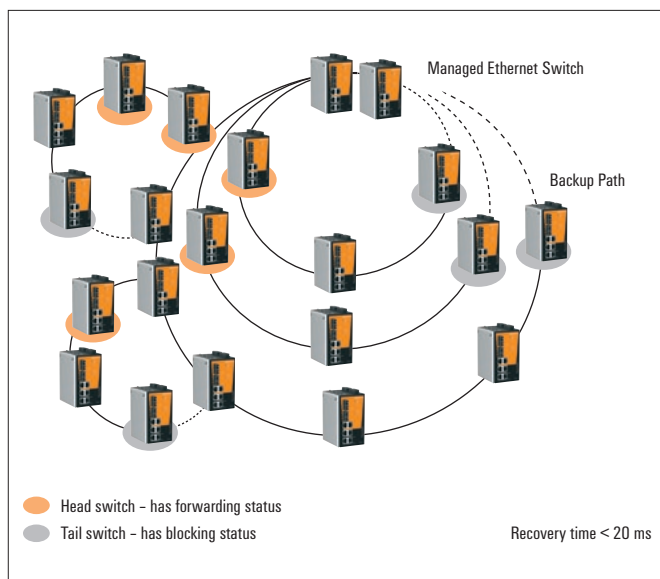
In a Dual-Ring, two neighbouring rings are connected with one another using one switch, without the need for additional ports or cabling. This configuration reduces the total number of ports and saves cabling costs, as an additional primary and back-up line is not needed.



**Turbo-Chain**

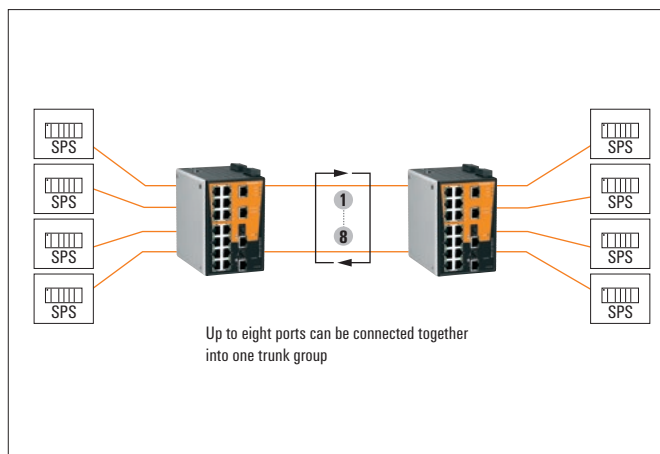
Turbo-Chain offers the possibility of creating multiple redundant networks without the limitations of ring technology. Turbo-Chain can be simply configured by defining two end-points in a segment. This means you can connect or extend existing redundant networks. When compared with traditional ring coupling or a network re-design, Turbo-Chain is more flexible as well as being more cost efficient and it has significant savings potential when compared to the effort for network restructuring and re-cabling. In addition Turbo Chain also supports IEEE 802.1w/D RSTP and STP protocols.

- Flexible network topology
- Unlimited and simple network expansion
- Quick troubleshooting (recovery time < 20 ms)
- Cost-effective configurations



**Port trunking for flexible connections**

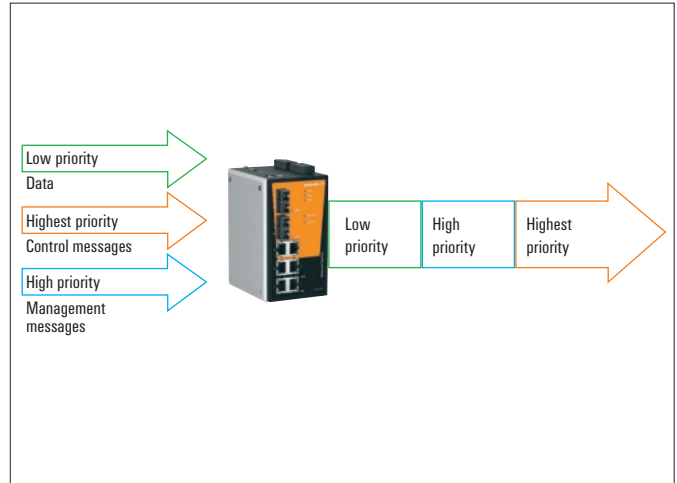
IEEE 802.3ad (LACP, Link Aggregation Control Protocol) permits flexible network connections and a redundant path for critical applications. It provides the means for a user to link via a higher bandwidth over the PremiumLine managed switches by combining more ports into a trunk group.





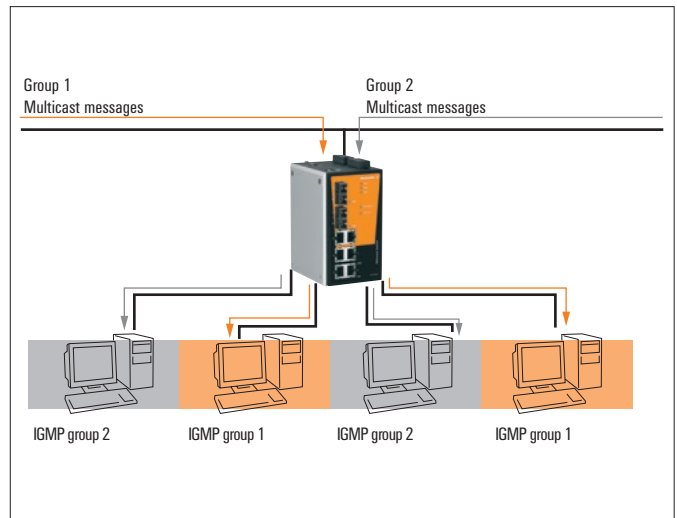
**QoS supports real-time capability**

Quality of Service (QoS) enables the possibility of prioritisation of data traffic in a network and ensures that important data is consistently available. Weidmüller managed switches can deal with IEEE 802.1p/1Q layer 2 CoS tags and also layer 3 TOS information. The QoS functionality of Weidmüller’s managed switches improves network performance and ensures that time-critical applications are given priority.



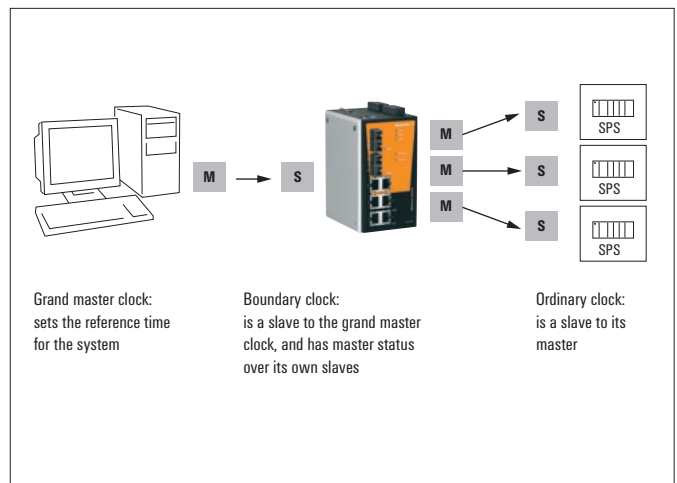
**IGMP snooping and GMRP for filtering multicast data traffic**

Weidmüller managed switches support GMRP (Generic Multicast Registration Protocol) and IGMP snooping. These protocols limit multicast data traffic so that it is only forwarded to the devices that actually require it. This reduces unnecessary network data traffic.



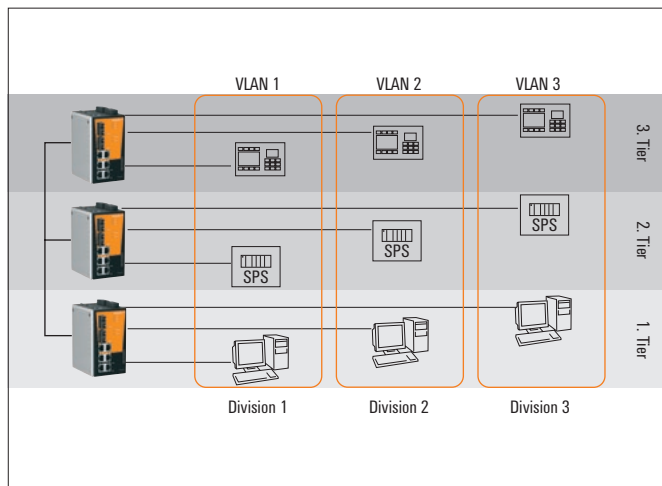
**IEEE 1588 PTP - improves time synchronisation of automation devices**

IEEE 1588 PTP, also known as Precision Time Protocol (PTP), was developed to synchronise real-time clocks which are located at specific nodes of a distributed system. Weidmüller managed switches with IEEE 1588 PTP are particularly suited for motion control applications where distributed clocks must be synchronised with high levels of accuracy.



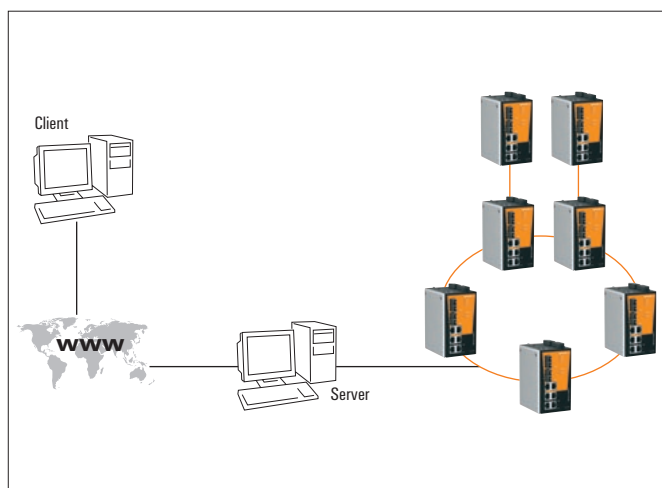
### VLAN – simplifies network planning

VLAN stands for virtual LAN. It is a network structure with all the characteristics of a normal LAN, but not geographically constrained. A network can be divided into different sections using the VLAN function. It is possible, for example, to group servers or workstations together, based on their function. Data will only then be sent to Ethernet devices of a specific VLAN group. The option for isolating VLANs completely from one another serves to increase the security of data transfer and offers additional protection from unauthorised access or unauthorised data traffic.



### Automatic topology detection using LLDP

The Link Layer Discovery Protocol (LLDP - IEEE 802.1AB) is a data link layer protocol which publishes information about a device containing its IP address, description and functional information to its neighbouring devices over the network. All of Weidmüller's managed switches fully support LLDP.



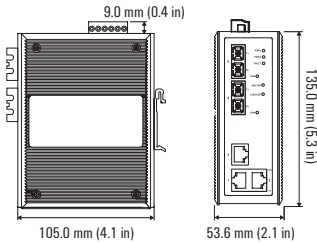
### Optimum integration and real-time communication

Weidmüller-managed switches support the automation protocols PROFINET RT and Ethernet/IP. The devices can thus be easily integrated into the respective engineering tools (TIA-Portal, RSLogix) and parameterised and diagnosed via the standard software environment. In addition, the automation protocols support the prioritised transmission of data, thereby enabling real-time communication between the network participants.



### 5-Port managed Fast Ethernet Switches

- Supports the automation protocols Modbus/TCP, PROFINET RT and EtherNet/IP
- Turbo Ring and Turbo Chain with fast recovery time (<20 ms for up to 250 switches)
- IGMP snooping, QoS, port- and tag-based VLAN
- Configurable error messages via SNMP trap, e-mail or relay output
- User-friendly, web-based configuration and management



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the architecture for distributed automation

### Technical data

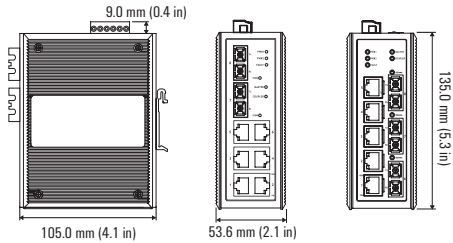
Standards		
IEEE 802.3 for 10BaseT ■ IEEE 802.3u for 100BaseT(X) and 100BaseFX ■ IEEE 802.3x for Flow Control ■ IEEE 802.1D-2004 for Spanning Tree Protocol ■ IEEE 802.1w for Rapid STP ■ IEEE 802.1p for Class of Service ■ IEEE 802.1Q for VLAN Tagging		
Protocols		
IGMPv1/v2 ■ GMRP ■ GVRP ■ SNMPv1/v2c/v3 ■ DHCP Server/Client ■ TFTP ■ SNMP ■ SMTP ■ RARP ■ RMON ■ HTTP ■ Telnet ■ Syslog ■ DHCP Option 66/67/82 ■ BootP ■ LLDP ■ Modbus/TCP ■ PROFINET RT (PROFINET-IO device in compliance with Conformance Class B) ■ EtherNet/IP (CIP support) ■ IPv6		
MIB		
MIB-II ■ Ethernet-like MIB ■ P-BRIDGE MIB ■ Bridge MIB ■ RSTP MIB ■ RMON MIB Group 1, 2, 3, 9 ■ Private MIB		
Flow Control		
IEEE 802.3x flow control ■ back pressure flow control		
Switch Properties		
MAC Table Size	2 K	
Packet Buffer Size	1 MBit	
Interface		
Fibre Ports	100BaseFX (SC/ST-duplex connection)	
RJ45 Ports	10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection	
Console Port	RS 232 (RJ45 connector)	
DIP Switches	Turbo Ring, Master, Coupler, Reserve	
Alarm Contact	1 relay output with current carrying capacity of 1 A at 24 V DC	
Specification optical fiber		
Transceiver Type	100Base FX Multi-Mode	
Fiber Cable Type	OM1 50/125 µm 800 MHz*km	
Typical Distance	4 km 5 km	
Wave-length	Typical (nm)	1300
	TX Range (nm)	1260 to 1360
	RX Range (nm)	1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20
	RX Range (dBm)	-3 to -32
	Link-Budget (dB)	12
	Dispersion Penalty (dB)	3
Power Requirements		
Input Voltage	12/24/48 V DC (9.6 to 60 V DC), two redundant inputs	
Input Current	IE-SW-VL05M-5TX: 0.24 A at 24 V IE-SW-VL05M-3TX-2ST/2SC: 0.32 A at 24 V	
Overload Current Protection	Present	
Connection	1 removable 6-contact terminal block	
Reverse Polarity Protection	Present	
Physical Characteristics		
Housing	Metal, IP30 protection	
Dimensions (W x H x D)	53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)	
Weight	IE-SW-VL05M-...5TX/3TX-2SC/3TX-2ST: 650 g	
Installation	DIN-Rail, wall (with optional mounting kit)	

Environmental Limits			
Operating Temperature	Standard models: -10 to 60 °C (14 to 140 °F) Models with extended temperature range: -40 to 75 °C (-40 to 167 °F)		
Storage Temperature	-40 to 85 °C (-40 to 185 °F)		
Ambient Relative Humidity	5 to 95 % (non-condensing)		
Regulatory Approvals			
Safety	UL 508, UL 60950-1, CSA C22.2 No. 60950-1, EN60950-1		
Hazardous Location	UL/cUL Class I, Division 2, Groups A, B, C and D		
EMC	EN 55032/24 CISPR 32, FCC Part 15B Class A IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8		
Maritime	DNV-GL		
Shock	IEC 60068-2-27		
Freefall	IEC 60068-2-32		
Vibration	IEC 60068-2-6		
MTBF (mean time between failures)			
Time	IE-SW-VL05M(T)-5TX models: 1,547,941 hrs IE-SW-VL05M(T)-3TX models: 1,429,327 hrs		
Database	Telcordia (Bellcore), GB		
Warranty			
Warranty Period	5 years		
Ordering data			
Version	Model Type	Operating Temperature	Order No.
5 * RJ45	IE-SW-VL05M-5TX	-10 to +60 °C	1504280000
5 * RJ45	IE-SW-VL05MT-5TX	-40 to +75 °C	1504310000
3 * RJ45, 2 * SC-Multimode	IE-SW-VL05M-3TX-2SC	-10 to +60 °C	1504330000
3 * RJ45, 2 * SC-Multimode	IE-SW-VL05MT-3TX-2SC	-40 to +75 °C	1504350000
3 * RJ45, 2 * ST-Multimode	IE-SW-VL05M-3TX-2ST	-10 to +60 °C	1504370000
3 * RJ45, 2 * ST-Multimode	IE-SW-VL05MT-3TX-2ST	-40 to +75 °C	1504390000
Accessories			
	Model Type		Order No.
External Backup and Restore Module	EBR-Module RS232		1241430000
19" Rack Mounting Kit	RM-KIT		1241440000
Wall mounting kit	IE-WALLMOUNT-KIT-46MM		1504440000

## Managed Switches Fast Ethernet – Value Line

### 8-Port managed Fast Ethernet Switches

- Supports the automation protocols Modbus/TCP, PROFINET RT and EtherNet/IP
- Turbo Ring and Turbo Chain with fast recovery time (<20 ms for up to 250 switches)
- IGMP snooping, QoS, port- and tag-based VLAN
- Configurable error messages via SNMP trap, e-mail or relay output
- User-friendly, web-based configuration and management



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### Technical data

Standards			
IEEE 802.3 for 10BaseT ■ IEEE 802.3u for 100BaseT(X) and 100BaseFX ■ IEEE 802.3x for Flow Control			
■ IEEE 802.1D-2004 for Spanning Tree Protocol ■ IEEE 802.1w for Rapid STP ■ IEEE 802.1p for Class of Service			
■ IEEE 802.1Q for VLAN Tagging			
Protocols			
IGMPv1/v2 ■ GMRP ■ GVRP ■ SNMPv1/v2c/v3 ■ DHCP Server/Client ■ TFTP ■ SNMP ■ SMTP ■ RARP			
■ RMON ■ HTTP ■ Telnet ■ Syslog ■ DHCP Option 66/67/82 ■ BootP ■ LLDP ■ Modbus/TCP ■ PROFINET RT (PROFINET-IO device in compliance with Conformance Class B) ■ EtherNet/IP (CIP support) ■ IPv6			
MIB			
MIB-II ■ Ethernet-like MIB ■ P-BRIDGE MIB ■ Bridge MIB ■ RSTP MIB ■ RMON MIB Group 1, 2, 3, 9			
■ Private MIB			
Flow Control			
IEEE 802.3x flow control ■ back pressure flow control			
Switch Properties			
MAC Table Size	8K		
Packet Buffer Size	1 MBit		
Interface			
Fibre Ports	100BaseFX (SC/ST-duplex connection)		
RJ45 Ports	10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection		
Console Port	RS 232 (RJ45 connector)		
DIP Switches	Turbo Ring, Master, Coupler, Reserve		
Alarm Contact	1 relay output with current carrying capacity of 1 A at 24 V DC		
Specification optical fiber			
Transceiver Type	100Base FX		
	Multi-Mode		
Fiber Cable Type	OM1	50/125 µm 800 MHz*km	
		5 km	
Typical Distance	4 km	40 km	
Wave-length	Typical (nm)	1300	1310
	TX Range (nm)	1260 to 1360	1280 to 1340
	RX Range (nm)	1100 to 1600	1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20	0 to -5
	RX Range (dBm)	-3 to -32	-3 to -34
	Link-Budget (dB)	12	29
	Dispersion Penalty (dB)	3	1
<b>Note:</b> When connecting a single-mode fiber transceiver over a short distance, we recommend using an attenuator to prevent the transceiver from being damaged by excessive optical power.			
Power Requirements			
Input Voltage	12/24/48 V DC (9.6 to 60 V DC), two redundant inputs		
Input Current	IE-SW-VL08M-8TX: 0.18 A at 24 V IE-SW-VL08M-6TX-2ST/2SC/2SCS: 0.30 A at 24 V IE-SW-VL08M-5TX-3SC/1SC-2SCS: 0.35 A at 24 V		
Overload Current Protection	Present		
Connection	1 removable 6-contact terminal block		
Reverse Polarity Protection	Present		
Physical Characteristics			
Housing	Metal, IP30 protection		
Dimensions (W x H x D)	53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)		
Weight	IE-SW-VL08MT-...8TX/6TX-2SC/6TX-2ST/6TX-2SCS: 650 g IE-SW-VL08MT-...5TX/3SC/5TX-1SC-2SCS: 890 g		

### Physical Characteristics

Installation DIN-Rail, wall (with optional mounting kit)

### Environmental Limits

Operating Temperature -40 to 75 °C (-40 to 167 °F)

Storage Temperature -40 to 85 °C (-40 to 185 °F)

Ambient Relative Humidity 5 to 95 % (non-condensing)

### Regulatory Approvals

Safety UL 508, UL 60950-1\*

Hazardous Location UL/cUL Class I, Division 2, Groups A, B, C and D\*;  
ATEX Zone 2 Ex nA nC IIC T4 Gc\*

### EMC

EN 55032/24  
CISPR 32, FCC Part 15B Class A  
IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV  
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m  
IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV  
IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV  
IEC 61000-4-6 CS: 10 V  
IEC 61000-4-8

### Maritime

DNV-GL\*

### Shock

IEC 60068-2-27

### Freefall

IEC 60068-2-32

### Vibration

IEC 60068-2-6

### MTBF (mean time between failures)

Time 1,339,439 hrs / 1,253,072 hrs (models IE-SW-VL08MT-5TX-3SC und IE-SW-VL08MT-5TX-1SC-2SCS)

### Database

Telcordia (Bellcore), GB

### Warranty

Warranty Period 5 years

### Ordering data

Version	Model Type	Operating Temperature	Order No.
8 * RJ45	IE-SW-VL08MT-8TX	-40 to +75 °C	1240940000
5 * RJ45, 3 * SC-Multimode	IE-SW-VL08MT-5TX-3SC	-40 to +75 °C	1240970000
5 * RJ45, 1 * SC-Multimode, 2 * SC-Singlemode	IE-SW-VL08MT-5TX-1SC-2SCS	-40 to +75 °C	1345240000
6 * RJ45, 2 * ST-Multimode	IE-SW-VL08MT-6TX-2ST	-40 to +75 °C	1240990000
6 * RJ45, 2 * SC-Multimode	IE-SW-VL08MT-6TX-2SC	-40 to +75 °C	1344770000
6 * RJ45, 2 * SC-Singlemode	IE-SW-VL08MT-6TX-2SCS	-40 to +75 °C	1241020000

### Accessories

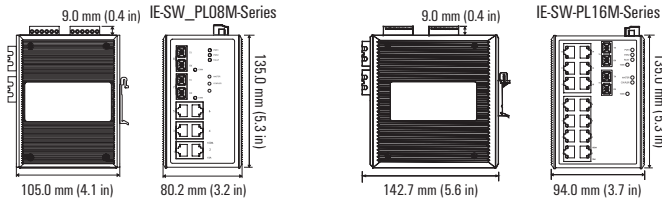
	Model Type	Order No.
External Backup and Restore Module	EBR-Module RS232	1241430000
19" Rack Mounting Kit	RM-KIT	1241440000
Wall mounting kit	IE-WALLMOUNT-KIT-46MM	1504440000

### Note

\* does not apply to models IE-SW-VL08MT-5TX-3SC and IE-SW-VL08MT-5TX-1SC-2SCS

**8 and 16-Port managed Fast Ethernet Switches**

- Supports the automation protocols Modbus/TCP, PROFINET RT and EtherNet/IP
- Plug-n-play Turbo Ring and Turbo Chain (<20 ms for up to 250 switches)
- IEEE 1588 PTP, Modbus/TCP, LLDP, SNMP Inform, QoS, IGMP snooping, VLAN, IEEE 802.1X, HTTPS, SNMPv3, and SSH supported



EtherNet/IP™



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**Technical data**

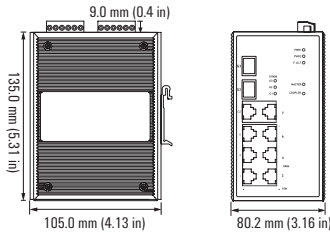
<b>Standards</b>			
IEEE 802.3 for 10BaseT ■ IEEE 802.3u for 100BaseT(X) and 100BaseFX ■ IEEE 802.3x for Flow Control ■ IEEE 802.1D-2004 for Spanning Tree Protocol ■ IEEE 802.1w for Rapid STP ■ IEEE 802.1Q for VLAN Tagging ■ IEEE 802.1p for Class of Service ■ IEEE 802.1X for Authentication ■ IEEE 802.3ad for Port Trunk with LACP			
<b>Protocols</b>			
IGMPv1/v2 ■ GVRP ■ SNMPv1/v2c/v3 ■ DHCP Server/Client ■ BootP ■ TFTP ■ SNTP ■ SMTP ■ RARP ■ GMRP ■ LACP ■ RMON ■ HTTP ■ HTTPS ■ Telnet ■ Syslog ■ DHCP Option 66/67/82 ■ SSH ■ SNMP Inform ■ Modbus/TCP ■ PROFINET RT (PROFINET-ID device in compliance with Conformance Class B) ■ EtherNet/IP (CIP support) ■ LLDP ■ IEEE 1588 PTP ■ IPv6			
<b>MIB</b>			
MIB-II ■ Ethernet-Like MIB ■ P-BRIDGE MIB ■ Q-BRIDGE MIB ■ Bridge MIB ■ RSTP MIB ■ RMON MIB Group 1, 2, 3, 9 ■ Private MIB			
<b>Flow Control</b>			
IEEE 802.3x flow control ■ back pressure flow control			
<b>Switch Properties</b>			
Priority Queues	4		
Max. Number of Available VLANs	64		
VLAN ID Range	VID 1 to 4094		
IGMP Groups	256		
MAC Table Size	8 K		
Packet Buffer Size	1 MBit (IE-SW-PL08M series), 2 MBit (IE-SW-PL16M series)		
<b>Interface</b>			
Fibre Ports	100BaseFX (SC/ST-duplex connection)		
RJ45 Ports	10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection		
Console Port	RS 232 (RJ45 connector)		
DIP Switches	Turbo-ring, master, coupler, reserve (only IE-SW-PL08M series)		
Alarm Contact	2 relay outputs with a current carrying capacity from 1 A at 24 V DC		
Digital Inputs	2 inputs with the same ground, electrically isolated • +13 to +30 V for state "1" • -30 to +3 V for state "0" • Max. input current: 8 mA		
<b>Specification optical fiber</b>			
Transceiver Type	100Base FX		
	Multi-Mode	Single-Mode	
Fiber Cable Type	OM1	50/125 µm 800 MHz*km	
		5 km	
Typical Distance	4 km	40 km	
Wave-length	Typical (nm)	1300	1310
	TX Range (nm)	1260 to 1360	1280 to 1340
	RX Range (nm)	1100 to 1600	1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20	0 to -5
	RX Range (dBm)	-3 to -32	-3 to -34
	Link-Budget (dB)	12	29
	Dispersion Penalty (dB)	3	1
<b>Note:</b> When connecting a single-mode fiber transceiver over a short distance, we recommend using an attenuator to prevent the transceiver from being damaged by excessive optical power.			
<b>Power Requirements</b>			
Input Voltage	IE-SW-PL08M: 12/24/48 V DC (9.6 to 60 V DC), two redundant inputs IE-SW-PL16M: 24 V DC (12 to 45 V DC), two redundant inputs		
Input Current	IE-SW-PL08M-8TX: 0.26 A at 24 V IE-SW-PL08M-6TX-2SC/ST/2SCS: 0.36 A at 24 V IE-SW-PL16M-16TX: 0.41 A at 24 V IE-SW-PL16M-14TX-2SC/ST: 0.51 A at 24 V		

<b>Power Requirements</b>			
Overload Current Protection	Present		
Connection	2 removable 6-contact terminal blocks		
Reverse Polarity Protection	Present		
<b>Physical Characteristics</b>			
Housing	Metal, IP30 protection		
Dimensions (W x H x D)	IE-SW-PL08M: 80.2 x 135 x 105 mm (3.16 x 5.31 x 4.13 in) IE-SW-PL16M: 94 x 135 x 142.7 mm (3.7 x 5.31 x 5.62 in)		
Weight	IE-SW-PL08M: 1040 g, IE-SW-PL16M: 1586 g		
Installation	DIN-Rail, wall (with optional mounting kit)		
<b>Environmental Limits</b>			
Operating Temperature	Standard Models: 0 to 60 °C (32 to 140 °F) Wide Temp. Models: -40 to 75 °C (-40 to 167 °F) (on request)		
Storage Temperature	-40 to 85 °C (-40 to 185 °F)		
Ambient Relative Humidity	5 to 95 % (non-condensing)		
<b>Regulatory Approvals</b>			
Safety	UL 508, UL 60950-1, CSA C22.2 No. 60950-1, EN60950-1		
Hazardous Location	UL/cUL Class I, Division 2, Groups A, B, C and D; ATEX Zone 2 Ex nA nC IIC T4 Gc		
EMI	FCC Part 15, CISPR (EN55022) class A		
EMC	EN61000-4-2 (ESD): IE-SW-PL08M...Series: level 3 IE-SW-PL16M...Series: level 2; EN61000-4-3 (RS) level 3; EN61000-4-4 (EFT) level 3; EN61000-4-5 (Surge) level 3; EN61000-4-6 (CS) level 3; EN61000-4-8		
Maritime	DNV-GL		
Shock	IEC 60068-2-27		
Freefall	IEC 60068-2-32		
Vibration	IEC 60068-2-6		
<b>MTBF (mean time between failures)</b>			
Time	IE-SW-PL08M...Series: 339,000 hrs IE-SW-PL16M...Series: 247,000 hrs		
Database	Telcordia (Bellcore), GB		
<b>Warranty</b>			
Warranty Period	5 years		
<b>Ordering data</b>			
<b>Version</b>	<b>Model Type</b>	<b>Operating Temperature</b>	<b>Order No.</b>
8 * RJ45	IE-SW-PL08M-8TX	0 to 60 °C	1241040000
	IE-SW-PL08MT-8TX	-40 to +75 °C	1286780000
6 * RJ45, 2 * SC-Multimode	IE-SW-PL08M-6TX-2SC	0 to 60 °C	1241070000
	IE-SW-PL08MT-6TX-2SC	-40 to +75 °C	1286790000
6 * RJ45, 2 * ST-Multimode	IE-SW-PL08M-6TX-2ST	0 to 60 °C	1241080000
	IE-SW-PL08MT-6TX-2ST	-40 to +75 °C	1286800000
6 * RJ45, 2 * SC-Singlemode	IE-SW-PL08M-6TX-2SCS	0 to 60 °C	1241090000
	IE-SW-PL08MT-6TX-2SCS	-40 to +75 °C	1286810000
16 * RJ45	IE-SW-PL16M-16TX	0 to 60 °C	1241100000
	IE-SW-PL16MT-16TX	-40 to +75 °C	1286820000
14 * RJ45, 2 * SC-Multimode	IE-SW-PL16M-14TX-2SC	0 to 60 °C	1241120000
	IE-SW-PL16MT-14TX-2SC	-40 to +75 °C	1286830000
14 * RJ45, 2 * ST-Multimode	IE-SW-PL16M-14TX-2ST	0 to 60 °C	1241130000
	IE-SW-PL16MT-14TX-2ST	-40 to +75 °C	1286840000

## Managed Switches Fast/Gigabit Ethernet – Premium Line

### 10-Port managed Fast/Gigabit Ethernet Switches

- Supports the automation protocols Modbus/TCP, PROFINET RT and EtherNet/IP
- 2 Gigabit Ethernet ports for redundant ring and 1 Gigabit Ethernet port for uplink solution
- Ring redundancy with fast recovery time (< 20 ms for up to 250 switches)
- IEEE 1588 PTP, LLDP, SNMP Inform, QoS, IGMP snooping, VLAN, IEEE 802.1X, HTTP, SNMPv3, and SSH supported



EtherNet/IP™



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### Technical data

Standards	
IEEE 802.3 for 10BaseT ■ IEEE 802.3u for 100BaseT (X) and 100BaseFX ■ IEEE 802.3ab for 1000BaseT(X)	
■ IEEE 802.3z for 1000BaseX ■ IEEE 802.3x for Flow Control ■ IEEE 802.1D-2004 for Spanning Tree Protocol	
■ IEEE 802.1w for Rapid STP ■ IEEE 802.1Q for VLAN Tagging ■ IEEE 802.1p for Class of Service	
■ IEEE 802.1X for Authentication ■ IEEE 802.3ad for Port Trunk with LACP	
Protocols	
IGMPv1/v2 ■ GMRP ■ GVRP ■ SNMPv1/v2c/v3 ■ DHCP Server/Client ■ BootP ■ TFTP ■ SNMP ■ SMTP	
■ RARP ■ RMON ■ HTTP ■ HTTPS ■ Telnet ■ Syslog ■ DHCP Option 66/67/82 ■ SSH ■ SNMP Inform	
■ Modbus/TCP ■ PROFINET RT (PROFINET-IO device in compliance with Conformance Class B)	
■ EtherNet/IP (CIP support) ■ LLDP ■ IEEE 1588 PTP ■ IPv6	
MIB	
MIB-II ■ Ethernet-Like MIB ■ P-BRIDGE MIB ■ Q-BRIDGE MIB ■ Bridge MIB ■ RSTP MIB	
■ RMON MIB Group 1, 2, 3, 9 ■ Private MIB	
Flow Control	
IEEE 802.3x flow control ■ back pressure flow control	
Switch Properties	
Priority Queues	4
Max. Number of Available VLANs	64
VLAN ID Range	VID 1 to 4094
IGMP Groups	256
MAC Table Size	8 K
Packet Buffer Size	1 MBit
Interface	
Fibre Ports	1000BaseSFP (100BaseSFP modules are not supported)
RJ45 Ports	10/100BaseT(X) oder 10/100/1000BaseT(X) auto negotiation
Console Port	RS 232 (RJ45 connector)
DIP Switches	Turbo-Ring, Master, Coupler, Reserve
Alarm Contact	2 relay outputs with a current carrying capacity from 1 A at 24 V DC
Digital Inputs	2 inputs with the same ground, but electrically isolated from the electronics <ul style="list-style-type: none"> <li>• +13 to +30 V for state "1"</li> <li>• -30 to +3 V for state "0"</li> <li>• Max. input current: 8 mA</li> </ul>
Power Requirements	
Input Voltage	24 V DC (12 to 45 V DC), two redundant inputs
Input Current	IE-SW-PL10M-3GT-7TX: 0.48 A at 24 V IE-SW-PL10M-1GT-2GS-7TX: 0.38 A at 24 V
Overload Current Protection	Present
Connection	2 removable 6-contact terminal blocks
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	Metal, IP30 protection
Dimensions (W x H x D)	80.2 x 135 x 105 mm (3.16 x 5.31 x 4.13 in)
Weight	1170 g
Installation	DIN-Rail, wall (with optional mounting kit)

Environmental Limits	
Operating Temperature	Standard Models: -10 to 60 °C (32 to 140 °F); Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 to 95 % (non-condensing)
Regulatory Approvals	
Safety	UL 508, UL 60950-1, CSA C22.2 No. 60950-1, EN60950-1
Hazardous Location	UL/cUL Class I, Division 2, Groups A, B, C and D; ATEX Zone 2 Ex nA nC IIC T4 Gc
EMC	EN 55032/24 CISPR 32, FCC Part 15B Class A IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
MTBF (mean time between failures)	
Time	977,099 hrs
Database	Telcordia (Bellcore), GB
Warranty	
Warranty Period	5 years

Ordering data			
Version	Model Type	Operating Temperature	Order No.
3 * RJ45 10/100/1000BaseT(X),	IE-SW-PL10M-3GT-7TX	-10 to 60 °C	1241290000
7 * RJ45 10/100BaseT(X)	IE-SW-PL10MT-3GT-7TX	-40 to +75 °C	1286930000
1 * RJ45 10/100/1000BaseT(X),	IE-SW-PL10M-1GT-2GS-7TX	-10 to 60 °C	1241300000
2 * Slots 1000BaseSFP,	IE-SW-PL10MT-1GT-2GS-7TX	-40 to +75 °C	1286940000
7 * RJ45 10/100BaseT(X)			

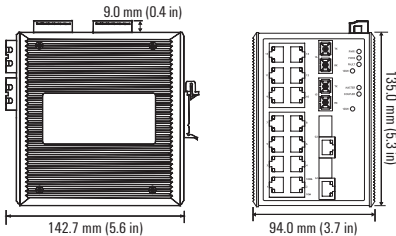
Accessories		
	Model Type	Order No.
External Backup and Restore Module	EBR-Modul RS232	1241430000
19" Rack Mounting Kit	RM-KIT	1241440000
Wall mounting kit	IE-WALLMOUNT-KIT-46MM	1504440000

#### Note

The IE-SW-PL10M 1GT-2GS-7TX supports up to 2x 1000Base SFP slots. Corresponding SFP modules for Gigabit Ethernet, see page F.2.

**18-Port managed Fast/Gigabit Ethernet Switches**

- Supports the automation protocols Modbus/TCP, PROFINET RT and EtherNet/IP
- 2 Gigabit Ethernet ports plus 16 Fast Ethernet ports for copper and fibre
- Ring redundancy with rapid recovery time (< 20 ms for up to 250 switches)
- IEEE 1588 PTP, LLDP, SNMP Inform, QoS, IGMP snooping, VLAN, IEEE 802.1X, HTTPS, SNMPv3, and SSH supported



**Technical data**

<b>Standards</b>	
IEEE 802.3 for 10BaseT ■ IEEE 802.3u for 100BaseT(X) and 100BaseFX ■ IEEE 802.3ab for 1000BaseT(X)	
■ IEEE 802.3z for 1000BaseX ■ IEEE 802.3x for Flow Control ■ IEEE 802.1D-2004 for Spanning Tree Protocol	
■ IEEE 802.1w for Rapid STP ■ IEEE 802.1Q for VLAN Tagging ■ IEEE 802.1p for Class of Service	
■ IEEE 802.1X for Authentication ■ IEEE 802.3ad for Port-Trunk mit LACP	
<b>Protocols</b>	
IGMPv1/v2 ■ GMRP, GVRP ■ SNMPv1/v2c/v3 ■ DHCP Server/Client ■ BootP ■ TFTP ■ SNTP ■ SMTP ■ RARP	
■ RMON ■ HTTP ■ HTTPS ■ Telnet ■ Syslog ■ DHCP-Option 66/67/82 ■ SSH ■ SNMP Inform ■ Modbus/TCP	
■ PROFINET RT (PROFINET-IO device in compliance with Conformance Class B) ■ EtherNet/IP (CIP support)	
■ LLDP ■ IEEE 1588 PTP ■ IPv6	
<b>MIB</b>	
MIB-II ■ Ethernet-like MIB ■ P-BRIDGE MIB ■ Q-BRIDGE MIB ■ Bridge MIB ■ RSTP MIB	
■ RMON MIB Group 1, 2, 3, 9 ■ Private MIB	
<b>Flow Control</b>	
IEEE 802.3x flow control ■ back pressure flow control	
<b>Switch Properties</b>	
Priority Queues	4
Max. Number of Available VLANs	64
VLAN ID Range	VID 1 to 4094
IGMP Groups	256
MAC Table Size	8 K
Packet Buffer Size	2 MBit
<b>Interface</b>	
Fibre Ports	100BaseFX (SC/ST-duplex connection) and 1000BaseSFP (100BaseSFP modules are not supported)
RJ45 Ports	10/100BaseT(X) or 10/100/1000BaseT(X) auto negotiation
Console Port	RS 232 (RJ45 connector)
Alarm Contact	2 relay outputs with a current carrying capacity from 1 A at 24 V DC
Digital Inputs	2 inputs with the same ground, but electrically isolated from the electronics. <ul style="list-style-type: none"> <li>• +13 to +30 V for state "1"</li> <li>• -30 to +3 V for state "0"</li> <li>• Max. input current: 8 mA</li> </ul>

<b>Specification optical fiber</b>			
Transceiver Type	100Base FX		
		Multi-Mode	Single-Mode
Fiber Cable Type	OM1	50/125 µm	G.652
		800 MHz*km	
Typical Distance	4 km	5 km	40 km
Wave-length	Typical (nm)	1300	1310
	TX Range (nm)	1260 to 1360	1280 to 1340
	RX Range (nm)	1100 to 1600	1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20	0 to -5
	RX Range (dBm)	-3 to -32	-3 to -34
	Link-Budget (dB)	12	29
	Dispersion Penalty (dB)	3	1

**Note:** When connecting a single-mode fiber transceiver over a short distance, we recommend using an attenuator to prevent the transceiver from being damaged by excessive optical power.



EtherNet/IP

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<b>Power Requirements</b>	
Input Voltage	24 V DC (12 to 45 V DC), redundant dual inputs
Input Current	IE-SW-PL18M-2GC-16TX: 0.51 A at 24 V IE-SW-PL18M-SC/ST/SCS: 0.61 A at 24 V
Overload Current Protection	Present
Connection	2 removable 6-contact terminal blocks
Reverse Polarity Protection	Present
<b>Physical Characteristics</b>	
Housing	Metal, IP30 protection
Dimensions (W x H x D)	94 x 135 x 142.7 mm (3.7 x 5.31 x 5.62 in)
Weight	1630 g
Installation	DIN-Rail, wall (with optional mounting kit)
<b>Environmental Limits</b>	
Operating Temperature	Standard Models: 0 to 60 °C (32 to 140 °F) Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 to 95 % (non-condensing)
<b>Regulatory Approvals</b>	
Safety	UL 508, UL 60950-1, CSA C22.2 No. 60950-1, EN60950-1
Hazardous Location	UL/cUL Class I, Division 2, Groups A, B, C and D; ATEX Zone 2 Ex nA nC IIC T4 Gc
EMC	FCC Part 15, CISPR (EN55022) Class A EN61000-4-2 (ESD), level 2; EN61000-4-3 (RS), level 3; EN61000-4-4 (EFT), level 2; EN61000-4-5 (Surge), level 3; EN61000-4-6 (CS), level 3; EN61000-4-8; EN61000-4-12
Maritime	DNV-GL
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
<b>MTBF (mean time between failures)</b>	
Time	240,000 hrs
Database	Telcordia (Bellcore), GB
<b>Warranty</b>	
Warranty Period	5 years

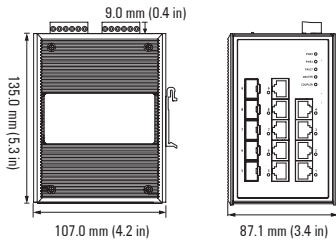
<b>Ordering data</b>			
<b>Version</b>	<b>Model Type</b>	<b>Operating Temperature</b>	<b>Order No.</b>
16 * RJ45 10/100BaseT(X), 2 * Combo Port (10/100/1000BaseT(X) or 1000BaseSFP)	IE-SW-PL18M-2GC-16TX IE-SW-PL18MT-2GC-16TX	0 to +60 °C -40 to +75 °C	<b>1241320000</b> <b>1286970000</b>
14 * RJ45 10/100BaseT(X), 2 * SC-Multimode 100BaseFX, 2 * Combo Port (10/100/1000BaseT(X) or 1000BaseSFP)	IE-SW-PL18M-2GC14TX2SC IE-SW-PL18MT-2GC14TX2SC	0 to +60 °C -40 to +75 °C	<b>1241330000</b> <b>1286990000</b>
14 * RJ45 10/100BaseT(X), 2 * ST-Multimode 100BaseFX, 2 * Combo Port (10/100/1000BaseT(X) or 1000BaseSFP)	IE-SW-PL18M-2GC14TX2ST IE-SW-PL18MT-2GC14TX2ST	0 to +60 °C -40 to +75 °C	<b>1241340000</b> <b>1287000000</b>
14 * RJ45 10/100BaseT(X), 2 * SC-Singlemode 100BaseFX, 2 * Combo Port (10/100/1000BaseT(X) or 1000BaseSFP)	IE-SW-PL18M-2GC14TX2SCS IE-SW-PL18MT-2GC14TX2SCS	0 to +60 °C -40 to +75 °C	<b>1241350000</b> <b>1287010000</b>

**Note**  
The IE-SW-PL18M series supports up to 2x 1000Base SFP slots. Corresponding SFP modules for Gigabit Ethernet, see page F.2.

## Managed Switches Gigabit Ethernet – Premium Line

### 9-Port managed Gigabit Ethernet Switches

- Supports the automation protocols Modbus/TCP, PROFINET RT and EtherNet/IP
- 4\* 10/100/1000BaseT(X) ports plus 5\* combo-ports (10/100/1000BaseT (X) or 100/1000BaseSFP slot)
- Ring redundancy with rapid recovery time (< 20 ms for up to 250 switches)
- IEEE 1588 PTP, LLDP, SNMP Inform, QoS, IGMP snooping, VLAN, IEEE 802.1X, HTTPS, SNMPv3, and SSH supported



EtherNet/IP™

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PROFIBUS DP/PA/RS-485

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### Technical data

Standards	
IEEE 802.3 for 10BaseT ■ IEEE 802.3u for 100BaseT (X) and 100BaseFX ■ IEEE 802.3ab for 1000BaseT(X) ■ IEEE 802.3z for 1000BaseX ■ IEEE 802.3x for Flow Control ■ IEEE 802.1D-2004 for Spanning Tree Protocol ■ IEEE 802.1w for Rapid STP ■ IEEE 802.1Q for VLAN Tagging ■ IEEE 802.1p for Class of Service ■ IEEE 802.1X for Authentication ■ IEEE 802.3ad for Port Trunk with LACP	
Protocols	
IGMPv1/v2 ■ GMRP ■ GVRP ■ SNMPv1/v2c/v3 ■ DHCP Server/Client ■ DHCP Option 66/67/82 ■ BootP ■ TFTP ■ SNMP ■ SMTP ■ RARP ■ RMON ■ HTTP ■ HTTPS ■ Telnet ■ SSH ■ Syslog ■ Modbus/TCP ■ PROFINET RT (PROFINET-IO device in compliance with Conformance Class B) ■ EtherNet/IP (CIP support) ■ SNMP Inform ■ LLDP ■ IEEE 1588 PTP ■ IPv6	
MIB	
MIB-II ■ Ethernet-Like MIB ■ P-BRIDGE MIB ■ Q-BRIDGE MIB ■ Bridge MIB ■ RSTP MIB ■ RMON MIB Group 1, 2, 3, 9 ■ Private MIB	
Flow Control	
IEEE 802.3x flow control ■ back pressure flow control	
Switch Properties	
Priority Queues	4
Max. Number of Available VLANs	64
VLAN ID Range	ID 1 to 4094
IGMP Groups	256
MAC Table Size	8 K
Packet Buffer Size	1 MBit
Interface	
Fibre Ports	100/1000BaseSFP
RJ45 Ports	10/100/1000BaseT(X) auto negotiation
Console Port	RS 232 (RJ45 connector)
DIP Switches	Turbo-Ring, Master, Coupler, Reserve
Alarm Contact	2 relay outputs with a current carrying capacity from 1 A at 24 V DC
Digital Inputs	2 inputs with the same ground, but electrically isolated from the electronics <ul style="list-style-type: none"> <li>• +13 to +30 V for state "1"</li> <li>• -30 to +3 V for state "0"</li> <li>• Max. input current: 8 mA</li> </ul>
Power Requirements	
Input Voltage	12/24/48 V DC (9.6 to 60 V DC), two redundant inputs
Input Current	0.81 A at 24 V
Overload Current Protection	Present
Connection	2 removable 6-contact terminal blocks
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	Metal, IP30 protection
Dimensions (W x H x D)	87.1 × 135 × 107 mm (3.43 × 5.31 × 4.21 in)
Weight	1510 g
Installation	DIN-Rail, wall (with optional mounting kit)

### Environmental Limits

Operating Temperature	Standard Models: 0 to 60 °C (32 to 140 °F) Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
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Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 to 95 % (non-condensing)

### Regulatory Approvals

Safety	UL 508, EN60950-1
EMI	FCC Part 15, CISPR (EN55022) Class A
EMC	EN61000-4-2 (ESD), level 3; EN61000-4-3 (RS), level 3; EN61000-4-4 (EFT), level 3; EN61000-4-5 (Surge), level 3; EN61000-4-6 (CS), level 3; EN61000-4-8
Maritime	DNV-GL

Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

### MTBF (mean time between failures)

Time	330,000 hrs
Database	Telcordia (Bellcore), GB

### Warranty

Warranty Period	5 years
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### Ordering data

Version	Model Type	Operating Temperature	Order No.
4 * RJ45 10/100/1000BaseT(X)	IE-SW-PL09M-5GC-4GT	0 to 60 °C	1241370000
5 * Combo Port (10/100/1000BaseT(X) or 100/1000BaseSFP)	IE-SW-PL09MT-5GC-4GT	-40 to +75 °C	1287020000

### Accessories

	Model Type	Order No.
External Backup and Restore Module	EBR-Modul RS232	1241430000
19" Rack Mounting Kit	RM-KIT	1241440000
Wall mounting kit	IE-WALLMOUNT-KIT-46MM	1504440000

### Note

The IE-SW-PL09M series supports up to 5x 100/1000Base SFP slots. Corresponding SFP modules for Fast/Gigabit Ethernet, see page F.2.



## Power over Ethernet switches

### Power and data transferred in parallel

Power over Ethernet (PoE) describes a process where power can be supplied to a network-compatible device over the 8-wire Ethernet cable. In a narrower sense, PoE today means the IEEE 802.3af (DTE Power over MDI) standard which was adopted in June 2003.

The main advantage of Power over Ethernet is that you do not require a separate power supply cable and so can install Ethernet devices in hard-to-reach places or in areas where there is not sufficient room for many cables. This means that you can save some significant installation costs, and that you can also integrate the power supply into a central uninterruptible power supply (UPS) to improve the reliability of the connected devices.

PoE is used by network devices that need small amounts of power. It is typically used for IP telephones, network cameras, operating panels or wireless communications devices such as WLAN access points.

Weidmüller PoE switches support the IEEE 802.3at standard (also known as PoE+) and can therefore supply end devices with up to 30 W per PoE port.

Weidmüller PoE switches also offer further advantages by their simple power supply needs. They do not require an additional 48 V supply in addition to the standard 24 V supply.

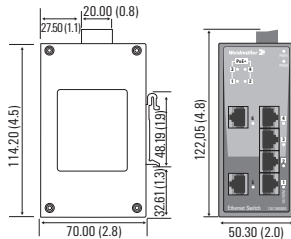
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## Unmanaged Switches Fast Ethernet - Power over Ethernet – Basic Line

## 6-Port unmanaged Fast Ethernet PoE+ Switches

- 4x IEEE 802.3af/at konforme PoE-Ports
- Up to 30 watts per PoE port
- 12/24/48 V DC redundant wide-range power supply
- Integrated DC/DC converter can supply 48 V-PoE devices across the entire input voltage range of 12- 57 V DC
- Intelligent power consumption detection and classification
- Broadcast Storm Protection



## Technical data

Technology		
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for Flow Control IEEE 802.3af for PoE IEEE 802.3at for PoE+	
Processing Type	Store and Forward	
Flow Control	IEEE 802.3x flow control, back pressure flow control	
Switch Properties		
MAC table size	2 K	
Packet buffer size	768 KB	
Interface		
Fibre-optic ports	100BaseFX (SC/ST-duplex connection)	
RJ45 Ports	10/100BaseT(X) auto negotiation speed, Full/Half duplex mode and auto MDI/MDI-X connection	
DIP Switches	Enable/disable broadcast storm protection	
Specification optical fiber		
Transceiver Type	100Base FX Multi-Mode	
Fiber Cable Type	OM1 50/125 µm 800 MHz*km	
Typical Distance	4 km 5 km	
Wave-length	Typical (nm)	1300
	TX Range (nm)	1260 to 1360
	RX Range (nm)	1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20
	RX Range (dBm)	-3 to -32
	Link-Budget (dB)	12
Dispersion Penalty (dB)	3	
Power Requirements		
Input Voltage	12/24/48 V DC (12 to 57 V DC), two redundant inputs	
Input Current	6.19 A at 12 VDC	
	5.55 A at 24 VDC 2.71 A at 48 VDC	
Inrush current	64.56 A at 48 VDC (0.1 - 1 ms)	
Power loss	36.4 BTU/h	
Connection	1 removable 4-pole terminal block	
Reverse polarity protection	Present	
Overcurrent protection	Present	
PoE		
PoE power budget total	62 W at 12 V DC (12-17 V DC) 120 W at 24/48 V DC (18-57 V DC)	
PoE output voltage	50 V DC at 12/24/48 V DC input voltage	
PoE output power	15.4 W at 802.3af, 30 W at 802.3at	
PoE output current	350 mA at 802.3af, 600 mA at 802.3at	
PoE pinout	Mode A: wire pair 1, 2 (V+); wire pair 3, 6 (V-)	
Physical Characteristics		
Housing	Aluminium, IP30 protection	
Dimensions (W x H x D)	50 x 114 x 70 mm (1.96 x 4.53 x 2.76 in)	
Weight	375 g	
Installation	DIN-Rail, wall (with optional mounting kit)	

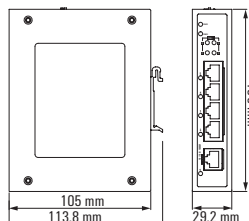
Environmental Limits	
Operating Temperature	Standard models: -10 to 60°C (14 to 140°F), models with extended temperature range: -40 to 75°C (-40 to 167°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Regulatory Approvals	
Safety	UL 508
EMC	EN 55032/24 CISPR 32, FCC Part 15B Class A IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
MTBF (mean time between failures)	
Time	IE-SW-BL06(T)-2TX-4PoE: 1,398,743 hrs IE-SW-BL06(T)-4PoE-2SC/ST: 1,289,258 hrs IE-SW-BL06(T)-1TX-4PoE-1SC/ST: 1,289,258 hrs
Datenbase	Telcordia (Bellcore), GB
Warranty	
Warranty Period	5 years

Ordering data			
Version	Type	Operating Temperature	Order No.
2 * RJ45 10/100 BaseT(X),	IE-SW-BL06-2TX-4PoE	-10 to +60 °C	1241380000
4 * RJ45 10/100 BaseT(X) PoE+	IE-SW-BL06T-2TX-4PoE	-40 to +75 °C	1286920000
1 * RJ45 10/100 BaseT(X),	IE-SW-BL06-1TX-4PoE-1SC	-10 to +60 °C	1504250000
4 * RJ45 10/100 BaseT(X) PoE+,	IE-SW-BL06T-1TX-4PoE-1SC	-40 to +75 °C	1504260000
1 * SC-Multimode			
1 * RJ45 10/100 BaseT(X),	IE-SW-BL06-1TX-4PoE-1ST	-10 to +60 °C	1504270000
4 * RJ45 10/100 BaseT(X) PoE+,	IE-SW-BL06T-1TX-4PoE-1ST	-40 to +75 °C	1504290000
1 * ST-Multimode			
4 * RJ45 10/100 BaseT(X) PoE+,	IE-SW-BL06-4PoE-2SC	-10 to +60 °C	1504210000
2 * SC-Multimode	IE-SW-BL06T-4PoE-2SC	-40 to +75 °C	1504220000
4 * RJ45 10/100 BaseT(X) PoE+,	IE-SW-BL06-4PoE-2ST	-10 to +60 °C	1504230000
2 * ST-Multimode	IE-SW-BL06T-4PoE-2ST	-40 to +75 °C	1504240000

Accessories		
	Type	Order No.
19" Rack Mounting Kit	RM-KIT	1241440000
Wall mounting kit	IE-WALLMOUNT-KIT-46MM	1504440000

### 5-Port unmanaged Gigabit Ethernet PoE+ Switches

- Gigabit Ethernet at all ports
- 4x IEEE 802.3af/at conform PoE ports
- Up to 36 Watt per PoE port
- 12/24/48 V DC redundant wide-range power supply
- Support for jumbo frames
- Intelligent power consumption detection and classification
- Intelligent PoE surge voltage and short-circuit protection



#### Technical data

Technology	
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3ab for 1000BaseT IEEE 802.3z for 1000BaseX IEEE 802.3x for Flow Control IEEE 802.3af for PoE IEEE 802.3at for PoE+ IEEE 802.3az for Energy-Efficient Ethernet
Processing Type	Store and Forward
Flow Control	IEEE 802.3x flow control, back pressure flow control
Switch Properties	
MAC table size	8 K
Packet buffer size	1 Mbit
Jumbo Frame support	10 KB
Interface	
Fibre-optic ports	100/1000BaseSFP
RJ45 Ports	10/100/1000BaseT(X) auto negotiation speed, Full/Half duplex mode and auto MDI/MDI-X connection
DIP Switches	Broadcast storm protection enable/disable Jumbo Frame support enable/disable IEEE 802.3az energy saving enable/disable PoE High Power enable/disable Switching between 100BaseSFP and 1000BaseSFP at SFP slot
Power Requirements	
Input voltage	12/24/48 V DC 12 to 57 V DC, two redundant inputs
Current consumption	5.92 A at 12 VDC 5.65 A at 24 VDC 3.21 A at 48 VDC
Inrush current	17.4 A at 24 VDC (0.1 - 1 ms)
Power loss	36.4 BTU/h
Connection	2 removable 2-pole terminal blocks
Reverse polarity protection	Present
Overcurrent current protection	Present
PoE	
PoE power budget total	62 W at 12 V DC (12-17 V DC) 120 W at 24 V DC (18-35 V DC) 144 W at 48 V DC (36 to 57 VDC)
PoE output voltage	53 V DC at 12/24/48 V DC input voltage
PoE output power	15.4 W at 802.3af, 30 W at 802.3at, 36 W in high power mode
PoE output current	350 mA at 802.3af, 600 mA at 802.3at, 720 mA in high power mode
PoE pinout	Mode A: wire pair 1, 2 (V+); wire pair 3, 6 (V-)
Physical Characteristics	
Housing	Aluminium, IP30 protection
Dimensions (W x H x D)	29 x 135 x 105 mm (1.14 x 5.31 x 4.13 Zoll)
Weight	300 g
Installation	DIN-Rail, wall (with optional mounting kit)

Environmental Limits	
Operating Temperature	Standard Models: 0 to 60 °C (32 to 140 °F) Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 to 95 % (non-condensing)
Regulatory Approvals	
Safety	UL 508
EMC	EN 55032/24 CISPR 32, FCC Part 15B Class A IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
MTBF (mean time between failures)	
Time	IE-SW-BL05-1GT-4GTPoE: 1,564,608 hrs IE-SW-BL05-1GS-4GTPoE: 1,549,997 hrs
Database	Telcordia (Bellcore), GB
Warranty	
Warranty Period	5 years

Ordering data			
Version	Type	Operating Temperature	Order No.
1 * RJ45 10/100/1000 BaseT(X),	IE-SW-BL05-1GT-4GTPoE	0 to +60 °C	1504320000
4 * RJ45 10/100/1000 BaseT(X) PoE+	IE-SW-BL05-1GT-4GTPoE	-40 to +75 °C	1504340000
1 * 100/1000BaseSFP Slot,	IE-SW-BL05-1GS-4GTPoE	0 to +60 °C	1504360000
4 * RJ45 10/100/1000 BaseT(X) PoE+	IE-SW-BL05-1GS-4GTPoE	-40 to +75 °C	1504380000

Accessories		
Type	Type	Order No.
19" Rack Mounting Kit	RM-KIT	1241440000
Wall mounting kit	IE-WALLMOUNT-KIT-30MM	1504450000

**Note**  
The IE-SW-BL05-1GS-4GTPoE supports 1x 100/1000Base SFP slot. Corresponding SFP modules for Fast/Gigabit Ethernet, see page F.2.



# Industrial Security Router Overview

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<b>Industrial Security Router</b>	Industrial Security Router introduction	C.2
	Industrial Security Router	C.6
	u-link Remote Access Service	C.8

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# Gigabit Industrial Security Router

## Secure data communication with integrated VPN technology

You want to be able to communicate with your machinery and systems securely, reliably, and from anywhere? Should only verified data gain access to your industrial network? Then the new Industrial Security Router from Weidmüller is just the right choice.

Due to the steady increase in networking data and information in office-based communication, a strong trend has evolved where the advantages of Ethernet communication are progressively being used in the area of industrial automation technology.

As well as the standardisation provided by Ethernet technology, vertical data integration from the field/production level across the office network to the Internet is an important driver for its rapid spread in industrial applications.

In addition to LAN switching technologies, we are seeing increased use of industrial routers for enhanced security and for efficient management of data traffic between LANs.

Routers with integrated VPN technologies are also ideally suited to secure remote access to components and systems in the LAN, via either a wired or wireless Internet connection.

As Weidmüller industrial security routers with VPN functionality support the u-link Remote Access Service, a remote access system can be set up easily and without the need for a certificate or IT knowledge.

### Technical features of Weidmüller routers at a glance

Compact and robust industrial-grade metal housing (aluminium die casting)

Gigabit Ethernet interfaces (LAN/WAN) for high data throughput

Digital inputs/outputs (24 V DC) with functions for disconnecting WAN port, indicating alarm status, starting/stopping of pre-configured VPN connections and indicating active VPN tunnel

Supports all standard router functions such as static/dynamic routing, SNMP, DHCP server, Dynamic DNS, event logging or DSL connection (PPPoE) via external DSL modem

Flexibly configurable stateful inspection firewall with filter functions for both Layer 3 (IP layer) and Layer 2 (MAC address level)

Extensive configuration options for IP address mapping (1:1 NAT, virtual mapping/NAT masquerading/port-forwarding/IP address forwarding), e.g. for connecting multiple machine networks in the same IP address range into a primary production network.



Integrated VPN functionality (OpenVPN, IPsec and u-link) for secure remote access over the Internet. The router can be used with both VPN technologies, either as a VPN client or a VPN server, or simply with u-link Remote Access Service.

Variable bandwidth management by prioritising and limiting network traffic to IP and Ethernet protocol level

Variable user management through multiple user profiles with detailed assignment of rights

Integrated Modbus/TCP server for controlling and querying the status of the digital inputs and outputs and pre-configured VPN connections with Modbus/TCP-capable devices (e.g. PLC)

Client Monitoring for the monitoring of network devices

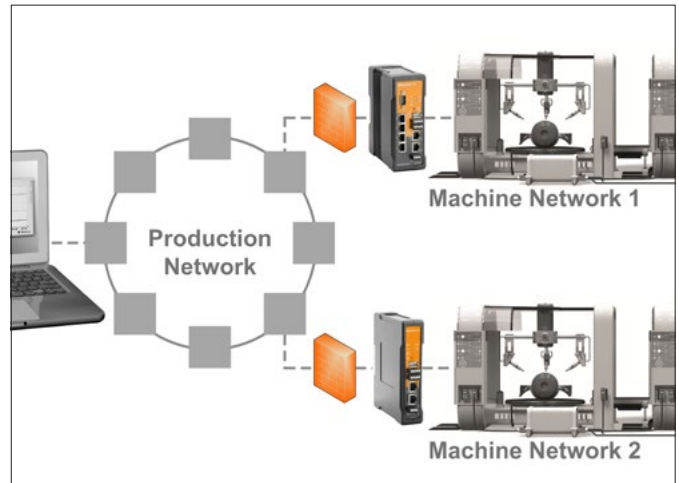
“Remote Capture” function for monitoring network traffic via Wireshark, (Network protocol analyser software)

LTE/4G variations

Additional integrated LTE/4G modem, for Internet connection via mobile communication with max. 100 Mbit/s download and 50 Mbit/s upload.

### Securely integrate machines in a production network with Gigabit Ethernet

The router enables controlled and secure data exchange between “switched” Ethernet networks (IP routing). The various manifestations of the Network Address Translation function (1:1 NAT, masquerading, virtual mapping, port and IP forwarding) provide controlled access to both sub-networks as well as individual Ethernet devices. In addition, the 1:1 NAT function allows machine networks with the same IP address range to be easily integrated into a primary production network, as is typically the case in series machine manufacturing. The high-speed performance of the Gigabit interface means that the router will have no problems at all handling future increased data loads in the Ethernet network.



### Remote access via secure VPN connections

Weidmüller Industrial Ethernet routers enable secure access to machines and systems via encrypted VPN connections. In this way, diagnostics and troubleshooting can be carried out regardless of location. In many cases, the requirement for a service technician to be on site is eliminated. Our routers support the standard VPN technologies OpenVPN and IPsec and can be operated as VPN client or VPN server without any limitation to the simultaneous clients.

In combination with the u-link Remote Access service, Weidmüller security routers enable easy and secure remote access to systems worldwide. All you need is a standard web browser. Simply register at [www.u-link.weidmueller.de](http://www.u-link.weidmueller.de) and you can immediately take advantage of a host of practical functions for convenient remote access – without the need for specific IT knowledge or the laborious processing of certificates.



### Control and monitoring via integrated digital inputs and outputs

The router is equipped with 2 digital inputs (“Cut” and “VPN initiate”) and 2 digital outputs (“Alarm” and “VPN active”). The 24 V input “Cut” allows the RJ45 WAN port to be temporarily disabled, e.g. to prevent unauthorised access by third parties to the WAN network during maintenance work on the LAN network. The 24 V input “VPN initiate” enables a pre-configured VPN instance to be started or stopped (client or server). Connections can be initiated, for example, by an external key switch or via the digital output of a controller (PLC). Once a VPN tunnel is successfully established and activated it is indicated by the digital output “VPN active”. The 24 V output “Alarm” can be used to display the router’s configurable alarm conditions externally. An alarm can be triggered by a firewall rule or when a network device is no longer accessible (client monitoring).



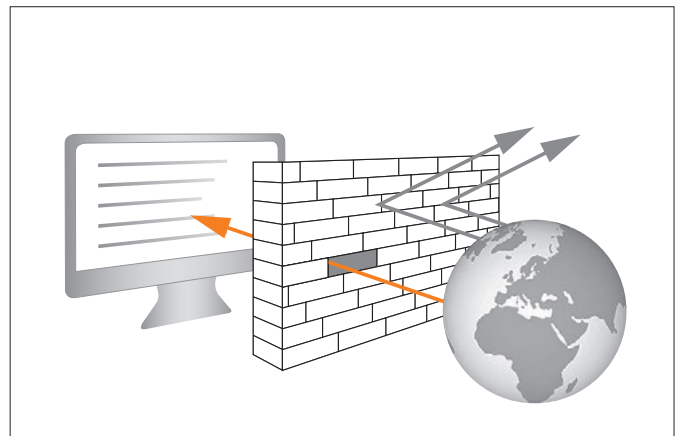
### Control and monitoring via SMS

Our mobile routers connect with up to three mobile phone numbers to send status information or receive control commands via SMS. The status parameter inform about system startup and mobile communication or VPN connections. Predefined SMS traps – which are triggered by the digital CUT or ALARM inputs – can be sent as well. The control function can establish mobile radio or VPN connections, initiate restarts, or set alarm outputs.



### Intelligent Firewall: Stateful Packet Inspection

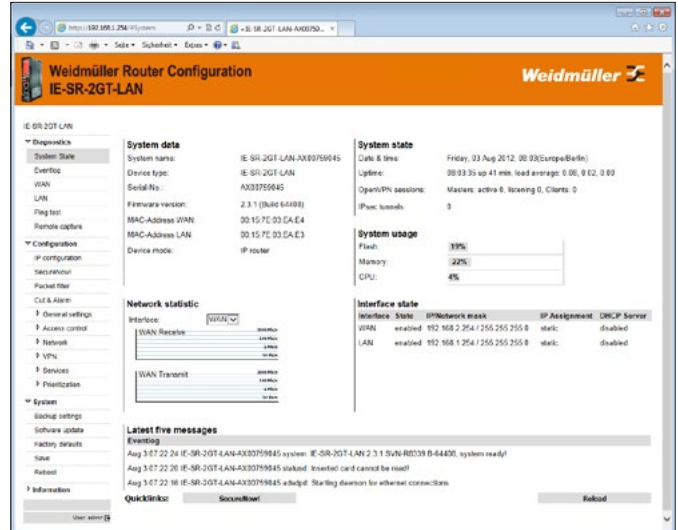
The integrated stateful inspection firewall is used to control incoming and outgoing traffic on all router interfaces (LAN, WAN, UMTS, VPN tunnels) on both Layer 2 (Ethernet frames) and Layer 3 (IP-based). An “auto-learning” function (“SecureNow!”) is also incorporated; this performs an automatic analysis of network traffic and generates a set of rules, which the user can then apply or modify as needed.





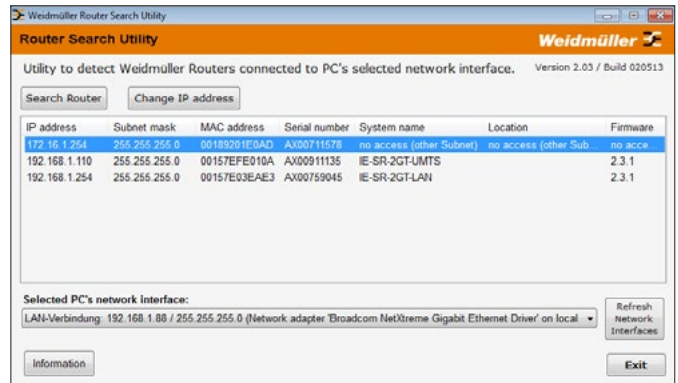
### User-friendly configuration via web interface

The router can be configured using any standard browser. The clear menu structure provides easy-to-learn and intuitive user guidance. The user interface can be switched between German and English. Configuration support for users is provided by integrated online help (tool tips) with detailed instructions about the various settings. Profiles for different user groups (administrators, restricted users, etc.) can be created with detailed assignment of rights.



### Router Search Utility – search for routers on the network

The freely available **Weidmüller Router Search Utility** software tool allows Weidmüller routers to be detected on the local network in the case of unrecognised IP addresses. For all devices found, the most important basic data such as network parameters, serial number, device name, etc. are displayed for device identification. In addition, the IP address of a router can be modified or the web interface of a selected router opened directly.



## Industrial Security Router

### Gigabit Industrial Security Router

- 2 or 6 Gigabit ports (LAN/WAN)
- NAT masquerading, 1:1 network mapping and port forwarding
- VPN function via u-link Remote Access Service, OpenVPN and IPsec
- Key switch function for disabling/enabling of a WAN/VPN connection
- Variations with 6 routed Ethernet sub networks and individual firewall rules
- Variations with integrated 4G/LTE modem for fast, Internet-based radio communication access
- Variation without VPN functionality for NAT and security applications (1489940000, IE-SR-2GT-LAN-FN)

### Technical data

Operation modes	
Extended IP router	Each interface (LAN, WAN, optional 4G/LTE) can be configured as a separate IP network
IP router	IP routing (IPv4, Layer 3) with SPI firewall (Stateful Packet Inspection)
Transparent bridge	2/6-port switch with additional Layer 2 filter
Network Services	
	<ul style="list-style-type: none"> <li>• DHCP server / DHCP relay</li> <li>• DNS relay</li> <li>• NTP-Client/Relay</li> <li>• DynDNS (DHCP client by RFC 2136)</li> </ul>
Firewall	
	<ul style="list-style-type: none"> <li>• IPv4 Stateful inspection Firewall (incoming/outgoing)</li> <li>• NAT-Masquerading, 1:1 NAT, Portforwarding</li> <li>• Layer-2/3-Filter (VLAN ID, VLAN, QoS tag, MAC address, Ethertype frame)</li> <li>• "Auto learning" feature to create packet filter rules (analysis of network traffic)</li> <li>• Layer 2/3-based packet prioritization (Ethernet frame, IP header, VLAN tag)</li> </ul>
VPN functionality*	
u-link	OpenVPN-based remote access via Weidmüller u-link cloud
OpenVPN	<ul style="list-style-type: none"> <li>• Configurable as OpenVPN server or client (Layer 2 and Layer 3)</li> <li>• Authentication with X.509 Certificates</li> <li>• Tunnel support via HTTP proxy</li> <li>• Maximum of 10 different client or server configurations</li> <li>• Unlimited number of client connections in server mode</li> </ul>
IPsec	<ul style="list-style-type: none"> <li>• Can be configured as an IPsec server or client</li> <li>• PSK authentication (user ID, password) or X.509 certificates</li> <li>• Hardware-based encryption for faster data throughput</li> <li>• A maximum of 64 simultaneous connections (subnet to subnet or as an IPsec server)</li> <li>• Encryption algorithms DES-56, 3DES-168, AES 128, AES 192, AES-256</li> </ul>
Management	
	<ul style="list-style-type: none"> <li>• Configuration via WEB interface (HTTP / HTTPS)</li> <li>• Configuration support through detailed help information (tooltip)</li> <li>• Configurable multi-user access with definable rights mask</li> <li>• Support of SNMP v1/v2/v3, event log / syslog</li> </ul>
Miscellaneous	
Modbus/TCP	Integrated Modbus TCP Server for status queries, and software-based activation / de-activation of VPN connections
Diagnosis	Remote Capture™ feature for network diagnostics via a connected PC (Wireshark)
Monitoring	Client Monitoring (via ICMP) with alarm function in case of error
* is not supported by the model IE-SR-2GT-LAN-FN	

4G/LTE modem specification	
Wireless module	LTE/HSPA+ multiband radio module (4G/3G/2G)
Modes of operation	<ul style="list-style-type: none"> <li>• Permanent connection</li> <li>• Manual connection control via web interface</li> <li>• Fallback connection with active ICMP monitoring</li> </ul>
Transmission speed	Max. download rate: 100 Mbit/s; Max. upload rate: 50 Mbit/s
Standards	<p>LTE: 3GPP Release 9</p> <p>UMTS: 3GPP Releases 5, 6, 7, 8</p> <p>GSM/GPRS/EDGE: 3GPP Release 99, GERAN Feature Package #1</p> <p>CDMA (Americas): TIA/EIA/IS-2000.1 through .6. cdma2000® Standards for Spread Spectrum Systems. Release 0. April 2000; TIA/EIA/IS-2000.1-1 through .6-1. cdma2000® Addendum 1 April 2000; TIA/EIA/IS-2000.1-2 through .6-2. cdma2000® Addendum 2 June 2001; TIA/EIA/IS-95-B. Mobile Station-Base Station Compatibility Standard for Dual-Mode Spread Spectrum Systems. December 4, 1998; TIA/EIA/IS- cdma2000® High Rate Packet Data Air Interface Specification. Nov. 2000</p>
Frequency bands	<p><b>EU model:</b></p> <p>LTE: 2100 MHz (B1), 1800 MHz (B3), 2600 MHz (B7), 900 MHz (B8), 800 MHz (B20); UMTS/WCDMA: 2100 MHz (B1), 1900 MHz (B2), 850 MHz (B5), 900 MHz (B8); GSM/GPRS/EDGE: Quad-Band (850/900/1800/1900 MHz)</p> <p><b>US model:</b></p> <p>LTE: Band 2 (1900 MHz), Band 4 (AWS) (1700/2100 MHz), Band 5 (850 MHz), Band 13 (700 MHz), Band 17 (700 MHz), Band 25 (1900 MHz G Block); CDMA EVDO Release 0 and EVDO Release A: BCO (Cellular 800 MHz), BC1 (PCS 1900 MHz), BC10 (Secondary 800 MHz); UMTS: Band 1 (2100 MHz); Band 2 (1900 MHz); Band 4 (AWS 1700/2100 MHz); Band 5 (850 MHz); Band 8 (900 MHz); GSM/GPRS/EDGE: Quad-Band (850/900/1800/1900 MHz)</p>
Transmit power	LTE Bands 1, 2, 3, 4, 5, 8, 13, 17, 20, 25: +23 dBm ± 1 dB; LTE Band 7: +22 dBm ± 1 dB / UMTS Bands 1, 2, 4, 5, 8 : +23 dBm ± 1 dB / GSM850 CS and EGSM900 CS: +32 dBm ± 1 dB (GMSK mode); +27 dBm ± 1 dB (8PSK mode) / DCS1800 CS and PCS1900 CS: +29 dBm ± 1 dB (GMSK mode); +26 dBm ± 1 dB (8PSK mode) / CDMA: Band Class 0 (Cellular) +24 dBm +0.5/-1 dB; Band Class 1 (PCS) +24 dBm +0.5/-1 dB; Band Class 10 (Cellular) +24 dBm +0.5/-1 dB



Interfaces	
RJ45 ports	10/100/1000BaseT (X), auto negotiation, full/half duplex mode
USB port	USB 2.0 interface for firmware update or restoration of the device configuration via USB flash drive
Digital outputs	<ul style="list-style-type: none"> <li>• "Alarm" -&gt; Indicates a configurable network status or error (24 V out)</li> <li>• "VPN-active" -&gt; Indicates an active VPN connection (24 V out)*</li> </ul>
Digital inputs	<ul style="list-style-type: none"> <li>• „Cut“ -&gt; Disconnects physically (link down) the WAN port (24 V)</li> <li>• "VPN-initiate" -&gt; Enables a pre-configured VPN connection (24 V)*</li> </ul>
Reset button	Restoring the factory default
Connection for external antennas	SMA (socket)
Power Requirements	
Input Voltage	1x 24 V DC (7 to 36 V DC), NEC class 2, (for use in compliance with UL specifications: 7 - 30 V DC)
Current consumption	max. 0.8 A at 24 V
Technical data (housing)	
Housing	Diecast aluminium, IP20 protection
Dimensions (W x H x D)	2-Port Router: 35 x 163 x 140 mm 6-Port Router: 57 x 163 x 140 mm 2-Port DNV-GL Router: 57 x 163 x 140 mm
Installation	DIN-Rail, VESA 75
Environmental Limits	
Operating temperature	-20 °C to +70 °C
Storage Temperature	-20 °C to +85 °C
Relative ambient air humidity	5 to 95% (non-condensing)
Approvals	
Security	EN60950-1
Radio	EN 301 489-1/17, EN 301 893, EN 302 291-2
EMC	EN 61000-6-2/6-4 FCC Part 15B Class A
Ship use	DNV-GL (only for 2535980000, 2535970000)
Shock	DIN EN 60068-2-27
Vibration	DIN EN 60068-2-6
Warranty	
Warranty Period	3 years

### Ordering data

Version	Type	Order No.
Security/NAT/VPN/u-link Router, 2 * RJ45 10/100/1000BaseT(X)	IE-SR-2GT-LAN	1345270000
Security/NAT Router, 2 * RJ45 10/100/1000BaseT(X)	IE-SR-2GT-LAN-FN	1489940000
Security/NAT/VPN/u-link Router, integrated LTE/4G modem (US model), 2 * RJ45 10/100/1000BaseT(X)	IE-SR-2GT-LTE/4G-US	2535780000
Security/NAT/VPN/u-link Router, integrated LTE/4G modem (EU model), 2 * RJ45 10/100/1000BaseT(X)	IE-SR-2GT-LTE/4G-EU	2535930000
Security/NAT/VPN/u-link Router, 6 * RJ45 10/100/1000BaseT(X)	IE-SR-6GT-LAN	2535940000
Security/NAT/VPN/u-link Router, integrated LTE/4G modem (US model), 6 * RJ45 10/100/1000BaseT(X)	IE-SR-6GT-LTE/4G-US	2535950000
Security/NAT/VPN/u-link Router, integrated LTE/4G modem (EU model), 6 * RJ45 10/100/1000BaseT(X)	IE-SR-6GT-LTE/4G-EU	2535960000
Security/NAT/VPN/u-link Router, 2 * RJ45 10/100/1000BaseT(X), DNV-GL approval	IE-SR-2GT-LAN-M	2535980000
Security/NAT/VPN/u-link Router, integrated LTE/4G modem (EU model), 2 * RJ45 10/100/1000BaseT(X), DNV-GL approval	IE-SR-2GT-LTE/4G-EU-M	2535970000

## u-link Remote Access Service

### Convenient remote access, simple and secure

Whether product characteristics, costs, supply chains, or quantities: the customer requirements change and manufacturing companies have to accommodate changes more and more quickly. Although processes are becoming more flexible as a result of increasing automation and smarter software, the complexity of the systems and the demands on the productivity of the machine park are growing as well. System malfunctions and unplanned downtimes are serious problems, which often only the manufacturer's specialists can solve. Usually, an on-site visit by a technician is required. As a result, costs rise, downtime extends, and production resources tie up. When spare parts have to be ordered, downtime extends even more. Any delays and their accumulation are pricy and lead to customers' dissatisfaction.

Remote access to machines and systems facilitates immediate identification of most faults and their causes. You can frequently correct errors directly from your desk, without delay. Remote access via secure VPN connections establishes within a few seconds. Faster service and lowers costs will improve customers' satisfaction. But the remote access to machines and systems usually requires a complex, time-consuming set-up. It also requires a targeted

and secure-functional connection to the IT systems in the network. These two factors make the global networking of systems a major hurdle for users.

u-link enables particularly fast, uncomplicated and secure access to machines and systems. It facilitates maintenance and repair operations and allows efficient management of production systems such as user clients. With u-link's intuitive interface, you can quickly and easily configure u-link and adapt it to your process structures. Our innovative service includes an online platform which ensures the conformity of various IT systems for remote access.



## One single tool for all cases

### Advanced functions for convenient remote access management

Its unique features make u-link the base for a cost-effective and secure setup even of extensive remote access topologies. With its intuitive, precise structure, you can efficiently manage multiple production facilities and users. You can add an unlimited number of supplementary routers to optimally fit u-link to the needs of your company.

u-link allows LAN-side connections to Weidmüller VPN router networks to facilitate access and management of various network-compatible devices like u-remote. You can quickly and easily configure devices, carry out control programming and optimisation, perform maintenance, or transmit image sequences.



[www.u-link.weidmueller.com](http://www.u-link.weidmueller.com)

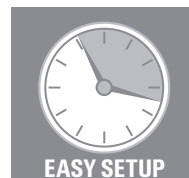
#### Easy system access

u-link is the perfect remote access solution for machine builders and plant operators because it enables high productivity without IT knowledge. u-link can scale up indefinitely to grow with your plant inventory. Distinct displays and lists enable detailed, complete documentation of all router accesses, service calls, and data transmissions.



#### Individual system management

u-link can manage users and groups as well as their access rights according to individual specifications. These include group allocation and access permission to production facilities.



EASY SETUP

#### Low configuration effort

With the intuitive user interface and without specific IT knowledge, you can easily connect routers and clients to each other. With u-link, you can quickly establish a several systems network.



#### Secure remote access and remote diagnosis

Remote access to machines and systems is provided worldwide everywhere via secure VPN connection. The high availability of the servers grants secure access to your systems at all times.



#### Status monitoring and status message

Weidmüller Heartbeat can be used to report the availability of a router to u-link. It facilitates status monitoring and enables status messages from the installed router.

# u-link is that simple

## Four steps to remote access

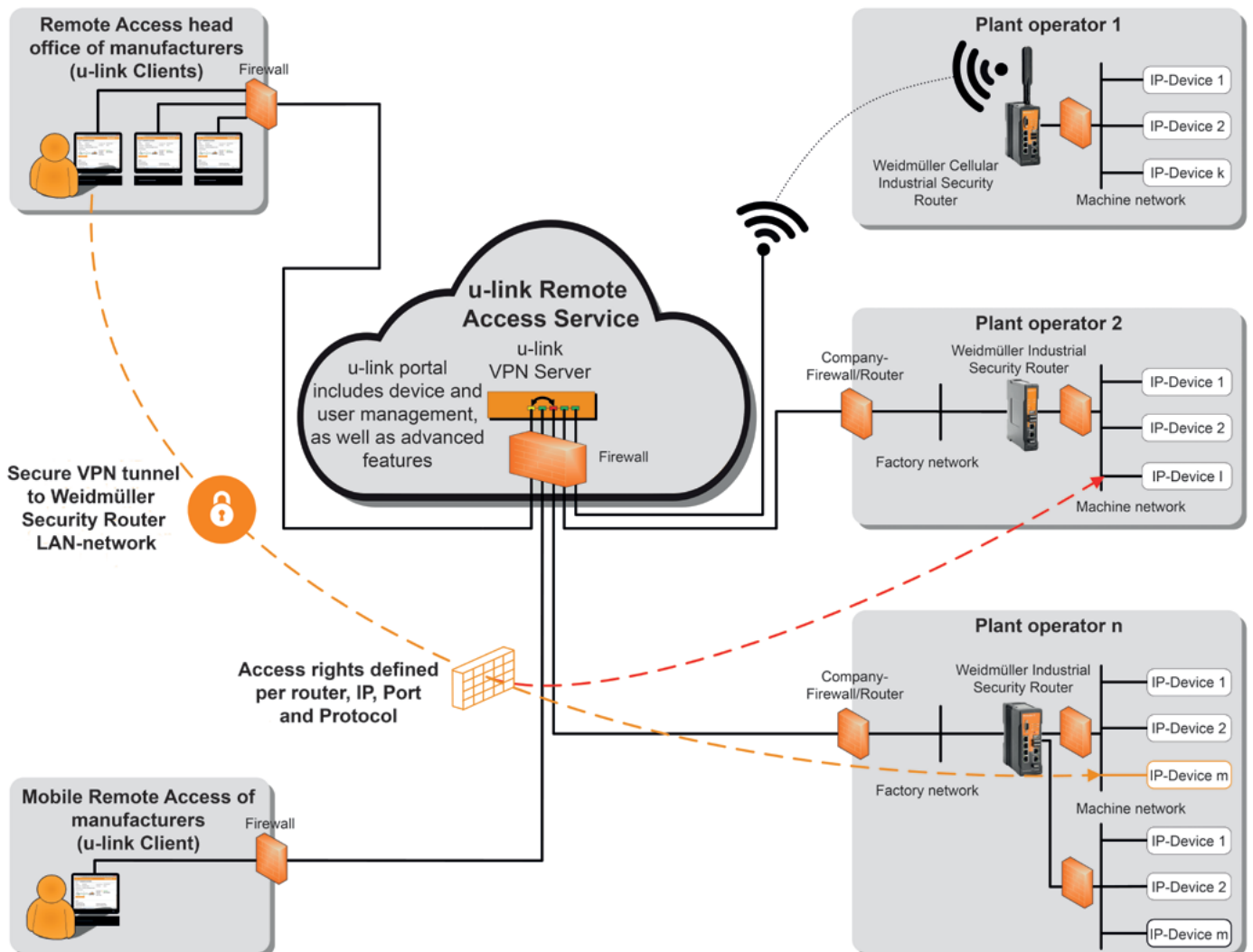
The u-link Remote Access Service operates from a central meeting point server. Clients – such as service PCs and routers – may network via outgoing connections to the meeting point. A high security level can be maintained, when no incoming connections are allowed. At the same time, flexibility is ensured because the routers do not require static IP addresses. The individual clients may interconnect into a single connection via the [www.u-link.weidmueller.com](http://www.u-link.weidmueller.com) portal. u-link also allows multiple service PCs to connect to a router simultaneously. Individual user groups can be assigned specific IP addresses to provide access to authorised persons only.

### The setup steps:

The initial setup works in 4 steps

1. Create an account
2. Install and register the client
3. Register router
4. Connect


The router is registered by entering an activation code. A few mouse clicks are all it takes to set up the connection.



# Simple-secure-u-link

## The holistic security concept for your networks

- u-link uses X.509 certificates for meeting point server authentication; these certificates are generated locally on the devices and are not transferred
- 2048-bit keys secure protection
- The u-link web portal is protected by a TLS/SSL connection and 2-factor authentication
- u-link uses outbound connections only. This avoids allowance of incoming connections in the firewall, and remote access does not require a static IP address
- u-link is firewall-friendly since only port 443 is used
- u-link accepts only unique, one-time activation codes for clients
- u-link's user and rights management prevents unwanted access
- u-link offers a customisable password policy
- u-link connections, when not in use, are terminated automatically
- Weidmüller VPN routers have a digital input to enable or disable remote access
- The routers maintain the latest security level via a remote firmware update
- Each VPN router has a high-performance firewall with self-learning function "SecureNow!"

**Weidmüller**  **u-link | Remote Access Service**

Navigation: Service > Service Desk    Active license: Standard Version ⓘ    Language: English ▼    Logged in as:    Logout

**Service Desk**

Connection status PC: Connected to Router/Remote network via u-link Portal Disconnect

Connected to: Router    Accessible remote network: Router VPN IP: Routing to Remote network  
192.168.5.0/255.255.255.0    10.44.144.8    **active**

**Device Topology**

- Weidmüller
  - Germany
    - Althex Klemmenbestücker
    - Demo case u-link Detmold Trainingcenter (see manual attached)
      - Router
        - Switch
          - 1\_u-remote coupler pump
          - 2\_u-remote coupler bubbles + LED
          - 3\_u-remote coupler paddel wheel
          - AC120C reachable with WI Manager
          - Camera
          - Camera 2
          - Energy monitor
  - Hannover Messe OWL Stand

**Properties**

Name	Router
Device Type	Router/Firewall
Identification	
Location	Trainingcenter Detmold
Serial Number	
Router Location (Country)	World except China
IP	
Activation Code	
Status-WWH	<b>Active</b>
Status VPN Router ↔ u-link	<b>Connected</b>
Status VPN PC ↔ u-link ↔ Router	<b>Connected</b>




**Actions**

- Disconnect VPN Router ↔ u-link
- Disconnect VPN PC ↔ u-link ↔ Router

**Webinterface**


**Open Dashboard**

**Documents** Add

Manual_WM_Security_Routers_V2.02_en.pdf	Handbuch des Routers			
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**Comments** Add

**Location**  
By Bob Andrew Edited at 9/4/2018 3:44:20 PM



# License overview and features

## Always the right package for your application

u-link has a free entry version with which you can get to know the system. The standard versions are valid for one year and offer many other features that simplify the use of remote access.

The standard version accepts additional routers and several simultaneous connections at a high data transmission rate. You can even establish a safe tunnel connection to China. The firmware and update management shows the current firmware version of your routers and gives the possibility to update them regularly via remote access to

ensure permanent protection of your system. The rights management down to IP level and the possibility to create device templates are also included in the standard version. An extensive log functionality, a password policy, and an exclusive connection mode, which prevents multiple users from connecting to a router at the same time, supplement the standard features.

Function	Entry	Standard
Period	Unrestricted	1 Year
Maximum number of routers	50	150 / 300 / 500 or unrestricted
Maximum number of contactable end devices	Unrestricted	Unrestricted
Maximum number of users	Unrestricted	Unrestricted
Costs	Free of charge	On request
Number of simultaneous VPN connections	2	3, extendable
Transmission speed	Max 500 kbit/s	1 Mbit/s
Monthly data volume	≤ 1 Gbyte with max 500 kbit/s > 1 Gbyte with max 64 kbit/s	≤ 5 Gbyte unrestricted > 5 Gbyte with max 500 kbit/s
Connections from and to China	No	Yes
Firmware and update management	No	Yes
Topological order	No	Yes
Creation of user groups	No	Yes
Visibility of devices per group	No	Yes
Access rights for devices per IP and group	No	Yes
Device templates	No	Yes
Connection log	Basic functions	Extended functions
Activity log	No	Yes
Password guideline	No	Yes
Exclusive connection mode	No	Yes



**u-link licences**

Weidmüller offers the following usage variations and additional options for the u-link Remote Access Service:

**Entry version**

- Free-of-charge usage, no period restriction
- Max. 50 router objects (access points on a remote network)

**Standard 150/300/500 version**

- Licence-dependant configuration of 150, 300, 500 router objects\*
- Comprehensive extended function and performance characteristics compared with the entry version

**Extension for additional VPN connections**

- Licence code can be used for all Standard versions
- Additional data volumes with guaranteed bandwidth

**Technical data**

Functions and performance characteristics / Standard licence	
Number of configurable user objects (service PC)	Unrestricted
Number of configurable router objects (access points remote network)	depends on licence (150, 300, 500,...)*
User organisation	Organisation of service users in groups, assignment of selective access rights to device topology, group-dependent assignment of rights re. device configuration and user administration
Device management	Illustration of the device infrastructure (remote access objects) in a clearly defined tree structure via location, group and device objects
Simultaneously usable pass-through VPN connections	3 (can be extended by adding on other pass-through VPN connections)
Period	1 year from activation of the licence key. When extending a "Standard 150/300/500" version, the validity period is extended by 1 year from the expiry date of the current period, but not less than 1 year Note: When the validity period has expired, automatic reduction of the bandwidth to the values of the free-of-charge entry version (<= 1 GB with max. 500 kBit/sec, > 1 GB with max. 64 kBit/sec)
Monthly data volume and bandwidth	<= 5 GB with max. 1 Mbit/s, > 5 GB with max. 500 Kbit/s. Increase by 1 GB/month with 1 Mbit/s per added-on pass-through VPN connection, for data volume > 12 GB/month max. 500 Kbit/s
Usage information	Extended reporting and statistical information (itemised statement, usage duration, data volume)
System availability	≥ 99.6%
Functions and performance characteristics / VPN licence	
Number of additional VPN connections (per licence code)	1 (pass-through VPN connection for service PC <-> u-link <-> router/target network)
VPN channel bandwidth	1 Mbit/s
Extension of data volume	Data volume of the u-link client account increased by 1 GB/month with a bandwidth of 1 Mbit/s
Period	1 year from activation of the licence key. When extending a VPN licence that has already been activated, the validity period is extended by 1 year from the expiry date of the current period, but not less than 1 year.
Usage	Use as additional VPN channel or to extend the period of a VPN channel. Can be used within the scope of all standard versions (not for entry version).

System requirements	
Hardware (service PC)	PC with Windows 7, 8 or 10 operating system
Hardware, remote target network	Weidmüller router (except IE-SR-2GT-LAN-FN; 1489940000), u-link VPN access integrated in firmware (from V3.0.1)
Portal administration (user/device configuration)	Standard browser (IE, Edge, Chrome, Firefox) via an HTTPS connection (SSL), login via username and password
VPN software (service PC)	u-link VPN Client (installation on PC)
Miscellaneous	
Activation	Client account administrator enters the licence key in the u-link portal (functions immediately available)
Included in delivery	Letter with licence key

**Ordering data**

Version	Type	Order No.
"Standard 150" version software licence for u-link Remote Access Service. Can be used to upgrade an entry version or to extend the period of a "Standard 150" version	U-LINK-LIC-STD-150-1Y	2447050000
"Standard 300" version software licence for u-link Remote Access Service. Can be used to upgrade an entry version or „Standard 150" version or to extend the period of a "Standard 300" version	U-LINK-LIC-STD-300-1Y	2457840000
"Standard 500" version software licence for u-link Remote Access Service. Can be used to upgrade an entry version or „Standard 150/300" versions or to extend the period of a "Standard 300" version	U-LINK-LIC-STD-500-1Y	2457850000
"VPN connection" licence code for u-link Remote Access Service. Can be used as an additional VPN connection or to extend the period of a VPN connection that has already been activated	U-LINK-LIC-VPN-1Y	2447060000

**Note:** \* Licence models with more than 500 configurable router objects are available upon request.



# Media converter and protocol gateways

## Overview

<b>Media converter and protocol gateways</b>	Media converter	D.2
	Serial/Ethernet converter	D.4
	Serial/fibre-optic converter	D.6
	Modbus TCP/RTU Gateway	D.8

## Media converter

### A smooth transition from copper to fibre-optic cables

If high interference immunity is needed or long transmission distances are involved, then fibre-optic cables are advisable. Another advantage of using fibre-optic cabling is the insensitivity to lightning or voltage surges. The use of fibre-optic based systems is already established in areas such as the process industry, plant engineering, energy distribution and wind energy.

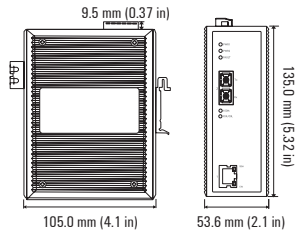
Multimode glass fibres allow distances of up to 5,000 m to be bridged without intermediate repeaters. Singlemode fibres can be used over distances of up to 40 km.

**D** One simple and inexpensive solution is offered by the media converter. This connects the Ethernet via an RJ45 port to an optical fibre-optic cable port with SC or ST glass fibre connections. This retains the collision domain between the two Ethernet participants and means that there is status transparency exchanged between the two Ethernet interfaces and the port status.



**Industrial Media Converter (10/100BaseT (X) to 100BaseFX)**

- 10/100BaseT(X) auto-negotiation and auto-MDI/MDI-X
- Link Fault Pass-Through (LFP)
- Power failure, port break alarm by relay output
- Redundant power inputs
- Designed for hazardous locations (Zone 2)

**Technical data**

Technology			
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT (X) and 100BaseFX		
Interfaces			
Fibre Ports	100BaseFX (SC/ST-duplex connection)		
RJ45 ports	10/100BaseT(X)		
DIP Switches	100BaseFX Full/Half duplex selection, Port fault alarm		
Alarm Contact	One relay output with current carrying capacity of 1 A at 24 V DC		
Specification optical fiber			
Transceiver Type	100Base FX		
		Multi-Mode	Single-Mode
Fiber Cable Type	OM1	50/125 $\mu$ m 800 MHz*km	G.652
		4 km	5 km
Wave-length	Typical (nm)	1300	
	TX Range (nm)	1260 to 1360	1280 to 1340
	RX Range (nm)	1100 to 1600	1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20	0 to -5
	RX Range (dBm)	-3 to -32	-3 to -34
	Link-Budget (dB)	12	29
	Dispersion Penalty (dB)	3	1

**Note:** When connecting a single-mode fiber transceiver over a short distance, we recommend using an attenuator to prevent the transceiver from being damaged by excessive optical power.

Power Requirements	
Input Voltage	24 V DC (12 to 48 V DC), two redundant inputs
Current consumption	0.16 A at 24 V
Connection	1 removable 6-pole terminal block
Overload Current Protection	1.1 A
Reverse Polarity Protection	Present

Technical data	
Housing	Metal, IP30 protection
Dimensions (W x H x D)	53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)
Weight	630 g
Installation	DIN-Rail, wall (with optional mounting kit)

Environmental Limits	
Operating temperature	Standard Models: 0 to 60 °C (32 to 140 °F) Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
Operating Humidity	5 to 95 % (non-condensing)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)

Approvals	
Security	UL 508
EMC	EN 55032/24 CISPR 32, FCC Part 15B Class A IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8
Hazardous Location	UL/cUL Class 1, Division 2, Groups A, B, C, and D, ATEX Zone 2 Ex nA nC IIC T4 Gc
Maritime	DNV-GL
Freefall	IEC60068-2-32
Shock	IEC60068-2-27
Vibration	IEC60068-2-6
MTBF (mean time between failures)	
Time	401,000 hrs
Database	MIL-HDBK-217F: GB 25 °C
Warranty	
Warranty Period	5 years

Ordering data			
Version	Type	Operating Temperature	Order No.
1 * RJ45, 1 * SC-Multimode	IE-MC-VL-1TX-1SC	0 to +60 °C	1241400000
	IE-MC-VLT-1TX-1SC	-40 to +75 °C	1286880000
1 * RJ45, 1 * ST-Multimode	IE-MC-VL-1TX-1ST	0 to +60 °C	1241410000
	IE-MC-VLT-1TX-1ST	-40 to +75 °C	1286890000
1 * RJ45, 1 * SC-Singlemode	IE-MC-VL-1TX-1SCS	0 to +60 °C	1241420000
	IE-MC-VLT-1TX-1SCS	-40 to +75 °C	1286900000

Accessories		
	Type	Order No.
19" Rack Mounting Kit	RM-KIT	1241440000
Wall mounting kit	IE-WALLMOUNT-KIT-46MM	1504440000

# Serial/Ethernet converter

## Simple integration of end devices into Ethernet networks

Serial interfaces such as RS232, RS422 or RS485 are widespread today in automation systems. To integrate these devices into modern Industrial Ethernets, Serial/Ethernet converters are used which offer investment protection for existing automation components. These devices include control systems, sensors, meters, drives, bar code readers and operator displays.

**D** Weidmüller's Serial/Ethernet converters connect these devices simply and easily to existing Ethernet network structures. The configuration of the serial port and Ethernet port parameters is done using an internet browser. On the Ethernet side, these devices support several operating modes: including TCP server, TCP client, UDP, Real COM, RFC 2217, Reverse Telnet, Pair Connection and

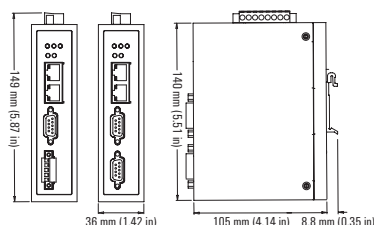
Ethernet modem. These modes ensure compatibility for the network software.

There are two Ethernet ports on the device which can be used as Ethernet switch ports. This helps to reduce your cabling costs since you no longer need to connect each device with a separate Ethernet switch.



**1 and 2-port Serial/Ethernet Converter for industrial automation**

- High surge protection for the serial ports, LAN ports and power supply connection
- Rugged screw-type terminal blocks for power and serial connectors
- Cascading Ethernet ports for easy wiring
- Redundant DC power inputs
- Warning by relay output and email
- Low power consumption

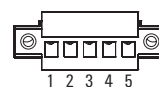
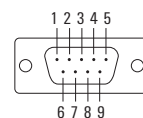
**Technical data**

Ethernet Interface	
Number of Ports	2
Speed	10/100 MBit/s, auto MDI/MDIX
Connection	8-pin RJ45
Magnetic Isolation Protection	1.5 kV built-in
Ethernet Line Protection	1 kV (level 2) surge protection
Serial Interface	
Number of ports that can be used simultaneously	IE-CS-2TX-1RS232/485: 1 IE-CS-2TX-2RS232/485: 2
Serial Standards	RS 232/422/485
Connection	IE-CS-2TX-1RS232/485: DB9 for RS 232, terminal block for RS 422/485 IE-CS-2TX-2RS232/485: DB9 for RS 232/422/485
Serial Line Protection	<ul style="list-style-type: none"> <li>• 15 kV ESD protection for all signals</li> <li>• 1 kV (level 2) surge protection</li> </ul>
RS 485 Data Direction Control	ADDC® (automatic data direction control)
Serial Communication Parameters	
Data Bits	5, 6, 7, 8
Stop Bits	1, 1.5, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	RTS/CTS and DTR/DSR (RS 232 only), XON/XOFF
Baud rate	50 bit/s to 921.6 kbit/s
Serial Signals	
RS 232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS 422	Tx+, Tx-, Rx+, Rx-, GND
RS 485 4w	Tx+, Tx-, Rx+, Rx-, GND
RS 485 2w	Data+, Data-, GND
Software	
Network Protocols	ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, Rtelnet, DNS, SNMP, HTTP, SMTP, SNTIP, IGMP
Configuration Options	Web Console, Serial Console, Telnet Console, Windows Utility
Windows Real COM Drivers	Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8 x86/x64, 2012 x64

Technical data	
Housing	Metal, IP30 protection
Weight	IE-CS-2TX-1RS232/485: 475 g IE-CS-2TX-2RS232/485: 485 g
Dimensions (W x H x D)	36 x 105 x 140 mm (1.42 x 4.13 x 5.51 in)
Environmental Limits	
Operating temperature	Standard Models: 0 to 60 °C (32 to 140 °F) Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
Ambient Relative Humidity	5 to 95 % RH
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Power Requirements	
Input Voltage	12 to 48 V DC
Current consumption	IE-CS(T)-2TX-1RS232/485: 0.22 A at 12 V IE-CS(T)-2TX-2RS232/485: 0.25 A at 12 V

Approvals	
EMC	EN 55032/24 CISPR 32, FCC Part 15B Class A IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV

Approvals																																					
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Vibration	IEC60068-2-6																																				
Reliability																																					
Alert Tools	Built-in buzzer and RTC (real-time clock)																																				
Automatic Reboot Trigger	Built-in WDT (watchdog timer)																																				
MTBF (mean time between failures)																																					
Time	262,805 hrs																																				
Database	Telcordia (Bellcore), GB																																				
Warranty																																					
Warranty Period	5 years																																				
Pin assignment																																					
RS 232/422/485 (Male DB9)	<table border="1"> <thead> <tr> <th>PIN</th> <th>RS 232</th> <th>RS 422/RS 485-4w</th> <th>RS 485-2W</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>DCD</td> <td>TxD-(A)</td> <td>-</td> </tr> <tr> <td>2</td> <td>RXD</td> <td>TxD+(B)</td> <td>-</td> </tr> <tr> <td>3</td> <td>TXD</td> <td>RxD+(B)</td> <td>Data+(B)</td> </tr> <tr> <td>4</td> <td>DTR</td> <td>RxD-(A)</td> <td>Data-(A)</td> </tr> <tr> <td>5</td> <td>GND</td> <td>GND</td> <td>GND</td> </tr> <tr> <td>6</td> <td>DSR</td> <td>-</td> <td>-</td> </tr> <tr> <td>7</td> <td>RTS</td> <td>-</td> <td>-</td> </tr> <tr> <td>8</td> <td>CTS</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	PIN	RS 232	RS 422/RS 485-4w	RS 485-2W	1	DCD	TxD-(A)	-	2	RXD	TxD+(B)	-	3	TXD	RxD+(B)	Data+(B)	4	DTR	RxD-(A)	Data-(A)	5	GND	GND	GND	6	DSR	-	-	7	RTS	-	-	8	CTS	-	-
PIN	RS 232	RS 422/RS 485-4w	RS 485-2W																																		
1	DCD	TxD-(A)	-																																		
2	RXD	TxD+(B)	-																																		
3	TXD	RxD+(B)	Data+(B)																																		
4	DTR	RxD-(A)	Data-(A)																																		
5	GND	GND	GND																																		
6	DSR	-	-																																		
7	RTS	-	-																																		
8	CTS	-	-																																		
RS 422/485 Terminal block	<table border="1"> <thead> <tr> <th>PIN</th> <th>RS 422/RS 485-4w</th> <th>RS 485-2w</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>TxD+(B)</td> <td>-</td> </tr> <tr> <td>2</td> <td>TxD-(A)</td> <td>-</td> </tr> <tr> <td>3</td> <td>RxD+(B)</td> <td>Data+(B)</td> </tr> <tr> <td>4</td> <td>RxD-(A)</td> <td>Data-(A)</td> </tr> <tr> <td>5</td> <td>GND</td> <td>GND</td> </tr> </tbody> </table>	PIN	RS 422/RS 485-4w	RS 485-2w	1	TxD+(B)	-	2	TxD-(A)	-	3	RxD+(B)	Data+(B)	4	RxD-(A)	Data-(A)	5	GND	GND																		
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3	RxD+(B)	Data+(B)																																			
4	RxD-(A)	Data-(A)																																			
5	GND	GND																																			



Ordering data			
Version	Type	Operating Temperature	Order No.
2 * RJ45; 1 * serial (RS232: Sub-DB9, RS422/485: terminal block)	IE-CS-2TX-1RS232/485 IE-CST-2TX-1RS232/485	0 to +60 °C -40 to +75 °C	1242080000 1285830000
2 * RJ45; 2 * serial (RS232/422/485: 2 * SubDB9)	IE-CS-2TX-2RS232/485 IE-CST-2TX-2RS232/485	0 to +60 °C -40 to +75 °C	1242090000 1285840000

Accessories		
	Type	Order No.
19" Rack Mounting Kit	RM-KIT	1241440000

# Serial/fibre-optic converter

## Transmitting serial signals via fibre-optic cables

### Serial/fibre-optic converter

If high interference immunity is needed or long transmission distances are involved, then fibre-optic transmission is advisable. Another benefit of using fibre-optic transmission is that it is not sensitive to electromagnetic influences.

One simple and inexpensive solution is media converters, which can convert serial signals from from a RS232/422/485 port on a fibre optic port with an SC or ST glass fibre connection. Fibre-optics with multimode technology make it possible to transmit over distances of up to 5000 m without additional power boosters.

### Ring operation

The converter is able to connect several serial devices to form a glass fibre ring. This simply involves connecting the TX port of one converter with the Rx port of a neighbouring converter. Ring mode can then be activated using the DIP switch on the device. A signal which is transmitted by a node is then forwarded in the ring until it gets back to the sender, where it is blocked. In this way, glass fibre rings can be configured with an spread of up to 100 km.

### Automatic baud rate detection

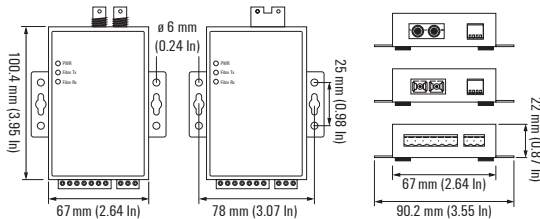
The serial/fibre-optic converter can automatically detect the serial baud rate of connected devices. This ensures that signals can be forwarded by the media converter without any data loss even if the baud rate of a connected device changes.





## Serial/fibre-optic converters

- "Ring" and "point-to-point" modes of transmission
- Extension of RS232/422/485 transmission to up to 5 km
- Supports baud rates of 50 bps to 921.6 Kbps
- Extended temperature range of -40 to 75 °C
- Compact design



## Technical data

Specification of fibre-optic ports	
Connection type	SC or ST connector, multimode
Wavelength	850 nm
Tx Transmit Power	> -5 dBm
Rx Sensitivity	-20 dBm
Typical Distance	5 km (50/125, 62.5/125, 100/140 µm multimode cable)
Transmission mode: "Point-to-point"	Full/Half duplex
Transmission mode: "Ring"	Half duplex
Serial Interface	
Serial Standards	RS232/422/485
Connector	terminal block
Serial Line Protection	15 kV ESD protection for all signals
Baud rate	50 bit/s to 921.6 kbit/s
RS 485 Data Direction Control	ADDC <sup>®</sup> (automatic data direction control)
Serial Signals	
RS 232	Tx, Rx, GND
RS 422	TxD+, TxD-, RxD+, RxD-, GND
RS 485 4w	TxD+, TxD-, RxD+, RxD-, GND
RS 485 2w	Data+, Data-, GND
Technical data	
Housing	Aluminum, IP30 protection
Weight	320 g
Dimensions W x H x D	with wall mounting: 67 x 100 x 22 mm (2.64 x 3.94 x 0.87 in) without wall mounting: 90 x 100 x 22 mm (3.54 x 3.94 x 0.87 in)
Installation	Wall, DIN-Rail (with optional mounting kit)
Environmental Limits	
Operating temperature	-40 to 75 °C (-40 to 167 °F)
Storage temperature	-40 to 75 °C (-40 to 167 °F)
Operating Humidity	5 to 95 % (non-condensing)
Power Requirements	
Input voltage	12 to 48 V DC
Power consumption	0.14 A at 24 V
Reverse Polarity Protection	Present
Overload Current Protection	1.1 A
Approvals	
Safety	UL 60950-1 EN 55032/24
EMC	CISPR 32, FCC Part 15B Class B IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 3 V/m IEC 61000-4-8
MTBF (mean time between failures)	
Time	2,681,816 hrs
Database	Telcordia (Bellcore), GB
Warranty	
Warranty Period	5 years

## Ordering data

Version	Type	Operating temperature	Order No.
1 * Serial (RS232/422/485: terminal block), 1 * SC multimode	IE-MCT-1RS232/485-1SC	-40 to +75 °C	1344760000
1 * Serial (RS232/422/485: terminal block), 1 * ST multimode	IE-MCT-1RS232/485-1ST	-40 to +75 °C	1362950000

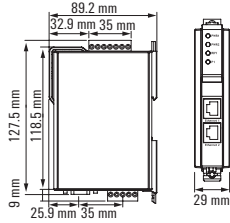
## Accessories

Accessories	Type	Order No.
DIN-rail mounting kit	IE-DINRAILMOUNT-KIT	1504430000

## Modbus TCP/RTU Gateway

### Modbus TCP/RTU Gateway

- Slave mode to support 16 TCP masters and up to 31 serial slaves simultaneously
- Master mode to support 32 TCP slaves simultaneously
- Integrated Modbus protocol analysis
- Redundant DC voltage supply inputs
- Cascaded Ethernet ports for easy cabling



### Technical data

Ethernet Interface	
Number of Ports	2
Speed	10/100 MBit/s, Auto-MDI-/MDIX
Connection	RJ45
Magnetic Isolation Protection	1.5 KV built-in
Serial Interface	
Number of Ports	1
Serial Standards	RS 232/422/485
Connection	DB9 for RS 232, terminal block for RS422/485
Serial Line Protection	15 KV ESD protection for all signals
RS 485 Data Direction Control	ADDC <sup>®</sup> (automatic data direction control)
Pull high/low resistor for RS 485	1 K $\Omega$ , 150 K $\Omega$
Terminating resistor for RS 485	120 $\Omega$
Serial Communication Parameters	
Data Bits	7, 8
Stop Bits	1, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	RTS/CTS and DTR/DSR (RS 232)
Baud rate	50 bit/s to 921.6 kbit/s
Serial Signals	
RS 232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS 422	Tx+, Tx-, Rx+, Rx-, GND
RS 485 4w	Tx+, Tx-, Rx+, Rx-, GND
RS 485 2w	Data+, Data-, GND
Software	
Operating modes	RTU Slave, RTU Master, ASCII Slave, ASCII Master
Configuration Options	Web Console, Serial Console, Telnet Console, Windows Utility
Configuration tool	Modbus Gateway Administrator for Windows 98/ME/NT/2000, Windows XP/2003/Vista/2008/7 x86/x64
Multi-master and multi-drop	Master Mode: 32 TCP slaves, Slave mode: 16 TCP masters
Additional features	Serial Redirection, Priority Control
Technical data	
Housing	Plastic, IP30 protection
Weight	190 g
Dimensions (W x H x D)	29 x 89.2 x 124.5 mm (1.14 x 3.51 x 4.90 Zoll)
Environmental Limits	
Operating temperature	Standard Models: 0 to 60 °C (32 to 140 °F), Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
Ambient Relative Humidity	5 to 95 % RH
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Power Requirements	
Input Voltage	12 to 48 V DC
Current consumption	Max. 435 mA at 12 V DC Max. 130 mA at 48 V DC
Connection type	1 removable 7-pin Terminal block
Alarm contact	1 relay output with a current capacity of 1 A at 30 V DC

Approvals			
EMC	CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A		
Security	UL 508		
Hazardous Location	UL/cUL Class 1 Division 2 Groups A, B, C and D		
EMS	EN61000-4-2 (ESD), level 3 EN61000-4-3 (RS), level 3 EN61000-4-4 (EFT), level 4 EN61000-4-5 (Surge), level 3 EN61000-4-6 (CS), level 3 EN61000-4-8 EN61000-4-11		
Shock	IEC60068-2-27		
Freefall	IEC60068-2-32		
Vibration	IEC60068-2-6		
MTBF (mean time between failures)			
Time	210,794 hrs		
Database	Telcordia (Bellcore), GB		
Warranty			
Warranty Period	5 years		
Pin assignment			
RS 232 (Male DB9)	PIN	RS 232	
	1	DCD	
	2	RXD	
	3	TXD	
	4	DTR	
	5	GND	
	6	DSR	
	7	RTS	
	8	CTS	
	9	-	
Pin assignment			
RS 422/485 Terminal block	PIN	RS 422/RS 485-4w	RS 485-2w
	1	TxD+(B)	-
	2	TxD-(A)	-
	3	RxD+(B)	Data+(B)
	4	RxD-(A)	Data-(A)
	5	GND	GND
Ordering data			
Version	Type	Operating Temperature	Order No.
Two RJ45; One serial (RS232: Sub-DB9, RS422/485: terminal block)	IE-GW-MB-2TX-1RS232/485 IE-GWT-MB-2TX-1RS232/485	0 to +60 °C -40 to +75 °C	<b>1504460000</b> <b>1504470000</b>
Accessories			
	Type		Order No.
19" Rack Mounting Kit	RM-KIT		<b>1241440000</b>

# Industrial WLAN Overview

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<b>Industrial WLAN</b>	Industrial WLAN introduction	E.2
	Industrial WLAN	E.6

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# Industrial WLAN

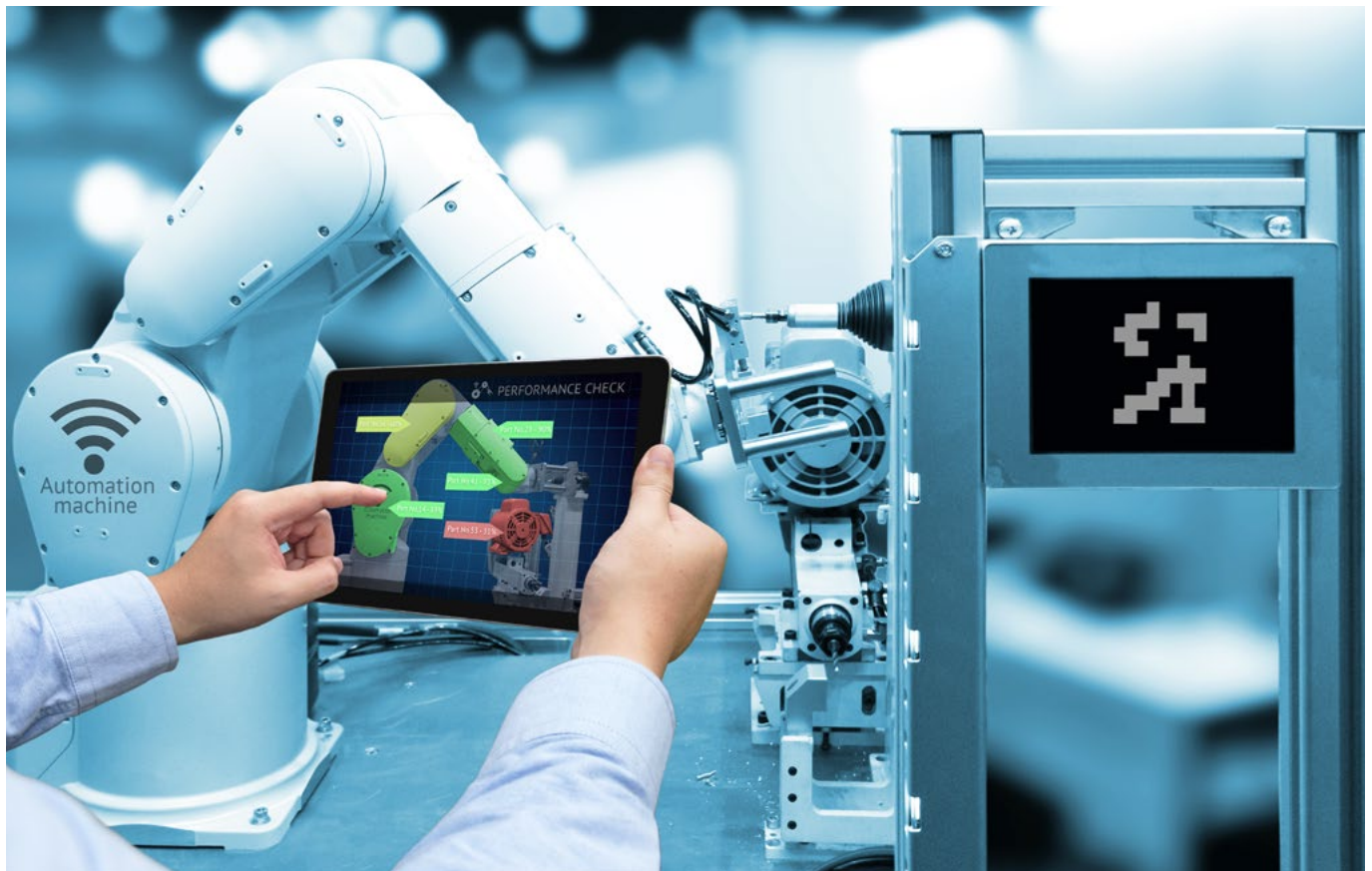
## Wireless communication solutions

Wireless communications are preferred when working with mobile applications or difficult-to-reach areas. Currently, wireless LAN can be used for industrial manufacturing plants or facilities; it is ideal for use anywhere where traditional cabling is not suitable or where a mobile network connection is required. For example in logistics AGVs (automatic guide vehicles) are connected over a WLAN. Here it is important that roaming between different radio cells is possible, thereby creating individually configurable radio coverage.

Support for RADIUS services and WPA2 secure encryption guarantees that your data is fully protected. Multiple wireless zones can be set up so that clients can move around as they wish, by roaming between the different radio/wireless cells. Multiple zones can be specified (multiple SSIDs) and different VLANs can be assigned for each wireless cell. This allows you to implement a one-to-one forwarding of the cable-based infrastructure to the wireless zone.

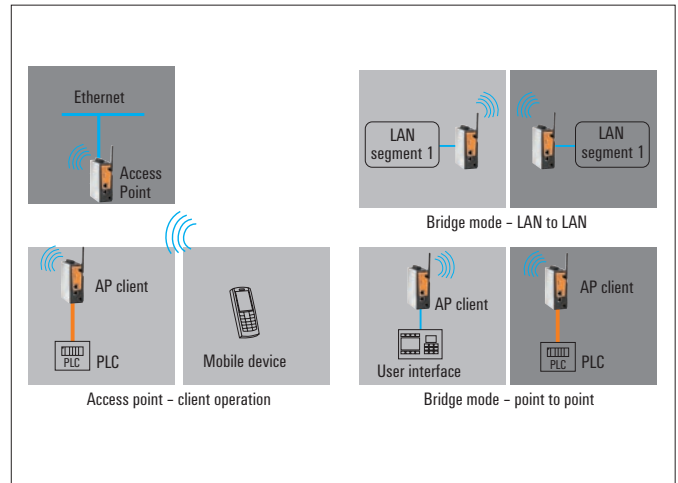
### E

Weidmüller's versatile WLAN module can be used as an access point, bridge or client. It is quite simple to integrate into existing infrastructures because it has an alternative Power over Ethernet supply (using the data cable for the power supply).



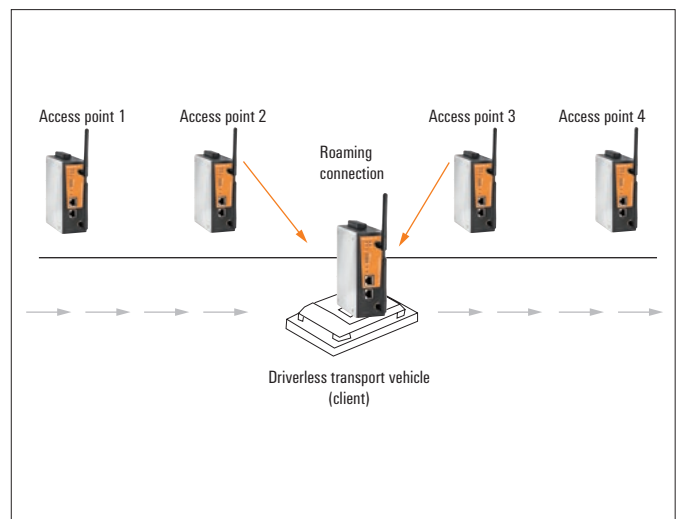
### Wireless operating modes

The most common operating mode for wireless networks are AP client mode (Access Point) and bridge mode. In AP-client mode an Access Point is necessary to set up a Basic Service Set (BSS) for a wireless connection. The AP can be used to create a wireless LAN, or to connect an existing WLAN with a wired network. Bridge mode offers a simple way to connect two Ethernet devices over a point-to-point connection wirelessly with one another.



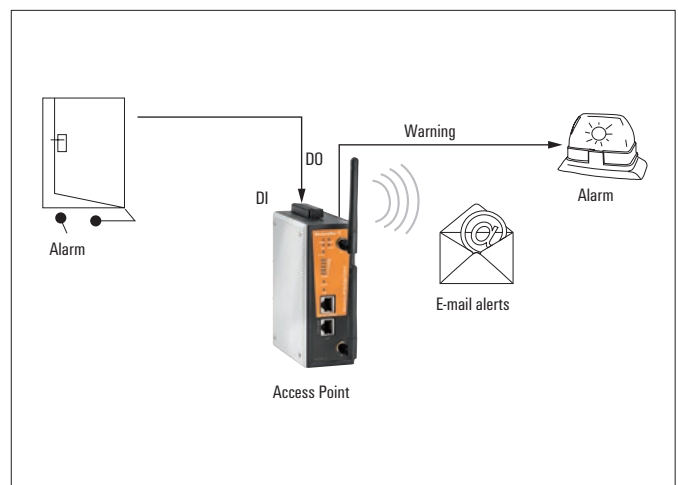
### Turbo roaming for uninterrupted connections

A WLAN radio cell has a limited range depending on the antenna used. To maintain communications between devices which move over a long distance requires the connection to be passed from one access point to another. Performance can be affected where there are many moving devices and a large number of transfer points without powerful roaming technology. It is the roaming technology that offers a seamless wireless connection and permits a swift change between different wireless access points without the risk of interruption to the data communication.



### Integrated digital inputs / outputs

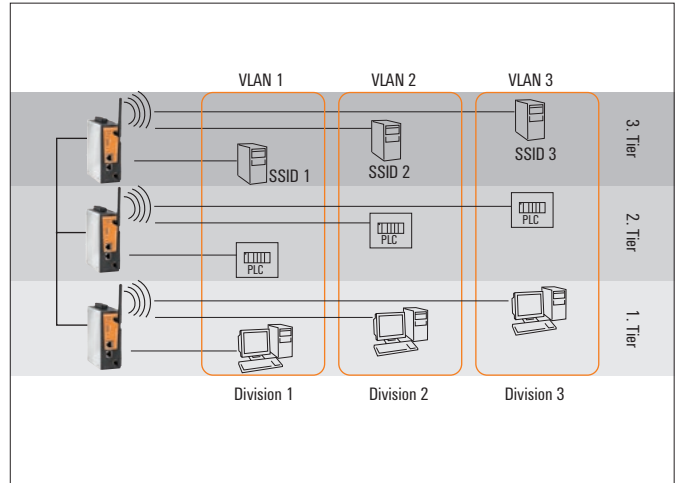
Wireless access points are often located in distant or inaccessible places in an industrial plant. This makes monitoring the status of a device, or its environment by the system administrators, a difficult task. Weidmüller's WLAN access points therefore have an integrated digital input/output which sends alarm messages over the network in real time to the responsible maintenance personnel when errors, like power supply failures, or link breaks, occur.



**Wireless VLAN (Multi-SSID)**

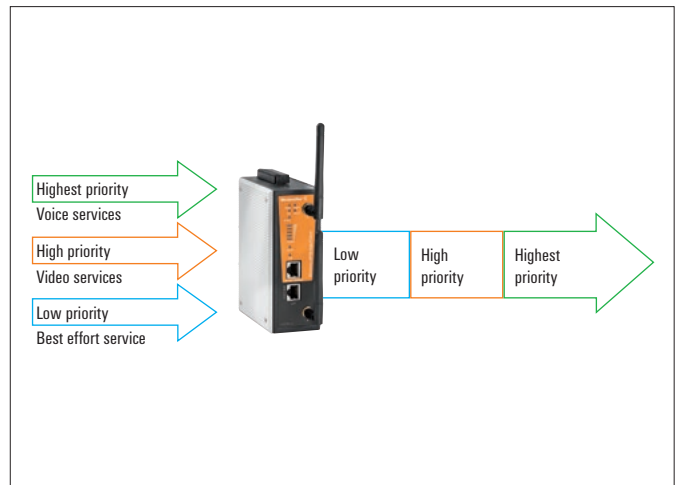
VLAN stands for virtual LAN. It is a network structure with all the characteristics of a normal LAN, but not geographically constrained.

Based on the SSID, two or more clients can be added into a VLAN and integrated into a LAN independently of their geographical location. Without the use of routers, a level 2 switch, in conjunction with Weidmüller WLAN access points, can distinguish broadcast domains from each other. In this way, VLANs offer administrators flexibility regarding network security, network management and scalability.



**WMM for prioritising communications**

Quality of Service (QoS) is a network term for controlling and measuring data transmission rates, throughput and error rates. It is an essential part of wireless communication when transmitting multimedia data like audio and video. Critical data, for example, requires a high priority with respect to the data throughput and low error rates. WMM (Wi-Fi multimedia) is based on the IEEE 802.11e protocol which was designed to integrate QoS functionality into a WLAN. The advantages lie in the prioritising of important data and the associated improvement of the communication quality.





**BasicLine WLAN Access Point/Client**

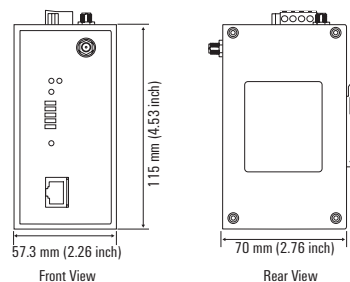
- IEEE 802.11a/b/g/n conform access point/client
- MIMO technology for data rates up to 300Mbit/s
- Fast roaming for interruption-free connection change between access points
- DFS support in 5GHz bandwidth

**Technical data**

WLAN Interface	
Standards	IEEE 802.11a/b/g/n for Wireless LAN IEEE 802.11i for Wireless Security IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT
Spread Spectrum and Modulation (typically)	<ul style="list-style-type: none"> <li>• DSSS with DBPSK, DQPSK, CCK</li> <li>• OFDM with BPSK, QPSK, 16QAM, 64QAM</li> <li>• 802.11b: CCK at 11/5.5 Mbps, DQPSK at 2 Mbps, DBPSK at 1 Mbps</li> <li>• 802.11a/g: 64QAM at 54/48 Mbps, 16QAM at 36/24 Mbps, QPSK at 18/12 Mbps, BPSK at 9/6 Mbps</li> <li>• 802.11n: 64QAM at 300 Mbps to BPSK at 6.5 Mbps</li> </ul>
Operating Channels (central frequency)	US model: 2.412 to 2.462 GHz (11 channels) / 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels)* / 5.500 to 5.700 GHz (8 channels, excluding 5.600 to 5.640 GHz)* / 5.745 to 5.825 GHz (5 channels) EU model: 2.412 to 2.472 GHz (13 channels) / 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels)* / 5.500 to 5.700 GHz (11 channels)*
*DFS (Dynamic Frequency Selection): If the device is operated in access point mode on these channels, the device automatically switches to another channel once a radar signal is detected. After switching to another channel, a 60-second availability check is carried out in accordance with the specification, before communication can take place on the channel.	
Security	<ul style="list-style-type: none"> <li>• SSID Broadcast enable/disable</li> <li>• Firewall for MAC/IP/protocol/port-based filtering</li> <li>• 64-bit and 128-bit WEP encryption, WPA/WPA2 personnel and enterprise (IEEE 802.1X/RADIUS, TKIP and AES)</li> </ul>
Transmission Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 6.5 to 300 Mbps
Transmit Power	802.11b: Type 26±1.5 dBm at 1 Mbps, Type 26±1.5 dBm at 2 Mbps Type 26±1.5 dBm at 5.5 Mbps, Type 25±1.5 dBm at 11 Mbps 802.11g: Type 23±1.5 dBm at 6 to 24 Mbps, Type 21±1.5 dBm at 36 Mbps Type 19±1.5 dBm at 48 Mbps, Type 18±1.5 dBm at 54 Mbps 802.11n: Type 23±1.5 dBm at MCS0/8 20 MHz, (2.4 GHz) Type 18±1.5 dBm at MCS7/15 20 MHz Type 23±1.5 dBm at MCS0/8 40 MHz Type 17±1.5 dBm at MCS7/15 40 MHz 802.11a: Type 23±1.5 dBm at 6 to 24 Mbps, Type 21±1.5 dBm at 36 Mbps Type 20±1.5 dBm at 48 Mbps, Type 18±1.5 dBm at 54 Mbps 802.11n: Type 23±1.5 dBm at MCS0/8 20 MHz (5 GHz) Type 18±1.5 dBm at MCS7/15 20 MHz Type 23±1.5 dBm at MCS0/8 40 MHz Type 17±1.5 dBm at MCS7/15 40 MHz

Note: In accordance with regional regulations, the maximum permissible transmit power is limited on the UNII bandwidths via the device firmware. The corresponding values are contained in the following tables:		
	US model	EU model
2.4 GHz	26 dBm	18 dBm
5 GHz (UNII-1)	23 dBm	21 dBm
5 GHz (UNII-2)	23 dBm	21 dBm
5 GHz (UNII-2e)	23 dBm	23 dBm
5 GHz (UNII-3)	23 dBm	-
Receive Sensitivity	802.11b: • 93 dBm at 1 Mbps, -93 dBm at 2 Mbps • 93 dBm at 5.5 Mbps, -88 dBm at 11 Mbps 802.11g: • 88 dBm at 6 Mbps, -86 dBm at 9 Mbps • 85 dBm at 12 Mbps, -85 dBm at 18 Mbps • 85 dBm at 24 Mbps, -82 dBm at 36 Mbps • 78 dBm at 48 Mbps, -74 dBm at 54 Mbps 802.11n: • 70 dBm at MCS7 20 MHz, -69 dBm at MCS15 20 MHz (2.4 GHz) • 67 dBm at MCS7 40 MHz, -67 dBm at MCS15 40 MHz 802.11a: • 90 dBm at 6 Mbps, -88 dBm at 9 Mbps • 88 dBm at 12 Mbps, -85 dBm at 18 Mbps • 81 dBm at 24 Mbps, -78 dBm at 36 Mbps • 74 dBm at 48 Mbps, -72 dBm at 54 Mbps 802.11n: • 69 dBm at MCS7 20 MHz, -71 dBm at MCS15 20 MHz (5 GHz) • 63 dBm at MCS7 40 MHz, -68 dBm at MCS15 40 MHz	
Protocol Support		
General Protocols	Proxy ARP, DNS, HTTP, HTTPS, IP, ICMP, SNMP, TCP, UDP, RADIUS, SNMP, DHCP, LLDP	
Interfaces		
Supplied antenna	2x omni-directional dual-band antenna, 2 dBi, RP-SMA (male)	
Connector for External Antennas	RP-SMA (female), 500 V insulation	
RJ45 port	1x 10/100/1000BaseT (X) auto negotiation, full/half duplex mode and auto MDI/MDI-X connection	
Console Port	RS 232 (RJ45-type)	





### Technical data

Technical data	
Housing	Metal, IP30 protection
Weight	307 g
Dimensions (W x H x D)	58 x 115 x 70 mm (2.29 x 4.53 x 2.76 in)
Installation	DIN-Rail, wall (with optional mounting kit)
Environmental Limits	
Operating temperature	Standard Models: 0 to 60 °C (32 to 140 °F) Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 % to 95 % (non-condensing)
Power Requirements	
Input Voltage	24 V DC (12 to 48 V DC), two redundant inputs
Connection	1 removable 4-pin terminal block, 500 V insulation
Power Consumption	0.56 A at 12 VDC 0.14 A at 48 VDC
Power consumption	6.96 W
Reverse Polarity Protection	Present
Approvals	
Security	EN60950-1, UL 60950-1
Radio	EN 301 489-1/17, EN 300 328, EN 301 893, TELEC, FCC ID: SLE-WAPN008
EMC	EN 55032/24 CISPR 32, FCC Part 15B Class B IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8
MTBF (mean time between failures)	
Time	749,476 hrs
Database	Telcordia (Bellcore), GB
Warranty	
Warranty Period	5 years

### Ordering data

Version	Type	Operating Temperature	Order No.
WLAN Access Point/Client, IEEE 802.11 a/b/g/n, EU-Modell	IE-WL-BL-AP-CL-EU	0 to +60 °C	2536600000
WLAN Access Point/Client, IEEE 802.11 a/b/g/n, US-Modell	IE-WLT-BL-AP-CL-EU	-40 to +75 °C	2536650000
WLAN Access Point/Client, IEEE 802.11 a/b/g/n, US-Modell	IE-WL-BL-AP-CL-US	0 to +60 °C	2536660000
WLAN Access Point/Client, IEEE 802.11 a/b/g/n, US-Modell	IE-WLT-BL-AP-CL-US	-40 to +75 °C	2536670000

### Accessories

	Type	Order No.
External Backup and Restore Module	EBR-Modul RS232	1241430000
19" Rack Mounting Kit	RM-KIT	1241440000
Wall mounting kit	IE-WALLMOUNT-KIT-46MM	1504440000

**ValueLine WLAN Access Point/Bridge/Client**

- IEEE 802.11a/b/g/n conform Access Point/Client/Bridge
- MIMO technology for data rates up to 300Mbit/s
- Fast roaming for interruption-free connection change between access points
- DFS support in 5GHz bandwidth
- Power can be supplied via PoE in accordance with IEEE 802.3af
- Integrated DI/DOs for monitoring and alarms

**Technical data**

WLAN-Interface	
Standards	IEEE 802.11a/b/g/n for wireless LAN IEEE 802.11i for wireless security IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT IEEE 802.3af for Power-over-Ethernet IEEE 802.1D for Spanning Tree Protocol IEEE 802.1w for Rapid STP IEEE 802.1Q for VLAN
Spreading code process and modulation (typical)	<ul style="list-style-type: none"> <li>• DSSS with DBPSK, DQPSK, CCK</li> <li>• OFDM with BPSK, QPSK, 16QAM, 64QAM</li> <li>• 802.11b: CCK at 11/5.5 Mbps, DQPSK at 2 Mbps, DBPSK at 1 Mbps</li> <li>• 802.11a/g: 64QAM at 54/48 Mbps, 16QAM at 36/24 Mbps, QPSK at 18/12 Mbps, BPSK at 9/6 Mbps</li> <li>• 802.11n: 64QAM at 300 Mbps to BPSK at 6.5 Mbps</li> </ul>
Operating Channels (central frequency)	US model: 2.412 to 2.462 GHz (11 channels) / 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels)* / 5.500 to 5.700 GHz (8 channels, excluding 5.600 to 5.640 GHz)* / 5.745 to 5.825 GHz (5 channels) EU model: 2.412 to 2.472 GHz (13 channels) / 5.180 to 5.240 GHz (4 channels) 5.260 to 5.320 GHz (4 channels)* / 5.500 to 5.700 GHz (11 channels)*
*DFS (Dynamic Frequency Selection): If the device is operated in access point mode on these channels, the device automatically switches to another channel once a radar signal is detected. After switching to another channel, a 60-second availability check is first carried out in accordance with the specification, before communication can take place on the channel.	
Security	<ul style="list-style-type: none"> <li>• SSID Broadcast enable/disable</li> <li>• Firewall for MAC/IP/protocol/port-based filtering</li> <li>• 64-bit and 128-bit WEP encryption, WPA/WPA2 personal and enterprise (IEEE 802.1X/RADIUS, TKIP and AES)</li> </ul>
Transmission Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 6.5 to 300 Mbps
Transmit power	802.11b: Type 26±1.5 dBm at 1 Mbps, Type 26±1.5 dBm at 2 Mbps Type 26±1.5 dBm at 5.5 Mbps, Type 25±1.5 dBm at 11 Mbps 802.11g: Type 23±1.5 dBm at 6 to 24 Mbps, Type 21±1.5 dBm at 36 Mbps Type 19±1.5 dBm at 48 Mbps, Type 18±1.5 dBm at 54 Mbps 802.11n: Type 23±1.5 dBm at MCS0/8 20 MHz, (2.4 GHz) Type 18±1.5 dBm at MCS7/15 20 MHz Type 23±1.5 dBm at MCS0/8 40 MHz Type 17±1.5 dBm at MCS7/15 40 MHz 802.11a: Type 23±1.5 dBm at 6 to 24 Mbps, Type 21±1.5 dBm at 36 Mbps Type 20±1.5 dBm at 48 Mbps, Type 18±1.5 dBm at 54 Mbps 802.11n: Type 23±1.5 dBm at MCS0/8 20 MHz (5 GHz) Type 18±1.5 dBm at MCS7/15 20 MHz Type 23±1.5 dBm at MCS0/8 40 MHz Type 17±1.5 dBm at MCS7/15 40 MHz

**Note:** In accordance with regional regulations, the maximum permissible transmit power is limited on the UNII bandwidths via the device firmware. The corresponding values are contained in the following tables:

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5 GHz (UNII-2)	23 dBm	21 dBm
5 GHz (UNII-2e)	23 dBm	23 dBm
5 GHz (UNII-3)	23 dBm	-

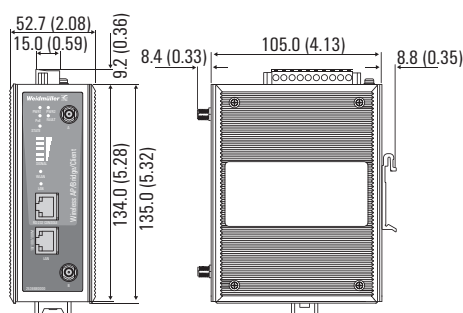
Receive sensitivity	802.11b: • 93 dBm at 1 Mbps, -93 dBm at 2 Mbps • 93 dBm at 5.5 Mbps, -88 dBm at 11 Mbps 802.11g: • 88 dBm at 6 Mbps, -86 dBm at 9 Mbps • 85 dBm at 12 Mbps, -85 dBm at 18 Mbps • 85 dBm at 24 Mbps, -82 dBm at 36 Mbps • 78 dBm at 48 Mbps, -74 dBm at 54 Mbps 802.11n: • 70 dBm at MCS7 20 MHz, -69 dBm at MCS15 20 MHz (2.4 GHz) • 67 dBm at MCS7 40 MHz, -67 dBm at MCS15 40 MHz 802.11a: • 90 dBm at 6 Mbps, -88 dBm at 9 Mbps • 88 dBm at 12 Mbps, -85 dBm at 18 Mbps • 81 dBm at 24 Mbps, -78 dBm at 36 Mbps • 74 dBm at 48 Mbps, -72 dBm at 54 Mbps 802.11n: • 69 dBm at MCS7 20 MHz, -71 dBm at MCS15 20 MHz (5 GHz) • 63 dBm at MCS7 40 MHz, -68 dBm at MCS15 40 MHz
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**Supported protocols**

General protocols	Proxy ARP, DNS, HTTP, HTTPS, IP, ICMP, SNMP, TCP, UDP, RADIUS, SNMP, DHCP, LLDP, VLAN, STP/RSTP
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**Interfaces**

Supplied antenna	2x omni-directional dual-band antenna, 2 dBi, RP-SMA (male)
Connection for external antennas	RP-SMA (female), 500 V insulation
RJ45 port	1x 10/100/1000BaseT (X) auto negotiation, full/half duplex mode and auto MDI/MDI-X connection
Console port	RS 232 (RJ45 connection)
Alarm contact	1 relay output with a current capacity of 1 A at 24 V DC
Digital inputs	2 galvanically separated inputs • +13 to +30 V for the state "1" • +3 to -30 V for the state "0" • max. Current consumption: 8 mA



## Technical data

Technical data	
Housing	Metal, IP30 protection class
Weight	860 g
Dimensions (W x H x D)	52.7 x 135 x 105 mm (2.08 x 5.32 x 4.13 in)
Installation	DIN-Rail, wall (with optional mounting kit)
Environmental conditions	
Operating temperature	Standard models: -25 to 60°C (-13 to 140°F) Models with extended temperature range: -40 to 75 °C (-40 to 167 °F)
Storage temperature	-40 to 85 °C (-40 to 185 °F)
Relative ambient air humidity	5% to 95% (non-condensing)
Power supply	
Input voltage	24 V DC (12 to 48 V DC), two redundant inputs or 48 V DC PoE (IEEE802.3af)
Connection	1 removable 10-pin terminal block, 500 V insulation
Current consumption	0.6 A at 12 VDC 0.15 A at 48 VDC
Power consumption	7.2 W
Reverse polarity protection	Present
Approvals	
Security	EN60950-1, UL 60950-1
Wireless	EN 301 489-1/17, EN 300 328, EN 301 893, TELEC, FCC ID: SLE-WAPN008
EMC	EN 61000-6-2/6-4 CISPR 32, FCC Part 15B Class B IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 3 V/m IEC 61000-4-8 PFMF: 1 A/m
Explosive risk zones	UL / cUL Class I, Division 2; ATEX Zone 2 Ex nA IIC T4 Gc
MTBF (mean time between failures)	
Time	570,854 hrs
Database	Telcordia (Bellcore), GB
Warranty	
Period	5 Years

## Ordering data

Version	Type	Operating Temperature	Order No.
WLAN Access Point/Bridge/Client, IEEE 802.11 a/b/g/n, EU-Modell	IE-WL-VL-AP-BR-CL-EU	-25 to +60 °C	2536680000
WLAN Access Point/Bridge/Client, IEEE 802.11 a/b/g/n, US-Modell	IE-WLT-VL-AP-BR-CL-EU	-40 to +75 °C	2536690000
WLAN Access Point/Bridge/Client, IEEE 802.11 a/b/g/n, EU-Modell	IE-WL-VL-AP-BR-CL-US	-25 to +60 °C	2536700000
WLAN Access Point/Bridge/Client, IEEE 802.11 a/b/g/n, US-Modell	IE-WLT-VL-AP-BR-CL-US	-40 to +75 °C	2536710000

## Accessories

	Type	Order No.
External backup and restore module	EBR-Modul RS232	1241430000
19" Rack Mounting Kit	RM-KIT	1241440000
Wall mounting set	IE-WALLMOUNT-KIT-46MM	1504440000



# Active components

## Overview of accessories

<b>Accessories – Active components</b>	SFP-Transceiver (Fast Ethernet/Gigabit Ethernet)	F.2
	Module for creating configuration backup	F.3
	Mounting kits for 19" rack, wall, DIN rail	F.4

## SFP-Transceiver (Fast Ethernet/Gigabit Ethernet)

### Gigabit Ethernet SFP-Transceiver

- Supports DDM (Digital Diagnostic Monitoring)
- IEEE 802.3z-conform
- Symmetric LVPECL inputs and outputs
- TTL signal detection indicator
- Pluggable during operation (hot pluggable)
- Class 1 laser product; EN 60825-1-conform



#### Technical data

Interfaces		100BaseSFP (LC-duplex connection)					
Specification optical fiber		1000BaseSFP					
		SFP-SX		SFP-LX		SFP-LH	
		Multi-Mode		Multi-Mode		Single-Mode	
Fiber Cable Type		OM1	OM2	OM1	OM2	G.652	G.652
Typical Distance		300 m	550 m	1 km	2 km	10 km	40 km
Wave-length	Typical (nm)	850		1310		1310	
	TX Range (nm)	830 to 860		1270 to 1355		1280 to 1355	
	RX Range (nm)	770 to 860		1260 to 1610		1260 to 1610	
Optical Power	TX Range (dBm)	-4 to -9.6		-1 to -9		-3 to -9	
	RX Range (dBm)	0 to -18		-1 to -19		-3 to -21	
	Link-Budget (dB)	8.5		10		12	
Dispersion Penalty (dB)		4.3	3.6	5	5	1	1

**Note:** When connecting a single-mode fiber transceiver over a short distance, we recommend using an attenuator to prevent the transceiver from being damaged by excessive optical power.

Power consumption	max. 1 Watt
Environmental Limits	
Operating temperature	Standard Models: 0 to 60 °C (32 to 140 °F) Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 to 95 % (non-condensing)
Approvals	
Security	CE, FCC, TÜV (EN 60825), UL 60950-1
Maritime	DNV-GL
Warranty	
Warranty Period	5 years

Ordering data			
SFP Variants	Type	Operating Temperature	Order No.
Gigabit-Ethernet, Multimode, LC-duplex connection, 500 m	IE-SFP-1GSXLC	0 to +60 °C	1241490000
Gigabit-Ethernet, Multimode, LC-duplex connection, 2 km	IE-SFP-1GSLXLC-T	-40 to 85 °C	1286710000
Gigabit-Ethernet, Singlemode, LC-duplex connection, 10 km	IE-SFP-1GLXLC	0 to +60 °C	1241510000
Gigabit-Ethernet, Singlemode, LC-duplex connection, 40 km	IE-SFP-1GLHLC	0 to +60 °C	1241520000
	IE-SFP-1GLXLC-T	-40 to 85 °C	1286720000
	IE-SFP-1GLHLC-T	-40 to 85 °C	1286730000

### Fast Ethernet SFP-Transceiver

- Supports DDM (Digital Diagnostic Monitoring)
- IEEE 802.3u-conform
- Symmetric PECL inputs and outputs
- TTL signal detection indicator
- Pluggable during operation (hot pluggable)
- Class 1 laser product; EN 60825-1-conform



#### Technical data

Interfaces		100BaseSFP (LC-duplex connection)			
Specification optical fiber		1000BaseSFP			
		SFP-M		SFP-S	SFP-L
		Multi-Mode		Single-Mode	Single-Mode
Fiber Cable Type		OM1/OM2		G.652	G.652
Typical Distance		2 km		4 km	80 km
Wave-length	Typical (nm)	1300		1310	1550
	TX Range (nm)	1280 to 1340		1280 to 1340	1530 to 1570
	RX Range (nm)	1100 to 1600		1100 to 1600	1100 to 1600
Optical Power	TX Range (dBm)	-8 to -18		0 to -5	0 to -5
	RX Range (dBm)	-3 to -32		-3 to -34	-3 to -34
	Link-Budget (dB)	14		29	29
Dispersion Penalty (dB)		2	3	1	1

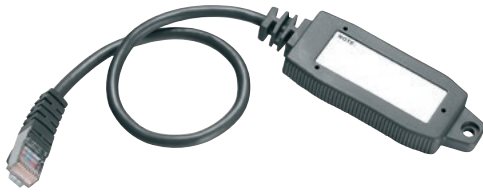
**Note:** When connecting a single-mode fiber transceiver over a short distance, we recommend using an attenuator to prevent the transceiver from being damaged by excessive optical power.

Power consumption	max. 1 Watt
Environmental Limits	
Operating temperature	-40 to 85 °C (-40 to 185 °F)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 to 95 % (non-condensing)
Approvals	
Security	CE, FCC, TÜV (EN 60825), UL 60950-1
Maritime	DNV-GL
Warranty	
Warranty Period	5 years

Ordering data			
Port Variants	Type	Operating Temperature	Order No.
Fast Ethernet, Multimode, LC-duplex connection, 4 km	IE-SFP-1FEMLC-T	-40 to +85 °C	1241450000
Fast Ethernet, Singlemode, LC-duplex connection, 40 km	IE-SFP-1FESLC-T	-40 to +85 °C	1241470000
Fast Ethernet, Singlemode, LC-duplex connection, 80 km	IE-SFP-1FELLC-T	-40 to +85 °C	1241480000

**Module for saving and loading a device configuration**

- Reduce system downtime by simple reconfiguration in case of replacing devices
- Automatic loading of the saved configuration possible after device restart
- Compact, rugged, reliable design
- Can be used with all Weidmüller managed switches and WLAN-Access Points

**Technical data**

Basic Operation		
Connection	RS 232 (RJ45 connection), is plugged into the corresponding console port on the managed switch or WLAN Access Point.	
Configuration	Saving and loading of the corresponding device configuration via web interface of the managed switch or the WLAN Access Point	
Power Requirements		
Input Voltage	3 to 5 V DC (through the RS 232 port's RTS signal)	
Technical data		
Housing	PVC molding, IP40 protection	
Dimensions (W x H x D)	32.5 x 97 x 12 mm (8.07 x 3.82 x 0.47 in)	
Weight	50 g	
Mounting possibility	M4 screw (< 4 mm)	
Cable Length	35 cm (including connector)	
Environmental Limits		
Operating temperature	0 to 60 °C (32 to 140 °F)	
Storage Temperature	-20 to 70 °C (-4 to 158 °F)	
Ambient Relative Humidity	5 to 95 % (non-condensing)	
Approvals		
EMC	EN 55032 Class A CISPR 32, FCC Part 15B Class A IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8	
Warranty		
Warranty Period	5 years	
Ordering data		
Version	Type	Order No.
External Backup and Restore Module	EBR-MODULE RS232	1241430000

## Mounting kits for 19" rack, wall, DIN rail

### Kit for 19" rack-mounting

- For mounting DIN-rail based devices in 19" racks



#### Technical data

Technical data	
Dimensions (W x H x D)	481 x 177.8 x 202.4 mm

#### Ordering data

Version	Type	Order No.
19" Rack Mounting Kit	RM-KIT	1241440000

### Wall mounting kit

- Mounting kit for alternative wall-mounting of DIN rail-based Industrial Ethernet components.



#### Technical data

Usage	
Industrial Ethernet Switches	Product lines: IE-SW-BL05

#### Ordering data

Version	Type	Order No.
Wall mounting kit	IE-WALLMOUNT-KIT-30MM	1504450000



**Wall mounting kit**

- Mounting kit for alternative wall-mounting of DIN rail-based Industrial Ethernet components.



**Technical data**

Usage	
Industrial Ethernet Switches	Product lines: IE-SW- BL06/BL08 IE-SW- VL05/VL08/VL09/VL16 IE-SW- PL06/PL08/PL09/PL10/PL16/PL18
Industrial Ethernet Medienkonverter	Product lines: IE-MC-VL
Industrial Wireless Access Point	Product lines: IE-WL

**Ordering data**

Version	Type	Order No.
Wall mounting kit	IE-WALLMOUNT-KIT-46MM	1504440000

**DIN rail mounting kit**

- Mounting kit for alternative mounting of Weidmüller serial/fibre-optic converters (Article 1344760000 and 1362950000) to the DIN rail.



**Technical data**

Usage	
Serial/fibre-optic converters	Type: 1344760000 1362950000

**Ordering data**

Version	Type	Order No.
DIN rail mounting kit	IE-DINRAILMOUNT-KIT	1504430000



# Passive components

## Introduction

<b>Introduction – Passive components</b>	IE-line connectors	G.2
	Cable configurator	G.4
	Differences between industrial and office Ethernet	G.6
	IE-LINE connectors: the modular principle	G.7
	IE-LINE connectors: selection chart	G.8
	PROFINET and SERCOS III cabling solutions	G.10
	EtherNet/IP cabling solutions	G.14

## IE-LINE plug-in connectors

### Clever and flexible with **STEADYTEC**<sup>®</sup> technology



**STEADYTEC**<sup>®</sup> – this name stands for the future of connection technology in the field of data and signal transmissions. Established market leaders in the industry, **STEADYTEC**<sup>®</sup> forms the foundation for reliable, application-orientated, standards-compliant solutions - for offices through to areas with harsh industrial conditions.

**The objective:** The development of reliable plug-in connector technologies for industrial applications. Technologies that satisfy the highest customer demands and hence enable new, specialised and dependable solutions.

**The result:** An extremely reliable, extraordinarily practical, flexible and especially efficient plug-in connector system for office and industrial applications. And using products whose characteristics accurately reflect the values originally laid out:

- fast
- reliable
- solution-based
- simple

#### The Ethernet connector system: clever – flexible

Connectors for modern industrial applications need to be designed in such a way that they simplify processes and cope with faster data transmission. Weidmüller's Ethernet connectors keep you a step ahead. These products are not only ready for 10 gigabit, they are also standardised for IEC 61076-3-106 and IEC 61076-3-117. In addition, the connector variants 4 (Ethernet TCP/IP), variants 5 and 1 (Ethernet IP) and variant 14 (PROFINET/AIDA) which are named in these standards are all specified as mandatory in the standards covering generic cabling systems for industrial premises: ISO/IEC 24702, IEC 61918 (Automation Island), as well as for Fieldbus installations IEC 61784-5. What's more, you have a unique choice of versions made of plastic or metal as well as inserts for copper and fibre-optic cabling. All of the connectors are designed for ease of use and for quick on-site assembly. They are also modular and can be tailored to suit your application.





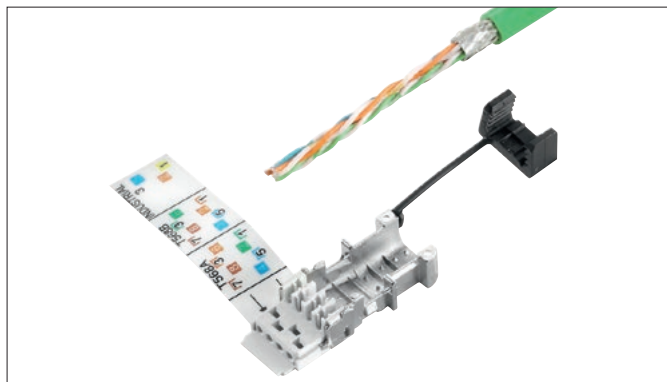
### Tool-free assembly and powerful connections: the RJ45 gigabit connector!

You can now securely plug the connector you need directly into your machinery with very little effort – and without a single tool! The 10-gigabit connector, with IDC-connection, was developed to provide quick, simple, secure and, most importantly, tool-free wiring.

In addition, zinc die-casting makes the connector more robust and therefore suitable for industrial applications and as it is fitted with a protected locking clip means it is suitable for meeting the requirements of harsh industrial environments. Weidmüller's IE product line fulfils the requirements for 10 GBit Ethernet, according to IEEE 802.3an, up to 500 MHz.

#### STEADYTEC®: Systematic benefits

- **Cat. 6<sub>A</sub> 10 GBit System Class E<sub>A</sub>**
- **Assembly without tools in the field**
- **Countless variations thanks to highly diverse combinations of inserts**
- **Unrestricted compatibility because standardised to IEC 61076-3-106**
- **Reliable and long-lasting thanks to use of diecast zinc**
- **Suitable for industry thanks to IP67 class of protection**
- **Simple ordering procedure and low storage costs thanks to Weidmüller's modular system**



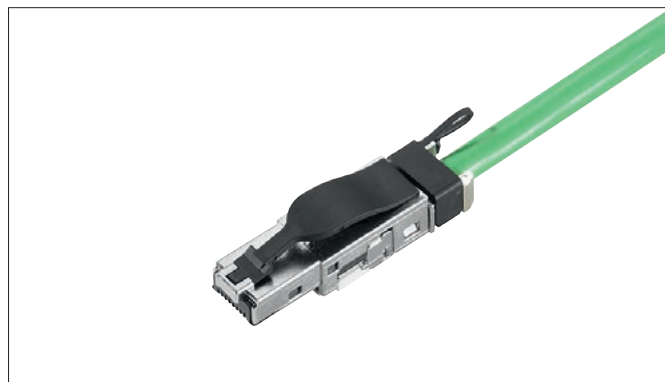
1. Strip sheath cladding and shorten shield to 5 mm



2. Prepare wires and shorten



3. Snap together the two pluggable elements



4. Finished

## Cable configurator

### Tailor-made connections

The cable configurator allows you to configure your specific cable with comfort, speed and simplicity. Just select, request order – and you are finished!

Make your selection from the list of available cables (material for cable sheathing, category, colour, ...). Next, choose the connector for both the right and left cable ends and then choose the cable length. Configurations which are not possible are marked in red, so that it is not possible to create an unsupported or wrong configuration.

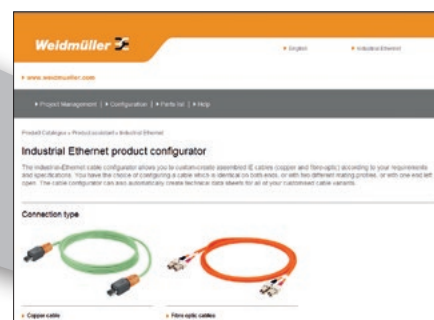


The Industrial Ethernet Configurator can be found in our online catalogue.

Our configurator  
creates connections  
tailor-made.

**Weidmüller** 

You will be forwarded directly and will be able to configure a fibre-optic or copper cable.



After you have made your selection, there are several available options:

- Locate and display the data sheet for the assembled cable
- Export the information in Excel or CSV format
- Save the configuration
- Create additional cables or load previous cables
- Place the assembled cable in the shopping cart to obtain a quote or to order



Practically all types of connectors and cables can be combined to your requirements!

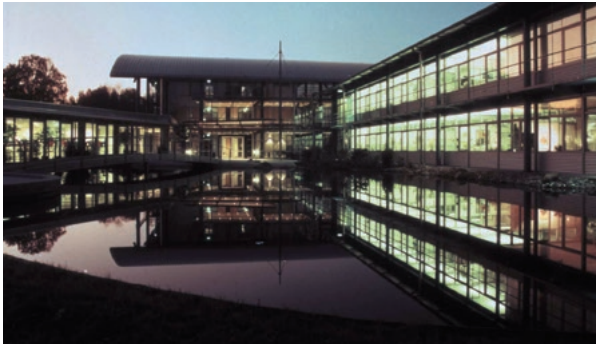


# From office communication to Industrial Ethernet

## An overview of the differences

### Office Ethernet

### Industrial Ethernet



#### Cabling

- Fixed building installation
- Variable connection options
- Pre-assembled connection cables
- Star topology most widely in use

- Individual plant-influenced networks
- Robust component characteristics
- On-site, user assembly connections
- Redundant network topologies (ring)

#### Transmission

- Large volume of data
- Mid-level network availability
- Mostly only acyclical transmission
- No real-time characteristics required for standard applications

- Small data packets (measurement values)
- Very high network availability
- Extremely high real-time requirement
- Mostly cyclical transmission

#### Surroundings

- No extreme conditions






















- Extreme temperatures
- Dust, dirt, splashing water, oils gases,
- Vibration, electromagnetic fields
- Risks of danger and damage from mechanical or chemical influences



# Unlimited combinations of IE-LINE plug-in connectors

## The modular principle



	Plug insert	Plug housing	Flange-mounted housing	Flange insert
Copper	 RJ45 crimp	 HDC RockStar® / Variant 5		 RJ45 coupling
	 RJ45 can be assembled on-site	 Push-Pull / Variant 14		 RJ45 Modul A, B, P
		 Bayonet / Variant 1, plastic		 USB-A coupling
Fibre-optic		 Bayonet / Variant 1, metal		
	 2xSC	 Push-Pull / Variant 4		 2SC/SCRJ adapter
	 LC duplex	 Push-Pull / Variant 14		 LC duplex adapter

Take advantage of maximum flexibility! The range of products guarantees you significant advantages for your industrial applications - in planning, assembling and everyday operations. All variants are designed for IP67 protection.

The Weidmüller products take account of the latest market conditions and most recent international standards. In doing so we offer you a limitless choice. What that means is that you get exactly the products you need for your application!

### Features

- The only 8-core, on-site assembled, RJ45 connector for 10 Gigabit-Ethernet (Cat. 6<sub>A</sub> / Class E<sub>A</sub>).
- Larger cable sheath diameter range (up to 10 mm) for variants V4, V1, and V14. For V5 up to 12 mm.
- Suitable for connecting stranded conductors in sizes AWG 27/7 to AWG 22/7; solid conductors in sizes AWG 27/1 to 22/1.
- Modules and couplers have a robust diecast zinc housing.
- Design results in enhanced vibration and shock resistance for couplers and RJ45 modules.
- Variable bulkhead housing fixing options for variants V1 and V4.
- Additional marking surfaces on plug and bulkhead housing, subsequent colour coding of IP20 and IP67 plug-in connectors.
- Dirt-resistant housing design with enhanced resistance to oils, greases, acids and alkalis.



**Metal plug**

Housings				Variant 1 Bayonet		Variant 14 PushPull RJ	Variant 14 PushPull fibre-optic	Var. 5 HDC
Inserts				With KS	Without KS	Without KS	Without KS	Without KS
				1962560000	1962550000	1011560000	1058100000	1962540000
	RJ45 AWG 24 crimp		1962720000	1963150000	1963140000	1012160000		1963110000
	RJ45 AWG 22 tool-free	TIA-A/-B/-P TIA-A TIA-B PROFINET	1962730000 1132010000 1132020000 1132030000	1963130000	1963120000	1012170000		1963200000 1271250000
	LWL SC	Multimode	1067380000	1963270000	1963260000		Please order separately	
		Singlemode	1067390000	1963310000	1963300000		Please order separately	
		PDF	1067410000				1191550000	
	LWL LC	Multimode	1962780000	1963230000	1963220000		Please order separately	
		Singlemode	1962790000	1963250000	1963240000		Please order separately	
	Protective cap			1965690000		1058280000	1058280000	1968920000

KS = anti-kink protection

**Plastic plug**

Housings				Variant 1 Bayonet		Variant 4 PushPull	
Inserts				With KS	Without KS	With KS	Without KS
				1012460000	1012440000	1962530000	1962520000
	RJ45 AWG 24 crimp		1962720000	1012560000	1012470000	1963190000	1963180000
	RJ45 AWG 22 tool-free	TIA-A/-B/-P TIA-A TIA-B PROFINET	1962730000 1132010000 1132020000 1132030000	1012570000	1012490000	1963170000	1963160000 1271240000
	LWL SC	Multimode	1067380000	Please order separately		1963370000	1963360000
		Singlemode	1067390000	Please order separately		1963410000	1963400000
	LWL LC	Multimode	1962780000	Please order separately		1963330000	1963320000
		Singlemode	1962790000	Please order separately		1963350000	1963340000
	Protective cap			1965690000		1963890000	

KS = anti-kink protection

Individual components  
 Sets

V1 with SC multimode  
**1963260000**



V5 with RJ45 crimp  
**1963110000**



V4 with LC multimode  
**1063320000**



V14 with RJ45 tool-free  
**1012170000**





**Metal flange**

Housings				Variant 1 Bayonet	Variant 14 PushPull RJ		Variant 14 PushPull fibre-optic		Variant 5 HDC
				1963540000	1011540000	1047950000			1963530000
	RJ45 coupling		1962840000	1963470000	1012310000	1058250000			1963510000
	RJ45 module	TIA-A	1962850000	1963480000	1012320000	1058270000			1963460000
		TIA-B	1963840000	Please order separately	Please order separately	Please order separately			Please order separately
		PROFINET	1963830000	Please order separately	1085260000	Please order separately			1963700000
	SC/SCRJ coupling	Multimode	1964430000	1964450000			1058120000	1062590000	
		Singlemode	1962870000	1963440000			1058140000	1062600000	
	LC Duplex coupling	Multimode	1964420000	1964440000			1058130000	1062610000	
		Singlemode	1962880000	1963430000			1058150000	1062620000	
	USB coupling		1019570000	Please order separately	Please order separately	Please order separately			Please order separately
	Protective cap			1965700000	1058310000	1058310000	1058310000	1058310000	1968930000

**Plastic flange**

Housings				Variant 1 Bayonet	Variant 4 PushPull
				1016960000	1963520000
	RJ45 coupling		1962840000	1012370000	1963490000
	RJ45 module	TIA-A	1962850000	1012380000	1963500000
		TIA-B	1963840000	Please order separately	1963730000
		PROFINET	1963830000	Please order separately	Please order separately
	SC/SCRJ coupling	Multimode	1964430000	Please order separately	1964470000
		Singlemode	1962870000	Please order separately	1963420000
	LC Duplex coupling	Multimode	1964420000	Please order separately	1964460000
		Singlemode	1962880000	Please order separately	1963450000
	USB coupling		1019570000	Please order separately	Please order separately
	Protective cap			1965700000	1963900000

Individual components  
 Sets

V5 with RJ45 coupling  
1963510000



V1 with SC multimode  
1964450000



V4 with LC multimode  
1964460000



V14 with RJ45 module  
1012320000



## Customised cabling solutions for PROFINET and SERCOS III

Weidmüller's cabling products enable you to create a specific infrastructure that meets all the requirements of PROFINET and SERCOS III.

The cabling components for copper and fibre-optic cables are designed and tested for use in harsh industrial conditions. Interoperability in the system is assured by the PROFINET and SERCOS cabling guidelines that specifically prescribe the interfaces to be used. For PROFINET this is guaranteed through the manufacturer's declaration.

Comprehensive protection against disturbance by electromagnetic fields is achieved through the use of high quality shielding of the cables and the related connection components. Significant system reserves are offered through the star quad design of the cables and their wire cross-section of AWG 22. Stable real-time transmission is guaranteed, for applications such as PROFINET IRT or SERCOS III typical hardware synchronisation, by the low signal transmission time differences resulting from the cable construction. At the same time the cables offer high crush resistance for reliable installation in industrial applications.

The cabling components are also remarkably easy to handle when out in the field. The plug-in connectors for copper and fibre-optic can all be assembled on-site. This reduces installation time, reduces errors and simplifies maintenance.



**sercos**  
the automation bus

### Profile specific guidelines for the connection components

#### Cable:

- Quad-star design of AWG 22

#### Connector:

- IP20 RJ45
- IP20 SC-RJ
- IP67 PushPull RJ45
- IP67 PushPull Power
- IP67 PushPull SC-RJ
- IP67 M12 D-coding



Weidmüller offers you a wide range of cabling solutions for PROFINET and SERCOS III applications. IP20 plug-in connectors for copper and fibre-optic cables are also included as well as IP67 plug-in connectors and junction

boxes for the toughest requirements. The components are designed to be used together from the floor distributors down to the machines.

IP67  
assembled RJ45 cables



IP67  
assembled M12 cables



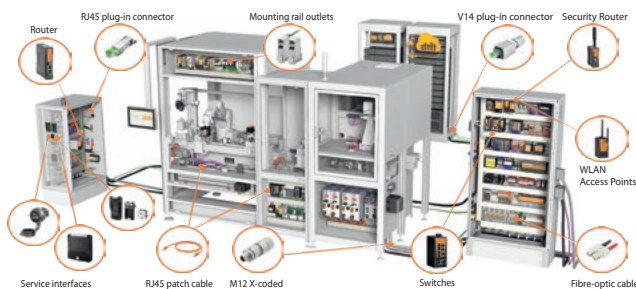
IP67  
plug-in M12 connectors



IP67  
connection components



Cable by the metre  
copper and fibre-optic



IP67  
plug-in connectors data / power



IP67  
flanges data / power



IP20  
plug-in connector



IP20  
assembled cables



IP20  
mounting rail outlets

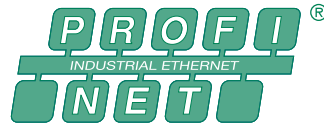


IP65  
service interfaces



# Selection table

## Ideal combinations



**sercos**  
the automation bus

### IP20 plug-in connector



Description	Type	Order No.
RJ45 tool-free PROFINET printing	IE-PS-RJ45-FH-BK-P	1132060000
RJ45 tool-free angled Profinet printing	IE-PS-RJ45-FH-90-P-1.6	1518100000
SC-RJ for POF fibres 1 mm	IE-PS-SCRJ1-POF	1206720000
SC-RJ for multimode fibres 50/62.5 µm	IE-PS-SCRJ1-MM	1206730000
SC-RJ for singlemode fibres 9 µm	IE-PS-SCRJ1-SM	1206740000

### IP20 assembled data cables



Description	Type	Order No.
RJ45 patch cable PVC type B - 1 m	IE-C5DS4VG0010A60A60-E	1522100010
RJ45 patch cable PVC type B - 3 m	IE-C5DS4VG0030A60A60-E	1522100030
RJ45 patch cable PVC type B - 5 m	IE-C5DS4VG0050A60A60-E	1522100050
RJ45 patch cable PVC type B - 10 m	IE-C5DS4VG0100A60A60-E	1522100100
SC-RJ zipcord patch cable - POF - 1 m	IE-FPOZ2EE0001MSJOSJO-X	1273430010
SC-RJ zipcord patch cable - POF - 3 m	IE-FPOZ2EE0003MSJOSJO-X	1273430030
SC-RJ zipcord patch cable - POF - 5 m	IE-FPOZ2EE0005MSJOSJO-X	1273430050
SC-RJ zipcord patch cable - POF - 10 m	IE-FPOZ2EE0010MSJOSJO-X	1273430100

Further PROFINET cables - SERCOS III cables can be found in Chapter L

### IP20 mounting rail outlets



Description	Type	Order No.
RJ45 coupling	IE-TO-RJ45-C	8946920000
RJ45 module PROFINET printing	IE-TO-RJ45-FJ-P	8946950000
SC-RJ POF coupling / multimode	IE-TO-SCRJ-MM	8946990000
SC-RJ singlemode coupling	IE-TO-SCRJ-SM	8947000000

### IP65 service interface



Beschreibung	Type	Order No.
FrontCom® Micro RJ45 coupling	IE-FCM-RJ45-C	1018790000
FrontCom® Micro RJ45 module PROFINET printing	IE-FCM-RJ45-FJ-P	1018830000

### IP67 flange data



Description	Type	Order No.
PushPull standard flange RJ45 coupling	IE-BSS-V14M-RJ45-C	1012310000
PushPull central cable gland RJ45 coupling	IE-BSC-V14M-RJ45-C	1058250000
PushPull standardised flange RJ45 module PROFINET printing	IE-BSS-V14M-RJ45-FJ-P	1085260000
PushPull standardised flange hybrid (Q10) 10-pole module without contacts	IE-BSS-V14M-HYB-10P-FJ	1072900000
Contacts for Hybrid (Q10) module 0.5 mm <sup>2</sup> - 0.75 mm <sup>2</sup> VPE 300	IE-BIC-HYB-P-0,75-300	1068970000
Contacts for Hybrid (Q10) module 0.2 mm <sup>2</sup> - 0.5 mm <sup>2</sup> VPE 300	IE-BIC-HYB-P-0,5-300	1096150000
PushPull standardised flange SC-RJ coupling POF / multimode	IE-BSS-V14M-SCRJ-MM-C	1058120000
PushPull standardised flange SC-RJ coupling singlemode	IE-BSS-V14M-SCRJ-SM-C	1058140000
PushPull central cable gland SC-RJ coupling POF / multimode	IE-BSC-V14M-SCRJ-MM-C	1062590000
PushPull central cable gland SC-RJ coupling singlemode	IE-BSC-V14M-SCRJ-SM-C	1062600000
PushPull device flange	IE-BHD-V14M	1047940000
PushPull flange protective cap IP67	IE-BP-V14P	1058310000

other inserts can be found in Chapter J

### IP67 Power connectors




Description	Type	Order No.
PushPull Power with 24 V / 16 A use	IE-PS-VAPM-24V	1068910000

### IP67 flange power




Description	Type	Order No.
PushPull Power standardised flange with 24 V / 16 A use	IE-BSS-VAPM-24V	1069030000
PushPull Power device flange	IE-BHD-VAPM	2493490000
PushPull Power flange protective cap IP67	IE-BP-VAPP	1068930000

**IP67 data connectors**

	Description	Type	Order No.
	PushPull RJ45 tool-free module PROFINET printing	IE-PS-V14M-RJ45-FH-P	1012170000
	PushPull Hybrid (Q10) use, 10-pole module without contacts	IE-PS-V14M-HYB-10P	1072910000
	Contacts for Hybrid (Q10) use 0.75 mm <sup>2</sup> VPE 300	IE-PIC-HYB-S-0,75-300	1068950000
	Contacts for Hybrid (Q10) use 0.2 mm <sup>2</sup> - 0.5 mm <sup>2</sup> VPE 300	IE-PIC-HYB-S-0,5-300	1096180000
	PushPull SC-RJ use POF 1 mm	IE-PS-V14M-2SC-POF	1191550000
	PushPull plug protective cap IP67	IE-PP-V14P	1058280000


**IP67 assembled data cables**

	Description	Type	Order No.
	PushPull RJ45 patch cable PUR - Type C - 1 m	IE-C5DD4UG0010A2EA2E-X	1119730010
	PushPull RJ45 patch cable PUR - Type C - 3 m	IE-C5DD4UG0030A2EA2E-X	1119730030
	PushPull RJ45 patch cable PUR - Type C - 5 m	IE-C5DD4UG0050A2EA2E-X	1119730050
	PushPull RJ45 patch cable PUR - Type C - 10 m	IE-C5DD4UG0100A2EA2E-X	1119730100
	Further PROFINET cables - SERCOS III cables can be found in Chapter L		

**IP67 plug connector M12 D-coded and X-Type**

M 12 components can be found in Chapter J


**IP65 connection components**

	Description	Type	Order No.
	FreeCon passive double junction box RJ45/Power	IE-CD-V14MRJ/VAPM24V-FJ	1068830000
	FreeCon passive single junction box RJ45	IE-CD-V14MRJ-FJ	1068880000
	FreeCon passive single junction box Hybrid (Q10) without contacts	IE-CD-V14MHYB-10P-FJ	1068850000
	Contacts for Hybrid (Q10) module 0.75 mm <sup>2</sup> VPE 300	IE-BIC-HYB-P-0,75-300	1068970000
	Contacts for Hybrid (Q10) module 0.2 mm <sup>2</sup> - 0.5 mm <sup>2</sup> VPE 300	IE-BIC-HYB-P-0,5-300	1096150000
	Mounting foot for junction boxes	IE-CD-MA	1099580000
	FreeCon passive double coupling RJ45/Power	IE-CD-V14MRJ/VAPM24V-C-MA	1068820000
	FreeCon passive single coupling RJ45	IE-CD-V14MRJ-C-MA	1068870000
	FreeCon passive single coupling hybrid (Q10)	IE-CD-V14MHYB-10P-C-MA	1068840000
	FreeCon PushPull Power Y-distributor	IE-CD-VAPM24V-Y-MA	1297010000
	FreeCon PushPull Power single coupling	IE-CD-VAPM24V-C-MA	1397690000
	FreeCon passive single coupling SCRJ	IE-CD-V14MSCRJ-MM-C-MA	1318150000
	FreeCon active FO PROFINET repeater	IE-CDR-V14MSCPOF/VAPM-C	1253240000
	FreeCon active PROFINET media converter	IE-CDM-V14MRJSCP/VAPM-C	1324440000
	PushPull flange protective cap IP67	IE-BP-V14P	1058310000
	FreeCon passive cable coupling RJ45	IE-CC-V14M-RJ45-FJ-P	1990600000
	FreeCon passive cable coupling hybrid	IE-CC-V14M-HYB-10P-FJ	1990610000
	Mounting frame FreeCon cable coupling RJ45 / hybrid	IE-CC-V14M-MF	1990620000
	FreeCon passive cable coupling power	IE-CC-VAPM-24V	1990630000
	Mounting frame FreeCon cable coupling power	IE-CC-VAPM-MF	1990640000

**Bulk stock copper cable**

	Description	Type	Order No.
	100 m ring installation cable PVC type A	IE-C5AS4V1000	8899000000
	Bulk stock installation cable PVC type A from 110 m	IE-C5AS4VG-MW	8955950000
	100 m ring connection cable PVC type B	IE-C5DS4V1000	8898990000
	Bulk stock connection cable PVC type B from 110 m	IE-C5DS4VG-MW	8955660000
	100 m ring dragline cable PUR type C	IE-C5DD4U1000	8899010000
	Bulk stock dragline cable PUR type C from 110 m	IE-C5DD4UG-MW	8947670000
	Torsion cable PUR type C available by the metre from 110 m	IE-C5T14UG-MW	1103010000
	Bulk stock hybrid cable PVC from 110 m	IE-C5DHAG-MW	1172250000

**Bulk stock fibre-optic cable**

	Description	Type	Order No.
	Multimode breakout cable 2x50 µm PUR from 50 m	IE-FM5B2UE-MW	8946000000
	POF zip-cord cable 2X980/1000 µm TPE, from 50 m	IE-FPOZ2EE-MW	1242820000
	POF breakout cable 2X980/1000 µm TPE, from 50 m	IE-FPOD2UE-MW	1172280000

## Customised cabling solutions for Ethernet/IP

The wiring guidelines for EtherNet/IP clearly define the interfaces to be used to ensure interoperability in EtherNet/IP systems.

Weidmüller offers all the cabling products needed to build a requirement specific infrastructure which is tailored to the needs of EtherNet/IP.

The wiring components for copper and fibre-optic cables are designed and tested for use in harsh industrial environments. The user is provided with clear guidelines about the requirements of the components for use in industrial environments with the introduction of the MICE classification (EtherNet/IP Media Planning and Installation Manual).

The high-quality shielding of the cables and connection components offers comprehensive protection against electromagnetic interference.

The cables are 8-wire twisted-pair cables for RJ45 or star quad for use in M12.

The cabling components are also easy to handle in the field. The plug-in connectors for copper and fibre optic cables can all be assembled on-site. This reduces installation time, reduces errors and simplifies maintenance.

The connectors wire/pin assignment is either according to TIA568-A or TIA568-B as required. The connectors and modules are marked accordingly, making them easier to connect.



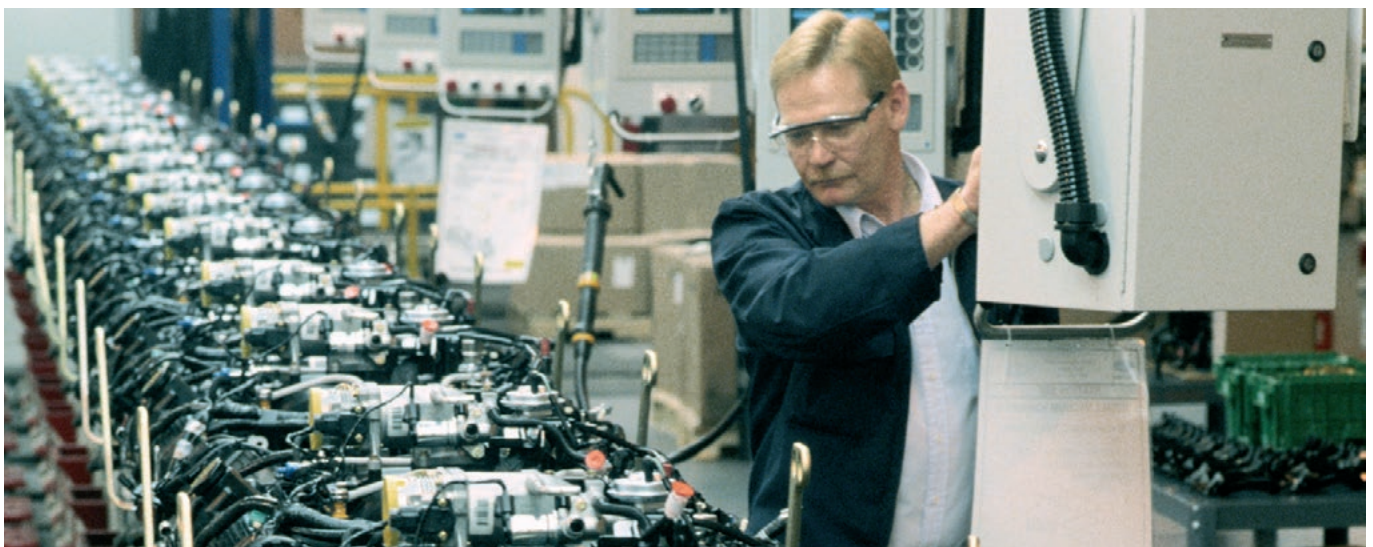
### Profile specific guidelines for the connection components

#### Cable:

- 8-wire twisted-pair shielded cables

#### Connector:

- IP20 RJ45
- IP20 SC-RJ
- IP67 bayonet RJ45
- IP67 bayonet SC-RJ
- IP67 M12 D-coding





Weidmüller offers you a wide range of cabling solutions for EtherNet/IP applications. IP20 plug-in connectors for copper and fibre-optic cables are available, as well as IP67 connectors and junction boxes for the most exacting

requirements. The components are designed to be used together from the floor distributors down to the machines.

IP67  
assembled RJ45 cables



IP67  
assembled M12 cables



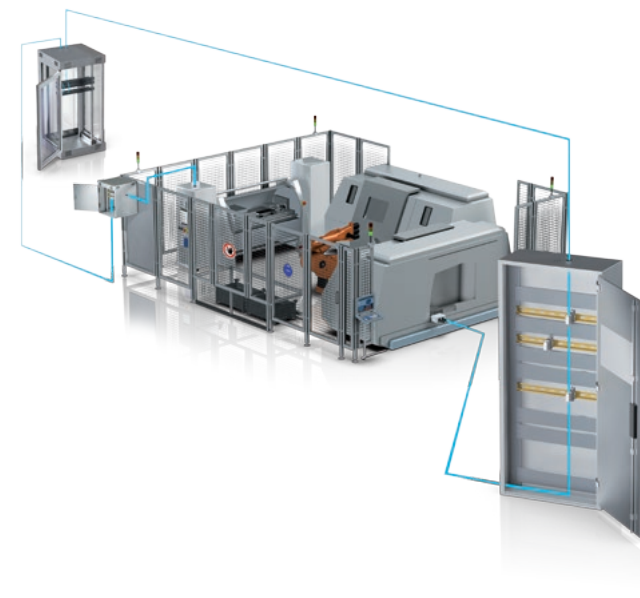
IP67  
plug-in M12 connectors



IP67  
connection components



Cable by the metre  
copper and fibre-optic



IP67  
plug-in connectors data



IP67  
flanges data / power



IP20  
plug-in connector



IP20  
assembled cables



IP20  
mounting rail outlets



IP65  
service interfaces



# Selection table

## Ideal combinations for a perfect fit



### IP20 plug-in connector



Description	Type	Order No.
RJ45 crimp	IE-PS-RJ45-TH-BK	1963590000
RJ45 tool-free TIA-A printing	IE-PS-RJ45-FH-BK-A	1132040000
RJ45 tool-free TIA-B printing	IE-PS-RJ45-FH-BK-B	1132050000
SC-RJ for 1 mm POF fibres	IE-PS-SCRJ1-POF	1206720000
SC-RJ for multimode fibres 50/62.5 µm	IE-PS-SCRJ1-MM	1206730000
SC-RJ for singlemode fibres 9 µm	IE-PS-SCRJ1-SM	1206740000

### IP20 assembled data cables



Description	Type	Order No.
RJ45 patch cables - see CabinetLine		
SC-RJ zipcord patch cable - POF - 1 m	IE-FPOZ2EE0001MSJOSJO-X	1273430010
SC-RJ zipcord patch cable - POF - 3 m	IE-FPOZ2EE0003MSJOSJO-X	1273430030
SC-RJ zipcord patch cable - POF - 5 m	IE-FPOZ2EE0005MSJOSJO-X	1273430050
SC-RJ zipcord patch cable - POF - 10 m	IE-FPOZ2EE0010MSJOSJO-X	1273430100
Other EtherNet/IP cables available on request		

### IP20 mounting rail outlets



Description	Type	Order No.
RJ45 coupling	IE-TO-RJ45-C	8946920000
RJ45 Module TIA-A printing	IE-TO-RJ45-FJA	8946930000
RJ45 Module TIA-B printing	IE-TO-RJ45-FJB	8946940000
SC-RJ POF coupling / multimode	IE-TO-SCRJ-MM	8946990000
SC-RJ singlemode coupling	IE-TO-SCRJ-SM	8947000000

### IP65 service interface



Description	Type	Order No.
FrontCom® Micro RJ45 coupling	IE-FCM-RJ45-C	1018790000
FrontCom® Micro RJ45 module TIA-A printing	IE-FCM-RJ45-FJA	1018810000
FrontCom® Micro RJ45 module TIA-B printing	IE-FCM-RJ45-FJB	1018820000

### IP67 flange data




Description	Type	Order No.
Bayonet flange metal RJ45 coupling	IE-BS-V01M-RJ45-C	1963470000
Bayonet flange metal RJ45 module TIA-A printing	IE-BS-V01M-RJ45-FJA	1963480000
Bayonet flange plastic RJ45 coupling	IE-BS-V01P-RJ45-C	1012370000
Bayonet flange metal RJ45 module TIA-A printing	IE-BS-V01P-RJ45-FJA	1012380000
Bayonet flange metal SC-RJ POF / multimode	IE-BS-V01M-SCRJ-MM	1221010000
Bayonet flange metal SC-RJ singlemode	IE-BS-V01M-SCRJ-SM	1221020000
Bayonet flange protective cap IP67	IE-BP-V01P	1965700000
Other inserts can be found in Chapter J		

### IP67 data connectors



Description	Type	Order No.
Bayonet plug metal RJ45 crimped	IE-PS-V01M-RJ45-TH	1963140000
Bayonet plug metal RJ45 tool-free	IE-PS-V01M-RJ45-FH	1963120000
Bayonet plug plastic RJ45 crimped	IE-PS-V01P-RJ45-TH	1012470000
Bayonet plug plastic RJ45 tool-free	IE-PS-V01P-RJ45-FH	1012490000
Bayonet plug metal SC-RJ use POF	IE-PS-V01M-2SC-POF	1963280000
Bayonet plug metal SC-RJ use multimode	IE-PS-V01M-2SC-MM	1963260000
Bayonet plug metal SC-RJ use singlemode	IE-PS-V01M-2SC-SM	1963300000
Bayonet plug protective cap IP67	IE-PP-V01P	1965690000

## IP67 assembled data cables




Description	Type	Order No.
Bayonet metal RJ45 patch cable PUR 1 m	IE-C5ES8UG0010B41B41-E	1066850000
Bayonet metal RJ45 patch cable PUR 2 m	IE-C5ES8UG0020B41B41-E	1066860000
Bayonet metal RJ45 patch cable PUR 5 m	IE-C5ES8UG0050B41B41-E	1066870000
Bayonet metal RJ45 patch cable PUR 10 m	IE-C5ES8UG0100B41B41-E	1066880000
Bayonet plastic RJ45 patch cable PUR 1 m	IE-C5ES8UG0010P41P41-E	1106010000
Bayonet plastic RJ45 patch cable PUR 2 m	IE-C5ES8UG0020P41P41-E	1106020000
Bayonet plastic RJ45 patch cable PUR 5 m	IE-C5ES8UG0050P41P41-E	1106030000
Bayonet plastic RJ45 patch cable PUR 10 m	IE-C5ES8UG0100P41P41-E	1106040000

Other EtherNet/IP cables available on request

## IP67 plug-in M12 connectors


M 12 components can be found in Chapter J

## IP65 connection components



Description	Type	Order No.
Single junction box, plastic	IE-OP-V01P-1S	1061830000
Plastic cable coupling	IE-CC-V01P	1061820000
RJ45 module TIA-A printing	IE-BI-RJ45-FJ-A	1962850000
RJ45 module TIA-B printing	IE-BI-RJ45-FJ-B	1963840000


## Bulk stock copper cable



Description	Type	Order No.
100 m ring installation cable PVC Cat. 5 SF/UTP	IE-5IC4x2xAWG24/1-PVC	8813150000
Bulk stock installation cable PVC Cat. 5 SF/UTP from 110 m	IE-C5CS8VG-MW	8953160000
100 m ring installation cable PUR Cat. 5 SF/UTP	IE-5IC4x2xAWG24/1-PUR	8813160000
Bulk stock installation cable PUR Cat. 5 SF/UTP from 110 m	IE-C5CS8UG-MW	8944310000
100 m ring connection cable PVC Cat. 5 SF/UTP	IE-5CC4x2xAWG26/7-PVC	8813190000
Bulk stock connection cable PVC Cat. 5 SF/UTP from 110 m	IE-C5ES8VG-MW	8955490000
100 m ring connection cable PUR Cat. 5 SF/UTP	IE-5CC4x2xAWG26/7-PUR	8813200000
Bulk stock connection cable PUR Cat. 5 SF/UTP from 110 m	IE-C5ES8UG-MW	8938880000

Other EtherNet/IP cables available on request

## Bulk stock fibre-optic cable



Description	Type	Order No.
Multimode breakout cable 2x50 µm PUR from 50 m	IE-FM5B2UE-MW	8946000000
PDF zip-cord cable 2X980/1000 µm TPE, from 50 m	IE-FPOZ2EE-MW	1242820000
PDF breakout cable 2X980/1000 µm TPE, from 50 m	IE-FPOD2UE-MW	1172280000



# IP20 plug-in connectors and mounting rail outlets

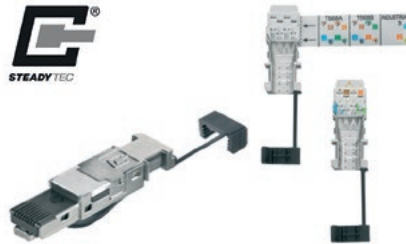
## Overview

<b>IP20 plug-in connectors and mounting rail outlets</b>	IP20 plug-in connectors	RJ45 Plug	H.2
		FO Connector	H.8
		Coupling BNC	H.10
	IP20 mounting rail outlets	RJ45	H.11
		USB	H.14
		FO	H.15

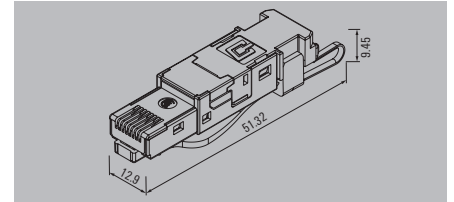
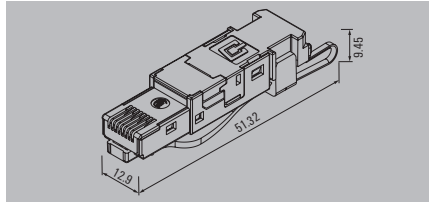
RJ45 plug, tool free

- Cat. 6<sub>A</sub> (8-wire) / Cat. 5 (4-wire) for PROFINET
- Multiprot-compatibile
- IP20

8-wire



4-wire for PROFINET



Technical data

Category
Protection degree
Housing main material
Connection diameter, flexible, min. / max.
Connection cross-section, flexible, min. / max.
Connection diameter, solid, min. / max.
Connection cross-section, solid, min. / max.
Wire connection cross-section, finely stranded
Insulation diameter, min. / max.
Sheath diameter, min. / max.
Contact surface
Shielding
Plugging cycles
Ambient temperature (operational)
Contact resistance
Insulation resistance
Dielectric strength, contact / contact
Dielectric strength, contact / shield
Connector standard
Current-carrying capacity at 50 °C
Speed
PoE / PoE+
Approvals
<b>Note</b>

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP20
Zinc diecast
0.48 mm / 0.76 mm
AWG 26/7 / AWG 22/7
0.41 mm / 0.64 mm
AWG 26/1 / AWG 22/1
Approval of the cable by Weidmüller necessary
0.85 mm / 1.6 mm
5.5 mm / 8.5 mm
Gold over nickel
360° all-round enclosure
750
-40 °C...70 °C
≤ 20 mΩ
> 500 MΩ
≥ 1000 V DC
≥ 1500 V DC
IEC 60603-7-51
1 A
10 GBit/s
conforming to IEEE 802.3at
CULUS
Approvals available on request

Cat.5 (ISO/IEC 11801)
IP20
Zinc diecast
0.48 mm / 0.76 mm
AWG 26/7 / AWG 22/7
0.41 mm / 0.64 mm
AWG 26/1 / AWG 22/1
Approval of the cable by Weidmüller necessary
0.85 mm / 1.6 mm
5.5 mm / 8.5 mm
Gold over nickel
360° all-round enclosure
750
-40 °C...70 °C
≤ 20 mΩ
> 500 MΩ
≥ 1000 V DC
≥ 1500 V DC
IEC 60603-7-51
1 A
10 GBit/s
conforming to IEEE 802.3at
CULUS

Ordering data

<b>Plug</b>
with tear-off flags: EIA / TIA T568-A/B / PROFINET
with printing: PROFINET
with printing: EIA / TIA T568-A
with printing: EIA / TIA T568-B
<b>Note</b>

Type	Qty.	Order No.
IE-PS-RJ45-FH-BK	10	1963600000
IE-PS-RJ45-FH-BK-A	10	1132040000
IE-PS-RJ45-FH-BK-B	10	1132050000

Type	Qty.	Order No.
IE-PS-RJ45-FH-BK-P	10	1132060000

Accessories

<b>Strain relief</b>
green
grey
blue
orange
yellow
white
<b>Tools</b>
Optional pressing tool
<b>Note</b>

Type	Qty.	Order No.
IE-CR-IP20-RJ45-FH-GN	10	1963100000
IE-CR-IP20-RJ45-FH-GY	10	1963060000
IE-CR-IP20-RJ45-FH-BU	10	1963080000
IE-CR-IP20-RJ45-FH-OG	10	1963070000
IE-CR-IP20-RJ45-FH-YE	10	1963090000
IE-CR-IP20-RJ45-FH-WH	10	1963050000
PWZ RJ45	1	1118040000

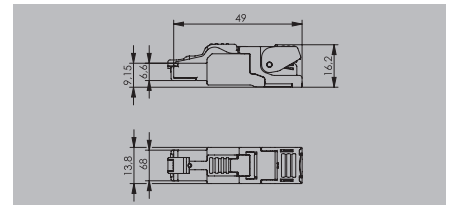
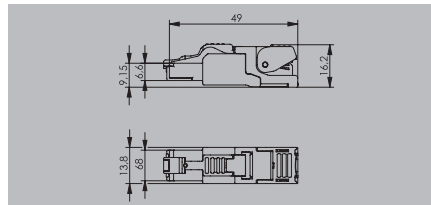
Type	Qty.	Order No.
IE-CR-IP20-RJ45-FH-GN	10	1963100000
IE-CR-IP20-RJ45-FH-GY	10	1963060000
IE-CR-IP20-RJ45-FH-BU	10	1963080000
IE-CR-IP20-RJ45-FH-OG	10	1963070000
IE-CR-IP20-RJ45-FH-YE	10	1963090000
IE-CR-IP20-RJ45-FH-WH	10	1963050000
PWZ RJ45	1	1118040000

**RJ45 plug, straight, tool free**

- Fieldattachable
- Cat. 6<sub>A</sub> (8-wire)
- Multi-port-compatible
- IP20

**8-wire, insulation diameter 1.1 - 1.6 mm**

**8-wire, insulation diameter 0.85 - 1.1 mm**



**Technical data**

Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Protection degree	IP20
Housing main material	Zinc diecast, nickel-plated
Connection diameter, flexible, min. / max.	0.46 mm / 0.76 mm
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 22
Connection diameter, solid, min. / max.	0.51 mm / 0.64 mm
Connection cross-section, solid, min. / max.	AWG 24 / AWG 22
Connection diameter, very finely stranded, min./max.	0.61 mm / 0.78 mm / Approval of the cable by Weidmüller necessary
Connection cross-section, very finely stranded, min./max.	AWG 24 / AWG 22 / Approval of the cable by Weidmüller necessary
Insulation diameter, min. / max.	1.1 mm / 1.6 mm
Sheath diameter, min. / max.	5 mm / 9 mm
Contact surface	Gold over nickel
Shielding	360° all-round enclosure
Plugging cycles	750
Ambient temperature (operational)	-40 °C...85 °C
Contact resistance	≤ 20 mΩ
Insulation resistance	> 500 MΩ
Dielectric strength, contact / contact	≥ 1000 V DC
Dielectric strength, contact / shield	≥ 1500 V DC
Connector standard	IEC 60603-7-51
Current-carrying capacity at 50 °C	1 A
Speed	10 GBit
PoE / PoE+	conforming to IEEE 802.3at
Approvals	CULUS

Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Protection degree	IP20
Housing main material	Zinc diecast, nickel-plated
Connection diameter, flexible, min. / max.	0.46 mm / 0.61 mm
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 24
Connection diameter, solid, min. / max.	0.41 mm / 0.51 mm
Connection cross-section, solid, min. / max.	AWG 26 / AWG 24
Connection diameter, very finely stranded, min./max.	0.51 mm / / Approval of the cable by Weidmüller necessary
Connection cross-section, very finely stranded, min./max.	AWG 26 / / Approval of the cable by Weidmüller necessary
Insulation diameter, min. / max.	0.85 mm / 1.1 mm
Sheath diameter, min. / max.	5 mm / 9 mm
Contact surface	Gold over nickel
Shielding	360° all-round enclosure
Plugging cycles	750
Ambient temperature (operational)	-40 °C...85 °C
Contact resistance	≤ 20 mΩ
Insulation resistance	> 500 MΩ
Dielectric strength, contact / contact	≥ 1000 V DC
Dielectric strength, contact / shield	≥ 1500 V DC
Connector standard	IEC 60603-7-51
Current-carrying capacity at 50 °C	1 A
Speed	10 GBit
PoE / PoE+	conforming to IEEE 802.3at
Approvals	CULUS

Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Protection degree	IP20
Housing main material	Zinc diecast, nickel-plated
Connection diameter, flexible, min. / max.	0.46 mm / 0.61 mm
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 24
Connection diameter, solid, min. / max.	0.41 mm / 0.51 mm
Connection cross-section, solid, min. / max.	AWG 26 / AWG 24
Connection diameter, very finely stranded, min./max.	0.51 mm / / Approval of the cable by Weidmüller necessary
Connection cross-section, very finely stranded, min./max.	AWG 26 / / Approval of the cable by Weidmüller necessary
Insulation diameter, min. / max.	0.85 mm / 1.1 mm
Sheath diameter, min. / max.	5 mm / 9 mm
Contact surface	Gold over nickel
Shielding	360° all-round enclosure
Plugging cycles	750
Ambient temperature (operational)	-40 °C...85 °C
Contact resistance	≤ 20 mΩ
Insulation resistance	> 500 MΩ
Dielectric strength, contact / contact	≥ 1000 V DC
Dielectric strength, contact / shield	≥ 1500 V DC
Connector standard	IEC 60603-7-51
Current-carrying capacity at 50 °C	1 A
Speed	10 GBit
PoE / PoE+	conforming to IEEE 802.3at
Approvals	CULUS

**Note**

**Ordering data**

Plug	with printing: EIA / TIA T568-A with printing: EIA / TIA T568-B
------	--

**Note**

Type	Qty.	Order No.
IE-PS-RJ45-FH-180-A-1.6	1	1992820000
IE-PS-RJ45-FH-180-B-1.6	1	1992830000

With pre-installed dust cap

Type	Qty.	Order No.
IE-PS-RJ45-FH-180-A-1.1	1	1992850000
IE-PS-RJ45-FH-180-B-1.1	1	1992860000

With pre-installed dust cap

**Accessories**

Substitute wire manager
TIA-A, insulation diameter 1.1...1.6 mm
TIA-B, insulation diameter 1.1...1.6 mm
TIA-A, insulation diameter 0.85...1 mm
TIA-B, insulation diameter 0.85...1 mm

**Tools**



Optional pressing tool

Type	Qty.	Order No.
IE-PI-RJ45-FH-A-1.6	30	1992880000
IE-PI-RJ45-FH-B-1.6	30	1992900000

Type	Qty.	Order No.
PWZ RJ45	1	1118040000

Type	Qty.	Order No.
IE-PI-RJ45-FH-A-1.1	30	1992920000
IE-PI-RJ45-FH-B-1.1	30	1992930000

Type	Qty.	Order No.
PWZ RJ45	1	1118040000

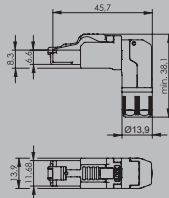
**Note**

## IP20 plug-in connectors

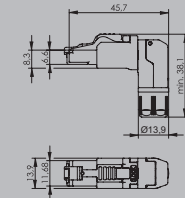
### RJ45 plug, angled, tool free

- Fieldattachable
- Cat. 6<sub>A</sub> (8-wire)
- Multi-port-compatible
- IP20

### 8-wire, insulation diameter 1.1 - 1.6 mm



### 8-wire, insulation diameter 0.85 - 1.1 mm



### Technical data

Category  
Protection degree  
Housing main material  
Connection diameter, flexible, min. / max.  
Connection cross-section, flexible, min. / max.  
Connection diameter, solid, min. / max.  
Connection cross-section, solid, min. / max.  
Connection diameter, very finely stranded, min./max.  
  
Connection cross-section, very finely stranded, min./max.

Insulation diameter, min. / max.  
Sheath diameter, min. / max.  
Contact surface  
Shielding  
Plugging cycles  
Ambient temperature (operational)  
Contact resistance  
Insulation resistance  
Dielectric strength, contact / contact  
Dielectric strength, contact / shield  
Connector standard  
Current-carrying capacity at 50 °C  
Speed  
PoE / PoE+  
Approvals

#### Note

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
IP20  
Zinc diecast, nickel-plated  
0.46 mm / 0.76 mm  
AWG 27 / AWG 22  
0.51 mm / 0.64 mm  
AWG 24 / AWG 22  
0.61 mm / 0.78 mm / Approval of the cable by Weidmüller necessary  
  
AWG 24 / AWG 22 / Approval of the cable by Weidmüller necessary

1.1 mm / 1.6 mm  
5 mm / 9 mm  
Gold over nickel  
360° all-round enclosure  
750  
-40 °C...85 °C  
≤ 20 mΩ  
> 500 MΩ  
≥ 1000 V DC  
≥ 1500 V DC  
IEC 60603-7-51  
1 A  
10 GBit  
conforming to IEEE 802.3at  
CULUS

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
IP20  
Zinc diecast, nickel-plated  
0.46 mm / 0.61 mm  
AWG 27 / AWG 24  
0.41 mm / 0.51 mm  
AWG 26 / AWG 24  
0.51 mm / / Approval of the cable by Weidmüller necessary  
  
AWG 26 / / Approval of the cable by Weidmüller necessary

0.85 mm / 1.1 mm  
5 mm / 9 mm  
Gold over nickel  
360° all-round enclosure  
750  
-40 °C...85 °C  
≤ 20 mΩ  
> 500 MΩ  
≥ 1000 V DC  
≥ 1500 V DC  
IEC 60603-7-51  
1 A  
10 GBit  
conforming to IEEE 802.3at  
CULUS

### Ordering data

**Plug**  
with printing: EIA / TIA T568-A  
with printing: EIA / TIA T568-B

#### Note

Type	Qty.	Order No.
IE-PS-RJ45-FH-90-A-1.6	1	1992870000
IE-PS-RJ45-FH-90-B-1.6	1	1992890000

With pre-installed dust cap

Type	Qty.	Order No.
IE-PS-RJ45-FH-90-A-1.1	10	1518080000
IE-PS-RJ45-FH-90-B-1.1	1	1518090000

With pre-installed dust cap

### Accessories

**Substitute wire manager**  
TIA-A, insulation diameter 1.1...1.6 mm  
TIA-B, insulation diameter 1.1...1.6 mm  
TIA-A, insulation diameter 0.85...1 mm  
TIA-B, insulation diameter 0.85...1 mm

#### Tools



Optional pressing tool

Type	Qty.	Order No.
IE-PI-RJ45-FH-A-1.6	30	1992880000
IE-PI-RJ45-FH-B-1.6	30	1992900000
PWZ RJ45	1	1118040000

Type	Qty.	Order No.
IE-PI-RJ45-FH-A-1.1	30	1992920000
IE-PI-RJ45-FH-B-1.1	30	1992930000
PWZ RJ45	1	1118040000

#### Note



**RJ45 plug, straight and angled, tool free**

- Fieldattachable
- Cat. 5 (4-wire) for PROFINET
- Multi-port-compatible
- IP20

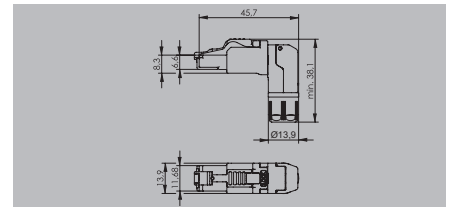
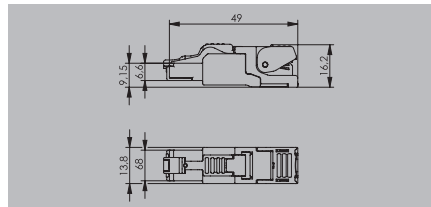
**4-wire for PROFINET**

straight



**4-wire for PROFINET**

angled



**Technical data**

Category	Cat.5 (ISO/IEC 11801)
Protection degree	IP20
Housing main material	Zinc diecast, nickel-plated
Connection diameter, flexible, min. / max.	0.46 mm / 0.76 mm
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 22
Connection diameter, solid, min. / max.	0.51 mm / 0.64 mm
Connection cross-section, solid, min. / max.	AWG 24 / AWG 22
Connection diameter, very finely stranded, min./max.	0.61 mm / 0.78 mm / Approval of the cable by Weidmüller necessary
Connection cross-section, very finely stranded, min./max.	AWG 24 / AWG 22 / Approval of the cable by Weidmüller necessary
Insulation diameter, min. / max.	1.1 mm / 1.6 mm
Sheath diameter, min. / max.	5 mm / 9 mm
Contact surface	Gold over nickel
Shielding	360° all-round enclosure
Plugging cycles	750
Ambient temperature (operational)	-40 °C...85 °C
Contact resistance	≤ 20 mΩ
Insulation resistance	> 500 MΩ
Dielectric strength, contact / contact	≥ 1000 V DC
Dielectric strength, contact / shield	≥ 1500 V DC
Connector standard	IEC 60603-7-51
Current-carrying capacity at 50 °C	1 A
Speed	100 MBit
PoE / PoE+	conforming to IEEE 802.3at
Approvals	CULUS

Category	Cat.5 (ISO/IEC 11801)
Protection degree	IP20
Housing main material	Zinc diecast, nickel-plated
Connection diameter, flexible, min. / max.	0.46 mm / 0.76 mm
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 22
Connection diameter, solid, min. / max.	0.51 mm / 0.64 mm
Connection cross-section, solid, min. / max.	AWG 24 / AWG 22
Connection diameter, very finely stranded, min./max.	0.61 mm / 0.78 mm / Approval of the cable by Weidmüller necessary
Connection cross-section, very finely stranded, min./max.	AWG 24 / AWG 22 / Approval of the cable by Weidmüller necessary
Insulation diameter, min. / max.	1.1 mm / 1.6 mm
Sheath diameter, min. / max.	5 mm / 9 mm
Contact surface	Gold over nickel
Shielding	360° all-round enclosure
Plugging cycles	750
Ambient temperature (operational)	-40 °C...85 °C
Contact resistance	≤ 20 mΩ
Insulation resistance	> 500 MΩ
Dielectric strength, contact / contact	≥ 1000 V DC
Dielectric strength, contact / shield	≥ 1500 V DC
Connector standard	IEC 60603-7-51
Current-carrying capacity at 50 °C	1 A
Speed	100 MBit
PoE / PoE+	conforming to IEEE 802.3at
Approvals	CULUS

Category	Cat.5 (ISO/IEC 11801)
Protection degree	IP20
Housing main material	Zinc diecast, nickel-plated
Connection diameter, flexible, min. / max.	0.46 mm / 0.76 mm
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 22
Connection diameter, solid, min. / max.	0.51 mm / 0.64 mm
Connection cross-section, solid, min. / max.	AWG 24 / AWG 22
Connection diameter, very finely stranded, min./max.	0.61 mm / 0.78 mm / Approval of the cable by Weidmüller necessary
Connection cross-section, very finely stranded, min./max.	AWG 24 / AWG 22 / Approval of the cable by Weidmüller necessary
Insulation diameter, min. / max.	1.1 mm / 1.6 mm
Sheath diameter, min. / max.	5 mm / 9 mm
Contact surface	Gold over nickel
Shielding	360° all-round enclosure
Plugging cycles	750
Ambient temperature (operational)	-40 °C...85 °C
Contact resistance	≤ 20 mΩ
Insulation resistance	> 500 MΩ
Dielectric strength, contact / contact	≥ 1000 V DC
Dielectric strength, contact / shield	≥ 1500 V DC
Connector standard	IEC 60603-7-51
Current-carrying capacity at 50 °C	1 A
Speed	100 MBit
PoE / PoE+	conforming to IEEE 802.3at
Approvals	CULUS

**Note**

**Ordering data**

Plug	with printing: PROFINET
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**Note**

Type	Qty.	Order No.
IE-PS-RJ45-FH-180-P-1.6	10	1992840000

With pre-installed dust cap

Type	Qty.	Order No.
IE-PS-RJ45-FH-90-P-1.6	10	1518100000

With pre-installed dust cap

**Accessories**

Substitute wire manager	Type	Qty.	Order No.
PROFINET, insulation diameter 1.1...1.6 mm	IE-PI-RJ45-FH-P-1.6	30	1992910000

**Tools**



Optional pressing tool

Type	Qty.	Order No.
PWZ RJ45	1	1118040000

Type	Qty.	Order No.
IE-PI-RJ45-FH-P-1.6	30	1992910000

PWZ RJ45

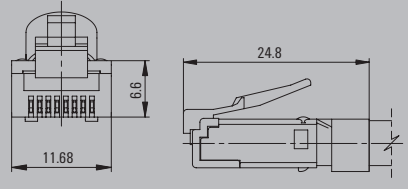
**Note**

## IP20 plug-in connectors

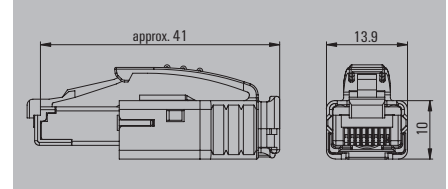
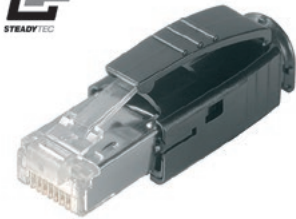
### RJ45 crimp plug

- Cat. 6
- With kink protection
- With locking-lever protection

### 8-wire, housing 1-part



### 8-wire, housing 2-part



### Technical data

Category
Protection degree
Connection diameter, flexible, min. / max.
Connection cross-section, flexible, min. / max.
Connection diameter, solid, min. / max.
Connection cross-section, solid, min. / max.
Insulation cross-section, max.
Sheath diameter, min. / max.
Shielding
Plugging cycles
Ambient temperature (operational)
Connector standard
Bending protection sleeve material
Material insulator
Contact material / Contact surface
Shielding material
Cable pull-out force, min.
Contact resistance
Insulation resistance
Dielectric strength, contact / contact
Dielectric strength, contact / shield
Current-carrying capacity at 50 °C
PoE / PoE+
Approvals

Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
IP20
0.46 mm / 0.61 mm
AWG 27 / AWG 24
0.36 mm / 0.51 mm
AWG 27 / AWG 24
1.05 mm
5.5 mm / 6.2 mm
360° all-round enclosure
750
-40 °C...70 °C
IEC 60603-7-51
PVC, UL 94-V0
Polycarbonate PC, UL 94 V-0
Phosphorus bronze / Gold-plated
0.5 mm brass, 2 µm nickel
89 N
≤ 20 mΩ
500 MΩ
≤ 1000 V DC
≤ 1500 V DC
1 A
conforming to IEEE 802.3af
EAC

Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
IP20
0.46 mm / 0.61 mm
AWG 27 / AWG 24
0.36 mm / 0.51 mm
AWG 27 / AWG 24
1.05 mm
5 mm / 7.3 mm
360° all-round enclosure
750
-40 °C...70 °C
IEC 60603-7-51
Polycarbonate PC, UL 94 V-0
Polycarbonate PC, UL 94 V-0
Phosphorus bronze / Gold-plated
0.5 mm brass, 2 µm nickel
89 N
≤ 20 mΩ
500 MΩ
≤ 1000 V DC
≤ 1500 V DC
1 A
conforming to IEEE 802.3af
CURUS

#### Note

### Ordering data

Plug	
	with kink prevention; 5.5 - 6.2 mm
	with kink prevention; 6.2 - 7.1 mm
	with kink prevention sleeve, black
	without kink prevention sleeve

#### Note

Type	Qty.	Order No.
IE-P63	10	8813110000
IE-P70	10	8813120000
IE-P	100	8813100000

Type	Qty.	Order No.
IE-PS-RJ45-TH-BK	10	1963590000
IE-PM-RJ45-TH	100	1963580000

### Accessories

Kink prevention sleeve	
	white
	green
	grey
	yellow
	orange
	black
	blue

#### Tools

	Crimping tool
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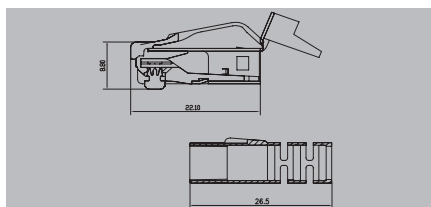
#### Note

Type	Qty.	Order No.
TT 8 RS MP 8	1	9202800000

Type	Qty.	Order No.
IE-PH-RJ45-TH-WH	10	1962430000
IE-PH-RJ45-TH-GN	10	1962490000
IE-PH-RJ45-TH-GY	10	1962440000
IE-PH-RJ45-TH-YE	10	1962480000
IE-PH-RJ45-TH-OG	10	1962450000
IE-PH-RJ45-TH-BK	10	1962500000
IE-PH-RJ45-TH-BU	10	1962470000
TT 8 RS MP 8	1	9202800000

RJ45 PROFINET crimp plug

4-wire for PROFINET, housing 1-part



Technical data

Category
Protection degree
Connection diameter, flexible, min. / max.
Connection cross-section, flexible, min. / max.
Connection diameter, solid, min. / max.
Connection cross-section, solid, min. / max.
Insulation cross-section, max.
Sheath diameter, min. / max.
Shielding
Plugging cycles
Ambient temperature (operational)
Connector standard
Bending protection sleeve material
Material insulator
Contact material / Contact surface
Shielding material
Cable pull-out force, min.
Contact resistance
Insulation resistance
Dielectric strength, contact / contact
Dielectric strength, contact / shield
Current-carrying capacity at 50 °C
PoE / PoE+
Approvals
<b>Note</b>

Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
IP20
AWG 24 / AWG 27
1.6 mm
/ 7.5 mm
360° all-round enclosure
750
-40 °C...70 °C
IEC 60603-7
Polyamide PA6, UL 94-V0
Copper alloy / nickel-plated, selectively gold-plated
≤ 10 mΩ
500 MΩ
1000 V AC
conforming to IEEE 802.3af
<b>Note</b>

Ordering data

<b>Plug</b>
<b>Note</b>

Type	Qty.	Order No.
IE-PS-RJ45-TH-BK-P	10	2584980000

Accessories

<b>Tools</b>
 Crimping tool

Type	Qty.	Order No.
IE-CWZ-RJ45-TH-P	1	2614210000

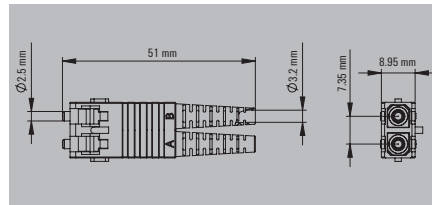
<b>Note</b>
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<b>Note</b>
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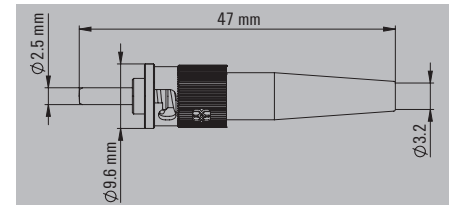
FO connector

- IP20

SC-RJ



ST



Technical data

Protection degree	IP20
Plugging cycles	1000
Ambient temperature (operational)	-20 °C...80 °C
Connector standard	IEC 61754-24
Individual wire diameter, min. / max.	0.6 mm...1.4 mm
Crimp barrel material	Copper, nickel-plated
Pressure spring material	Rustless steel
Ferrule material	Zirconia, Hole 125.5 µm
Dust protection cap material	TPE
Bending protection sleeve material	TPE
Cable pull-out force, min.	100 N
Housing main material	PC UL 94 V0
Housing material, insert	Zinc diecast
Humidity	0...93 % rel. humidity
Sheath diameter, min. / max.	2.8 mm / 3 mm
Approvals	UL
<b>Note</b>	

Protection degree	IP20
Plugging cycles	1000
Ambient temperature (operational)	-20 °C...80 °C
Connector standard	IEC 61754-24
Individual wire diameter, min. / max.	0.6 mm...1.4 mm
Crimp barrel material	Copper, nickel-plated
Pressure spring material	Rustless steel
Ferrule material	Zirconia, Hole 125.5 µm
Dust protection cap material	TPE
Bending protection sleeve material	TPE
Cable pull-out force, min.	100 N
Housing main material	PC UL 94 V0
Housing material, insert	Zinc diecast
Humidity	0...93 % rel. humidity
Sheath diameter, min. / max.	2.8 mm / 3 mm
Approvals	UL
<b>Note</b>	

Protection degree	IP20
Plugging cycles	1000
Ambient temperature (operational)	-20 °C...80 °C
Connector standard	IEC 61754-2
Individual wire diameter, min. / max.	...
Crimp barrel material	Copper, nickel-plated
Pressure spring material	
Ferrule material	
Dust protection cap material	TPE
Bending protection sleeve material	TPE
Cable pull-out force, min.	100 N
Housing main material	Zinc diecast
Housing material, insert	
Humidity	
Sheath diameter, min. / max.	2.6 mm / 3.2 mm
Approvals	EAC
<b>Note</b>	

Ordering data

	Singlemode
	Multimode
	POF
<b>Note</b>	

Type	Qty.	Order No.
IE-PS-SCRJ1-SM	10	1206740000
IE-PS-SCRJ1-MM	10	1206730000
IE-PS-SCRJ1-POF	10	1206720000

Type	Qty.	Order No.
IE-PS-ST-SM	1	1414680000
IE-PS-ST-MM	1	1968150000

Accessories

Tools
Crimping tool POF
Replacement ferrule
Contact Removal Tool

Type	Qty.	Order No.
HTX-IE-POF	1	1208870000
IE-SCRJ1-IP20-POF-100	100	1278420000
REMOVAL TOOL HD	1	1866730000

Type	Qty.	Order No.

**Note**

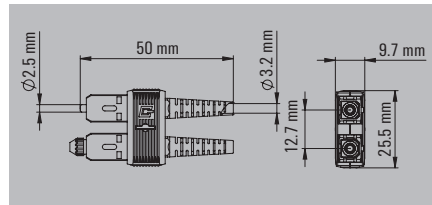
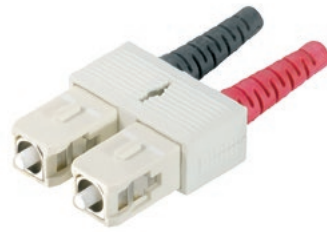
**Note**

**Note**

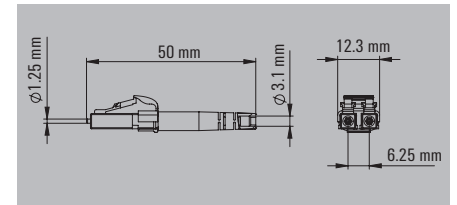
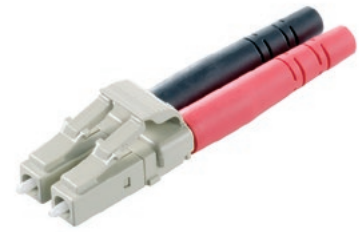
**FO connector**

- IP20

**SC Duplex**



**LC duplex**



**Technical data**

Protection degree
Plugging cycles
Ambient temperature (operational)
Connector standard
Individual wire diameter, min. / max.
Crimp barrel material
Pressure spring material
Ferrule material
Dust protection cap material
Bending protection sleeve material
Cable pull-out force, min.
Housing main material
Housing material, insert
Humidity
Sheath diameter, min. / max.
Approvals

IP20
1000
-40 °C...70 °C
IEC 61754-4
0.6 mm...1.4 mm
Copper, nickel-plated
Rustless steel
Zirconia, Hole 127 µm
TPE
TPE
100 N
PC UL 94 V0
Zinc diecast
0...93 % rel. humidity
2.8 mm / 3 mm
UL

IP20
1000
-40 °C...70 °C
IEC 61754-20
0.6 mm...1.4 mm
Copper, nickel-plated
Rustless steel
Zirconia, Hole 127 µm
TPE
TPE
100 N
PC UL 94 V0
Zinc diecast
0...93 % rel. humidity
2.8 mm / 3 mm
EAC

**Note**

**Ordering data**

Singlemode  
Multimode

Type	Qty.	Order No.
IE-PS-SCD-SM	10	1964410000
IE-PS-SCD-MM	10	1964480000

Type	Qty.	Order No.
IE-PS-LCD-SM	10	1962980000
IE-PS-LCD-MM	1	1962970000

**Note**

**Accessories**

**Tools**



Type	Qty.	Order No.

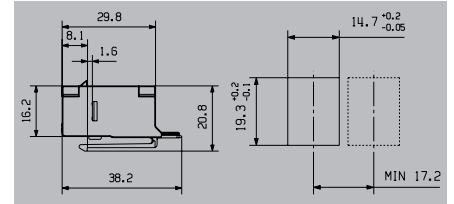
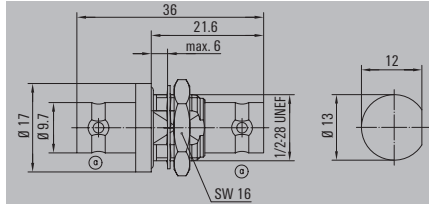
Type	Qty.	Order No.

**Note**

Coupling BNC

BNC

RJ45 keystone



Technical data

Housing main material
Insulation
Return loss (attenuation)
Characteristic impedance
O-Ring
Category
Protection degree
Plugging cycles
PoE / PoE+
Connector standard
Approvals
Note

Brass, nickel-plated
PTFE
23 dB at 4 GHz, 27 dB at 1 GHz
50 Ω
NBR
IEC 61169-8

Zinc diecast
Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP20
750
conforming to IEEE 802.3at
IEC 60603-7-5
EAC

Ordering data

Note
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Type	Qty.	Order No.
IE-BI-BNC-C	1	1345020000

Type	Qty.	Order No.
IE-XR-RJ45/RJ45-2	24	8952950000

Accessories

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Type	Qty.	Order No.

Type	Qty.	Order No.

Note
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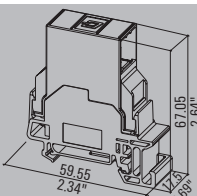
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**Module RJ45**

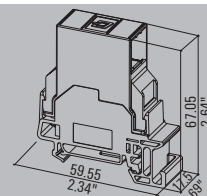
**Outlet direction straight**

- Cat. 6<sub>A</sub>
- IP20
- TS 35

**8-wire**



**4-wire**



**Technical data**

Category
Protection degree
Housing main material
Contact surface
Colour
Type of mounting
Plugging cycles
Configuration
Ambient temperature (operational)
Temperature range, assembly, min. / max.
Connector standard
Connection diameter, flexible, min. / max.
Connection cross-section, flexible, min. / max.
Connection diameter, solid, min. / max.
Connection cross-section, solid, min. / max.
<b>Electrical properties*</b>
PoE / PoE+
Contact resistance
Current-carrying capacity at 50 °C
Dielectric strength, contact / contact
Dielectric strength, contact / shield
Insulation resistance
Approvals
<b>Note</b>

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP20
PA UL 94 V0
Au ≥ 0.8 µm
Light Grey
TS 35
750
Switchable volt. connection from module/coupling to mounting rail
-40 °C...70 °C
-25 °C...70 °C
IEC 60603-7-51
0.48 mm / 0.76 mm
AWG 26 / AWG 22
0.4 mm / 0.64 mm
AWG 24 / AWG 22
conforming to IEEE 802.3af
≤ 20 mΩ
1 A
≥ 1000 V DC
≥ 1500 V DC
500 MΩ
EAC
Weidmüller connection cat. 7 AWG 27/7 LSZH cable possible

Cat.5 (ISO/IEC 11801)
IP20
PA UL 94 V0
Au ≥ 0.8 µm
Light Grey
TS 35
750
Switchable volt. connection from module/coupling to mounting rail
-40 °C...70 °C
-25 °C...70 °C
IEC 60603-7-51
0.48 mm / 0.76 mm
AWG 26 / AWG 22
0.4 mm / 0.64 mm
AWG 24 / AWG 22
conforming to IEEE 802.3af
≤ 20 mΩ
1 A
≥ 1000 V DC
≥ 1500 V DC
500 MΩ
EAC

**Ordering data**

A-coded
B-coded
PROFINET-coded
<b>Note</b>

Type	Qty.	Order No.
IE-TO-RJ45-FJ-A	10	<b>8946930000</b>
IE-TO-RJ45-FJ-B	10	<b>8946940000</b>

Type	Qty.	Order No.
IE-TO-RJ45-FJ-P	10	<b>8946950000</b>

**Accessories**

<b>Marker, inside</b>
MultiCard, white

Type	Qty.	Order No.
ESG 9/11 K MC NE WS	200	<b>1857440000</b>

Type	Qty.	Order No.
ESG 9/11 K MC NE WS	200	<b>1857440000</b>

<b>Note</b>
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<b>Note</b>
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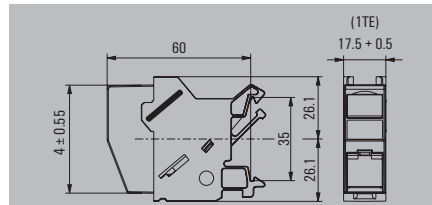
<b>Note</b>
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**Module RJ45**

**Outlet direction diagonal**

- Cat. 6
- IP20
- TS 35

**8-wire**



**Technical data**

Category	Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
Protection degree	IP20
Housing main material	PA 66, UL 94: V-0
Contact surface	
Colour	Light Grey
Type of mounting	TS 35
Plugging cycles	750
Configuration	Inspection window for labelling 1 TE pitch dimension acc. to DIN 43880. insta-compatible
Ambient temperature (operational)	-25 °C...70 °C
Temperature range, assembly, min. / max.	...
Connector standard	IEC 60603-7-5
Connection diameter, flexible, min. / max.	0.4 mm / 0.64 mm
Connection cross-section, flexible, min. / max.	AWG 26 / AWG 22
Connection diameter, solid, min. / max.	0.4 mm / 0.64 mm
Connection cross-section, solid, min. / max.	AWG 26 / AWG 22
<b>Electrical properties*</b>	
PoE / PoE+	conforming to IEEE 802.3at
Contact resistance	≤ 20 mΩ
Current-carrying capacity at 50 °C	1 A
Dielectric strength, contact / contact	≥ 1000 V DC
Dielectric strength, contact / shield	≥ 1500 V DC
Insulation resistance	500 MΩ
Approvals	CULUS; GERMLLOYD
<b>Note</b>	

**Ordering data**

	A/B-coded	
<b>Note</b>		
<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
IE-XM-RJ45/IDC	1	8808360000

**Accessories**

<b>Markers</b>	Marking tag	
<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
IE-DM	50	8813500000

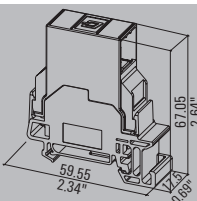
**Note**



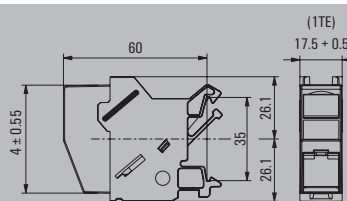
**Coupling RJ45, 8-wire**

- Cat. 6<sub>A</sub>
- IP20
- TS 35

**Outlet direction straight**



**Outlet direction diagonal**



**Technical data**

Category  
 Protection degree  
 Housing main material  
 Contact material / Contact surface  
 Colour  
 Type of mounting  
 Plugging cycles  
 Configuration

Ambient temperature (operational)  
 Temperature range, assembly, min. / max.  
 Humidity  
 Shock resistance acc. to IEC 60512-4  
 Vibration resistance acc. to IEC 60512-4  
 Housing material, insert  
 Connector standard

**Electrical properties\***  
 PoE / PoE+  
 Contact resistance  
 Current-carrying capacity at 50 °C  
 Dielectric strength, contact / contact  
 Dielectric strength, contact / shield  
 Insulation resistance  
 Approvals

**Note**

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
 IP20  
 PA UL 94 V0  
 Spring steel, Ni 1.2 µm / Au ≥ 0.8 µm  
 Light Grey  
 TS 35  
 750  
 Switchable volt. connection from module/coupling to mounting rail

-40 °C...70 °C  
 -25 °C...70 °C  
 0...93 % rel. humidity  
 250 ms<sup>2</sup>  
 50 ms<sup>2</sup> sinusoidal (9 – 500 Hz)  
 Zinc diecast  
 IEC 60603-7-51

conforming to IEEE 802.3af  
 ≤ 20 mΩ  
 1 A  
 ≥ 1000 V DC  
 ≥ 1500 V DC  
 500 MΩ  
 EAC

Cat.6 (ISO/IEC 11801)  
 IP20  
 PA 66, UL 94: V-0  
 Light Grey  
 TS 35  
 750  
 Inspection window for labelling  
 1 TE pitch dimension acc. to DIN 43880. insta-compatible  
 -25 °C...70 °C  
 ...

IEC 60603-7-5

conforming to IEEE 802.3at  
 ≤ 20 mΩ  
 1 A  
 ≥ 1000 V DC  
 ≥ 1500 V DC  
 500 MΩ  
 CULUS; GERMLLOYD

**Ordering data**

**Note**

Type	Qty.	Order No.
IE-T0-RJ45-C	10	8946920000

Type	Qty.	Order No.
IE-XM-RJ45/RJ45	1	8879050000

**Accessories**

**Marker, inside** MultiCard, white

**Markers** Marking tag

Type	Qty.	Order No.
ESG 9/11 K MC NE WS	200	1857440000

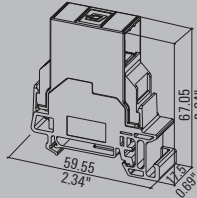
Type	Qty.	Order No.
IE-DM	50	8813500000

**Note**

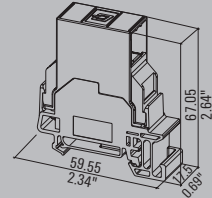
USB connection

- IP20
- TS 35

USB A



USB AB



Technical data

Protection degree
Housing main material
Colour
Type of mounting
Ambient temperature (operational)
Temperature range, assembly, min. / max.
Connector standard
Connection 1 / 2
Approvals
Note

IP20
PA UL 94 V0
Light Grey
TS 35
-40 °C...70 °C
-25 °C...70 °C
IEC 61076-3-107
USB A / USB A
EAC
Note

IP20
PA UL 94 V0
Light Grey
TS 35
-40 °C...70 °C
-25 °C...70 °C
IEC 61076-3-107
USB A / USB B
EAC
Note

Ordering data

USB
Note

Type	Qty.	Order No.
IE-T0-USB	1	8946960000
Note		

Type	Qty.	Order No.
IE-T0-USB-AB	1	1438180000
Note		

Accessories

Marker, inside	MultiCard, white
Note	

Type	Qty.	Order No.
ESG 9/11 K MC NE WS	200	1857440000
Note		

Type	Qty.	Order No.
ESG 9/11 K MC NE WS	200	1857440000
Note		

Note
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Note
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Note
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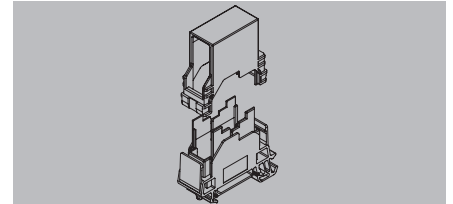
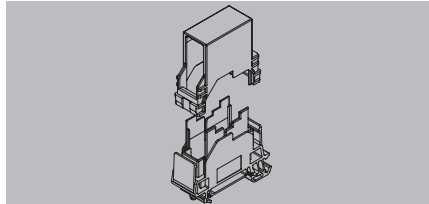
**Coupling fibre-optic**

- IP20
- TS 35

**SC duplex**



**SC-RJ**



**Technical data**

Protection degree
Housing main material
Colour
Type of mounting
Plugging cycles
Ambient temperature (operational)
Temperature range, assembly, min. / max.
Connector standard
Approvals

IP20
PA UL 94 V0
Light Grey
TS 35
1000
-40 °C...70 °C
-25 °C...70 °C
IEC 61754-4
UL

IP20
PA UL 94 V0
Light Grey
TS 35
1000
-40 °C...70 °C
-25 °C...70 °C
IEC 61754-24
UL

**Note**

**Ordering data**

Fibre-optic	
Singlemode	
Multimode/POF	

Type	Qty.	Order No.
IE-TO-SCD-SM	1	8946980000
IE-TO-SCD-MM	10	8946970000

Type	Qty.	Order No.
IE-TO-SCRJ-SM	10	8947000000
IE-TO-SCRJ-MM	10	8946990000

**Note**

**Accessories**

Marker, inside	
MultiCard, white	

Type	Qty.	Order No.
ESG 9/11 K MC NE WS	200	1857440000

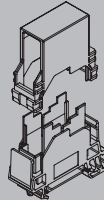
Type	Qty.	Order No.
ESG 9/11 K MC NE WS	200	1857440000

**Note**

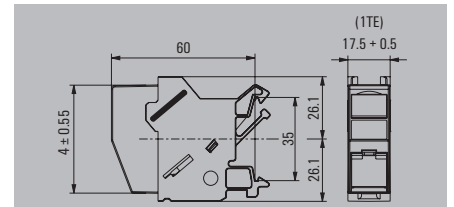
Coupling fibre-optic

- IP20
- TS 35

LC Duplex



ST



Technical data

Protection degree
Housing main material
Colour
Type of mounting
Configuration
Plugging cycles
Ambient temperature (operational)
Temperature range, assembly, min. / max.
Connector standard
Approvals
<b>Note</b>

IP20
PA UL 94 V0
Light Grey
TS 35
1000
-40 °C...70 °C
-25 °C...70 °C
IEC 61754-20
EAC

IP20
PA 66, UL 94: V-0
Light Grey
TS 35
Inspection window for labelling
1 TE pitch dimension acc. to DIN 43880, insta-compatible
750
-25 °C...70 °C
...
IEC 61754-2
EAC

Ordering data

Singlemode
Multimode
<b>Note</b>

Type	Qty.	Order No.
IE-T0-LCD-SM	10	8947020000
IE-T0-LCD-MM	10	8947010000

Type	Qty.	Order No.
IE-XM-ST/ST	1	8808340000

Accessories

<b>Marker, inside</b>	MultiCard, white
<b>Markers</b>	Marking tag

Type	Qty.	Order No.
ESG 9/11 K MC NE WS	200	1857440000

Type	Qty.	Order No.
IE-DM	50	8813500000

<b>Note</b>
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<b>Note</b>
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<b>Note</b>
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**Socket adapter**

- IP20
- TS 35

**Socket adapter**



**Technical data**

Protection degree  
 Housing main material  
 Ambient temperature (operational)  
 Approvals

IP20  
 Polycarbonate PC, Acrylnitril-Butadien-Styrol (ABS)  
 -25 °C...70 °C

**Note**

**Ordering data**

**Note**

Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000

**Accessories**

**Inserts, Power**

- Socket AU 15 A
- Socket AU 10 A
- Socket CH
- Socket CN
- Socket GB
- Socket DE
- Socket DE orange
- Socket FR
- Socket FR orange
- Socket IT/EU
- Socket CZ
- Socket IND
- RCBO
- ISR socket

Type	Qty.	Order No.
IE-FCI-PWB-AU	1	1450830000
IE-FCI-PWB-AU-10A	10	1546590000
IE-FCI-PWB-CH	1	1450780000
IE-FCI-PWB-CN	1	1450790000
IE-FCI-PWB-GB	1	1450770000
IE-FCI-PWB-DE	1	1450730000
IE-FCI-PWB-DE-OR	1	1554000000
IE-FCI-PWB-FR	1	1450750000
IE-FCI-PWB-FR-OR	1	2007230000
IE-FCI-PWB-IT	1	1450810000
IE-FCI-PWB-CZ	1	2426700000
IE-FCI-PWB-IND	1	2500710000
IE-FCI-PWB-RCBO	1	1534250000
IE-FCI-PWB-ISR	1	2531060000

**Note**



# FrontCom® IP65 service interfaces

## Overview

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<b>FrontCom® IP65 service interfaces</b>	FrontCom® Vario IP65 service interface	1.2
	FrontCom® Micro IP65 service interface	
	RJ45	1.28
	USB	1.30

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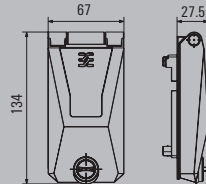
**FrontCom® Vario IP65 service interface**

**FrontCom® Vario**

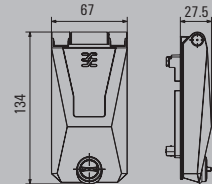
**Frame**

- IP65
- Single-insert plates can be used

**Metal cover**



**Plastic cover**



**Technical data**

Protection degree / Protection class (UL)
Material cover
Material frame
Ambient temperature (operational)
Approvals
<b>Note</b>

IP65, in closed state / Type 12
Zinc diecast, powder-coated
Zinc diecast
-40 °C...70 °C
CURUS; GERMLLOYD
<b>Note</b>

IP65, in closed state
Polycarbonate PC
Zinc diecast
-40 °C...70 °C
GERMLLOYD
<b>Note</b>

**Ordering data**

button operation
Lockable with key
<b>Note</b>

Type	Qty.	Order No.
IE-FC-SFM-KNOB	1	1450530000
IE-FC-SFM-KEY2	1	1450540000

Type	Qty.	Order No.
IE-FC-SFP-KNOB	1	1450510000
IE-FC-SFP-KEY2	1	1450520000

**Accessories**

<b>Spare key</b>
silver
light grey
white
for touch-safe protection and insert plates
<b>Touch-safe protection</b>
Touch-safe protection

Type	Qty.	Order No.
IE-FC-KEY2	1	2066650000
SM 27/18 K MC NE SI	80	1713760000
SM 27/18 K MC NE GR	80	1073340000
SM 27/18 K MC NE WS	80	1707270000
ESG 7/20 SIRIUS MC NE WS	200	1736181044
IE-FC-PWPC	1	1450820000

Type	Qty.	Order No.
IE-FC-KEY2	1	2066650000
SM 27/18 K MC NE SI	80	1713760000
SM 27/18 K MC NE GR	80	1073340000
SM 27/18 K MC NE WS	80	1707270000
ESG 7/20 SIRIUS MC NE WS	200	1736181044
IE-FC-PWPC	1	1450820000

<b>Note</b>
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<b>Note</b>
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<b>Note</b>
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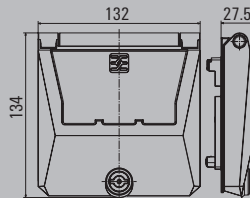


## FrontCom® Vario

### Double frame

- IP65
- Single- and double insert plates can be used

### Metal cover



### Technical data

Protection degree / Protection class (UL)  
 Material cover  
 Material frame  
 Ambient temperature (operational)  
 Approvals

IP65, in closed state / Type 12  
 Zinc diecast, powder-coated  
 Zinc diecast  
 -40 °C...70 °C  
 CURUS

#### Note

### Ordering data

button operation  
 Lockable with key  
 Lockable with cabinet key  
 Lockable with cabinet key (Daimler-Locking)

Type	Qty.	Order No.
IE-FC-DFM-KNOB	1	2003170000
IE-FC-DFM-KEY	1	2003180000
IE-FC-DFM-CAB	1	2003190000
IE-FC-DFM-CAB-DB	1	2003150000

#### Note

### Accessories

#### Spare key

Type	Qty.	Order No.
IE-FC-KEY2	1	2066650000

#### Markers

silver  
 light grey  
 white  
 for touch-safe protection and insert plates

SM 27/18 K MC NE SI	80	1713760000
SM 27/18 K MC NE GR	80	1073340000
SM 27/18 K MC NE WS	80	1707270000
ESG 7/20 SIRIUS MC NE WS	200	1736181044

#### Touch-safe protection

Touch-safe protection

#### Bar (for mounting single insert plates)

Partition

IE-FC-PWPC	1	1450820000
IE-FC-DF-IPH	1	2003340000

#### Note

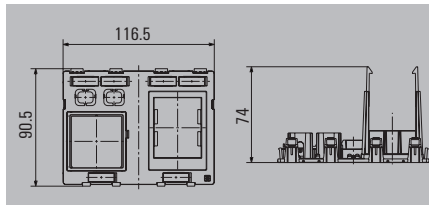
**FrontCom® Vario IP65 service interface**

**FrontCom® Vario**

**Insert plates for double frames**

- IP20

**1 x power, 2 x data, 1 x LS switch**



**Technical data**

Material
Insert, data
Insert Power large
Preparation of LS switch (2 pitch)
Insert 2 x Power US + GFCI
Ambient temperature (operational)
Approvals
<b>Note</b>

Polycarbonate PC
2
1
1
-40 °C...70 °C
CURUS

**Ordering data**

shielded
unshielded
<b>Note</b>

Type	Qty.	Order No.
IE-FC-DSP-PWB/2ST/FILS	1	2067080000
IE-FC-DIP-PWB/2ST/FILS	1	2067070000

**Accessories**

Inserts, Power	
Socket AU 15 A	
Socket AU 10 A	
Socket CH	
Socket CN	
Socket GB	
Socket DE	
Socket DE orange	
Socket FR	
Socket FR orange	
Socket IT/EU	
Socket CZ	
Socket IND	
RCBO	

Type	Qty.	Order No.
IE-FCI-PWB-AU	1	1450830000
IE-FCI-PWB-AU-10A	10	1546590000
IE-FCI-PWB-CH	1	1450780000
IE-FCI-PWB-CN	1	1450790000
IE-FCI-PWB-GB	1	1450770000
IE-FCI-PWB-DE	1	1450730000
IE-FCI-PWB-DE-OR	1	1554000000
IE-FCI-PWB-FR	1	1450750000
IE-FCI-PWB-FR-OR	1	2007230000
IE-FCI-PWS-IT	1	1450810000
IE-FCI-PWB-CZ	1	2426700000
IE-FCI-PWB-IND	1	2500710000
IE-FCI-PWB-RCBO	1	1534250000

Inserts, Data	
RJ45 coupling	
RJ45 module EIA/TIA T568 B	
RJ45 module PROFINET	
RJ45 module EIA/TIA T568 A	
USB 2.0 A / A	
USB 3.0 A / A	
USB 2.0 A / B	

IE-BI-RJ45-C	1	1962840000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-USB-A	10	1019570000
IE-BI-USB-3.0-A	10	1487920000
IE-BI-USB-AB	10	1131380000

Markers	
for touch-safe protection and insert plates	

ESG 7/20 SIRIUS MC NE WS	200	1736181044
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Touch-safe protection	
Touch-safe protection	

IE-FC-PWPC	1	1450820000
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<b>Note</b>
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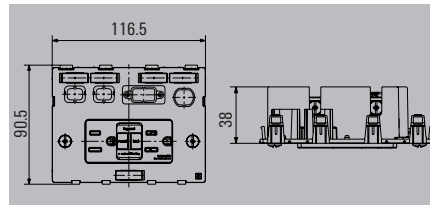
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**FrontCom® Vario**

**Insert plates for double frames**

- IP20

**1x GFCI included, 2x data, 1x signal, 1x fuse**



**Technical data**

Material  
 Insert, data  
 Insert Power large  
 Insert fuse  
 Signal insert D-Sub 9-pole / VGA / HDMI  
 Preparation of LS switch (2 pitch)  
 Insert 2 x Power US + GFCI  
 Ambient temperature (operational)  
 Approvals

**Technical data GFCI insert**

Operating voltage / Rated current  
 GFCI protected US outlet  
 Self-test  
 Status indication  
 Type of connection  
 Line connection cross-section  
     finely stranded with wire-end ferrule  
     finely stranded with wire-end ferrule  
 Conductor connection cross-section, rigid

**Note**

Material	Polycarbonate PC
Insert, data	2
Insert Power large	
Insert fuse	1
Signal insert D-Sub 9-pole / VGA / HDMI	1
Preparation of LS switch (2 pitch)	
Insert 2 x Power US + GFCI	1
Ambient temperature (operational)	-35 °C...66 °C
Approvals	CURUS
Operating voltage / Rated current	125 V AC / 20 A
GFCI protected US outlet	2 pieces
Self-test	automatically every 3 seconds
Status indication	red LED
Type of connection	Screw connection
Line connection cross-section	
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
Conductor connection cross-section, rigid	1.5 ... 4 mm <sup>2</sup>

**Ordering data**

shielded  
 unshielded

**Note**

Type	Qty.	Order No.
IE-FC-DSP-CI/3A/2ST/1D9	1	2004810000
IE-FC-DIP-CI/3A/2ST/1D9	1	2003370000

incl. pre-mounted GFCI

**Accessories**

**Inserts, Signal**

D-Sub, 9-pole, female/female  
 D-Sub, 9-pole, female / male  
 D-Sub, 9-pole, female / solder connection

**Fuse inserts**

3 A

**Inserts, Data**

RJ45 coupling  
 RJ45 module EIA/TIA T568 A  
 RJ45 module EIA/TIA T568 B  
 RJ45 module PROFINET  
 USB 2.0 A / A  
 USB 3.0 A / A  
 USB 2.0 A / B

**Markers**

for touch-safe protection and insert plates

Type	Qty.	Order No.
IE-FCI-D9-FF	1	1450840000
IE-FCI-D9-FM	1	1450850000
IE-FCI-D9-FS	1	1450870000
IE-FCI-PWCB-3A	1	1543690000
IE-BI-RJ45-C	1	1962840000
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-USB-A	10	1019570000
IE-BI-USB-3.0-A	10	1487920000
IE-BI-USB-AB	10	1131380000
ESG 7/20 SIRIUS MC NE WS	200	1736181044

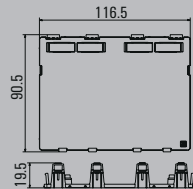
**Note**

**FrontCom® Vario**

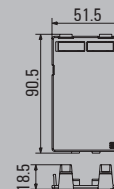
**Insert plates**

- IP20

**blank double plate**



**blank single plate**



**Technical data**

Material
Ambient temperature (operational)
Approvals
<b>Note</b>

Polycarbonate PC
-40 °C...70 °C
CURUS

Polycarbonate PC
-40 °C...70 °C
CURUS; GERMLLOYD

**Ordering data**

unshielded
<b>Note</b>

Type	Qty.	Order No.
IE-FC-DIP-BP	1	2004890000

Type	Qty.	Order No.
IE-FC-IP-BP	1	1450710000

**Accessories**

Type	Qty.	Order No.

Type	Qty.	Order No.

Type	Qty.	Order No.

<b>Note</b>
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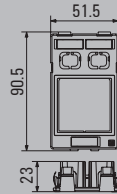
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## FrontCom® Vario

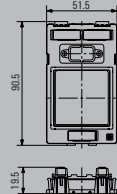
### Insert plates

- IP20

### 1 x power, 2 x data



### 1x Power, 1x Signal



### Technical data

Material
Insert, data
Signal insert D-Sub 9-pole / VGA / HDMI
Insert, signal, D-Sub, 25-pole
Insert Power large
Insert Power small
Insert Power US
Ambient temperature (operational)
Approvals
<b>Note</b>

Polycarbonate PC
2
1
-40 °C...70 °C
CURUS; GERMILLOYD

Polycarbonate PC
1
1
-40 °C...70 °C
CURUS

### Ordering data

shielded
unshielded
<b>Note</b>

Type	Qty.	Order No.
IE-FC-SP-PWB/2ST	1	1450550000
IE-FC-IP-PWB/2ST	1	1450630000

Type	Qty.	Order No.
IE-FC-IP-PWB/1D9	1	2003350000

### Accessories

Inserts, Signal	
D-Sub, 9-pole, female/female	
D-Sub, 9-pole, female / male	
D-Sub, 9-pole, female / solder connection	
VGA coupling	
HDMI coupling	
Inserts, Data	
RJ45 coupling	
RJ45 module EIA/TIA T568 A	
RJ45 module EIA/TIA T568 B	
RJ45 module PROFINET	
USB 2.0 A / A	
USB 3.0 A / A	
USB 2.0 A / B	
Markers	
for touch-safe protection and insert plates	
Touch-safe protection	
Touch-safe protection	
<b>Note</b>	

Type	Qty.	Order No.
IE-BI-RJ45-C	1	1962840000
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-USB-A	10	1019570000
IE-BI-USB-3.0-A	10	1487920000
IE-BI-USB-AB	10	1131380000
ESG 7/20 SIRIUS MC NE WS	200	1736181044
IE-FC-PWPC	1	1450820000

Type	Qty.	Order No.
IE-FCI-D9-FF	1	1450840000
IE-FCI-D9-FM	1	1450850000
IE-FCI-D9-FS	1	1450870000
IE-FCI-HD15-FF	1	1556290000
IE-FCI-HDMI-FF	1	2003390000
ESG 7/20 SIRIUS MC NE WS	200	1736181044

An overview of the power inserts can be found in this chapter under power sockets.

An overview of the power inserts can be found in this chapter under power sockets.

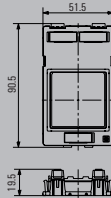
**FrontCom® Vario IP65 service interface**

**FrontCom® Vario**

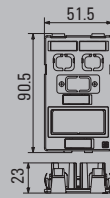
**Insert plates**

- IP20

**1x Power**



**1x Power, 2x Data, 1x Signal**



**Technical data**

Material	Polycarbonate PC
Insert, data	
Signal insert D-Sub 9-pole / VGA / HDMI	
Insert, signal, D-Sub, 25-pole	
Insert Power large	1
Insert Power small	
Insert Power US	
Ambient temperature (operational)	-40 °C...70 °C
Approvals	CURUS
<b>Note</b>	

Material	Polycarbonate PC
Insert, data	
Signal insert D-Sub 9-pole / VGA / HDMI	
Insert, signal, D-Sub, 25-pole	
Insert Power large	1
Insert Power small	
Insert Power US	
Ambient temperature (operational)	-40 °C...70 °C
Approvals	CURUS; GERMLLOYD
<b>Note</b>	

Material	Polycarbonate PC
Insert, data	2
Signal insert D-Sub 9-pole / VGA / HDMI	1
Insert, signal, D-Sub, 25-pole	
Insert Power large	
Insert Power small	1
Insert Power US	
Ambient temperature (operational)	-40 °C...70 °C
Approvals	CURUS; GERMLLOYD
<b>Note</b>	

**Ordering data**

	shielded
	unshielded
<b>Note</b>	

Type	Qty.	Order No.
IE-FC-IP-PWB	1	2548060000

Type	Qty.	Order No.
IE-FC-SP-PWS/2ST/1D9	1	1450600000
IE-FC-IP-PWS/2ST/1D9	1	1450690000

**Accessories**

<b>Inserts, Signal</b>	
	D-Sub, 9-pole, female/female
	D-Sub, 9-pole, female / male
	D-Sub, 9-pole, female / solder connection
	VGA coupling
	HDMI coupling
<b>Inserts, Data</b>	
	RJ45 coupling
	RJ45 module EIA/TIA T568 A
	RJ45 module EIA/TIA T568 B
	RJ45 module PROFINET
	USB 2.0 A / A
	USB 3.0 A / A
	USB 2.0 A / B
<b>Markers</b>	
	for touch-safe protection and insert plates
<b>Touch-safe protection</b>	
	Touch-safe protection

Type	Qty.	Order No.
ESG 7/20 SIRIUS MC NE WS	200	1736181044

Type	Qty.	Order No.
IE-FCI-D9-FF	1	1450840000
IE-FCI-D9-FM	1	1450850000
IE-FCI-D9-FS	1	1450870000
IE-FCI-HD15-FF	1	1556290000
IE-FCI-HDMI-FF	1	2003390000
IE-BI-RJ45-C	1	1962840000
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-USB-A	10	1019570000
IE-BI-USB-3.0-A	10	1487920000
IE-BI-USB-AB	10	1131380000
ESG 7/20 SIRIUS MC NE WS	200	1736181044
IE-FC-PWPC	1	1450820000

**Note**

An overview of the power inserts can be found in this chapter under power sockets.

An overview of the power inserts can be found in this chapter under power sockets.

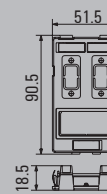
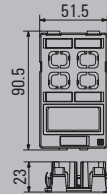
**FrontCom® Vario**

**Insert plates**

- IP20

**1 x power, 4 x data**

**1 x power, 2 x signal**



**Technical data**

Material
Insert, data
Signal insert D-Sub 9-pole / VGA / HDMI
Insert, signal, D-Sub, 25-pole
Insert Power large
Insert Power small
Insert Power US
Ambient temperature (operational)
Approvals
<b>Note</b>

Polycarbonate PC
4
2
1
-40 °C...70 °C
CURUS; GERMLLOYD

Polycarbonate PC
2
1
-40 °C...70 °C
CURUS; GERMLLOYD

**Ordering data**

shielded
unshielded
<b>Note</b>

Type	Qty.	Order No.
IE-FC-SP-PWS/4ST	1	1450570000
IE-FC-IP-PWS/4ST	1	1450640000

Type	Qty.	Order No.
IE-FC-SP-PWS/2D9	1	1450610000
IE-FC-IP-PWS/2D9	1	1450680000

**Accessories**

<b>Inserts, Power</b>	Socket IT/EU
<b>Inserts, Data</b>	RJ45 coupling
	RJ45 module EIA/TIA T568 A
	RJ45 module EIA/TIA T568 B
	RJ45 module PROFINET
	USB 2.0 A / A
	USB 3.0 A / A
	USB 2.0 A / B
<b>Markers</b>	for touch-safe protection and insert plates
<b>Touch-safe protection</b>	Touch-safe protection
<b>Inserts, Signal</b>	D-Sub, 9-pole, female/female
	D-Sub, 9-pole, female / male
	D-Sub, 9-pole, female / solder connection
	VGA coupling
	HDMI coupling
<b>Note</b>	

Type	Qty.	Order No.
IE-FC-PWS-IT	1	1450810000
IE-BI-RJ45-C	1	1962840000
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-USB-A	10	1019570000
IE-BI-USB-3.0-A	10	1487920000
IE-BI-USB-AB	10	1131380000
ESG 7/20 SIRIUS MC NE WS	200	1736181044
IE-FC-PWPC	1	1450820000

Type	Qty.	Order No.
IE-FC-PWS-IT	1	1450810000
IE-FC-D9-FF	1	1450840000
IE-FC-D9-FM	1	1450850000
IE-FC-D9-FS	1	1450870000
IE-FC-HD15-FF	1	1556290000
IE-FC-HDMI-FF	1	2003390000
ESG 7/20 SIRIUS MC NE WS	200	1736181044
IE-FC-PWPC	1	1450820000





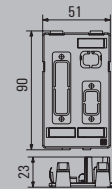
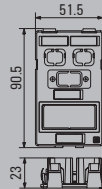
FrontCom® Vario

Insert plates

- IP20

2 x data, 2 x signal

1 x data, 2 x signal



Technical data

Material  
 Insert, data  
 Signal insert D-Sub 9-pole / VGA / HDMI  
 Insert, signal, D-Sub, 25-pole  
 Insert Power large  
 Insert Power small  
 Insert Power US  
 Insert fuse  
 Ambient temperature (operational)  
 Approvals

Polycarbonate PC  
 2  
 2  
 -40 °C...70 °C  
 CURUS; GERMLLOYD

Polycarbonate PC  
 1  
 1  
 1  
 -40 °C...70 °C  
 CURUS; GERMLLOYD

Note

Ordering data

shielded
unshielded

Type	Qty.	Order No.
IE-FC-SP-2ST/2D9	1	1450590000
IE-FC-IP-2ST/2D9	1	1450670000

Type	Qty.	Order No.
IE-FC-SP-1ST/1D9/1D25	1	1450580000
IE-FC-IP-1ST/1D9/1D25	1	1450650000

Note

Accessories

Inserts, Signal	
D-Sub, 9-pole, female/female	
D-Sub, 9-pole, female / male	
D-Sub, 9-pole, female / solder connection	
D-Sub, 25-pole, female/female	
D-Sub, 25-pole, female/male	
D-Sub, 25-pole, female / solder connection	
HDMI coupling	
VGA coupling	

Type	Qty.	Order No.
IE-FCI-D9-FF	1	1450840000
IE-FCI-D9-FM	1	1450850000
IE-FCI-D9-FS	1	1450870000
IE-FCI-HDMI-FF	1	2003390000
IE-FCI-HD15-FF	1	1556290000

Type	Qty.	Order No.
IE-FCI-D9-FF	1	1450840000
IE-FCI-D9-FM	1	1450850000
IE-FCI-D9-FS	1	1450870000
IE-FCI-D25-FM	1	1450890000
IE-FCI-D25-FS	1	1450900000
IE-FCI-D25-FF	1	1450880000
IE-FCI-HDMI-FF	1	2003390000
IE-FCI-HD15-FF	1	1556290000

Inserts, Data	
RJ45 coupling	
RJ45 module EIA/TIA T568 A	
RJ45 module EIA/TIA T568 B	
RJ45 module PROFINET	
USB 2.0 A / A	
USB 3.0 A / A	
USB 2.0 A / B	

Type	Qty.	Order No.
IE-BI-RJ45-C	1	1962840000
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-USB-A	10	1019570000
IE-BI-USB-3.0-A	10	1487920000
IE-BI-USB-AB	10	1131380000

Type	Qty.	Order No.
IE-BI-RJ45-C	1	1962840000
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-USB-A	10	1019570000
IE-BI-USB-3.0-A	10	1487920000
IE-BI-USB-AB	10	1131380000

Markers	
for touch-safe protection and insert plates	

Type	Qty.	Order No.
ESG 7/20 SIRIUS MC NE WS	200	1736181044

Type	Qty.	Order No.
ESG 7/20 SIRIUS MC NE WS	200	1736181044

Touch-safe protection	
Touch-safe protection	

Type	Qty.	Order No.
IE-FC-PWPC	1	1450820000

Type	Qty.	Order No.
IE-FC-PWPC	1	1450820000

Inserts, Power	
US socket	

Fuse inserts	
3 A	

Note

## FrontCom® Vario IP65 service interface

### Data inserts

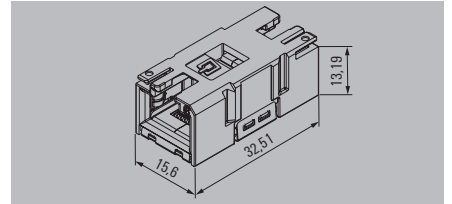
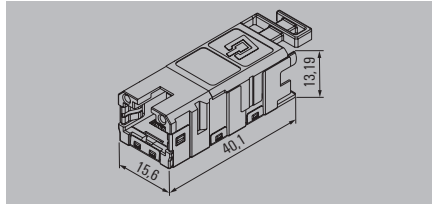
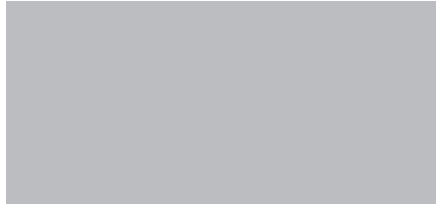
#### RJ45

- Cat. 6<sub>A</sub>
- IP20
- For housing variants 1, 4, 5, 14 and for FrontCom®

### Module



### Coupling



### Technical data

Protection degree
Plugging cycles
Shielding
Housing main material
Contact surface
Connection cross-section, flexible, min. / max.
Connection cross-section, solid, min. / max.
Insulation diameter, min. / max.
Connector standard
Ambient temperature (operational)
PoE / PoE+
Approvals
<b>Note</b>

IP67 with housing
750
360° all-round enclosure
Zinc diecast
Gold over nickel, Au ≥ 0.8 μm
AWG 26 / AWG 22
AWG 24 / AWG 22
0.85 mm...1.6 mm
IEC 60603-7-51
-40 °C...70 °C
conforming to IEEE 802.3af
CULUS
Connection of WM Cat. 7 AWG 27/7 LSZH possible

IP67 with housing
750
360° all-round enclosure
Zinc diecast
Gold over nickel, Au ≥ 0.8 μm
IEC 60603-7-51
-40 °C...70 °C
conforming to IEEE 802.3af
CULUS; GERMLLOYD

### Ordering data

tool-free	
	TIA-A. Cat. 6 <sub>A</sub>
	TIA-B. Cat. 6 <sub>A</sub>
	PROFINET Cat. 5
	Coupling
<b>Note</b>	

Type	Qty.	Order No.
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000

Type	Qty.	Order No.
IE-BI-RJ45-C	1	1962840000

### Accessories

Tools	
	Optional pressing tool

Type	Qty.	Order No.
PWZ RJ45	1	1118040000

Type	Qty.	Order No.

**Note**

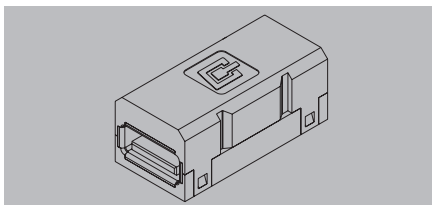
**Note**

**Note**

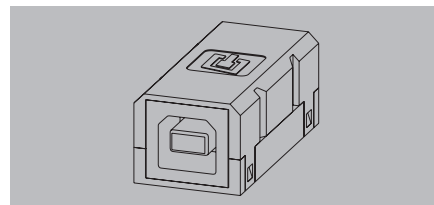
**Data inserts**  
**USB**

- IP20
- For housing variants 1, 4, 5, 14 and for FrontCom®

**Coupling USB A/A**



**Coupling USB A/B**



**Technical data**

Protection degree
Shielding
Ambient temperature (operational)
Connection 1 / 2
Connector standard
Approvals
<b>Note</b>

IP67 with housing
360° all-round enclosure
-40 °C...70 °C
USB A / USB A
IEC 61076-3-107
CULUS; GERMLLOYD
<b>Note</b>

IP67 with housing
360° all-round enclosure
-40 °C...70 °C
USB A / USB B
IEC 61076-3-107
CULUS; GERMLLOYD
<b>Note</b>

**Ordering data**

USB 2.0
USB 3.0
<b>Note</b>

Type	Qty.	Order No.
IE-BI-USB-A	10	1019570000
IE-BI-USB-3.0-A	10	1487920000

Type	Qty.	Order No.
IE-BI-USB-AB	10	1131380000

**Accessories**

USB cable 2.0	
0.5 m	
1.0 m	
1.5 m	
1.8 m	
3.0 m	
USB cable 3.0	
0.5 m	
1.8 m	
3.0 m	
5.0 m	

Type	Qty.	Order No.
IE-USB-A-A-0.5M	1	1993550005
IE-USB-A-A-1.0M	1	1993550010
IE-USB-A-A-1.5M	1	1993550015
IE-USB-A-A-1.8M	1	1993550018
IE-USB-A-A-3.0M	1	1993550030
IE-USB-3.0-A-A-0.5M	1	2581730005
IE-USB-3.0-A-A-1.8M	1	2581730018
IE-USB-3.0-A-A-3.0M	1	2581730030
IE-USB-3.0-A-A-5.0M	1	2581730050

Type	Qty.	Order No.

**Note**

**Note**

**Note**

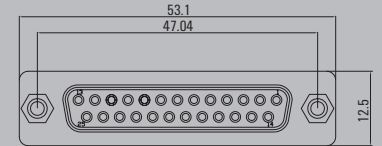
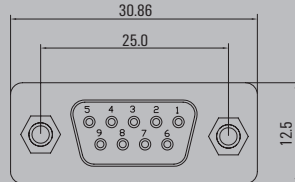
**Signal inserts**

**D-sub**

- IP20

**9-pole**

**25-pole**



**Technical data**

Protection degree	IP20
Housing main material	SPCC
No. of poles	9
Housing surface	tin-plated
Material insulator	PBT glass fibre reinforced UL 94 V-0
Contact surface	Gold-plated
Contact resistance	≤ 20 mΩ
Insulation resistance	1000 MΩ at 500 V DC
Dielectric strength, contact / contact	1 kV <sub>eff</sub> / 1 min.
Ambient temperature (operational)	-55 °C...105 °C
Approvals	GERMLLOYD; UR
<b>Note</b>	

Protection degree	IP20
Housing main material	SPCC
No. of poles	25
Housing surface	tin-plated
Material insulator	PBT glass fibre reinforced UL 94 V-0
Contact surface	Gold-plated
Contact resistance	≤ 20 mΩ
Insulation resistance	1000 MΩ at 500 V DC
Dielectric strength, contact / contact	1 kV <sub>eff</sub> / 1 min.
Ambient temperature (operational)	-55 °C...105 °C
Approvals	GERMLLOYD; UR
<b>Note</b>	

Protection degree	IP20
Housing main material	SPCC
No. of poles	25
Housing surface	tin-plated
Material insulator	PBT glass fibre reinforced UL 94 V-0
Contact surface	Gold-plated
Contact resistance	≤ 20 mΩ
Insulation resistance	1000 MΩ at 500 V DC
Dielectric strength, contact / contact	1 kV <sub>eff</sub> / 1 min.
Ambient temperature (operational)	-55 °C...105 °C
Approvals	GERMLLOYD; UR
<b>Note</b>	

**Ordering data**

	Socket / socket
	Socket / plug
	Socket / solder connection
<b>Note</b>	

Type	Qty.	Order No.
IE-FCI-D9-FF	1	1450840000
IE-FCI-D9-FM	1	1450850000
IE-FCI-D9-FS	1	1450870000

Type	Qty.	Order No.
IE-FCI-D25-FF	1	1450880000
IE-FCI-D25-FM	1	1450890000
IE-FCI-D25-FS	1	1450900000

**Accessories**

Type	Qty.	Order No.

Type	Qty.	Order No.

Type	Qty.	Order No.

**Note**

**Note**

**Note**

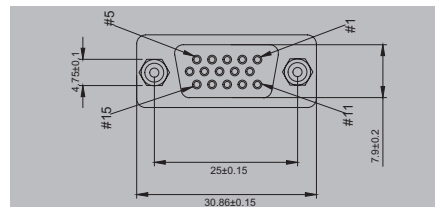
Signal inserts

- IP20

HDMI



HD15 / VGA



Technical data

Protection degree  
 Housing main material  
 No. of poles  
 Housing surface  
 Contact surface  
 Contact resistance  
 Insulation resistance  
 Dielectric strength, contact / contact  
 Ambient temperature (operational)  
 Approvals

IP20  
 PVC casting  
 9  
 Gold-plated  
 -15 °C...50 °C  
 UR

IP20  
 25  
 Gold over nickel  
 1000 MΩ at 500 V DC  
 1000 V<sub>eff</sub> / 1 min  
 -55 °C...105 °C  
 GERMLLOYD; UR

Note

Ordering data

Type	Qty.	Order No.
IE-FCHDMI-FF	1	2003390000

Type	Qty.	Order No.
IE-FCHD15-FF	1	1556290000

Note

Accessories

Type	Qty.	Order No.
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Type	Qty.	Order No.
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Note

**Power inserts**

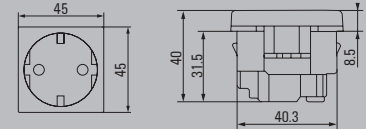
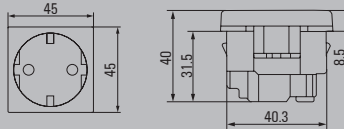
**Power sockets**

- IP20

**Germany, white**



**Germany, orange**



**Technical data**

Protection degree	IP20
Housing main material	Polycarbonate PC
Type of connection	PUSH IN
Connector face	Type F
Connector standard	
Line connection cross-section	
finely stranded with wire-end ferrule	1.5 ... 1.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded with wire-end ferrule	1.5 ... 1.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
Conductor connection cross-section, rigid	1.5 ... 2.5 mm <sup>2</sup>
Stripping length	10 mm
Rated voltage (AC)	250 V
Rated current	16 A
Ambient temperature (operational)	-5 °C...50 °C
Approvals	GERMLLOYD
<b>Note</b>	

Protection degree	IP20
Housing main material	Polycarbonate PC
Type of connection	PUSH IN
Connector face	Type F
Connector standard	
Line connection cross-section	
finely stranded with wire-end ferrule	1.5 ... 1.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded with wire-end ferrule	1.5 ... 1.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
Conductor connection cross-section, rigid	1.5 ... 2.5 mm <sup>2</sup>
Stripping length	10 mm
Rated voltage (AC)	250 V
Rated current	16 A
Ambient temperature (operational)	-5 °C...50 °C
Approvals	GERMLLOYD
<b>Note</b>	

Protection degree	IP20
Housing main material	Polycarbonate PC
Type of connection	PUSH IN
Connector face	Type F
Connector standard	
Line connection cross-section	
finely stranded with wire-end ferrule	1.5 ... 1.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded with wire-end ferrule	1.5 ... 1.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
Conductor connection cross-section, rigid	1.5 ... 2.5 mm <sup>2</sup>
Stripping length	10 mm
Rated voltage (AC)	250 V
Rated current	16 A
Ambient temperature (operational)	-5 °C...50 °C
Approvals	GERMLLOYD
<b>Note</b>	

**Ordering data**

<b>Note</b>	
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Type	Qty.	Order No.
IE-FCH-PWB-DE	1	1450730000

Type	Qty.	Order No.
IE-FCH-PWB-DE-OR	1	1554000000

**Accessories**

<b>FrontCom</b>	Terminal rail adapter for socket adapter
<b>Flat blade connector, 6.5 mm</b>	straight, 4.8 mm, fully insulated

Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000

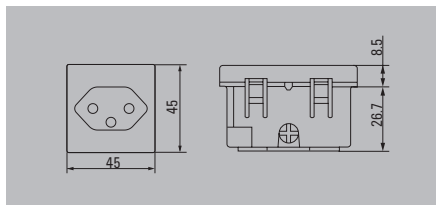
Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000

<b>Note</b>	
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<b>Note</b>	
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<b>Note</b>	
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Switzerland

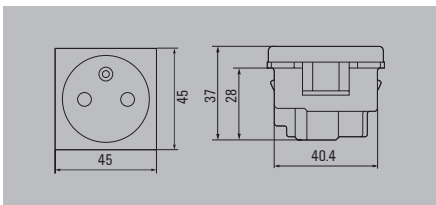


IP20
Polycarbonate PC
PUSH IN
Type J
1.5 ... 1.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 1.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
10 mm
250 V
10 A
-5 °C...50 °C
GERMLLOYD

Type	Qty.	Order No.
IE-FCI-PWB-CH	1	1450780000

Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000

France, white

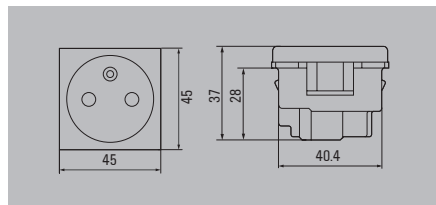


IP20
Polycarbonate PC
PUSH IN
Type E
1.5 ... 1.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 1.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
10 mm
250 V
16 A
-5 °C...50 °C
GERMLLOYD

Type	Qty.	Order No.
IE-FCI-PWB-FR	1	1450750000

Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000

France, orange



IP20
Polycarbonate PC
PUSH IN
Type E
1.5 ... 1.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 1.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
10 mm
250 V
16 A
-5 °C...50 °C

Type	Qty.	Order No.
IE-FCI-PWB-FR-OR	1	2007230000

Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000



FrontCom® Vario IP65 service interface

Power inserts

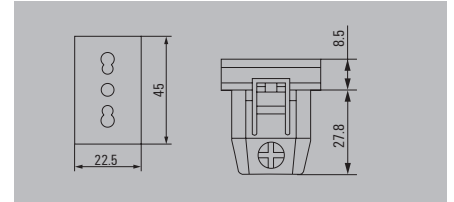
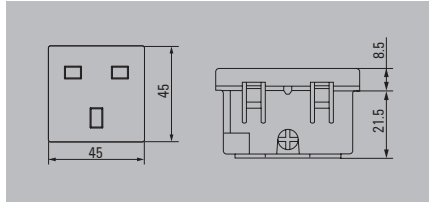
Power sockets

- IP20

UK



Italy / Europe



Technical data

Protection degree	IP20
Housing main material	Polycarbonate PC
Type of connection	Screw connection
Connector face	Type G
Connector standard	
Line connection cross-section	
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 4 mm <sup>2</sup>
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 4 mm <sup>2</sup>
Conductor connection cross-section, rigid	1.5 ... 4 mm <sup>2</sup>
Stripping length	9 mm
Rated voltage (AC)	250 V
Rated current	13 A
Ambient temperature (operational)	-5 °C...50 °C
Approvals	GERMLLOYD
<b>Note</b>	

Protection degree	IP20
Housing main material	Polycarbonate PC
Type of connection	Screw connection
Connector face	Type L
Connector standard	
Line connection cross-section	
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 4 mm <sup>2</sup>
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 4 mm <sup>2</sup>
Conductor connection cross-section, rigid	1.5 ... 4 mm <sup>2</sup>
Stripping length	9 mm
Rated voltage (AC)	250 V
Rated current	16 A
Ambient temperature (operational)	-5 °C...50 °C
Approvals	GERMLLOYD
<b>Note</b>	

Protection degree	IP20
Housing main material	Polycarbonate PC
Type of connection	Screw connection
Connector face	Type L
Connector standard	
Line connection cross-section	
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 4 mm <sup>2</sup>
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 4 mm <sup>2</sup>
Conductor connection cross-section, rigid	1.5 ... 4 mm <sup>2</sup>
Stripping length	9 mm
Rated voltage (AC)	250 V
Rated current	16 A
Ambient temperature (operational)	-5 °C...50 °C
Approvals	GERMLLOYD
<b>Note</b>	

Ordering data

<b>Note</b>
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Type	Qty.	Order No.
IE-FCI-PWB-GB	1	1450770000

Type	Qty.	Order No.
IE-FCI-PWS-IT	1	1450810000

Accessories

<b>FrontCom</b>	Terminal rail adapter for socket adapter
<b>Flat blade connector, 6.5 mm</b>	straight, 4.8 mm, fully insulated

Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000

Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000

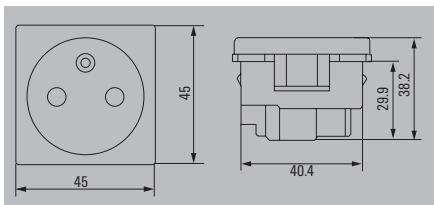
<b>Note</b>
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<b>Note</b>
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<b>Note</b>
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Czech Republic

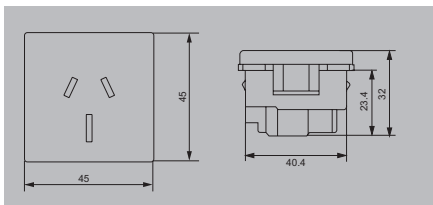


IP20
Polycarbonate PC
PUSH IN
Type E
1.5 ... 1.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 1.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
12 mm
250 V
16 A
-5 °C...50 °C

Type	Qty.	Order No.
IE-FCI-PWB-CZ	1	2426700000

Type	Qty.	Order No.

Australia, 15 A

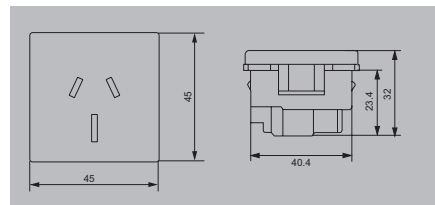


IP20
Polycarbonate PC
Screw connection
Type I
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 4 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 4 mm <sup>2</sup>
1.5 ... 4 mm <sup>2</sup>
9 mm
240 V
15 A
-5 °C...50 °C
GERMLOYD

Type	Qty.	Order No.
IE-FCI-PWB-AU	1	1450830000

Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000

Australia, 10 A



IP20
Polycarbonate PC
Screw connection
Type I
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 4 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 4 mm <sup>2</sup>
1.5 ... 4 mm <sup>2</sup>
9 mm
240 V
10 A
-5 °C...50 °C
GERMLOYD

Type	Qty.	Order No.
IE-FCI-PWB-AU-10A	10	1546590000

Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000

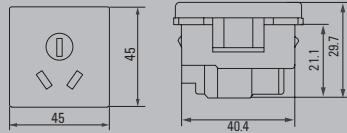
**FrontCom® Vario IP65 service interface**

**Power inserts**

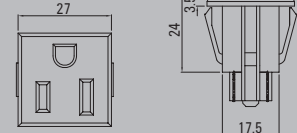
**Power sockets**

- IP20

**China**



**USA**



**Technical data**

Protection degree	IP20
Housing main material	Polycarbonate PC
Type of connection	Screw connection
Connector face	Type I
Connector standard	
Line connection cross-section	
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 4 mm <sup>2</sup>
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 4 mm <sup>2</sup>
Conductor connection cross-section, rigid	1.5 ... 4 mm <sup>2</sup>
Stripping length	9 mm
Rated voltage (AC)	250 V
Rated current	10 A
Ambient temperature (operational)	-5 °C...50 °C
Approvals	GERMLLOYD
<b>Note</b>	

Protection degree	IP20
Housing main material	Polycarbonate PC
Type of connection	Screw connection
Connector face	Type I
Connector standard	
Line connection cross-section	
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 4 mm <sup>2</sup>
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded without wire-end ferrule	1.5 ... 4 mm <sup>2</sup>
Conductor connection cross-section, rigid	1.5 ... 4 mm <sup>2</sup>
Stripping length	9 mm
Rated voltage (AC)	250 V
Rated current	10 A
Ambient temperature (operational)	-5 °C...50 °C
Approvals	GERMLLOYD
<b>Note</b>	

Protection degree	IP20
Housing main material	PA 66
Type of connection	Solder connection, FS 4.8 x 0.8
Connector face	Type B
Connector standard	
Line connection cross-section	
finely stranded with wire-end ferrule	
finely stranded without wire-end ferrule	
finely stranded with wire-end ferrule	
finely stranded without wire-end ferrule	
Conductor connection cross-section, rigid	
Stripping length	
Rated voltage (AC)	125 V
Rated current	15 A
Ambient temperature (operational)	-20 °C...85 °C
Approvals	GERMLLOYD; UR
<b>Note</b>	

**Ordering data**

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
IE-FCI-PWB-CN	1	1450790000
<b>Note</b>		

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
IE-FCI-PWB-CN	1	1450790000
<b>Note</b>		

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
IE-FCI-PWS-US	1	1450800000
For US socket the touch-safe protection is mandatory		
<b>Note</b>		

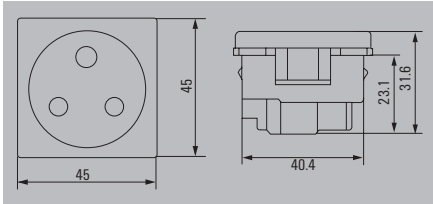
**Accessories**

<b>FrontCom</b>	
Terminal rail adapter for socket adapter	
<b>Flat blade connector, 6.5 mm</b>	straight, 4.8 mm, fully insulated
<b>Note</b>	

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
IE-DINRAIL-AD-PWB	1	2534680000
<b>Note</b>		

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
VFSKHV/1,5-2,5/485	100	1491920000
<b>Note</b>		

India

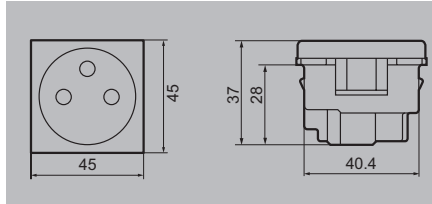


IP20
Polycarbonate PC
Screw connection
Type D
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 4 mm <sup>2</sup>
9 mm
250 V
13 A
-5 °C...50 °C

Type	Qty.	Order No.
IE-FCI-PWB-IND	1	2500710000

Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000

Israel



IP20
PP
Screw connection
Type H
1.5 ... 1.5 mm <sup>2</sup>
1.5 ... 1.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
11 mm
250 V
16 A
-5 °C...50 °C

Type	Qty.	Order No.
IE-FCI-PWB-ISR	1	2531060000

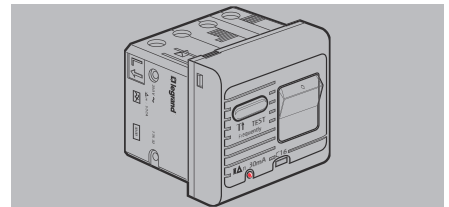
Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000

**Power inserts**

**RCBO**

- IP20

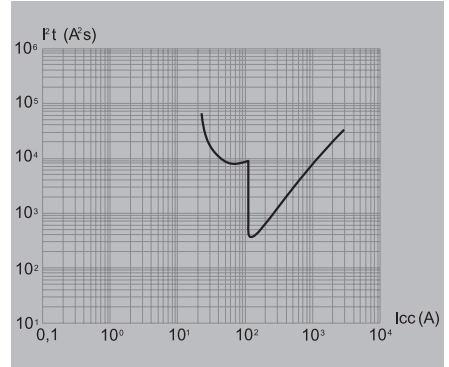
**RCBO**



**Technical data**

Ambient temperature (operational)
Operating voltage
Rated current
I $\Delta$ m
I $\Delta$ n
Triggering characteristic
Type of connection
Line connection cross-section
finely stranded with wire-end ferrule
finely stranded with wire-end ferrule
Conductor connection cross-section, rigid
<b>Note</b>

-5 °C...40 °C
230 V AC
16 A
500 A
30 mA
Typ C
Screw connection
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>
1.5 ... 2.5 mm <sup>2</sup>



**Ordering data**

<b>Note</b>
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Type	Qty.	Order No.
IE-FCI-PWB-RCBO	1	1534250000

**Accessories**

FrontCom	Terminal rail adapter for socket adapter
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Type	Qty.	Order No.
IE-DINRAIL-AD-PWB	1	2534680000

<b>Note</b>
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<b>Note</b>
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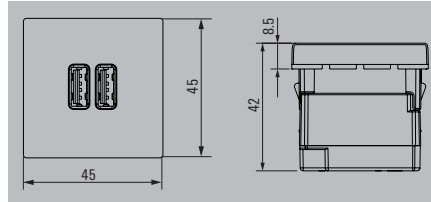
<b>Note</b>
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**Power inserts**

**USB charge insert**

- IP20

**USB-Charger 5 V / 2.4 A**



**Technical data**

Ambient temperature (operational)	0 °C...45 °C
Input voltage	220...240 V AC
Frequency range	50...60 Hz
Input current	≤ 300 mA
Output voltage	5 V DC
Output current	2.4 A
Degree of efficiency	81 %
Power consumption in standby mode	max. 0.1 W
Standards	EN 60950-1, EN 62684, EN 50558
Class of protection	II
Housing main material	Polycarbonate PC
Type of connection	Screw connection
Line connection cross-section finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
finely stranded with wire-end ferrule	1.5 ... 2.5 mm <sup>2</sup>
Conductor connection cross-section, rigid	1.5 ... 2.5 mm <sup>2</sup>
Stripping length	6 mm
<b>Note</b>	

**Ordering data**

Type	Qty.	Order No.
IE-FCI-PWB-2USB-A-5V	1	2505070000
<b>Note</b>		

**Accessories**

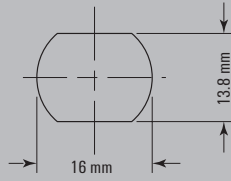
FrontCom	Type	Qty.	Order No.
Terminal rail adapter for socket adapter	IE-DINRAIL-AD-PWB	1	2534680000

**Note**

**3A fuse**

- IP20

**3A fuse**



**Technical data**

Operating voltage  
Rated current  
Type of connection

32 V DC, 250 V AC  
3 A  
Flat-blade receptacles 6.5 mm

**Note**

**Ordering data**

**Note**

Type	Qty.	Order No.
IE-FCI-PWCB-3A	1	1543690000

**Accessories**

Flat blade connector, 6.5 mm	
angled	
straight	

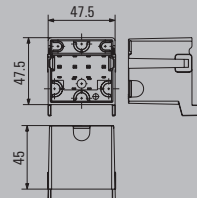
Type	Qty.	Order No.
WFSKHV/1,5-2,5	100	1491970000
VFSKHV/1,5-2,5/638	100	1491940000

**Note**

**Accessories**

**Touch-safe protection**

**Touch-safe protection**



**Technical data**

Length x width x height

Material

Note

47.5 / 47.5 / 45 mm

PC

**Ordering data**

Note

Type	Qty.	Order No.
IE-FC-PWPC	1	1450820000

**Accessories**

Type	Qty.	Order No.
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Note

**Sets**

Incl. fixed label: "Service only!", "USB", "Ethernet", "230 V AC"

**2x Data, 1x Power**



**2x Data, 1x Power**



**Technical data**

Frame
Insert plate
Data inserts
Power inserts
Rated voltage for socket
Rated current for socket
Protection degree
products included in the set
<b>Note</b>

Plastic cover, Lockable with key
2x data, 1x power, Shielded
USB 2.0 A/A, RJ45 coupling Cat.6 <sub>A</sub>
Socket DE
250 V
16 A
IP65, in closed state
1450520000;1450550000;1450730000;1019570000; 1962840000;1450820000
<b>Note</b>

Plastic cover, Lockable with key
2x data, 1x power, Unshielded
USB 2.0 A/A, RJ45 coupling Cat.6 <sub>A</sub>
Socket DE
250 V
16 A
IP65, in closed state
1450520000;1450630000;1450730000;1019570000; 1962840000;1450820000
<b>Note</b>

**Ordering data**

shielded
unshielded
<b>Note</b>

Type	Qty.	Order No.
IE-FC-SET-SPDEK001-KY-P	1	1989020000
<b>Note</b>		

Type	Qty.	Order No.
IE-FC-SET-IPDEK001-KY-P	1	1543680000
<b>Note</b>		

**Accessories**

Type	Qty.	Order No.
<b>Note</b>		

Type	Qty.	Order No.
<b>Note</b>		

Type	Qty.	Order No.
<b>Note</b>		

<b>Note</b>
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<b>Note</b>
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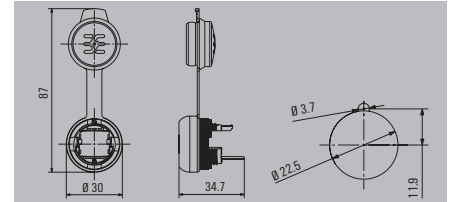
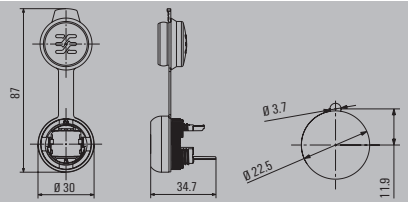




**FrontCom® Micro RJ45  
Module**

**8-wire**

**4-wire**



**Technical data**

Category	
Protection degree	IP67
Housing main material	PA UL 94 V0
Contact surface	Gold over nickel
Colour	Black
Shielding	360° shield contact
Type of mounting	Cabinet, Distribution box
Plugging cycles	750
Connector standard	IEC 60603-7-51
Connection 1 / 2	RJ45 / IDC
Wall thickness, min. / max.	1 mm / 3 mm
Dust protection cap material	EPDM
PoE / PoE+	conforming to IEEE 802.3af
Ambient temperature (operational)	-40 °C...70 °C
Approvals	CULUS
<b>Note</b>	

Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)	
IP67, in closed state	
PA UL 94 V0	
Gold over nickel	
Black	
360° shield contact	
Cabinet, Distribution box	
750	
IEC 60603-7-51	
RJ45 / IDC	
1 mm / 3 mm	
EPDM	
conforming to IEEE 802.3af	
-40 °C...70 °C	
CULUS	
<b>Note</b>	

Cat.5 (ISO/IEC 11801)	
IP67, in closed state	
PA UL 94 V0	
Gold over nickel	
Black	
360° shield contact	
Cabinet, Distribution box	
750	
IEC 60603-7-51	
RJ45 / IDC	
1 mm / 3 mm	
EPDM	
conforming to IEEE 802.3af	
-40 °C...70 °C	
CULUS	
<b>Note</b>	

**Ordering data**

PROFINET module	
TIA-A module	
TIA-B module	
<b>Note</b>	

Type	Qty.	Order No.
IE-FCM-RJ45-FJ-A	10	1018810000
IE-FCM-RJ45-FJ-B	10	1018820000
<b>Note</b>		

Type	Qty.	Order No.
IE-FCM-RJ45-FJ-P	10	1018830000
<b>Note</b>		

**Accessories**

<b>Fixing tool</b>	
<b>Marker, outside</b>	SwitchMark markers white SwitchMark holder
<b>Marker, inside</b>	MultiCard, white

Type	Qty.	Order No.
IE-FISP-V4	2	9204370000
SM 27/18 MC NE WS	80	1699860000
SM-H 27/18 SW	25	1716630000
ESG 9/11 K MC NE WS	200	1857440000
<b>Note</b>		

Type	Qty.	Order No.
IE-FISP-V4	2	9204370000
SM 27/18 MC NE WS	80	1699860000
SM-H 27/18 SW	25	1716630000
ESG 9/11 K MC NE WS	200	1857440000
<b>Note</b>		

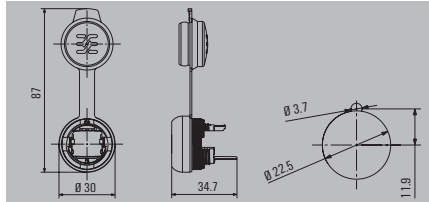
<b>Note</b>	
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<b>Note</b>	
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<b>Note</b>	
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**FrontCom® Micro RJ45  
Coupling**

**8-wire**



**Technical data**

Category	Cat.6 <sub>n</sub> / Class E <sub>n</sub> (ISO/IEC 11801 2010)
Protection degree	IP67, in closed state
Housing main material	PA UL 94 V0
Contact surface	Gold over nickel
Colour	Black
Shielding	360° shield contact
Type of mounting	Cabinet, Distribution box
Plugging cycles	750
Connector standard	IEC 60603-7-51
Connection 1 / 2	RJ45 / RJ45
Wall thickness, min. / max.	1 mm / 3 mm
Dust protection cap material	EPDM
PoE / PoE+	conforming to IEEE 802.3af
Ambient temperature (operational)	-40 °C...70 °C
Approvals	CULUS
<b>Note</b>	

**Ordering data**

Type	Qty.	Order No.
IE-FCM-RJ45-C	10	1018790000
<b>Note</b>		

**Accessories**

Type	Qty.	Order No.
IE-FISP-V4	2	9204370000
<b>Fixing tool</b>		
<b>Marker, outside</b>		
SM 27/18 MC NE WS	80	1699860000
SM-H 27/18 SW	25	1716630000



SwitchMark markers white  
SwitchMark holder

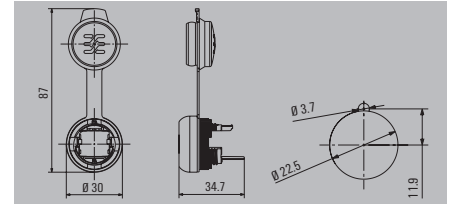
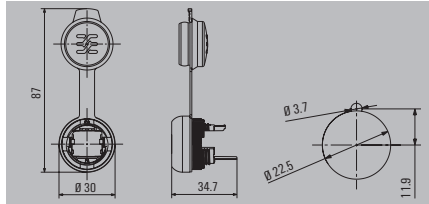
**Note**

FrontCom® Micro IP65 service interface

FrontCom® Micro USB

Coupling AA

Coupling AB



Technical data

Ambient temperature (operational)
Protection degree
Housing main material
Colour
Shielding
Type of mounting
Connector standard
Connection 1 / 2
Dust protection cap material
Wall thickness, min. / max.
Approvals
<b>Note</b>

-40 °C...70 °C
IP67, in closed state
PA UL 94 V0
Black
360° shield contact
Cabinet, Distribution box
IEC 61076-3-107
USB A / USB A
EPDM
1 mm / 3 mm
CULUS
Approvals available on request

-40 °C...70 °C
IP67, in closed state
PA UL 94 V0
Black
360° shield contact
Cabinet, Distribution box
IEC 61076-3-107
USB A / USB B
EPDM
1 mm / 3 mm
CULUS


Ordering data

USB 2.0
USB 3.0
<b>Note</b>

Type	Qty.	Order No.
IE-FCM-USB-A	10	1018840000
IE-FCM-USB-3.0-A	10	1427960000

Type	Qty.	Order No.
IE-FCM-USB-AB	10	1222550000

Accessories

<b>Fixing tool</b>
<b>Marker, outside</b>
 SwitchMark markers white SwitchMark holder
<b>Marker, inside</b>
MultiCard, white
<b>USB cable 2.0</b>
0.5 m
1.0 m
1.5 m
1.8 m
3.0 m
<b>USB cable 3.0</b>
0.5 m
1.8 m
3.0 m
5.0 m
<b>Note</b>

Type	Qty.	Order No.
IE-FISP-V4	2	9204370000
SM 27/18 MC NE WS	80	1699860000
SM-H 27/18 SW	25	1716630000
ESG 9/11 K MC NE WS	200	1857440000
IE-USB-A-A-0.5M	1	1993550005
IE-USB-A-A-1.0M	1	1993550010
IE-USB-A-A-1.5M	1	1993550015
IE-USB-A-A-1.8M	1	1993550018
IE-USB-A-A-3.0M	1	1993550030
IE-USB-3.0-A-A-0.5M	1	2581730005
IE-USB-3.0-A-A-1.8M	1	2581730018
IE-USB-3.0-A-A-3.0M	1	2581730030
IE-USB-3.0-A-A-5.0M	1	2581730050

Type	Qty.	Order No.
IE-FISP-V4	2	9204370000
SM 27/18 MC NE WS	80	1699860000
SM-H 27/18 SW	25	1716630000
ESG 9/11 K MC NE WS	200	1857440000

# IP67 plug-in connectors

## Overview

<b>IP67 plug-in connectors</b>	PushPull V14 - RJ45	J.2
	PushPull V14 - Hybrid	J.6
	PushPull V14 - FO	J.10
	Bayonet V1 Metal-RJ45	J.12
	Bayonet V1 Metal-FO	J.14
	Bayonet V1 Plastic-RJ45	J.18
	PushPull V4 - RJ45	J.22
	PushPull V4 - FO	J.26
	RockStar® V5 - RJ45	J.30
	SnapIn V6 - RJ45	J.32
	M12 D-coded	J.36
	M12 X-Type	J.41
	Inserts	J.46
	PushPull Power	J.58

## PushPull V14 - RJ45

### Plug PushPull V14 - RJ45

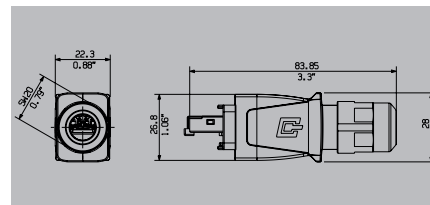
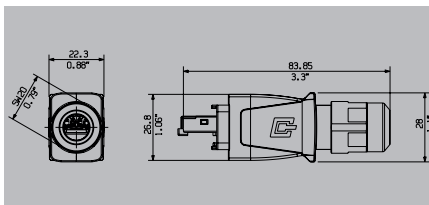
- 4- and 8-wire, RJ45 plug field attachable with colour coding on the plug

### 4-wire, field-attachable

PROFINET printing



### 8-wire, crimp



### Technical data

Category
Protection degree
Housing main material
Contact surface
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational)
Connector standard
Connection diameter, flexible, min. / max.
Connection cross-section, flexible, min. / max.
Connection diameter, solid, min. / max.
Connection cross-section, solid, min. / max.
Approvals

Cat.5 (ISO/IEC 11801)
IP67
Zinc diecast
Gold over nickel
5 mm / 10 mm
750
-40 °C...70 °C
IEC 61076-3-117 Var. 14, IEC 60603-7-51
0.48 mm / 0.76 mm
AWG 26 / AWG 22
0.4 mm / 0.64 mm
AWG 24 / AWG 22
CULUS

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP67
Zinc diecast
5 mm / 10 mm
750
-40 °C...70 °C
IEC 61076-3-117 Var. 14, IEC 60603-7-51
0.46 mm / 0.61 mm
AWG 27 / AWG 24
0.36 mm / 0.51 mm
AWG 24 / AWG 22
EAC

**Note** Other approvals for individual parts of the set available

### Ordering data - Sets

RJ45 without tools
<b>Note</b>

Type	Qty.	Order No.
IE-PS-V14M-RJ45-FHP	10	1012170000

Type	Qty.	Order No.
IE-PS-V14M-RJ45-TH	10	1012160000

### Ordering data - Empty housings

<b>Note</b>
-------------

Type	Qty.	Order No.
IE-PH-V14M-RJ	10	1011560000

Type	Qty.	Order No.
IE-PH-V14M-RJ	10	1011560000

### Accessories

<b>Dust protection cap</b>	Protective cap
<b>Marker, inside</b>	MultiCard, white

Type	Qty.	Order No.
IE-PP-V14P	10	1058280000
ESG 9/11 K MC NE WS	200	1857440000

Type	Qty.	Order No.
IE-PP-V14P	10	1058280000
ESG 9/11 K MC NE WS	200	1857440000

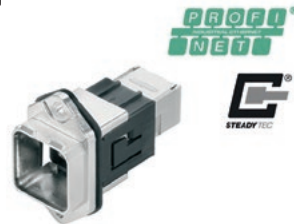
**Note** Plug inserts can also be ordered separately. Refer to Inserts.

**Note** Plug inserts can also be ordered separately. Refer to Inserts.

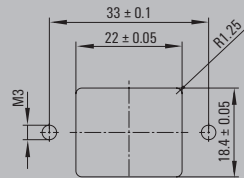
**PushPull V14 - RJ45 flange  
Module**

**4-wire**

PROFINET printing



Standardised flange



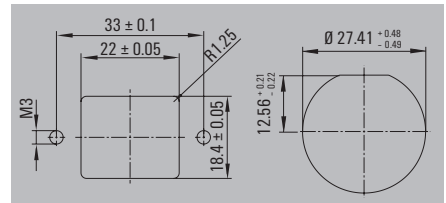
**8-wire**

TIA-A



Standardised flange

Central flange



**Technical data**

Category	
Protection degree	
Housing main material	
Contact surface	
Sheath diameter, min. / max.	
Plugging cycles	
Ambient temperature (operational)	
Connector standard	
Connection diameter, flexible, min. / max.	
Connection cross-section, flexible, min. / max.	
Connection diameter, solid, min. / max.	
Connection cross-section, solid, min. / max.	
Approvals	
<b>Note</b>	

Cat.5 (ISO/IEC 11801)	
IP67	
Zinc diecast	
Gold over nickel	
5 mm / 10 mm	
750	
-40 °C...70 °C	
IEC 61076-3-117 Var. 14, IEC 60603-7-51	
0.48 mm / 0.76 mm	
AWG 26 / AWG 22	
0.4 mm / 0.64 mm	
AWG 24 / AWG 22	
CULUS	
Other approvals for individual parts of the set available	

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)	
IP67	
Zinc diecast	
Gold over nickel	
5 mm / 10 mm	
750	
-40 °C...70 °C	
IEC 61076-3-117 Var. 14, IEC 60603-7-51	
0.48 mm	
AWG 26 / AWG 22	
0.4 mm / 0.64 mm	
AWG 24 / AWG 22	
CULUS	
Other approvals for individual parts of the set available	

**Ordering data - Sets**

	Standardised flange
	Central flange
<b>Note</b>	

Type	Qty.	Order No.
IE-BSS-V14M-RJ45-FJ-P	10	1085260000

Type	Qty.	Order No.
IE-BSS-V14M-RJ45-FJ-A	10	1012320000
IE-BSC-V14M-RJ45-FJ-A	10	1058270000

**Ordering data - Empty housings**

	Standardised flange
	Central flange
	Device flange
<b>Note</b>	

Type	Qty.	Order No.
IE-BHS-V14M-RJA	10	1011540000
IE-BHC-V14M-RJA	10	1047950000
IE-BHD-V14M	10	1047940000

Type	Qty.	Order No.
IE-BHS-V14M-RJA	10	1011540000
IE-BHC-V14M-RJA	10	1047950000
IE-BHD-V14M	10	1047940000

**Accessories**

Dust protection cap	Protective cap
---------------------	----------------

Type	Qty.	Order No.
IE-BP-V14P	10	1058310000

Type	Qty.	Order No.
IE-BP-V14P	10	1058310000

**Note**

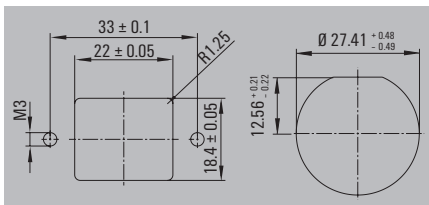
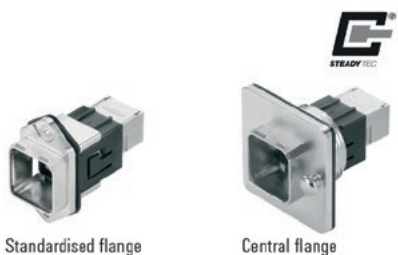
Plug inserts can also be ordered separately. Refer to Inserts.

Plug inserts can also be ordered separately, see Inserts

**PushPull V14 - RJ45**

**PushPull V14 - RJ45 flange  
Coupling**

**8-wire**



**Technical data**

Category	
Protection degree	
Housing main material	
Contact surface	
Sheath diameter, min. / max.	
Plugging cycles	
Ambient temperature (operational)	
Connector standard	
Connection diameter, flexible, min. / max.	
Connection cross-section, flexible, min. / max.	
Connection diameter, solid, min. / max.	
Connection cross-section, solid, min. / max.	
Approvals	
<b>Note</b>	

Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
IP67
Zinc diecast
Gold over nickel
5 mm / 10 mm
750
-40 °C...70 °C
IEC 61076-3-117 Var. 14, IEC 60603-7-51
CULUS
Other approvals for individual parts of the set available

**Ordering data - Sets**

Standardised flange
Central flange
<b>Note</b>

Type	Qty.	Order No.
IE-BSS-V14M-RJ45-C	10	1012310000
IE-BSC-V14M-RJ45-C	10	1058250000

**Ordering data - Empty housings**

Standardised flange
Central flange
Device flange
<b>Note</b>

Type	Qty.	Order No.
IE-BHS-V14M-RJA	10	1011540000
IE-BHC-V14M-RJA	10	1047950000
IE-BHD-V14M	10	1047940000

**Accessories**

Dust protection cap	Protective cap
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Type	Qty.	Order No.
IE-BP-V14P	10	1058310000

**Note**

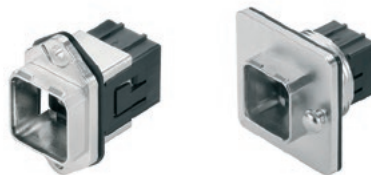
Plug inserts can also be ordered separately. Refer to Inserts.



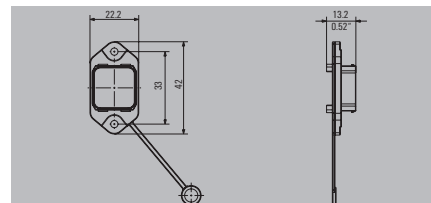
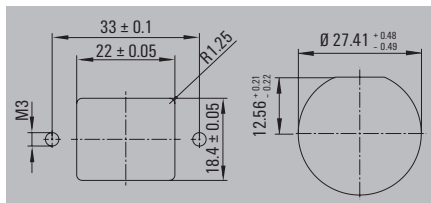
**Flange-mounted empty housing /  
PushPull device flange  
V14**

- IP67

**Empty housing**



**Device flange**



**Technical data**

Category
Protection degree
Housing main material
Contact surface
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational)
Connector standard
Connection diameter, flexible, min. / max.
Connection cross-section, flexible, min. / max.
Connection diameter, solid, min. / max.
Connection cross-section, solid, min. / max.
Approvals
Note

IP67
Zinc diecast
750
-40 °C...70 °C
IEC 61076-3-117 Var. 14
CULUS

IP67
Zinc diecast
750
-40 °C...70 °C
IEC 61076-3-117 Var. 14
CULUS

**Ordering data**

Standardised flange
Central flange
Device flange
Note

Type	Qty.	Order No.
IE-BHS-V14M-RJA	10	1011540000
IE-BHC-V14M-RJA	10	1047950000

Type	Qty.	Order No.
IE-BHD-V14M	10	1047940000

**Accessories**

Dust protection cap	Protective cap
---------------------	----------------

Type	Qty.	Order No.
IE-BP-V14P	10	1058310000

Type	Qty.	Order No.
IE-BP-V14P	10	1058310000

Note

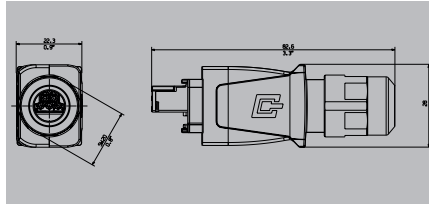
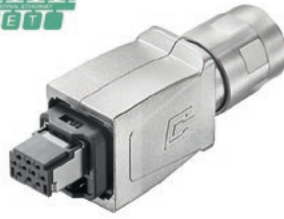
Plug inserts can also be ordered separately. Refer to Inserts.

Plug inserts can also be ordered separately. Refer to Inserts.

## PushPull V14 - Hybrid

### Plug PushPull V14 - Hybrid

### Hybrid



#### Technical data

Category	
Protection degree	
Housing main material	
Contact surface	
Sheath diameter, min. / max.	
Plugging cycles	
Ambient temperature (operational)	
Connection 1 / 2	
Connector standard	
Connection cross-section, flexible, min. / max.	
Connection diameter, flexible, min. / max.	
Rated current (hybrid connector)	
Volume resistance	
Approvals	
<b>Note</b>	

Cat.5 (ISO/IEC 11801)
IP67
Zinc diecast
Gold over nickel
5 mm / 10 mm
500
-40 °C...70 °C
Hybrid (Q10) / Crimp
IEC 61076-3-119 CDV, IEC 61076-3-117 Var. 14
AWG 27 / AWG 20
0.08 mm <sup>2</sup> / 0.75 mm <sup>2</sup>
3 A per contact
< 10 mΩ
CULUS
Other approvals for individual parts of the set available

#### Ordering data - Sets

<b>Note</b>
-------------

Type	Qty.	Order No.
IE-PS-V14M-HYB-10P	10	1072910000
Order contacts separately		

#### Ordering data - Empty housings

<b>Note</b>
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Type	Qty.	Order No.
IE-PH-V14M-RJ	10	1011560000

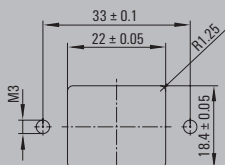
#### Accessories

<b>Crimp contacts</b>	
	0.08...0.2 mm <sup>2</sup>
	0.2...0.5 mm <sup>2</sup>
	0.75 mm <sup>2</sup>
<b>Crimping tool</b>	
<b>Cable</b>	Hybrid cable
<b>Dust protection cap</b>	Protective cap
<b>Marker, inside</b>	MultiCard, white
<b>Note</b>	

Type	Qty.	Order No.
IE-PIC-HYB-S-0,2-300	300	1135150000
IE-PIC-HYB-S-0,5-300	300	1096180000
IE-PIC-HYB-S-0,75-300	300	1068950000
HTF HYB	1	1119580000
IE-C5D HAG-MW		1172250000
IE-PP-V14P	10	1058280000
ESG 9/11 K MC NE WS	200	1857440000
<b>Note</b>	Plug inserts can also be ordered separately. Refer to Inserts.	

Flange PushPull V14 - Hybrid

Standardised flange



Technical data

Category
Protection degree
Housing main material
Seal material
Contact surface
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational)
Connection 1 / 2
Connector standard
Connection cross-section, flexible, min. / max.
Connection diameter, flexible, min. / max.
Rated current (hybrid connector)
Volume resistance
Approvals
<b>Note</b>

Cat.5 (ISO/IEC 11801)
IP67
Zinc diecast
EPDM
Gold over nickel
5 mm / 10 mm
500
-40 °C...70 °C
Hybrid (Q10) / Crimp
IEC 61076-3-119 CDV, IEC 61076-3-117 Var. 14
AWG 27 / AWG 20
0.08 mm <sup>2</sup> / 0.75 mm <sup>2</sup>
3 A per contact
< 10 mΩ
CULUS
Other approvals for individual parts of the set available

Ordering data - Sets

<b>Note</b>
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Type	Qty.	Order No.
IE-BSS-V14M-HYB-10P-FJ	10	1072900000
Order contacts separately		

Ordering data - Empty housings

Standardised flange
<b>Note</b>

Type	Qty.	Order No.
IE-BHS-V14M-RJA	10	1011540000

Accessories

<b>Crimp contacts</b>	
	0.08...0.2 mm <sup>2</sup>
	0.2...0.5 mm <sup>2</sup>
	0.75 mm <sup>2</sup>
<b>Crimping tool</b>	
	
<b>Cable</b>	Hybrid cable
	
<b>Dust protection cap</b>	Protective cap
<b>Note</b>	

Type	Qty.	Order No.
IE-BIC-HYB-P-0,2-300	300	1135160000
IE-BIC-HYB-P-0,5-300	300	1096150000
IE-BIC-HYB-P-0,75-300	300	1068970000
HTF HYB	1	1119580000
IE-C5DHAG-MW		1172250000
IE-BP-V14P	10	1058310000

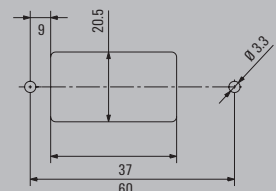
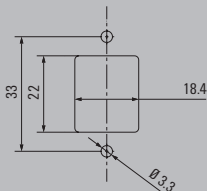
Plug inserts can also be ordered separately. Refer to Inserts.



V14 flange adapter

Straight

Angled



Technical data

Protection degree
Housing main material
Seal material
Type of mounting
Ambient temperature (operational)
Note

IP67
Zinc diecast
EPDM
2 screws, M3 (not included)
-40...70 °C

IP67
Zinc diecast
EPDM
2 screws, M3 (not included)
-40...70 °C

Ordering data

Note
------

Type	Qty.	Order No.
IE-AD-BHS-V14M-RJA	1	1302000000
Flange and plug inserts must be ordered separately, see Inserts/Flanges		

Type	Qty.	Order No.
IE-BHS-V14M-RJA-45	10	1296710000
Flange inserts must be ordered separately, see Inserts		

Accessories

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Type	Qty.	Order No.

Type	Qty.	Order No.

Note
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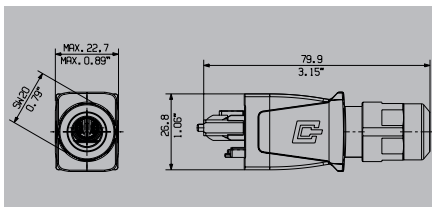
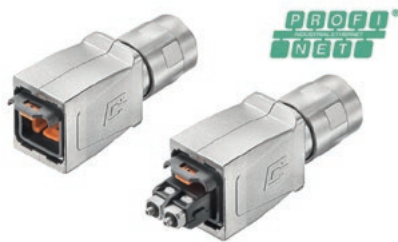
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PushPull V14 plug - fibre-optic

Without kink prevention



Technical data

Protection degree
Housing main material
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational)
Connector standard
Approvals
<b>Note</b>

IP67
Zinc diecast
5 mm / 10 mm
750
-40...70 °C
IEC 61076-3-117 Var. 14, IEC 61754-24
CULUS

Ordering data - Sets

	POF
<b>Note</b>	






Type	Qty.	Order No.
IE-PS-V14M-2SC-POF	10	1191550000

Ordering data - Empty housings

<b>Note</b>
-------------

Type	Qty.	Order No.
IE-PH-V14M-FO	10	1058100000

Accessories

Inserts	
	Singlemode
	Multimode
	POF
Dust protection cap	
	Protective cap
Tools	
	POF tool set
Replacement ferrule	
	
Marker, inside	
	MultiCard, white

Type	Qty.	Order No.
IE-PI-SCRJ-SM	10	1067390000
IE-PI-SCRJ-MM	10	1067380000
IE-PI-SCRJ-POF	10	1067410000
IE-PP-V14P	10	1058280000
TOOL SET IE-POF	1	1208930000
IE-SCRJJP67-POF-100	100	1278430000
ESG 9/11 K MC NE WS	200	1857440000

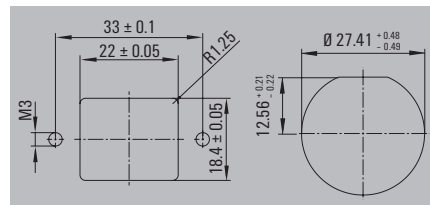
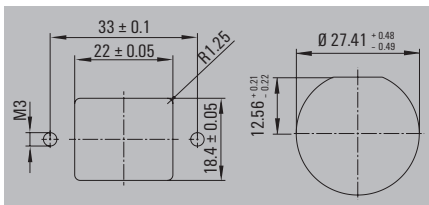
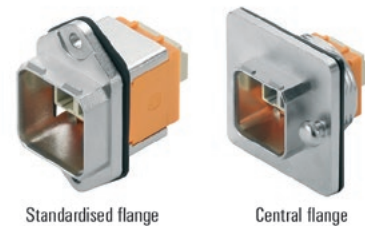
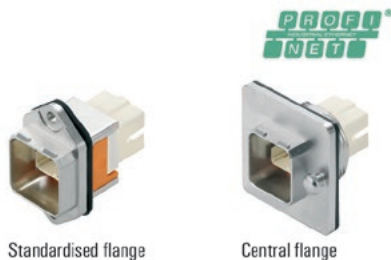
<b>Note</b>
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Plug inserts can also be ordered separately, see Inserts
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Flange PushPull V14 - fibre-optic

SCRJ

LC Duplex coupling



Technical data

Protection degree	IP67
Housing main material	Zinc diecast
Plugging cycles	500
Ambient temperature (operational)	-40 °C...70 °C
Insertion loss	≤ 0.5 dB
Connector standard	IEC 61076-3-117 Var. 14, IEC 61754-24
Approvals	CULUS
<b>Note</b>	

Protection degree	IP67
Housing main material	Zinc diecast
Plugging cycles	500
Ambient temperature (operational)	-40 °C...70 °C
Insertion loss	≤ 0.4 dB
Connector standard	IEC 61076-3-117 Var. 14, IEC 61754-20
Approvals	
<b>Note</b>	

Protection degree	IP67
Housing main material	Zinc diecast
Plugging cycles	500
Ambient temperature (operational)	-40 °C...70 °C
Insertion loss	≤ 0.4 dB
Connector standard	IEC 61076-3-117 Var. 14, IEC 61754-20
Approvals	
<b>Note</b>	

Ordering data - Sets

Central flange Singlemode
Standardised flange Singlemode
Central flange Multimode
Standardised flange Multimode
<b>Note</b>

Type	Qty.	Order No.
IE-BSC-V14M-SCRJ-SM-C	10	1062600000
IE-BSS-V14M-SCRJ-SM-C	10	1058140000
IE-BSC-V14M-SCRJ-MM-C	10	1062590000
IE-BSS-V14M-SCRJ-MM-C	10	1058120000
Multimode also suitable for PDF		

Type	Qty.	Order No.
IE-BSC-V14M-LCD-SM-C	10	1062620000
IE-BSS-V14M-LCD-SM-C	10	1058150000
IE-BSC-V14M-LCD-MM-C	10	1062610000
IE-BSS-V14M-LCD-MM-C	10	1058130000

Ordering data - Empty housings

Device flange
<b>Note</b>

Type	Qty.	Order No.
IE-BHD-V14M	10	1047940000

Type	Qty.	Order No.
IE-BHD-V14M	10	1047940000

Accessories

Dust protection cap	Protective cap
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Type	Qty.	Order No.
IE-BP-V14P	10	1058310000

Type	Qty.	Order No.
IE-BP-V14P	10	1058310000

**Note**

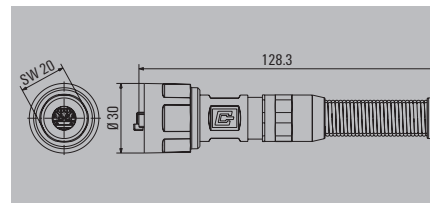
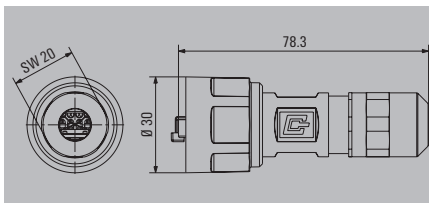
Plug inserts can also be ordered separately. Refer to Inserts.

Plug inserts can also be ordered separately. Refer to Inserts.

Plug bayonet V1 Metal - RJ45

Without kink prevention

With kink prevention



Technical data

Category
Protection degree
Housing main material
Contact surface
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational)
Connection cross-section, flexible, min. / max.
Connection diameter, flexible, min. / max.
Connection cross-section, solid, min. / max.
Connection diameter, solid, min. / max.
Connector standard
Approvals
Note

Cat.6 <sub>n</sub> / Class E <sub>n</sub> (ISO/IEC 11801 2010)
IP67
Zinc diecast
Gold over nickel
5 mm / 10 mm
750
-40 °C...70 °C
AWG 26 / AWG 22
0.48 mm / 0.76 mm
AWG 24 / AWG 22
0.4 mm / 0.64 mm
IEC 61076-3-106 Var. 1, IEC 60603-7-51
CULUS

Cat.6 <sub>n</sub> / Class E <sub>n</sub> (ISO/IEC 11801 2010)
IP67
Zinc diecast
Gold over nickel
5 mm / 10 mm
750
-40 °C...70 °C
AWG 26 / AWG 22
0.48 mm / 0.76 mm
AWG 24 / AWG 22
0.4 mm / 0.64 mm
IEC 61076-3-106 Var. 1, IEC 60603-7-51
CULUS

Ordering data - Sets

RJ45 without tools. AWG 26-22. TIA-A/B-PROFINET
RJ45 Crimp. AWG 27-24
Note

Type	Qty.	Order No.
IE-PS-V01M-RJ45-FH	10	1963120000
IE-PS-V01M-RJ45-TH	10	1963140000

Type	Qty.	Order No.
IE-PS-V01M-RJ45-FH-BP	10	1963130000
IE-PS-V01M-RJ45-TH-BP	10	1963150000

Ordering data - Empty housings

Note
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Type	Qty.	Order No.
IE-PH-V01M	10	1962550000

Type	Qty.	Order No.
IE-PH-V01M-BP	10	1962560000

Accessories

Dust protection cap	Plug housing protective cap
Marker, inside	MultiCard, white

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000
ESG 9/11 K MC NE WS	200	1857440000

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000
ESG 9/11 K MC NE WS	200	1857440000

Note
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Plug inserts can also be ordered separately. Refer to Inserts.
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Plug inserts can also be ordered separately. Refer to Inserts.
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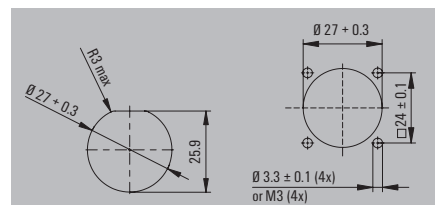
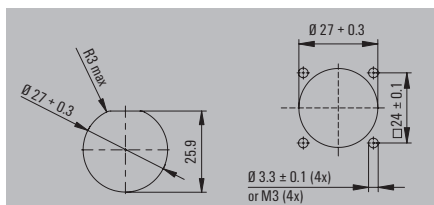


Flange bayonet V1 Metal - RJ45

Module

Coupling

TIA-A



Technical data

Category
Protection degree
Housing main material
Contact surface
Plugging cycles
Ambient temperature (operational)
Connector standard
Connection cross-section, flexible, min. / max.
Connection diameter, flexible, min. / max.
Connection cross-section, solid, min. / max.
Connection diameter, solid, min. / max.
Approvals
<b>Note</b>

Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
IP67
Zinc diecast
Gold over nickel
750
-40 °C...70 °C
IEC 61076-3-106 Var. 1, IEC 60603-7-51
AWG 26 / AWG 22
0.48 mm / 0.76 mm
AWG 24 / AWG 22
0.4 mm / 0.64 mm
CULUS
<b>Note</b>

Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
IP67
Zinc diecast
Gold over nickel
750
-40 °C...70 °C
IEC 61076-3-106 Var. 1, IEC 60603-7-51
CULUS
<b>Note</b>

Ordering data - Sets

<b>Note</b>
-------------

Type	Qty.	Order No.
IE-BS-V01M-RJ45-FJ-A	10	1963480000

Type	Qty.	Order No.
IE-BS-V01M-RJ45-C	10	1963470000

Ordering data - Empty housings

<b>Note</b>
-------------

Type	Qty.	Order No.
IE-BH-V01M	10	1963540000

Type	Qty.	Order No.
IE-BH-V01M	10	1963540000

Accessories

Dust protection cap	Flange-mounted housing protective cap
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Type	Qty.	Order No.
IE-BP-V01P	10	1965700000

Type	Qty.	Order No.
IE-BP-V01P	10	1965700000

<b>Note</b>
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Plug inserts can also be ordered separately. Refer to Inserts.
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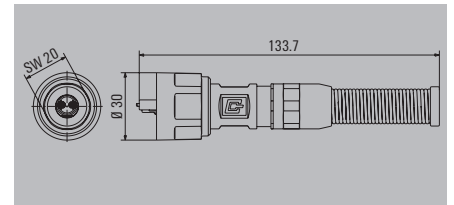
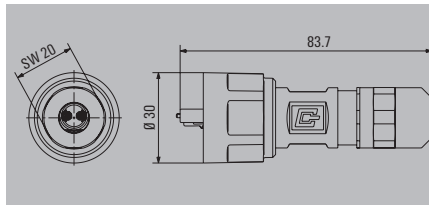
Plug inserts can also be ordered separately. Refer to Inserts.
--

## Bayonet V1 Metal-F0

### Plug bayonet V1 metal - fibre-optic-SC

#### Without kink prevention

#### With kink prevention



#### Technical data

Protection degree
Housing main material
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational)
Connector standard
Insertion loss
Return loss (attenuation)
Approvals
Note

IP67
Zinc diecast
5 mm / 10 mm
500
-40 °C...70 °C
IEC 61076-3-106 Var. 1, IEC 61754-24
0.5 dB singlemode; 0.4 dB multimode; 1.5 dB POF
40 dB singlemode; 30 dB multimode
EAC
Note

IP67
Zinc diecast
5 mm / 10 mm
500
-40 °C...70 °C
IEC 61076-3-106 Var. 1, IEC 61754-24
0.5 dB singlemode; 0.4 dB multimode; 1.5 dB POF
40 dB singlemode; 30 dB multimode
EAC
Note

#### Ordering data - Sets

Singlemode
Multimode
Note

Type	Qty.	Order No.
IE-PS-V01M-2SC-SM	10	1963300000
IE-PS-V01M-2SC-MM	10	1963260000
Note		

Type	Qty.	Order No.
IE-PS-V01M-2SC-SM-BP	10	1963310000
IE-PS-V01M-2SC-MM-BP	10	1963270000
Note		

#### Ordering data - Empty housings

Note
------

Type	Qty.	Order No.
IE-PH-V01M	10	1962550000
Note		

Type	Qty.	Order No.
IE-PH-V01M-BP	10	1962560000
Note		

#### Accessories

Dust protection cap	Plug housing protective cap
Marker, inside	MultiCard, white

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000
ESG 9/11 K MC NE WS	200	1857440000
Note		

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000
ESG 9/11 K MC NE WS	200	1857440000
Note		

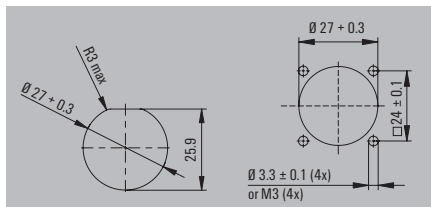
Note

Plug inserts can also be ordered separately. Refer to Inserts.

Plug inserts can also be ordered separately. Refer to Inserts.

Flange bayonet V1 metal - fibre-optic-SC

Standardised flange



Technical data

Protection degree
Housing main material
Plugging cycles
Ambient temperature (operational)
Connector standard
Approvals
<b>Note</b>

IP67
Zinc diecast
500
-40 °C...70 °C
IEC 61076-3-106 Var. 1, IEC 61754-24
<b>Note</b>

Ordering data - Sets

Singlemode
Multimode/POF
<b>Note</b>

Type	Qty.	Order No.
IE-BS-V01M-SCRJ-SM	10	1221020000
IE-BS-V01M-SCRJ-MM	10	1221010000
<b>Note</b>		

Ordering data - Empty housings

<b>Note</b>
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Type	Qty.	Order No.
IE-BHD-V01M-SCA	10	1221030000
<b>Note</b>		

Accessories

Dust protection cap
Flange-mounted housing protective cap

Type	Qty.	Order No.
IE-BP-V01P	10	1965700000
<b>Note</b>		

**Note**

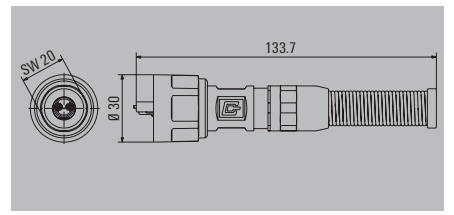
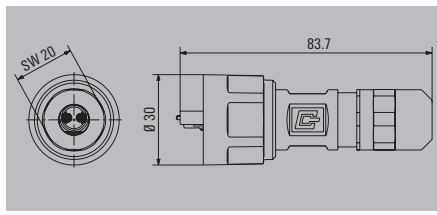
Plug inserts can also be ordered separately. Refer to Inserts.

# Bayonet V1 Metal-F0

## Plug bayonet V1 metal - fibre-optic-LC

### Without kink prevention

### With kink prevention



### Technical data

Protection degree
Housing main material
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational)
Connector standard
Insertion loss
Return loss (attenuation)
Approvals
Note

IP67
Zinc diecast
5 mm / 10 mm
500
-40 °C...70 °C
IEC 61076-3-106 Var. 1, IEC 61754-20
0.5 dB singlemode, 0.4 dB multimode
40 dB singlemode; 30 dB multimode
EAC
Note

IP67
Zinc diecast
5 mm / 10 mm
500
-40 °C...70 °C
IEC 61076-3-106 Var. 1, IEC 61754-20
0.5 dB singlemode, 0.4 dB multimode
40 dB singlemode; 30 dB multimode
EAC
Note

### Ordering data - Sets

Singlemode
Multimode
Note

Type	Qty.	Order No.
IE-PS-V01M-2LC-SM	10	1963240000
IE-PS-V01M-2LC-MM	10	1963220000
Note		

Type	Qty.	Order No.
IE-PS-V01M-2LC-SM-BP	10	1963250000
IE-PS-V01M-2LC-MM-BP	10	1963230000
Note		

### Ordering data - Empty housings

Note
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Type	Qty.	Order No.
IE-PH-V01M	10	1962550000
Note		

Type	Qty.	Order No.
IE-PH-V01M-BP	10	1962560000
Note		

### Accessories

Dust protection cap	Plug housing protective cap
Marker, inside	MultiCard, white

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000
ESG 9/11 K MC NE WS	200	1857440000
Note		

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000
ESG 9/11 K MC NE WS	200	1857440000
Note		

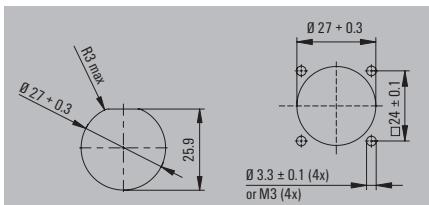
Note

Plug inserts can also be ordered separately. Refer to Inserts.

Plug inserts can also be ordered separately. Refer to Inserts.

Flange bayonet V1 metal - fibre-optic-LC

Standardised flange



Technical data

Protection degree
Housing main material
Plugging cycles
Ambient temperature (operational)
Connector standard
Approvals
<b>Note</b>

IP67
Zinc diecast
500
-40 °C...70 °C
IEC 61076-3-106 Var. 1, IEC 61754-20
<b>Note</b>

Ordering data - Sets

Singlemode
Multimode
<b>Note</b>

Type	Qty.	Order No.
IE-BS-V01M-LCD-SM-C	10	1963430000
IE-BS-V01M-LCD-MM-C	10	1964440000
<b>Note</b>		

Ordering data - Empty housings

<b>Note</b>
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Type	Qty.	Order No.
IE-BH-V01M	10	1963540000
<b>Note</b>		

Accessories

Dust protection cap
Flange-mounted housing protective cap

Type	Qty.	Order No.
IE-BP-V01P	10	1965700000
<b>Note</b>		

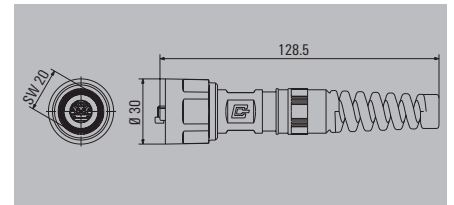
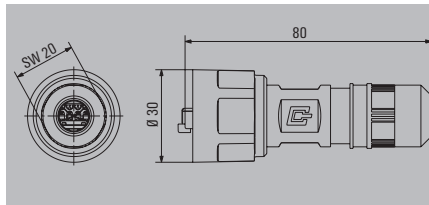
<b>Note</b>
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Plug inserts can also be ordered separately. Refer to Inserts.
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Plug bayonet V1 Plastic - RJ45

Without kink prevention

With kink prevention



Technical data

Category	
Protection degree	IP67
Housing main material	PA UL 94 V0
Contact surface	Gold over nickel
Sheath diameter, min. / max.	5 mm / 10 mm
Plugging cycles	750
Ambient temperature (operational)	-40 °C...70 °C
Connection cross-section, flexible, min. / max.	AWG 26 / AWG 22
Connection diameter, flexible, min. / max.	0.48 mm / 0.76 mm
Connection cross-section, solid, min. / max.	AWG 24 / AWG 22
Connection diameter, solid, min. / max.	0.4 mm / 0.64 mm
Connector standard	IEC 61076-3-106 Var. 1, IEC 60603-7-51
Approvals	CULUS
Note	

Cat.6 <sub>n</sub> / Class E <sub>n</sub> (ISO/IEC 11801 2010)	
IP67	
PA UL 94 V0	
Gold over nickel	
5 mm / 10 mm	
750	
-40 °C...70 °C	
AWG 26 / AWG 22	
0.48 mm / 0.76 mm	
AWG 24 / AWG 22	
0.4 mm / 0.64 mm	
IEC 61076-3-106 Var. 1, IEC 60603-7-51	
CULUS	

Cat.6 <sub>n</sub> / Class E <sub>n</sub> (ISO/IEC 11801 2010)	
IP67	
PA UL 94 V0	
Gold over nickel	
5 mm / 10 mm	
750	
-40 °C...70 °C	
AWG 26 / AWG 22	
0.48 mm / 0.76 mm	
AWG 24 / AWG 22	
0.4 mm / 0.64 mm	
IEC 61076-3-106 Var. 1, IEC 60603-7-51	
CULUS	

Ordering data - Sets

RJ45 without tools. AWG 26-22. TIA-A/B-PROFINET	
RJ45 Crimp. AWG 27-24	
Note	

Type	Qty.	Order No.
IE-PS-V01P-RJ45-FH	10	1012490000
IE-PS-V01P-RJ45-TH	10	1012470000

Type	Qty.	Order No.
IE-PS-V01P-RJ45-FH-BP	10	1012570000
IE-PS-V01P-RJ45-TH-BP	10	1012560000

Ordering data - Empty housings

Note	
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Type	Qty.	Order No.
IE-PH-V01P	10	1012440000

Type	Qty.	Order No.
IE-PH-V01P-BP	10	1012460000

Accessories

Dust protection cap	Plug housing protective cap
Marker, inside	MultiCard, white

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000
ESG 9/11 K MC NE WS	200	1857440000

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000
ESG 9/11 K MC NE WS	200	1857440000

Note	
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Plug inserts can also be ordered separately. Refer to Inserts.
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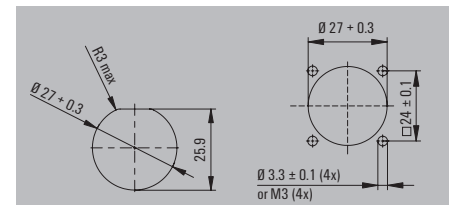
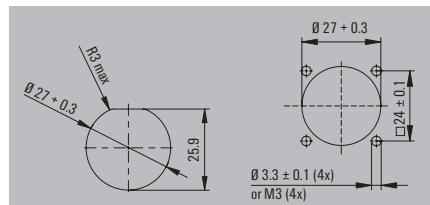
Plug inserts can also be ordered separately. Refer to Inserts.
--

Flange bayonet V1 Plastic - RJ45

Module

Coupling

TIA-A



Technical data

Category
Protection degree
Housing main material
Contact surface
Plugging cycles
Ambient temperature (operational)
Connector standard
Connection cross-section, flexible, min. / max.
Connection diameter, flexible, min. / max.
Connection cross-section, solid, min. / max.
Connection diameter, solid, min. / max.
Approvals
<b>Note</b>

Cat.6 <sub>n</sub> / Class E <sub>n</sub> (ISO/IEC 11801 2010)
IP67
PA UL 94 V0
Gold over nickel
750
-40 °C...70 °C
IEC 61076-3-106 Var. 1, IEC 60603-7-51
AWG 26 / AWG 22
0.48 mm / 0.76 mm
AWG 24 / AWG 22
0.4 mm / 0.64 mm
CULUS
<b>Note</b>

Cat.6 <sub>n</sub> / Class E <sub>n</sub> (ISO/IEC 11801 2010)
IP67
PA UL 94 V0
Gold over nickel
750
-40 °C...70 °C
IEC 61076-3-106 Var. 1, IEC 60603-7-51
CULUS
<b>Note</b>

Ordering data - Sets

<b>Note</b>
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Type	Qty.	Order No.
IE-BS-V01P-RJ45-FJ-A	10	1012380000

Type	Qty.	Order No.
IE-BS-V01P-RJ45-C	10	1012370000

Ordering data - Empty housings

<b>Note</b>
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Type	Qty.	Order No.
IE-BH-V01P	10	1016960000

Type	Qty.	Order No.
IE-BH-V01P	10	1016960000

Accessories

Dust protection cap	Flange-mounted housing protective cap
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Type	Qty.	Order No.
IE-BP-V01P	10	1965700000

Type	Qty.	Order No.
IE-BP-V01P	10	1965700000

<b>Note</b>
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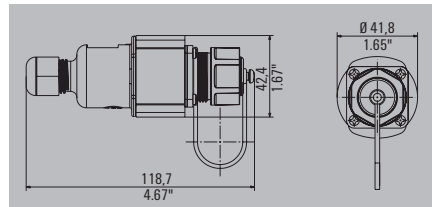
Plug inserts can also be ordered separately. Refer to Inserts.
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Plug inserts can also be ordered separately. Refer to Inserts.
--

**Bayonet V1 Plastic - RJ45**

**Cable coupling bayonet V1  
Plastic - RJ45**

**Cable coupling**



**Technical data**

Protection degree
Housing main material
Plugging cycles
Ambient temperature (operational)
Connector standard
Sheath diameter, min. / max.
Approvals
<b>Note</b>

IP67
PA UL 94 V0
750
-40 °C...70 °C
IEC 61076-3-106 Var. 1
6 mm / 9.5 mm
<b>Note</b>

**Ordering data**

<b>Variant 1</b>	Cable coupling
<b>Note</b>	

Type	Qty.	Order No.
IE-CC-V01P	10	<b>1061820000</b>
RJ45 modules can be ordered separately		

**Accessories**

Inserts, Data
 RJ45 module EIA/TIA T568 B
RJ45 module PROFINET
RJ45 module EIA/TIA T568 A

Type	Qty.	Order No.
IE-BI-RJ45-FJ-B	10	<b>1963840000</b>
IE-BI-RJ45-FJ-P	10	<b>1963830000</b>
IE-BI-RJ45-FJ-A	10	<b>1962850000</b>

<b>Note</b>
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<b>Note</b>
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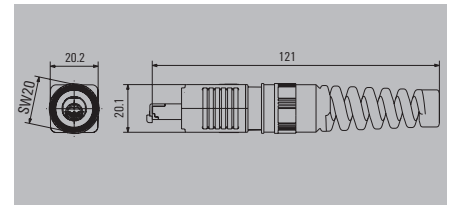
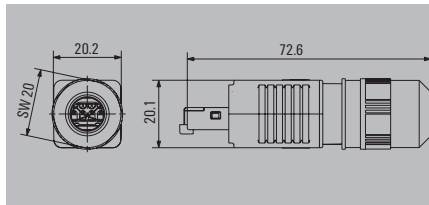




Plug PushPull V4 - RJ45

Without kink prevention

With kink prevention



Technical data

Category
Protection degree
Housing main material
Contact surface
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational)
Connection cross-section, flexible, min. / max.
Connection diameter, flexible, min. / max.
Connection cross-section, solid, min. / max.
Connection diameter, solid, min. / max.
Connector standard
Approvals
Note

Cat.6 <sub>n</sub> / Class E <sub>n</sub> (ISO/IEC 11801 2010)
IP67
PA UL 94 V0
Gold over nickel
5 mm / 10 mm
750
-40 °C...70 °C
AWG 27 / AWG 24
0.46 mm / 0.61 mm
AWG 24 / AWG 22
0.36 mm / 0.51 mm
IEC 61076-3-106 Var. 4, IEC 60603-7-51
CULUS

Cat.6 <sub>n</sub> / Class E <sub>n</sub> (ISO/IEC 11801 2010)
IP67
PA UL 94 V0
Gold over nickel
5 mm / 10 mm
750
-40 °C...70 °C
AWG 27 / AWG 24
0.46 mm / 0.61 mm
AWG 24 / AWG 22
0.36 mm / 0.51 mm
IEC 61076-3-106 Var. 4, IEC 60603-7-51
CULUS

Ordering data - Sets

RJ45 without tools. AWG 26-22. TIA-A/B-PROFINET
RJ45 without tools. AWG 26-22. TIA-B
RJ45 Crimp. AWG 27-24
Note

Type	Qty.	Order No.
IE-PS-V04P-RJ45-FH	10	1963160000
IE-PS-V04P-RJ45-FH-B	10	1271240000
IE-PS-V04P-RJ45-TH	10	1963180000

Type	Qty.	Order No.
IE-PS-V04P-RJ45-FH-BP	10	1963170000
IE-PS-V04P-RJ45-TH-BP	10	1963190000

Ordering data - Empty housings

Note
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Type	Qty.	Order No.
IE-PH-V04P	10	1962520000

Type	Qty.	Order No.
IE-PH-V04P-BP	10	1962530000

Accessories

Dust protection cap	Plug housing protective cap
Marker, inside	MultiCard, white

Type	Qty.	Order No.
IE-PP-V04P	10	1963890000
ESG 9/11 K MC NE WS	200	1857440000

Type	Qty.	Order No.
IE-PP-V04P	10	1963890000
ESG 9/11 K MC NE WS	200	1857440000

Note
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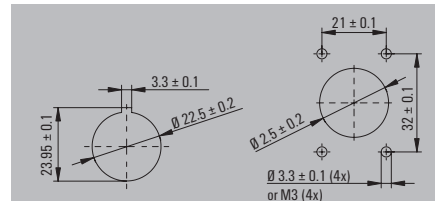
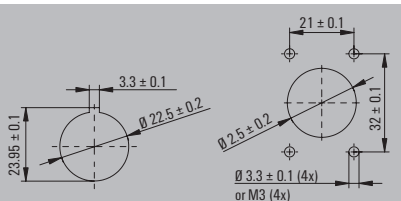
Plug inserts can also be ordered separately. Refer to Inserts.
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Plug inserts can also be ordered separately. Refer to Inserts.
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Flange PushPull V4 - RJ45

Module

Coupling



Technical data

Category
Protection degree
Housing main material
Contact surface
Plugging cycles
Ambient temperature (operational)
Connector standard
Connection cross-section, flexible, min. / max.
Connection diameter, flexible, min. / max.
Connection cross-section, solid, min. / max.
Connection diameter, solid, min. / max.
Approvals
<b>Note</b>

Cat.6 <sub>n</sub> / Class E <sub>n</sub> (ISO/IEC 11801 2010)
IP67
PA UL 94 V0
Gold over nickel
750
-40 °C...70 °C
IEC 61076-3-106 Var. 4, IEC 60603-7-51
AWG 26 / AWG 22
0.48 mm
AWG 24 / AWG 22
0.4 mm / 0.64 mm
CULUS
Other approvals for individual parts of the set available

Cat.6 <sub>n</sub> / Class E <sub>n</sub> (ISO/IEC 11801 2010)
IP67
PA UL 94 V0
Gold over nickel
750
-40 °C...70 °C
IEC 61076-3-106 Var. 4, IEC 60603-7-51
CULUS

Ordering data - Sets

RJ45 module TIA-A
RJ45 module TIA-B
Coupling
<b>Note</b>

Type	Qty.	Order No.
IE-BS-V04P-RJ45-FJ-A	10	1963500000
IE-BS-V04P-RJ45-FJ-B	10	1963730000

Type	Qty.	Order No.
IE-BS-V04P-RJ45-C	10	1963490000

Ordering data - Empty housings

Empty enclosure
Device flange
<b>Note</b>

Type	Qty.	Order No.
IE-BH-V04P	10	1963520000
IE-BHD-V04P	200	2027660000

Type	Qty.	Order No.
IE-BH-V04P	10	1963520000
IE-BHD-V04P	200	2027660000

Accessories

Dust protection cap
Flange-mounted housing protective cap
Marker, inside
MultiCard, white
Fixing tool

Type	Qty.	Order No.
IE-BP-V04P	10	1963900000
ESG 9/11 K MC NE WS	200	1857440000
IE-FISP-V4	2	9204370000

Type	Qty.	Order No.
IE-BP-V04P	10	1963900000
ESG 9/11 K MC NE WS	200	1857440000
IE-FISP-V4	2	9204370000

**Note**

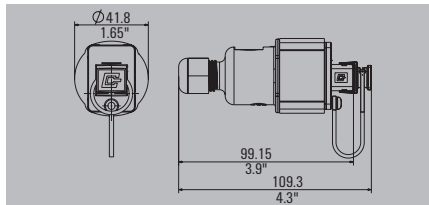
Plug inserts can also be ordered separately. Refer to Inserts.

Plug inserts can also be ordered separately. Refer to Inserts.

PushPull V4 - RJ45

Cable coupling PushPull V4 - RJ45

Cable coupling



Technical data

Protection degree  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational)  
 Connector standard  
 Sheath diameter, min. / max.  
 Approvals

IP67  
 PA UL 94 V0  
 750  
 -40 °C...70 °C  
 IEC 61076-3-106 Var. 4  
 6 mm / 9.5 mm

Note

Ordering data

Cable coupling

Note

Type	Qty.	Order No.
IE-CC-V04P	10	1045960000

RJ45 modules can be ordered separately

Accessories

Inserts, Data



RJ45 module EIA/TIA T568 B  
 RJ45 module PROFINET  
 RJ45 module EIA/TIA T568 A

Marker, inside

MultiCard, white

Type	Qty.	Order No.
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-RJ45-FJ-A	10	1962850000
ESG 9/11 K MC NE WS	200	1857440000

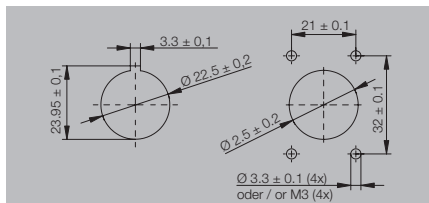
Note

Plug inserts can also be ordered separately. Refer to Inserts.

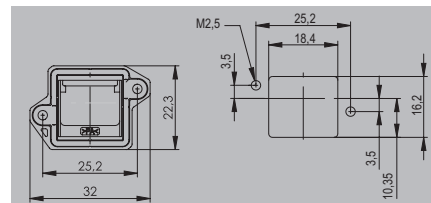
**Flange-mounted empty housing / PushPull V4 device flange**

- IP67

**Empty housing**



**Device flange**



**Technical data**

Protection degree
Housing main material
Plugging cycles
Ambient temperature (operational)
Connector standard
Sheath diameter, min. / max.
Approvals
<b>Note</b>

IP67
PA UL 94 V0
750
-40 °C...70 °C
IEC 61076-3-106 Var. 4
5 mm / 10 mm
CULUS

IP67
PA UL 94 V0
-40 °C...70 °C
IEC 61076-3-106 Var. 4
CULUS

**Ordering data**

Empty enclosure
Device flange
<b>Note</b>

Type	Qty.	Order No.
IE-BH-V04P	10	1963520000

Type	Qty.	Order No.
IE-BHD-V04P	200	2027660000

**Accessories**

<b>Dust protection cap</b>
Flange-mounted housing protective cap
<b>Marker, inside</b>
MultiCard, white
<b>Fixing tool</b>

Type	Qty.	Order No.
IE-BP-V04P	10	1963900000
ESG 9/11 K MC NE WS	200	1857440000
IE-FISP-V4	2	9204370000

Type	Qty.	Order No.
IE-BP-V04P	10	1963900000
ESG 9/11 K MC NE WS	200	1857440000
IE-FISP-V4	2	9204370000

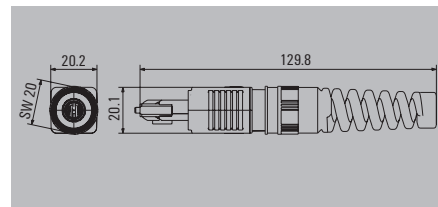
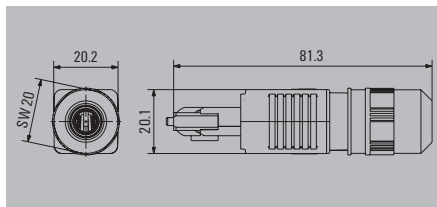
**Note**

Plug inserts can also be ordered separately. Refer to Inserts.

Plug PushPull V4 - fibre-optic-SC

Without kink prevention

With kink prevention



Technical data

Protection degree	IP67
Housing main material	PA UL 94 V0
Sheath diameter, min. / max.	5 mm / 10 mm
Plugging cycles	500
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-106 Var. 4, IEC 61754-24
Insertion loss	0.5 dB singlemode; 0.4 dB multimode; 1.5 dB POF
Return loss (attenuation)	40 dB singlemode; 30 dB multimode
Approvals	EAC
Note	

Protection degree	IP67
Housing main material	PA UL 94 V0
Sheath diameter, min. / max.	5 mm / 10 mm
Plugging cycles	500
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-106 Var. 4, IEC 61754-24
Insertion loss	0.5 dB singlemode; 0.4 dB multimode; 1.5 dB POF
Return loss (attenuation)	40 dB singlemode; 30 dB multimode
Approvals	EAC
Note	

Protection degree	IP67
Housing main material	PA UL 94 V0
Sheath diameter, min. / max.	5 mm / 10 mm
Plugging cycles	500
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-106 Var. 4, IEC 61754-24
Insertion loss	0.5 dB singlemode; 0.4 dB multimode; 1.5 dB POF
Return loss (attenuation)	40 dB singlemode; 30 dB multimode
Approvals	EAC
Note	

Ordering data - Sets

	Singlemode
	Multimode
Note	

Type	Qty.	Order No.
IE-PS-V04P-2SC-SM	10	1963400000
IE-PS-V04P-2SC-MM	10	1963360000

Type	Qty.	Order No.
IE-PS-V04P-2SC-SM-BP	10	1963410000
IE-PS-V04P-2SC-MM-BP	10	1963370000

Ordering data - Empty housings

Note	
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Type	Qty.	Order No.
IE-PH-V04P	10	1962520000

Type	Qty.	Order No.
IE-PH-V04P-BP	10	1962530000

Accessories

Dust protection cap	Plug housing protective cap
Marker, inside	MultiCard, white

Type	Qty.	Order No.
IE-PP-V04P	10	1963890000
ESG 9/11 K MC NE WS	200	1857440000

Type	Qty.	Order No.
IE-PP-V04P	10	1963890000
ESG 9/11 K MC NE WS	200	1857440000

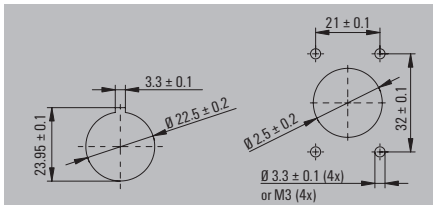
Note

Plug inserts can also be ordered separately. Refer to Inserts.

Plug inserts can also be ordered separately. Refer to Inserts.

Flange PushPull V4 - fibre-optic-SC

Standardised flange



Technical data

Protection degree
Housing main material
Plugging cycles
Ambient temperature (operational)
Connector standard
Approvals
<b>Note</b>

IP67
PA UL 94 V0
500
-40 °C...70 °C
IEC 61076-3-106 Var. 4, IEC 61754-4, IEC 61754-24
<b>Note</b>

Ordering data - Sets

Singlemode
Multimode
<b>Note</b>

Type	Qty.	Order No.
IE-BS-V04P-SCRJ2SC-SM-C	10	1963420000
IE-BS-V04P-SCRJ2SC-MM-C	10	1964470000
<b>Note</b>		

Ordering data - Empty housings

Empty enclosure
<b>Note</b>

Type	Qty.	Order No.
IE-BH-V04P	10	1963520000
<b>Note</b>		

Accessories

Dust protection cap	Flange-mounted housing protective cap
Marker, inside	MultiCard, white
Fixing tool	
<b>Note</b>	

Type	Qty.	Order No.
IE-BP-V04P	10	1963900000
ESG 9/11 K MC NE WS	200	1857440000
IE-FISP-V4	2	9204370000
<b>Note</b>		

**Note**

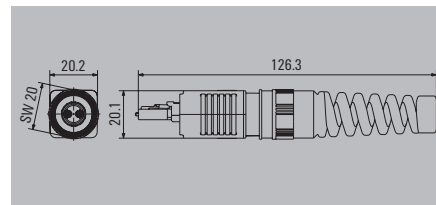
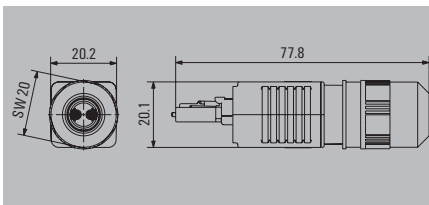
Plug inserts can also be ordered separately. Refer to Inserts.



Plug PushPull V4 - fibre-optic-LC

Without kink prevention

With kink prevention



Technical data

Protection degree	IP67
Housing main material	PA UL 94 V0
Sheath diameter, min. / max.	5 mm / 10 mm
Plugging cycles	500
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-106 Var. 4, IEC 61754-20
Insertion loss	0.5 dB singlemode, 0.4 dB multimode
Return loss (attenuation)	40 dB singlemode; 30 dB multimode
Approvals	EAC
Note	

Protection degree	IP67
Housing main material	PA UL 94 V0
Sheath diameter, min. / max.	5 mm / 10 mm
Plugging cycles	500
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-106 Var. 4, IEC 61754-20
Insertion loss	0.5 dB singlemode, 0.4 dB multimode
Return loss (attenuation)	40 dB singlemode; 30 dB multimode
Approvals	EAC
Note	

Protection degree	IP67
Housing main material	PA UL 94 V0
Sheath diameter, min. / max.	5 mm / 10 mm
Plugging cycles	500
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-106 Var. 4, IEC 61754-20
Insertion loss	0.5 dB singlemode, 0.4 dB multimode
Return loss (attenuation)	40 dB singlemode; 30 dB multimode
Approvals	EAC
Note	

Ordering data - Sets

	Singlemode
	Multimode
Note	

Type	Qty.	Order No.
IE-PS-V04P-2LC-SM	10	1963340000
IE-PS-V04P-2LC-MM	10	1963320000

Type	Qty.	Order No.
IE-PS-V04P-2LC-SM-BP	10	1963350000
IE-PS-V04P-2LC-MM-BP	10	1963330000

Ordering data - Empty housings

Note	
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Type	Qty.	Order No.
IE-PH-V04P	10	1962520000

Type	Qty.	Order No.
IE-PH-V04P-BP	10	1962530000

Accessories

Dust protection cap	Plug housing protective cap
Marker, inside	MultiCard, white

Type	Qty.	Order No.
IE-PP-V04P	10	1963890000
ESG 9/11 K MC NE WS	200	1857440000

Type	Qty.	Order No.
IE-PP-V04P	10	1963890000
ESG 9/11 K MC NE WS	200	1857440000

Note

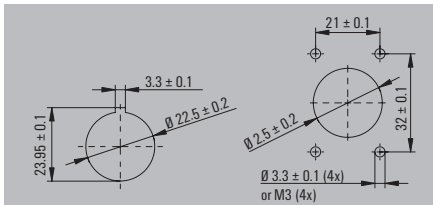
Plug inserts can also be ordered separately. Refer to Inserts.

Plug inserts can also be ordered separately. Refer to Inserts.



Flange PushPull V4 - fibre-optic-LC

Standardised flange



Technical data

Protection degree
Housing main material
Plugging cycles
Ambient temperature (operational)
Connector standard
Approvals
<b>Note</b>

IP67
PA UL 94 V0
500
-40 °C...70 °C
IEC 61076-3-106 Var. 4, IEC 61754-20
<b>Note</b>

Ordering data - Sets

Singlemode
Multimode
<b>Note</b>

Type	Qty.	Order No.
IE-BS-V04P-LCD-SM-C	10	1963450000
IE-BS-V04P-LCD-MM-C	10	1964460000
<b>Note</b>		

Ordering data - Empty housings

Empty enclosure
<b>Note</b>

Type	Qty.	Order No.
IE-BH-V04P	10	1963520000
<b>Note</b>		

Accessories

Dust protection cap	Flange-mounted housing protective cap
Marker, inside	MultiCard, white
Fixing tool	
<b>Note</b>	

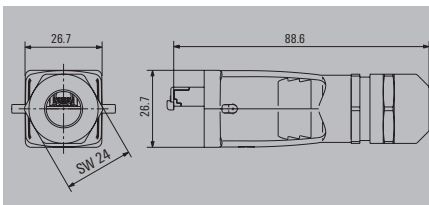
Type	Qty.	Order No.
IE-BP-V04P	10	1963900000
ESG 9/11 K MC NE WS	200	1857440000
IE-FISP-V4	2	9204370000
<b>Note</b>		

Plug inserts can also be ordered separately. Refer to Inserts.

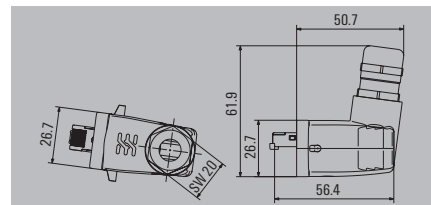


RockStar® heavy-duty connector plug  
V5 - RJ45

Straight V5 - RJ45 plug



V5-RJ45 plug, angled



Technical data

Category
Protection degree
Housing main material
Contact surface
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational)
Connector standard
Approvals
Note

Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
IP67
diecast aluminium
Gold over nickel
5 mm / 12 mm
750
-40 °C...70 °C
IEC 61076-3-106 Var. 5, IEC 60603-7-51
CULUS

Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
IP67
diecast aluminium
Gold over nickel
5 mm / 10 mm
750
-40 °C...70 °C
IEC 61076-3-106 Var. 5, IEC 60603-7-51
EAC
Other approvals for individual parts of the set available

Ordering data - Sets

RJ45 without tools. AWG 26-22. TIA-A/B-PROFINET
RJ45 without tools. AWG 26-22 . TIA-B
RJ45 Crimp. AWG 27-24
Note

Type	Qty.	Order No.
IE-PS-V05M-RJ45-FH	10	1963200000
IE-PS-V05M-RJ45-FH-B	10	1271250000
IE-PS-V05M-RJ45-TH	10	1963110000

Type	Qty.	Order No.
IE-PS-V05M-A-RJ45-FH	10	1077300000

Ordering data - Empty housings

Note
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Type	Qty.	Order No.
IE-PH-V05M	10	1962540000

Type	Qty.	Order No.

Accessories

Dust protection cap
Plug housing protective cap
Spare insert holder

Type	Qty.	Order No.
IE-PP-V05M	1	1968920000
IE-PH-AD-V05M-RJ45	1	1993540000

Type	Qty.	Order No.
IE-PP-V05M	1	1968920000

Note

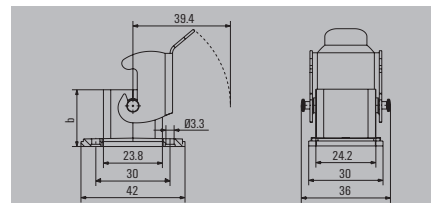
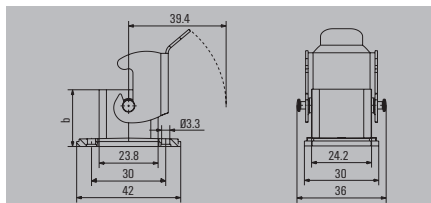
Plug inserts can also be ordered separately. Refer to Inserts.

Plug inserts can also be ordered separately. Refer to Inserts.

**RockStar® heavy-duty connector flange  
V5 - RJ45**

**Module**

**Coupling**



**Technical data**

Protection degree
Housing main material
Contact surface
Plugging cycles
Ambient temperature (operational)
Connector standard
Connection cross-section, flexible, min. / max.
Connection diameter, flexible, min. / max.
Connection cross-section, solid, min. / max.
Connection diameter, solid, min. / max.
Approvals
<b>Note</b>

IP67
diecast aluminium
Gold over nickel
750
-40 °C...70 °C
IEC 61076-3-106 Var. 5, IEC 60603-7-51
AWG 26 / AWG 22
0.48 mm / 0.76 mm
AWG 24 / AWG 22
0.4 mm / 0.64 mm
CULUS
<b>Note</b>

IP67
diecast aluminium
Gold over nickel
750
-40 °C...70 °C
IEC 61076-3-106 Var. 5, IEC 60603-7-51
CULUS
<b>Note</b>

**Ordering data - Sets**

TIA-A Cat. 6 <sub>A</sub>
PROFINET Cat. 5
Coupling
<b>Note</b>

Type	Qty.	Order No.
IE-BS-V05M-RJ45-FJ-A	10	1963460000
IE-BS-V05M-RJ45-FJ-P	10	1963700000
<b>Note</b>		

Type	Qty.	Order No.
IE-BS-V05M-RJ45-C	10	1963510000
<b>Note</b>		

**Ordering data - Empty housings**

<b>Note</b>
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Type	Qty.	Order No.
IE-BH-V05M	10	1963530000
<b>Note</b>		

Type	Qty.	Order No.
IE-BH-V05M	10	1963530000
<b>Note</b>		

**Accessories**

Dust protection cap	Flange-mounted housing protective cap
<b>Note</b>	

Type	Qty.	Order No.
IE-BP-V05M	10	1968930000
<b>Note</b>		

Type	Qty.	Order No.
IE-BP-V05M	10	1968930000
<b>Note</b>		

**Note**

Plug inserts can also be ordered separately. Refer to Inserts.

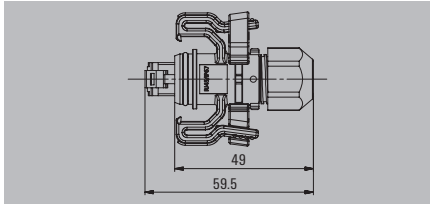
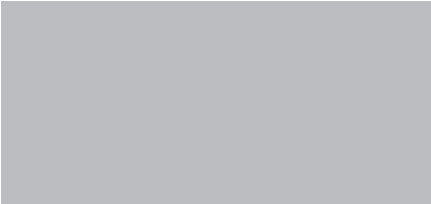
Plug inserts can also be ordered separately. Refer to Inserts.

**SnapIn V6 - RJ45**

**Plug SnapIn V6 - RJ45**

- Cat. 6
- IP67

**Without kink prevention**



**Technical data**

Category	Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
Protection degree	IP67
Shielding	360° shield contact
Housing main material	PA 66, UL 94: V-0
Contact surface	Gold over nickel
Colour	Light Grey
Plugging cycles	750
Wiring	EIA/TIA T568 A
Type of mounting	Floor-mounted, for exposed connections, Wall mounting
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-106 Var. 6, IEC 60603-7-5
Approvals	GERMLLOYD
<b>Note</b>	

**Ordering data**

Type	Qty.	Order No.
IE-P-IP67	1	8808380000
<b>Note</b>		

**Accessories**

Type	Qty.	Order No.
IE-PM-RJ45-TH	100	1963580000

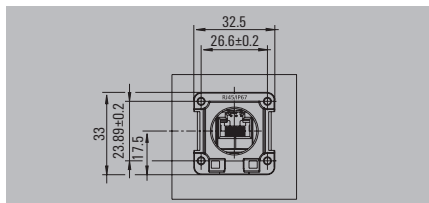
**Note**

See also the "Accessories" chapter.

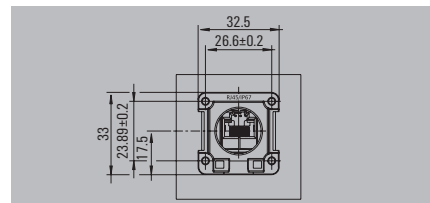
Flange SnapIn V6 - RJ45

- Cat. 6
- IP67

Module



Coupling



Technical data

Category	Cat.6 (ISO/IEC 11801)
Protection degree	IP67
Shielding	360° shield contact
Housing main material	PA 66, UL 94: V-0
Contact surface	Gold over nickel
Colour	Light Grey
Plugging cycles	750
Type of mounting	Cabinet, Distribution box
Wiring	Colour-coded pin assignment according to EIA/TIA T568 A., EIA/TIA T568 B
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-106 Var. 6, IEC 60603-7-5
Approvals	GERMLLOYD
Note	

Category	Cat.6 (ISO/IEC 11801)
Protection degree	IP67
Shielding	360° shield contact
Housing main material	PA 66, UL 94: V-0
Contact surface	Gold over nickel
Colour	Light Grey
Plugging cycles	750
Type of mounting	Cabinet, Distribution box
Wiring	Colour-coded pin assignment according to EIA/TIA T568 A., EIA/TIA T568 B
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-106 Var. 6, IEC 60603-7-5
Approvals	GERMLLOYD
Note	

Category	Cat.6 (ISO/IEC 11801)
Protection degree	IP67
Shielding	360° shield contact
Housing main material	PA 66, UL 94: V-0
Contact surface	Gold over nickel
Colour	Light Grey
Plugging cycles	750
Type of mounting	Cabinet, Distribution box
Wiring	Colour-coded pin assignment according to EIA/TIA T568 A., EIA/TIA T568 B
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-106 Var. 6, IEC 60603-7-5
Approvals	GERMLLOYD
Note	

Ordering data

	straight	
	angled. upwards	
	angled. downwards	
Note		

Type	Qty.	Order No.
IE-XM-RJ45/IDC-IP67	1	8808440000

Type	Qty.	Order No.
IE-XM-RJ45/RJ45-IP67	1	8808450000
IE-XM-6U-RJ45/RJ45-IP67	1	8829440000
IE-XM-6D-RJ45/RJ45-IP67	1	8829450000

Accessories

Flange insert
RJ45 module A. straight
RJ45 coupling. straight

Type	Qty.	Order No.
IE-XRJ45/IDC	1	8808330000

Type	Qty.	Order No.
IE-XR-RJ45/RJ45-2	24	8952950000

Note
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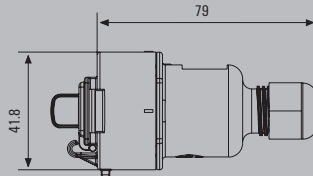
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## SnapIn V6 - RJ45

### Cable coupling SnapIn V6 - RJ45

- Cat. 6
- IP67

### Cable coupling



### Technical data

Category	Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
Protection degree	IP67
Shielding	360° shield contact
Housing main material	PA 66, UL 94: V-0
Contact surface	Gold over nickel
Colour	Light Grey
Plugging cycles	750
Type of mounting	Floor-mounted, for exposed connections, Wall mounting
Wiring	Colour-coded pin assignment according to EIA/TIA T568 A., EIA/TIA T568 B
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-106 Var. 6, IEC 60603-7-5
Sheath diameter, min. / max.	6 mm / 9.5 mm
Approvals	GERMLLOYD

#### Note

### Ordering data

Type	Qty.	Order No.
IE-C-IP67	1	8813090000

#### Note

### Accessories

Type	Qty.	Order No.
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#### Note

See also the "Accessories" chapter.



**M12 D-coded**

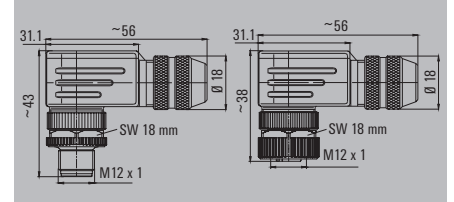
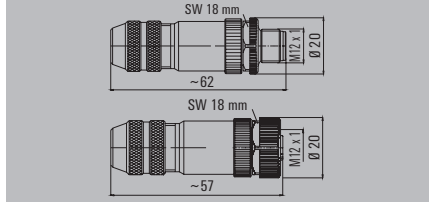
**M12 plug,  
Tension-clamp connection,  
D-coded**

**SAISM / SAIBM**

**SAISW / SAIBW**



**Industrial Ethernet**



**Technical data**

Type of connection	Tension clamp connection
Housing main material	CuZn
Ambient temperature (operational)	-40 °C...85 °C
Connector standard	IEC 61076-2-101
Connection thread	M12
Cable diameter	6...8 mm (PG9)
Conductor cross-section min. / max.	0.25 mm <sup>2</sup> / 0.5 mm <sup>2</sup>
Rated current	4
Rated voltage	250
Temperature range of housing	-40 ... +85 °C
Protection degree	IP67
Contact surface	Gold-plated
<b>Note</b>	

Type of connection	Tension clamp connection
Housing main material	CuZn
Ambient temperature (operational)	-40 °C...85 °C
Connector standard	IEC 61076-2-101
Connection thread	M12
Cable diameter	6...8 mm (PG9)
Conductor cross-section min. / max.	0.25 mm <sup>2</sup> / 0.5 mm <sup>2</sup>
Rated current	4
Rated voltage	250
Temperature range of housing	-40 ... +85 °C
Protection degree	IP67
Contact surface	Gold-plated
<b>Note</b>	

Type of connection	Tension clamp connection
Housing main material	CuZn
Ambient temperature (operational)	-40 °C...85 °C
Connector standard	IEC 61076-2-101
Connection thread	M12
Cable diameter	6...8 mm (PG9)
Conductor cross-section min. / max.	0.25 mm <sup>2</sup> / 0.5 mm <sup>2</sup>
Rated current	4
Rated voltage	250
Temperature range of housing	-40 ... +85 °C
Protection degree	IP67
Contact surface	Gold-plated
<b>Note</b>	

**Ordering data**

<b>Male</b>	4-pole, PG 9
<b>Female</b>	4-pole, PG 9
<b>Note</b>	

Type	Qty.	Order No.
SAISM-4/8S-M12 4P D-ZF	1	1892120001
SAIBM-4/8S-M12 4P D-ZF	1	1892130001

Type	Qty.	Order No.
SAISW-4/8S-M12 4P D-ZF	1	1803930001
SAIBW-4/8S-M12 4P D-ZF	1	1139330000

**Accessories**

Type	Qty.	Order No.

Type	Qty.	Order No.

Type	Qty.	Order No.

<b>Note</b>
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<b>Note</b>
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<b>Note</b>
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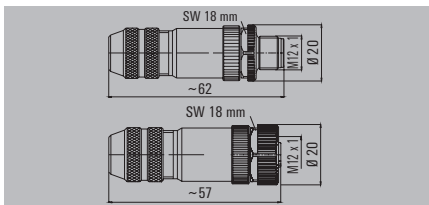


M12 plug,  
Screw connection,  
D-coded

SAISM / SAIBM



# Industrial Ethernet



**Technical data**

Type of connection	Screw connection
Housing main material	CuZn
Ambient temperature (operational)	-40 °C...85 °C
Connector standard	IEC 61076-2-101
Connection thread	M12
Cable diameter	6..8 mm (PG9)
Conductor cross-section min. / max.	0.25 mm <sup>2</sup> / 0.75 mm <sup>2</sup>
Rated current	4
Rated voltage	250
Temperature range of housing	-40 ... +85 °C
Protection degree	IP67
Contact surface	Gold-plated
<b>Note</b>	

**Ordering data**

Male	4-pole, PG 9	Type	Qty.	Order No.
		SAISM-4/8S-M12-4P D-COD	1	1892120000
Female	4-pole, PG 9	Type	Qty.	Order No.
		SAIBM-4/8S-M12-4P D-COD	1	1892130000
<b>Note</b>				

**Accessories**

Type	Qty.	Order No.

**Note**

**Note**

**M12 D-coded**

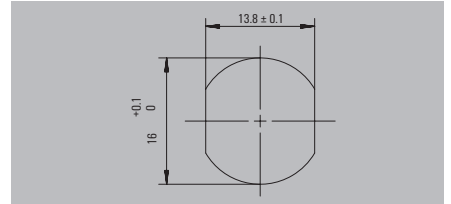
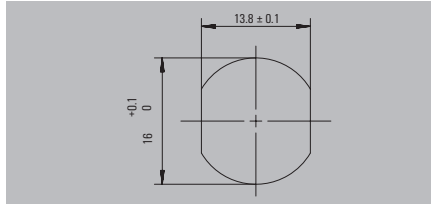
**Adapter / coupling M12**

- Cat. 5
- IP67
- D-coded

**Adapter M12-RJ45, female**



**Adapter M12-RJ45, male**



**Technical data**

Category	
Protection degree	
Housing main material	
Shielding	
Ambient temperature (operational)	
Connector standard	
Approvals	
<b>Note</b>	

Cat.5 (ISO/IEC 11801)
IP65
PA 66
Yes
-25 °C...80 °C
IEC 60603-7-5, IEC 61076-2-101
EAC

Cat.5 (ISO/IEC 11801)
IP65
PA 66
Yes
-25 °C...80 °C
IEC 60603-7-5, IEC 61076-2-101
EAC

**Ordering data**

<b>Adaptor</b>	
	straight
	angled
<b>Coupling</b>	
<b>Note</b>	

Type	Qty.	Order No.
IE-M12-ADAP S	1	8901620000
IE-M12-ADAP A	1	8901630000

Type	Qty.	Order No.
IE-AD-M12DRJ45-MF-180	1	1514970000
IE-AD-M12DRJ45-MF-90	1	1514940000

**Accessories**

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
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<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
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<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
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<b>Note</b>
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<b>Note</b>
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<b>Note</b>
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**Adapter / coupling M12**

- Cat. 5
- IP67
- D-coded

**Coupling M12-M12**



**Technical data**

Category
Protection degree
Housing main material
Shielding
Ambient temperature (operational)
Connector standard
Approvals
<b>Note</b>

Cat.5 (ISO/IEC 11801)
IP67
Polyamide, Brass, nickel-plated
360° shield contact
-5 °C...60 °C
IEC 61076-2-101
EAC
<b>Note</b>

**Ordering data**

<b>Adaptor</b>
straight
angled
<b>Coupling</b>
<b>Note</b>

Type	Qty.	Order No.
IE-M12-COUP	1	8901640000
<b>Note</b>		

**Accessories**

<b>Note</b>
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Type	Qty.	Order No.
<b>Note</b>		

<b>Note</b>
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<b>Note</b>
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**M12 D-coded**

**M12 PCB connection element**

- Cat. 5
- For installation into the end device
- D-coded

**Standard assembly**



**Additional fastening mechanism**



**Technical data**

Category  
 Protection degree  
 Configuration  
 Housing main material  
 Shielding  
 Ambient temperature (operational)  
 Connector standard  
 Approvals

Cat.5 (ISO/IEC 11801)  
 IP65 in acc. with DIN EN 60529  
 Reflow compatible  
 CuZn, Polyamide, nickel-plated  
 360° shield contact  
 -25...85 °C  
 IEC 61076-2-101  
 EAC

Cat.5 (ISO/IEC 11801)  
 IP65 in acc. with DIN EN 60529  
 Reflow compatible  
 CuZn, Polyamide, nickel-plated  
 360° shield contact  
 -25...85 °C  
 IEC 61076-2-101  
 EAC

**Note**

**Ordering data**

Connection element	
	straight
	angled

**Note**

Type	Qty.	Order No.
IE-M12-PCBCE	60	8902810000

Type	Qty.	Order No.
IE-M12-PCBCE-PANEL	10	8902820000
IE-M12-PCBCE-PANEL-A	10	1393470000

**Accessories**

Type	Qty.	Order No.

Type	Qty.	Order No.

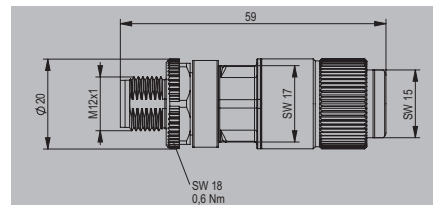
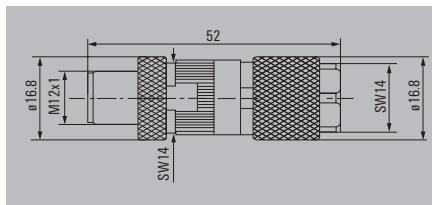
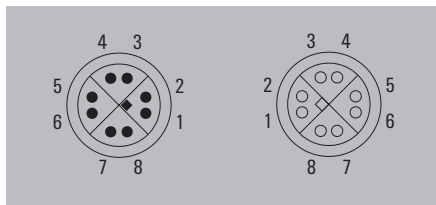
**Note**



**M12 plug**  
M12 X-type Cat. 6<sub>A</sub>

**Plug, AWG 26-22**

**Plug, AWG 27-22**



**Technical data**

Category	Cat.6 <sub>A</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
Protection degree	IP67
Connection 1 / 2	M12 / Insulation displacement technology
Housing main material	Zinc diecast
Connection thread	M12
Contact material / Contact surface	Brass / Gold-plated
Ambient temperature (operational)	-40 °C...85 °C
Connector standard	IEC 61076-2-109
Current-carrying capacity at 50 °C	0.5 A at 40 °C
Rated voltage	48 V
Insulation resistance	100 MΩ
Plugging cycles	≥ 100
Configuration	
Wall thickness, min. / max.	
Shielding	360° all-round enclosure
Connection diameter, flexible, min. / max.	0.48 mm / 0.76 mm
Connection cross-section, flexible, min. / max.	AWG 26 / AWG 22
Connection diameter, solid, min. / max.	0.4 mm / 0.64 mm
Connection cross-section, solid, min. / max.	AWG 24 / AWG 22
Insulation cross-section, max.	1.6 mm
Sheath diameter min. / max.	5 mm / 9.7 mm
Approvals	CULUS
<b>Note</b>	

Category	Cat.6 <sub>A</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
Protection degree	IP67
Connection 1 / 2	M12 / Insulation displacement technology
Housing main material	Zinc diecast
Connection thread	M12
Contact material / Contact surface	Brass, tinned / Gold-plated
Ambient temperature (operational)	-40 °C...85 °C
Connector standard	IEC 61076-2-109
Current-carrying capacity at 50 °C	0.5 A at 40 °C
Rated voltage	50 V
Insulation resistance	100 MΩ
Plugging cycles	≥ 100
Configuration	
Wall thickness, min. / max.	
Shielding	360° all-round enclosure
Connection diameter, flexible, min. / max.	0.46 mm / 0.76 mm
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 22
Connection diameter, solid, min. / max.	0.51 mm / 0.64 mm
Connection cross-section, solid, min. / max.	AWG 24 / AWG 22
Insulation cross-section, max.	1.6 mm
Sheath diameter min. / max.	5.5 mm / 9 mm
Approvals	CULUS
<b>Note</b>	

Category	Cat.6 <sub>A</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
Protection degree	IP67
Connection 1 / 2	M12 / Insulation displacement technology
Housing main material	Zinc diecast
Connection thread	M12
Contact material / Contact surface	Brass, tinned / Gold-plated
Ambient temperature (operational)	-40 °C...85 °C
Connector standard	IEC 61076-2-109
Current-carrying capacity at 50 °C	0.5 A at 40 °C
Rated voltage	50 V
Insulation resistance	100 MΩ
Plugging cycles	≥ 100
Configuration	
Wall thickness, min. / max.	
Shielding	360° all-round enclosure
Connection diameter, flexible, min. / max.	0.46 mm / 0.76 mm
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 22
Connection diameter, solid, min. / max.	0.51 mm / 0.64 mm
Connection cross-section, solid, min. / max.	AWG 24 / AWG 22
Insulation cross-section, max.	1.6 mm
Sheath diameter min. / max.	5.5 mm / 9 mm
Approvals	CULUS
<b>Note</b>	

**Ordering data**

	Plug
	Adapter 90°
	Adapter 180°
<b>Note</b>	

Type	Qty.	Order No.
IE-PS-M12X-P-FH	10	1324020000

Type	Qty.	Order No.
IE-PS-M12X-P-AWG22/27FH	1	2007500000

**Accessories**

Type	Qty.	Order No.

Type	Qty.	Order No.

Type	Qty.	Order No.

<b>Note</b>	
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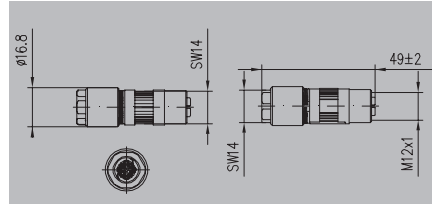
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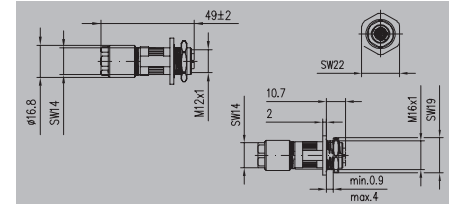
## M12 X-Type

### M12 plug M12 X-type Cat. 6<sub>A</sub>

#### Plug, female



#### Flange



#### Technical data

Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Protection degree	IP67
Connection 1 / 2	M12 / Insulation displacement technology
Housing main material	Zinc diecast
Connection thread	M12
Contact material / Contact surface	Brass / Gold-plated
Ambient temperature (operational)	-40 °C...85 °C
Connector standard	IEC 61076-2-109
Current-carrying capacity at 50 °C	0.5 A at 40 °C
Rated voltage	48 V
Insulation resistance	100 MΩ
Plugging cycles	≥ 100
Configuration	
Wall thickness, min. / max.	
Shielding	360° all-round enclosure
Connection diameter, flexible, min. / max.	0.48 mm / 0.76 mm
Connection cross-section, flexible, min. / max.	AWG 26 / AWG 22
Connection diameter, solid, min. / max.	0.4 mm / 0.64 mm
Connection cross-section, solid, min. / max.	AWG 24 / AWG 22
Insulation cross-section, max.	1.6 mm
Sheath diameter min. / max.	5 mm / 9.7 mm
Approvals	CULUS
<b>Note</b>	

Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Protection degree	IP67
Connection 1 / 2	M12 / Insulation displacement technology
Housing main material	Zinc diecast
Connection thread	M12
Contact material / Contact surface	Brass / Gold-plated
Ambient temperature (operational)	-40 °C...85 °C
Connector standard	IEC 61076-2-109
Current-carrying capacity at 50 °C	0.5 A at 40 °C
Rated voltage	48 V
Insulation resistance	100 MΩ
Plugging cycles	≥ 100
Configuration	
Wall thickness, min. / max.	0.9 mm / 4 mm
Shielding	360° all-round enclosure
Connection diameter, flexible, min. / max.	0.48 mm / 0.76 mm
Connection cross-section, flexible, min. / max.	AWG 26 / AWG 22
Connection diameter, solid, min. / max.	0.4 mm / 0.64 mm
Connection cross-section, solid, min. / max.	AWG 24 / AWG 22
Insulation cross-section, max.	1.6 mm
Sheath diameter min. / max.	5 mm / 9.7 mm
Approvals	CULUS
<b>Note</b>	

Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Protection degree	IP67
Connection 1 / 2	M12 / Insulation displacement technology
Housing main material	Zinc diecast
Connection thread	M12
Contact material / Contact surface	CuZn / Gold-plated
Ambient temperature (operational)	-40 °C...85 °C
Connector standard	IEC 61076-2-109
Current-carrying capacity at 50 °C	0.5 A at 40 °C
Rated voltage	48 V
Insulation resistance	100 MΩ
Plugging cycles	≥ 100
Configuration	
Wall thickness, min. / max.	0.9 mm / 4 mm
Shielding	360° all-round enclosure
Connection diameter, flexible, min. / max.	0.48 mm / 0.76 mm
Connection cross-section, flexible, min. / max.	AWG 26 / AWG 22
Connection diameter, solid, min. / max.	0.4 mm / 0.64 mm
Connection cross-section, solid, min. / max.	AWG 24 / AWG 22
Insulation cross-section, max.	1.6 mm
Sheath diameter min. / max.	5 mm / 9.7 mm
Approvals	CULUS
<b>Note</b>	

#### Ordering data

Plug	
Adapter 90°	
Adapter 180°	
<b>Note</b>	

Type	Qty.	Order No.
IE-PS-M12X-S-FH	1	1516330000

Type	Qty.	Order No.
IE-BS-M12X-S-FH	1	1516340000

#### Accessories

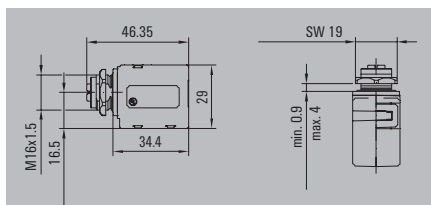
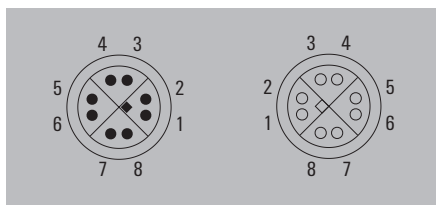
Mounting tool
Tool set
Tool set with torque function
Screwty
Cable gland tool, M 12
Cable gland tool with torque function, M 12
<b>Note</b>

Type	Qty.	Order No.
Screwty Set	1	1910000000
Screwty Set-DM	1	1920000000
Screwty-M12 F	1	1900020000
Screwty-M12 F-DM	1	1900021000

Type	Qty.	Order No.
Screwty Set	1	1910000000
Screwty Set-DM	1	1920000000
Screwty-M12 F	1	1900020000
Screwty-M12 F-DM	1	1900021000

**M12 plug**  
M12 X-type Cat. 6A

**Adapter M12 X-Type-RJ45**



**Technical data**

Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Protection degree	IP67
Connection 1 / 2	RJ45 / M12
Housing main material	Zinc diecast
Connection thread	M12
Contact material / Contact surface	CuZn / Gold over nickel
Ambient temperature (operational)	-25 °C...85 °C
Connector standard	IEC 61076-2-109, IEC 60603-7-51
Current-carrying capacity at 50 °C	0.5 A at 40 °C
Rated voltage	60 V
Insulation resistance	100 MΩ
Plugging cycles	≥ 100 (M12), 750 (RJ45)
Configuration	M12 socket to RJ45 socket
Wall thickness, min. / max.	0.9 mm / 4 mm
Shielding	360° shield contact
Connection diameter, flexible, min. / max.	
Connection cross-section, flexible, min. / max.	
Connection diameter, solid, min. / max.	
Connection cross-section, solid, min. / max.	
Insulation cross-section, max.	
Sheath diameter min. / max.	
Approvals	CULUS
<b>Note</b>	

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
IE-AD-M12XRJ45-90	10	1400610000
IE-AD-M12XRJ45-180	1	1400620000

**Ordering data**

Plug	
Adapter 90°	
Adapter 180°	
<b>Note</b>	

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
IE-AD-M12XRJ45-90	10	1400610000
IE-AD-M12XRJ45-180	1	1400620000

**Accessories**

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
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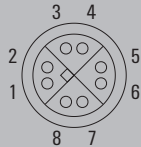
<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
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<b>Note</b>
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<b>Note</b>
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## M12 X-Type

### PCB socket M12 X-type Cat. 6<sub>A</sub>



#### Technical data

Category
Protection degree
Connection 1 / 2
Housing main material
Connection thread
Contact material / Contact surface
Ambient temperature (operational)
Connector standard
Current-carrying capacity at 50 °C
Rated voltage
Insulation resistance
Plugging cycles
Configuration
Wall thickness, min. / max.
Shielding
Approvals

#### Note

#### Ordering data

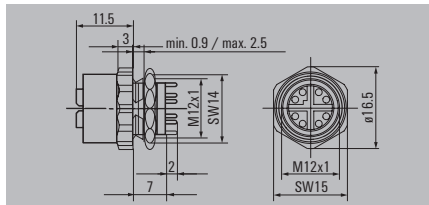
pre-assembled
2-part version

#### Note

#### Accessories

#### Note

### PCB socket



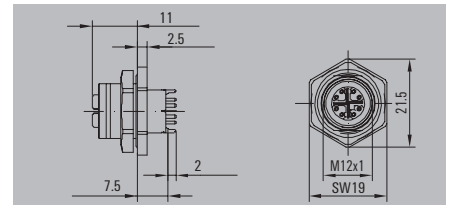
Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP67, when screwed in
M12 / Solder connection
CuZn
M12
CuZn / Gold over nickel
-40 °C...85 °C
IEC 61076-2-109
0.5 A at 40 °C
48 V
100 MΩ
≥ 100
Reflow compatible
0.9 mm / 2.5 mm
360° all-round enclosure
CULUS

Type	Qty.	Order No.
IE-PCB-M12X-S-180	10	1324010000
IE-PCB2-M12X-S-180	10	1393080000

Type	Qty.	Order No.

#### Note

### PCB socket, back panel mounting



Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP67, when screwed in
M12 / Solder connection
CuZn
M12
CuZn / Gold over nickel
-40 °C...85 °C
IEC 61076-2-109
0.5 A at 40 °C
48 V
100 MΩ
≥ 100
Reflow compatible, Back panel mounting
0.9 mm / 2.5 mm
360° all-round enclosure
CULUS

Type	Qty.	Order No.
IE-PCBR-M12X-S-180	10	1427670000
IE-PCBR2-M12X-S-180	10	1444650000

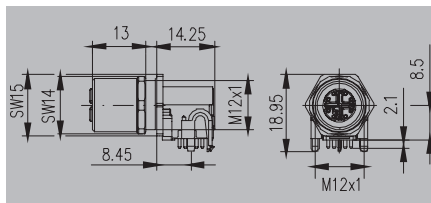
Type	Qty.	Order No.

#### Note



## PCB socket M12 X-type Cat. 6<sub>A</sub>

## PCB socket, angled



### Technical data

Category
Protection degree
Connection 1 / 2
Housing main material
Connection thread
Contact material / Contact surface
Ambient temperature (operational)
Connector standard
Current-carrying capacity at 50 °C
Rated voltage
Insulation resistance
Plugging cycles
Configuration
Wall thickness, min. / max.
Shielding
Approvals

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP67, when screwed in
M12 / Solder connection
CuZn
M12
CuZn / Gold over nickel
-40 °C...85 °C
IEC 61076-2-109
0.5 A at 40 °C
48 V
100 MΩ
≥ 100
Reflow compatible
1 mm / 2.5 mm
360° all-round enclosure
CULUS

#### Note

### Ordering data

pre-assembled  
2-part version

Type	Qty.	Order No.
IE-PCB-M12X-S-90	10	2168220000

#### Note

### Accessories

Type	Qty.	Order No.
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#### Note

**Inserts**

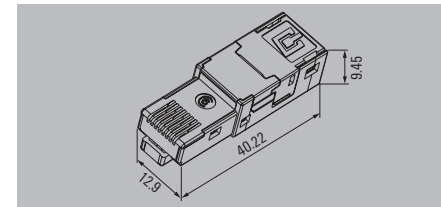
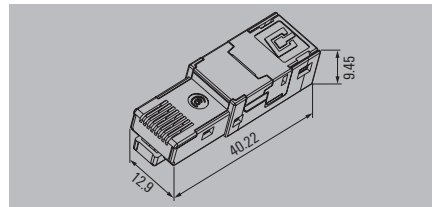
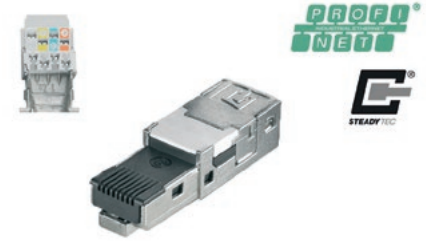
**RJ45 plug inserts, tool free**

- Cat. 6<sub>A</sub>
- IP20
- For housing variants 1, 4, 5 and 14

**8-wire**



**4-wire**



**Technical data**

Category	
Protection degree	
Plugging cycles	
Shielding	
Housing main material	
Contact material	
Contact surface	
Connection cross-section, flexible, min. / max.	
Connection diameter, flexible, min. / max.	
Connection cross-section, solid, min. / max.	
Connection diameter, solid, min. / max.	
Wire connection cross-section, finely stranded	
Insulation diameter, min. / max.	
Humidity	
Ambient temperature (operational)	
Insulation resistance	
Contact resistance	
Dielectric strength, contact / contact	
Dielectric strength, contact / shield	
Current-carrying capacity at 50 °C	
PoE / PoE+	
Speed	
Connector standard	
Approvals	
<b>Note</b>	

Cat.6 <sub>x</sub> / Class E <sub>x</sub> (ISO/IEC 11801 2010)
IP67 with housing
750
360° all-round enclosure
Zinc diecast
Gold over nickel, Au ≥ 0.8 μm
AWG 26 / AWG 22
0.48 mm / 0.76 mm
AWG 24 / AWG 22
0.4 mm / 0.64 mm
Approval of the cable by Weidmüller necessary
0.85 mm...1.6 mm
-40 °C...70 °C
500 MΩ
≤ 20 mΩ
≥ 1000 V DC
≥ 1500 V DC
1 A
conforming to IEEE 802.3at
10 GBit/s
IEC 60603-7-51
CULUS; CURUS
Approvals available on request

Cat.5 (ISO/IEC 11801)
IP67 with housing
750
360° all-round enclosure
Zinc diecast
Gold over nickel, Au ≥ 0.8 μm
AWG 26 / AWG 22
AWG 24 / AWG 22
0.4 mm / 0.64 mm
Approval of the cable by Weidmüller necessary
0.85 mm...1.6 mm
-40 °C...70 °C
500 MΩ
≤ 20 mΩ
≥ 1000 V DC
≥ 1500 V DC
1 A
conforming to IEEE 802.3at
100 MBit/s
IEC 60603-7-51
CULUS; CURUS

**Ordering data**

<b>tool-free</b>	
	TIA-A/B/PROFINET
	TIA-A
	TIA-B
	PROFINET
<b>Note</b>	

Type	Qty.	Order No.
IE-PI-RJ45-FH	10	1962730000
IE-PI-RJ45-FH-A	10	1132010000
IE-PI-RJ45-FH-B	10	1132020000

Type	Qty.	Order No.
IE-PI-RJ45-FH-P	10	1132030000

**Accessories**

<b>Tools</b>	
	Optional pressing tool

Type	Qty.	Order No.
PWZ RJ45	1	1118040000

Type	Qty.	Order No.
PWZ RJ45	1	1118040000

<b>Note</b>	
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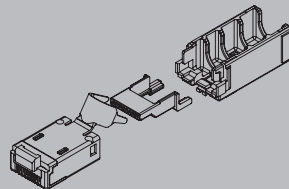
<b>Note</b>	
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<b>Note</b>	
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**RJ45 plug inserts, crimp**

- Cat. 6<sub>A</sub>
- IP20
- For housing variants 1, 4, 5 and 14

**8-wire**



**Technical data**

Category
Protection degree
Plugging cycles
Shielding
Housing main material
Contact material
Contact surface
Connection cross-section, flexible, min. / max.
Connection diameter, flexible, min. / max.
Connection cross-section, solid, min. / max.
Connection diameter, solid, min. / max.
Insulation diameter, min. / max.
Humidity
Ambient temperature (operational)
Insulation resistance
Contact resistance
Dielectric strength, contact / contact
Dielectric strength, contact / shield
Current-carrying capacity at 50 °C
PoE / PoE+
Speed
Connector standard
Approvals

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP67 with housing
750
360° all-round enclosure
Brass, PC UL 94 V0
Phosphorus bronze
Gold over nickel, Au ≥ 0.8 µm, Ni 2.54 µm
AWG 27 / AWG 24
0.46 mm / 0.61 mm
AWG 24 / AWG 24
0.4 mm / 0.51 mm
0.85 mm...1.05 mm
0...93 % rel. humidity
-40 °C...70 °C
500 MΩ
≤ 20 mΩ
≥ 1000 V DC
≥ 1500 V DC
1 A
conforming to IEEE 802.3af
IEC 60603-7-51
CURUS

**Note**

**Ordering data**

<b>Crimp</b>
--------------

Type	Qty.	Order No.
IE-PI-RJ45-TH	10	1962720000

**Note**

**Accessories**

<b>Tools</b>
--------------



Type	Qty.	Order No.
TT 8 RS MP 8	1	9202800000

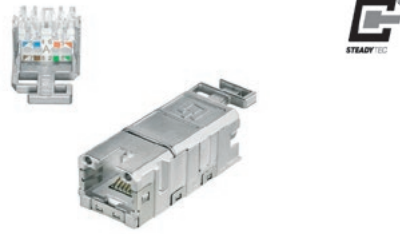
**Note**

**Inserts**

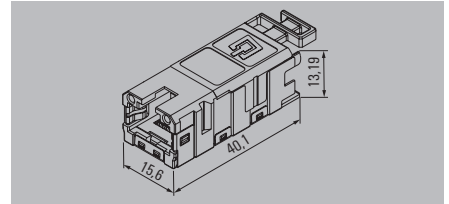
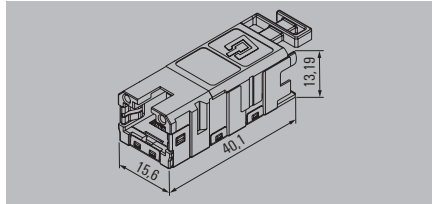
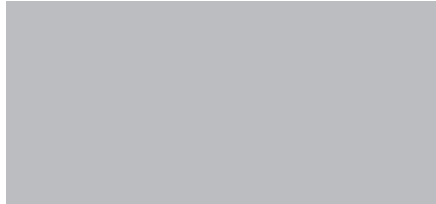
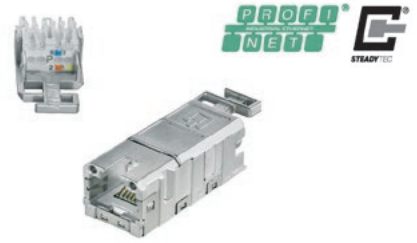
**RJ45 flange inserts, module**

- Cat. 6<sub>A</sub>
- IP20
- For housing variants 1, 4, 5, 14 and for FrontCom®

**8-wire**



**4-wire**



**Technical data**

Category
Protection degree
Plugging cycles
Shielding
Housing main material
Contact surface
Connection cross-section, flexible, min. / max.
Connection cross-section, solid, min. / max.
Insulation diameter, min. / max.
Connector standard
Ambient temperature (operational)
PoE / PoE+
Approvals
<b>Note</b>

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP67 with housing
750
360° all-round enclosure
Zinc diecast
Gold over nickel, Au ≥ 0.8 μm
AWG 26 / AWG 22
AWG 24 / AWG 22
0.85 mm...1.6 mm
IEC 60603-7-51
-40 °C...70 °C
conforming to IEEE 802.3af
CULUS
Connection of WM Cat. 7 AWG 27/7 LSZH possible

Cat.5 (ISO/IEC 11801)
IP67 with housing
750
360° all-round enclosure
Zinc diecast
Gold over nickel, Au ≥ 0.8 μm
AWG 26 / AWG 22
AWG 24 / AWG 22
0.85 mm...1.6 mm
IEC 60603-7-51
-40 °C...70 °C
conforming to IEEE 802.3af
CULUS; GERMLLOYD

**Ordering data**

<b>tool-free</b>
TIA-A. Cat. 6 <sub>A</sub>
TIA-B. Cat. 6 <sub>A</sub>
PROFINET Cat. 5
<b>Note</b>

Type	Qty.	Order No.
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000

Type	Qty.	Order No.
IE-BI-RJ45-FJ-P	10	1963830000

**Accessories**

<b>Tools</b>
 Optional pressing tool

Type	Qty.	Order No.
PWZ RJ45	1	1118040000

Type	Qty.	Order No.
PWZ RJ45	1	1118040000

<b>Note</b>
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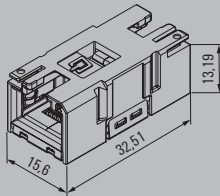
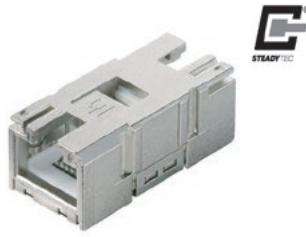
<b>Note</b>
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<b>Note</b>
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**RJ45 flange inserts, coupling**

- Cat. 6<sub>A</sub>
- IP20
- For housing variants 1, 4, 5, 14 and for FrontCom®

**8-wire**



**Technical data**

Category  
 Protection degree  
 Plugging cycles  
 Shielding  
 Housing main material  
 Contact surface  
 Connection cross-section, flexible, min. / max.  
 Connection cross-section, solid, min. / max.  
 Insulation diameter, min. / max.  
 Connector standard  
 Ambient temperature (operational)  
 PoE / PoE+  
 Approvals

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
 IP67 with housing  
 750  
 360° all-round enclosure  
 Zinc diecast  
 Gold over nickel, Au ≥ 0.8 μm

Note

**Ordering data**

tool-free  
 Coupling

Note

Type	Qty.	Order No.
IE-BI-RJ45-C	1	1962840000

**Accessories**

Type	Qty.	Order No.
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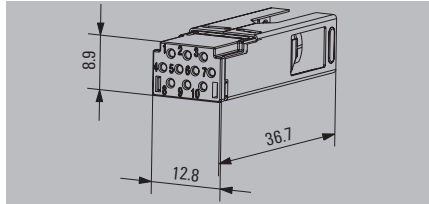
Note

**Inserts**

**Plug inserts Hybrid**

- Cat. 5
- IP20
- For housing variants 1 (metal) and 14

**Crimp**





**Technical data**

Category	Cat.5 (ISO/IEC 11801)
Protection degree	IP67 with housing
Plugging cycles	500
Shielding	360° all-round enclosure
Housing main material	Nickel silver, PA 66
Contact surface	Gold over nickel
No. of poles	10
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 20
Connection diameter, flexible, min. / max.	0.08 mm <sup>2</sup> / 0.75 mm <sup>2</sup>
Insulation diameter, min. / max.	1 mm...2.2 mm
Ambient temperature (operational)	-40 °C...70 °C
Volume resistance	< 10 mΩ
Rated current	3 A per contact
Rated voltage	24 V
Contact resistance	≤ 5 mΩ
Approvals	CULUS
<b>Note</b>	

**Ordering data**

<b>Note</b>	
<b>Type</b>	<b>Qty.</b> <b>Order No.</b>
IE-PI-HYB-10P	10 <b>1068990000</b>
Contacts should be ordered separately	

**Accessories**

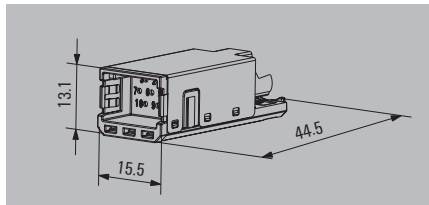
<b>Crimp contacts</b>		
	0.08...0.2 mm <sup>2</sup>	
	0.2...0.5 mm <sup>2</sup>	
	0.75 mm <sup>2</sup>	
<b>Crimping tool</b>		
		
<b>Type</b>	<b>Qty.</b> <b>Order No.</b>	
IE-PI-C-HYB-S-0,2-300	300 <b>1135150000</b>	
IE-PI-C-HYB-S-0,5-300	300 <b>1096180000</b>	
IE-PI-C-HYB-S-0,75-300	300 <b>1068950000</b>	
HTF HYB	1 <b>1119580000</b>	

**Note**

### Flange inserts Hybrid

- Cat. 5
- IP20
- For housing variants 1 (metal) and 14

### Module



### Technical data

Category	Cat.5 (ISO/IEC 11801)
Protection degree	IP67 with housing
Plugging cycles	500
Shielding	360° all-round enclosure
Housing main material	Zinc diecast, Nickel silver, PA 66
Contact surface	Gold over nickel
No. of poles	10
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 20
Connection diameter, flexible, min. / max.	0.08 mm <sup>2</sup> / 0.75 mm <sup>2</sup>
Insulation diameter, min. / max.	1 mm...2.2 mm
Rated current	3 A per contact
Rated voltage	24 V
Contact resistance	≤ 10 mΩ
Volume resistance	< 10 mΩ
Ambient temperature (operational)	-40 °C...70 °C
Approvals	CULUS

**Note**

### Ordering data

<b>Note</b>
-------------

Type	Qty.	Order No.
IE-BI-HYB-10P	10	1069010000
Contacts should be ordered separately		

### Accessories

Crimp contacts	
	0.08...0.2 mm <sup>2</sup>
	0.2...0.5 mm <sup>2</sup>
	0.75 mm <sup>2</sup>

Crimping tool	
	

Type	Qty.	Order No.
IE-BIC-HYB-P-0,2-300	300	1135160000
IE-BIC-HYB-P-0,5-300	300	1096150000
IE-BIC-HYB-P-0,75-300	300	1068970000
HTF HYB	1	1119580000

**Note**

**Note**

**Inserts**

**Flange inserts USB**

- IP20
- For housing variants 1, 4, 5, 14 and for FrontCom®



**Technical data**

Protection degree  
Shielding  
Ambient temperature (operational)  
Connection 1 / 2  
Connector standard  
Approvals

**Note**

**Ordering data**

	USB 2.0
	USB 3.0

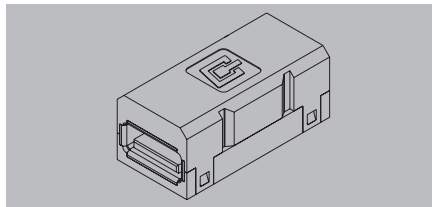
**Note**

**Accessories**

USB cable 2.0	
	0.5 m
	1.0 m
	1.5 m
	1.8 m
	3.0 m
USB cable 3.0	
	0.5 m
	1.8 m
	3.0 m
	5.0 m

**Note**

**Coupling USB A/A**



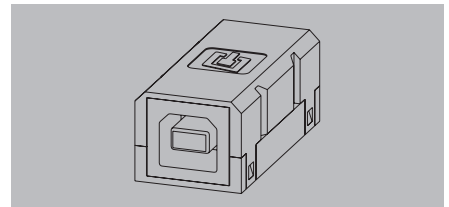
IP67 with housing  
360° all-round enclosure  
-40 °C...70 °C  
USB A / USB A  
IEC 61076-3-107  
CULUS; GERMLLOYD

Type	Qty.	Order No.
IE-BI-USB-A	10	1019570000
IE-BI-USB-3.0-A	10	1487920000

Type	Qty.	Order No.
IE-USB-A-A-0.5M	1	1993550005
IE-USB-A-A-1.0M	1	1993550010
IE-USB-A-A-1.5M	1	1993550015
IE-USB-A-A-1.8M	1	1993550018
IE-USB-A-A-3.0M	1	1993550030
IE-USB-3.0-A-A-0.5M	1	2581730005
IE-USB-3.0-A-A-1.8M	1	2581730018
IE-USB-3.0-A-A-3.0M	1	2581730030
IE-USB-3.0-A-A-5.0M	1	2581730050

**Note**

**Coupling USB A/B**



IP67 with housing  
360° all-round enclosure  
-40 °C...70 °C  
USB A / USB B  
IEC 61076-3-107  
CULUS; GERMLLOYD

Type	Qty.	Order No.
IE-BI-USB-AB	10	1131380000

Type	Qty.	Order No.

**Note**



**Plug inserts SC**

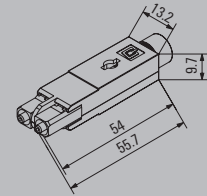
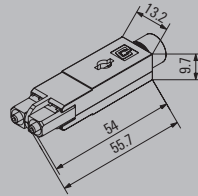
- IP20
- For variant 1, 4 and 14 housings

**Plug inserts SC, fibre optics**



**Plug inserts SC, POF**

only for V14



**Technical data**

Protection degree  
Housing main material  
Plugging cycles  
Ambient temperature (operational)  
Connector standard  
Approvals

**Note**

IP67 with housing  
Zinc diecast, PA  
1000  
-40 °C...70 °C  
IEC 61754-24  
UL

IP67 with housing  
Zinc diecast, PA  
1000  
-40 °C...70 °C  
IEC 61754-24  
UL

**Ordering data**

Singlemode  
Multimode  
POF

**Note**

Type	Qty.	Order No.
IE-PI-SCRJ-SM	10	1067390000
IE-PI-SCRJ-MM	10	1067380000

Type	Qty.	Order No.
IE-PI-SCRJ-POF	10	1067410000

**Accessories**

**Tools**



POF tool set  
Crimping tool POF

**Replacement ferrule**



Type	Qty.	Order No.

Type	Qty.	Order No.
TOOL SET IE-POF	1	1208930000
HTX-IE-POF	1	1208870000
IE-SCRJ-IP67-POF-100	100	1278430000

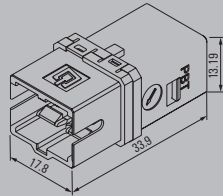
**Note**

**Inserts**

**Flange inserts SC**

- IP20
- SC-RJ on 2 SC
- For variant 1, 4 and 14 housings

**Flange inserts SC**



**Technical data**

Protection degree  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational)  
 Approvals

IP67 with housing  
 PA  
 1000  
 -40 °C...70 °C

**Note**

**Ordering data**

Flange insert	
	Singlemode
	Multimode/POF

Type	Qty.	Order No.
IE-BI-SCRJ2SC-SM-C	10	1962870000
IE-BI-SCRJ2SC-MM-C	1	1964430000

**Note**

**Accessories**

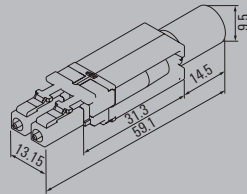
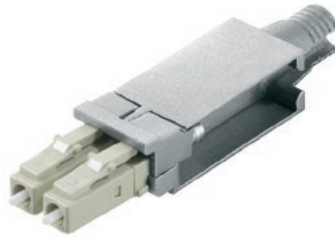
Type	Qty.	Order No.

**Note**

**Plug inserts LC**

- IP20
- For variant 1, 4 and 14 housings

**Plug inserts LC**



**Technical data**

Protection degree  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational)  
 Connector standard  
 Approvals

IP67 with housing  
 PBT diecast zinc  
 1000  
 -40 °C...70 °C  
 IEC 61754-20  
 EAC

**Note**

**Ordering data**

Plug insert	
	Singlemode
	Multimode

Type	Qty.	Order No.
IE-PI-2LC-SM	10	1962790000
IE-PI-2LC-MM	10	1962780000

**Note**

**Accessories**

Tools	
	Crimping pliers GOF LC



Type	Qty.	Order No.
IE-CT-LC-GOF	1	9205330000

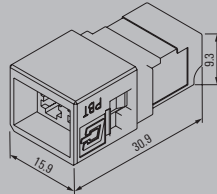
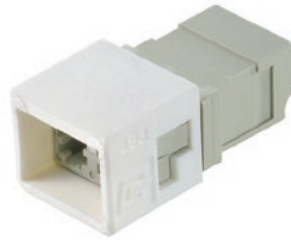
**Note**

**Inserts**

**Flange inserts LC**

- IP20
- For variant 1, 4 and 14 housings

**Flange inserts LC**



**Technical data**

Protection degree  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational)  
 Connector standard  
 Approvals

IP67 with housing  
 PBT diecast zinc  
 1000  
 -40 °C...70 °C  
 IEC 61754-20

**Note**

**Ordering data**

Flange insert	
	Singlemode
	Multimode

Type	Qty.	Order No.
IE-BH-LCD-SM-C	10	1962880000
IE-BH-LCD-MM-C	10	1964420000

**Note**

**Accessories**

Tools	
	Crimping pliers GOF LC



Type	Qty.	Order No.
IE-CT-LC-GOF	1	9205330000

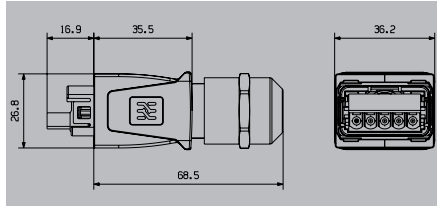
**Note**



**PushPull Power**

**Plug PushPull Power**

**Plug Power 24 V**



**Technical data**

General data	
Protection degree	
Connector standard	
Ambient temperature (operational)	
No. of poles	
Wire connection cross-section, flexible, min./max.	
Sheath diameter, min. / max.	
Connection	
Approvals	
Material properties	
Housing base material	
Sealing material	
Cable sealing material	
Contact material / Contact surface	
UL 94 flammability rating	
Pollution severity level	
Plugging cycles	
Electrical properties*	
Current-carrying capacity at 50 °C	
Rated voltage	
Note	

IP65, IP67	
in accordance with PROFINET specification	
-40 °C...70 °C	
5	
0.75 mm <sup>2</sup> / 2.5 mm <sup>2</sup>	
6 mm / 13 mm	
Tension clamp	
UR	
Zinc diecast, nickel-plated	
NBR	
EPDM	
Copper alloy / Gold over nickel	
V-2	
2	
≥ 100	
16 A	
24 V	
Note	

**Ordering data - Sets**

Type	Qty.	Order No.
IE-PS-VAPM-5P-2.5	1	2465440000

Wir empfehlen die Verwendung von 10-mm-Aderendhülsen.

**Ordering data - Empty housings**

Type	Qty.	Order No.

**Accessories**

Sealing insert 6-8 mm		
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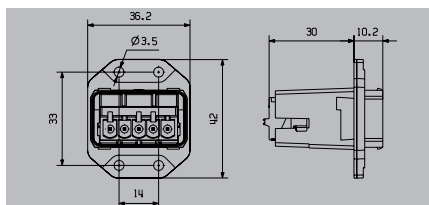
Type	Qty.	Order No.
IE-REDU-6-8-PS-VAPM	10	2531330000

Note	

Note	

Flanges PushPull Power

Flange Power 24 V



Technical data

General data

Protection degree  
 Connector standard  
 Ambient temperature (operational)  
 No. of poles  
 Connection diameter, flexible, min. / max.  
 Connection 1  
 Approvals  
 Installation

IP67

in accordance with PROFINET specification  
 -40 °C...70 °C  
 5  
 0.75 mm<sup>2</sup> / 2.5 mm<sup>2</sup>  
 Tension clamp  
 UR  
 4 screws

Material properties

Housing base material  
 Sealing material  
 Cable sealing material  
 Contact carrier material  
 Contact material / Contact surface  
 UL 94 flammability rating  
 Pollution severity level  
 Plugging cycles

Zinc diecast, nickel-plated

NBR  
 EPDM  
 PA  
 Copper alloy / Gold over nickel  
 V-2  
 2  
 ≥ 100

Electrical properties\*

Current-carrying capacity at 50 °C  
 Rated voltage

16 A

24 V

Note

Ordering data - Sets

Type	Qty.	Order No.
IE-BSS-VAPM-24V	1	2493480000

Type	Qty.	Order No.
IE-BHD-VAPM	1	2493490000

Note

Wir empfehlen die Verwendung von 10-mm-Aderendhülsen.

Ordering data - Empty housings

Type	Qty.	Order No.
IE-BHD-VAPM	1	2493490000

Type	Qty.	Order No.
IE-BP-VAPP	10	1068930000
IE-BP-VAPP-DC	10	2494060000

Note

Accessories

Dust protection cap

IP54 protective cap  
 Dust cap

Note





# IP65 connection components / FreeCon connectivity components

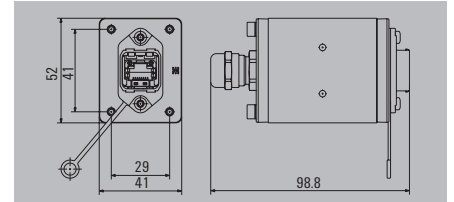
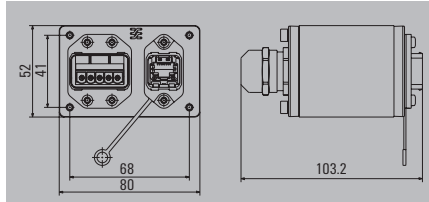
## Overview

<b>IP65 connection components / FreeCon connecting components</b>	FreeCon Passive V14	K.2
	FreeCon Active PROFINET	K.9
	FreeCon Contactless Power	K.11
	V1 junction boxes	K.12
	V4 junction boxes	K.14
	V5 junction boxes	K.16
	V6 junction boxes	K.17

FreeCon V14 - junction box

Double junction box, Power / RJ45

Single junction box, RJ45



Technical data

General data	
Housing main material	Aluminium profile, Cover: die-cast zinc, painted
Protection degree	IP65
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-117 Var. 14, IEC 60603-7-5
Approvals	CULUS
Technical specifications power connector	
Housing base material	Zinc diecast, nickel-plated
Sealing material	NBR
Contact material	Copper alloy
Contact carrier material	PA
Contact surface	Gold over nickel
Plugging cycles	5
No. of poles	6 mm / 12 mm
Sheath diameter, min. / max.	Tension clamp
Connection	16 A
Electrical properties power connector	
Current-carrying capacity at 50 °C	24 V
Rated voltage	
Technical specifications for RJ45 module	
Housing base material	Zinc diecast, nickel-plated
Contact surface	Gold over nickel
Connection cross-section, flexible, min. / max.	AWG 26 / AWG 22
Connection 1	IDC
Sheath diameter, min./max.	5 mm / 10 mm
Electrical properties for RJ45 module	
Category	Cat.5 (ISO/IEC 11801)
Contact resistance	≤ 20 mΩ
Insulation resistance	> 500 MΩ
Dielectric strength, contact - contact, max.	≤ 1000 V DC
Dielectric strength, contact - contact, min.	≤ 1500 V DC
Current carrying capacity	1 A
Note	

General data		
Housing main material	Aluminium profile, Cover: die-cast zinc, painted	
Protection degree	IP65	
Ambient temperature (operational)	-40 °C...70 °C	
Connector standard	IEC 61076-3-117 Var. 14, IEC 60603-7-5	
Approvals	CULUS	
Technical specifications power connector		
Housing base material	Zinc diecast, nickel-plated	
Sealing material	NBR	
Contact material	Copper alloy	
Contact carrier material	PA	
Contact surface	Gold over nickel	
Plugging cycles	5	
No. of poles	6 mm / 12 mm	
Sheath diameter, min. / max.	Tension clamp	
Connection	16 A	
Rated voltage	24 V	
Technical specifications for RJ45 module		
Housing base material	Zinc diecast, nickel-plated	
Contact surface	Gold over nickel	
Connection cross-section, flexible, min. / max.	AWG 26 / AWG 22	
Connection 1	IDC	
Sheath diameter, min./max.	5 mm / 10 mm	
Electrical properties for RJ45 module		
Category	Cat.5 (ISO/IEC 11801)	
Contact resistance	≤ 20 mΩ	
Insulation resistance	> 500 MΩ	
Dielectric strength, contact - contact, max.	≤ 1000 V DC	
Dielectric strength, contact - contact, min.	≤ 1500 V DC	
Current carrying capacity	1 A	
Note		

General data		
Housing main material	Aluminium profile, Cover: die-cast zinc, painted	
Protection degree	IP65	
Ambient temperature (operational)	-40 °C...70 °C	
Connector standard	IEC 61076-3-117 Var. 14, IEC 60603-7-5	
Approvals	CULUS	
Technical specifications power connector		
Housing base material	Zinc diecast, nickel-plated	
Sealing material	NBR	
Contact material	Copper alloy	
Contact carrier material	PA	
Contact surface	Gold over nickel	
Plugging cycles	5	
No. of poles	6 mm / 12 mm	
Sheath diameter, min. / max.	Tension clamp	
Connection	16 A	
Rated voltage	24 V	
Technical specifications for RJ45 module		
Housing base material	Zinc diecast, nickel-plated	
Contact surface	Gold over nickel	
Connection cross-section, flexible, min. / max.	AWG 26 / AWG 22	
Connection 1	IDC	
Sheath diameter, min./max.	5 mm / 10 mm	
Electrical properties for RJ45 module		
Category	Cat.5 (ISO/IEC 11801)	
Contact resistance	≤ 20 mΩ	
Insulation resistance	> 500 MΩ	
Dielectric strength, contact - contact, max.	≤ 1000 V DC	
Dielectric strength, contact - contact, min.	≤ 1500 V DC	
Current carrying capacity	1 A	
Note		

Ordering data

Type	Qty.	Order No.
IE-CD-V14MRJ/VAPM24V-FJ	1	1068830000
Note		

Type	Qty.	Order No.
IE-CD-V14MRJ/VAPM24V-FJ	1	1068830000
Note		

Type	Qty.	Order No.
IE-CD-V14MRJ-FJ	1	1068880000
Note		

Accessories

Mounting foot	
Type	Qty. Order No.
IE-CD-MA	10 1099580000
Dust protection cap	
IE-BP-V14P	10 1058310000
IE-BP-VAPP	10 1068930000
Protective cap	
IP54 protective cap	

Mounting foot	
Type	Qty. Order No.
IE-CD-MA	10 1099580000
Dust protection cap	
IE-BP-V14P	10 1058310000
IE-BP-VAPP	10 1068930000
Protective cap	
IP54 protective cap	

Mounting foot	
Type	Qty. Order No.
IE-CD-MA	10 1099580000
Dust protection cap	
IE-BP-V14P	10 1058310000
IE-BP-VAPP	10 1068930000
Protective cap	
IP54 protective cap	

Note	
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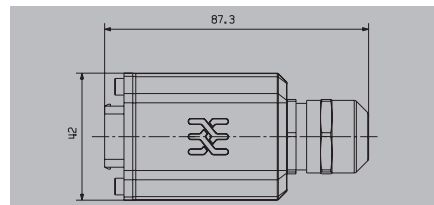
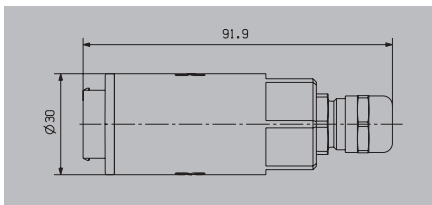
Note	
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Note	
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FreeCon V14 - single junction box

RJ45 cable coupling

PushPull Power cable coupling



Technical data

General data	
Housing main material	diecast aluminium
Protection degree	IP65
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-117 Var. 14, IEC 60603-7-5
Approvals	CULUS
Technical specifications power connector	
Housing base material	
Sealing material	
Contact material	
Contact carrier material	
Contact surface	
Plugging cycles	
No. of poles	
Sheath diameter, min. / max.	
Connection	
Electrical properties power connector	
Current-carrying capacity at 50 °C	
Rated voltage	
Technical specifications for RJ45 module	
Housing base material	Zinc diecast, nickel-plated
Contact surface	Gold over nickel
Connection cross-section, flexible, min. / max.	AWG 26 / AWG 22
Connection 1	IDC
Sheath diameter, min./max.	5 mm / 10 mm
Electrical properties for RJ45 module	
Category	Cat.5 (ISO/IEC 11801)
Contact resistance	≤ 20 mΩ
Insulation resistance	> 500 MΩ
Dielectric strength, contact - contact, max.	≤ 1000 V DC
Dielectric strength, contact - contact, min.	≤ 1500 V DC
Current carrying capacity	1 A
Note	

General data		
Housing main material	diecast aluminium	
Protection degree	IP65	
Ambient temperature (operational)	-40 °C...70 °C	
Connector standard	IEC 61076-3-117 Var. 14, IEC 60603-7-5	
Approvals	CULUS	
Technical specifications power connector		
Housing base material		
Sealing material		
Contact material		
Contact carrier material		
Contact surface		
Plugging cycles		
No. of poles		
Sheath diameter, min. / max.		
Connection		
Electrical properties power connector		
Current-carrying capacity at 50 °C		
Rated voltage		
Technical specifications for RJ45 module		
Housing base material	Zinc diecast, nickel-plated	
Contact surface	Gold over nickel	
Connection cross-section, flexible, min. / max.	AWG 26 / AWG 22	
Connection 1	IDC	
Sheath diameter, min./max.	5 mm / 10 mm	
Electrical properties for RJ45 module		
Category	Cat.5 (ISO/IEC 11801)	
Contact resistance	≤ 20 mΩ	
Insulation resistance	> 500 MΩ	
Dielectric strength, contact - contact, max.	≤ 1000 V DC	
Dielectric strength, contact - contact, min.	≤ 1500 V DC	
Current carrying capacity	1 A	
Note		

General data		
Housing main material	diecast aluminium	
Protection degree	IP65	
Ambient temperature (operational)	-40 °C...70 °C	
Connector standard	in accordance with PROFINET specification	
Approvals	CULUS	
Technical specifications power connector		
Housing base material	Zinc diecast, nickel-plated	
Sealing material	NBR	
Contact material	Copper alloy	
Contact carrier material	PA	
Contact surface	Gold over nickel	
Plugging cycles		
No. of poles	5	
Sheath diameter, min. / max.	6 mm / 12 mm	
Connection	Tension clamp	
Electrical properties power connector		
Current-carrying capacity at 50 °C	16 A	
Rated voltage	24 V	
Note		
We recommend using 10-mm-long wire-end ferrules		

Ordering data - Sets

Type	Qty.	Order No.
IE-CC-V14M-RJ45-FJ-P	1	1990600000
Note		

Type	Qty.	Order No.
IE-CC-V14M-RJ45-FJ-P	1	1990600000
Note		

Type	Qty.	Order No.
IE-CC-VAPM-24V	1	1990630000
Note		

Ordering data - Empty housings

Type	Qty.	Order No.
IE-CC-V14M-EH	1	2583100000
Note		

Type	Qty.	Order No.
IE-CC-V14M-EH	1	2583100000
Note		

Type	Qty.	Order No.
Note		

IP65 connection components / FreeCon connecting components

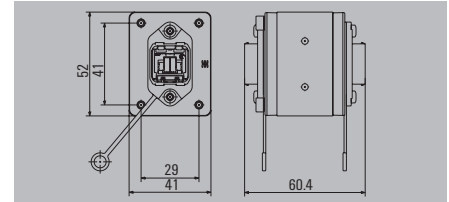
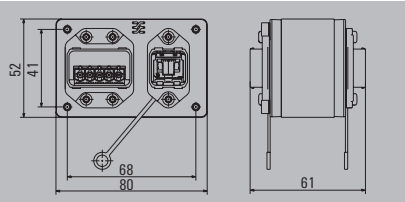
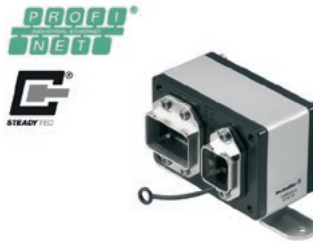
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## FreeCon Passive V14

### FreeCon V14 - coupling

### Double coupling, Power / RJ45

### Single coupling, RJ45



#### Technical data

General data	
Housing main material	Aluminium profile, Cover: die-cast zinc, painted
Protection degree	IP65
Ambient temperature (operational)	-40 °C...70 °C
Connector standard	IEC 61076-3-117 Var. 14, IEC 60603-7-5
Approvals	CULUS
Technical specifications power connector	
Housing base material	Zinc diecast, nickel-plated
Sealing material	NBR
Contact material	Copper alloy
Contact carrier material	PA
Contact surface	Gold over nickel
Plugging cycles	≥ 100
No. of poles	5
Sheath diameter, min. / max.	6 mm / 12 mm
Connection	Tension clamp
Electrical properties power connector	
Current-carrying capacity at 50 °C	16 A
Rated voltage	24 V
Technical data for RJ45 coupling	
Housing base material	Zinc diecast, PA 66
Electrical properties RJ45 coupling	
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Contact resistance	≤ 20 mΩ
Contact surface	Gold over nickel
Insulation resistance	> 500 MΩ
Dielectric strength, contact - contact, min.	≥ 1000 V DC
Dielectric strength, contact - shielding, max.	≥ 1500 V DC
Current carrying capacity	1 A
<b>Note</b>	

General data		
Housing main material	Aluminium profile, Cover: die-cast zinc, painted	
Protection degree	IP65	
Ambient temperature (operational)	-40 °C...70 °C	
Connector standard	IEC 61076-3-117 Var. 14, IEC 60603-7-5	
Approvals	CULUS	
Technical specifications power connector		
Housing base material	Zinc diecast, nickel-plated	
Sealing material	NBR	
Contact material	Copper alloy	
Contact carrier material	PA	
Contact surface	Gold over nickel	
Plugging cycles	≥ 100	
No. of poles	5	
Sheath diameter, min. / max.	6 mm / 12 mm	
Connection	Tension clamp	
Electrical properties power connector		
Current-carrying capacity at 50 °C	16 A	
Rated voltage	24 V	
Technical data for RJ45 coupling		
Housing base material	Zinc diecast, PA 66	
Electrical properties RJ45 coupling		
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)	
Contact resistance	≤ 20 mΩ	
Contact surface	Gold over nickel	
Insulation resistance	> 500 MΩ	
Dielectric strength, contact - contact, min.	≥ 1000 V DC	
Dielectric strength, contact - shielding, max.	≥ 1500 V DC	
Current carrying capacity	1 A	
<b>Note</b>		

General data		
Housing main material	Aluminium profile, Cover: die-cast zinc, painted	
Protection degree	IP65	
Ambient temperature (operational)	-40 °C...70 °C	
Connector standard	IEC 61076-3-117 Var. 14, IEC 60603-7-5	
Approvals	CULUS	
Technical specifications power connector		
Housing base material	Zinc diecast, nickel-plated	
Sealing material	NBR	
Contact material	Copper alloy	
Contact carrier material	PA	
Contact surface	Gold over nickel	
Plugging cycles	≥ 100	
No. of poles	5	
Sheath diameter, min. / max.	6 mm / 12 mm	
Connection	Tension clamp	
Electrical properties power connector		
Current-carrying capacity at 50 °C	16 A	
Rated voltage	24 V	
Technical data for RJ45 coupling		
Housing base material	Zinc diecast, PA 66	
Electrical properties RJ45 coupling		
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)	
Contact resistance	≤ 20 mΩ	
Contact surface	Gold over nickel	
Insulation resistance	> 500 MΩ	
Dielectric strength, contact - contact, min.	≥ 1000 V DC	
Dielectric strength, contact - shielding, max.	≥ 1500 V DC	
Current carrying capacity	1 A	
<b>Note</b>		

#### Ordering data

Type	Qty.	Order No.
IE-CD-V14MRJ/VAPM24V-C-MA	1	1068820000
Including mounting foot		

Type	Qty.	Order No.
IE-CD-V14MRJ-C-MA	1	1068870000
Including mounting foot		

Type	Qty.	Order No.
IE-CD-V14MRJ-C-MA	1	1068870000
Including mounting foot		

#### Accessories

Type	Qty.	Order No.
IE-BP-V14P	10	1058310000
IE-BP-VAPP	10	1068930000

Type	Qty.	Order No.
IE-BP-V14P	10	1058310000
IE-BP-VAPP	10	1068930000

Type	Qty.	Order No.
IE-BP-V14P	10	1058310000
IE-BP-VAPP	10	1068930000

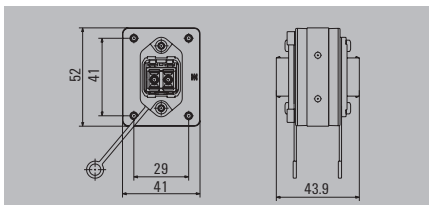
<b>Note</b>	
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<b>Note</b>	
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<b>Note</b>	
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FreeCon V14 single coupling

Single coupling, SCRJ



Technical data

General data	
Housing main material	Aluminium profile, Cover: die-cast zinc, painted
Protection degree	IP65
Ambient temperature (operational)	-40...70 °C
Connector standard	IEC 61076-3-117 Var. 14, IEC 61754-24
Approvals	CULUS
Technical specifications - fibre-optic coupler	
Housing base material (fibre-optic coupling)	PA
Plugging cycles (fibre-optic coupling)	≥ 500
Seal material (fibre-optic coupling)	NBR
Connection 1 / 2	SCRJ / SCRJ
Insertion attenuation (fibre-optic coupling)	< 0.2 dB
Fibre type	Multimode, POF
Note	

General data		
Housing main material	Aluminium profile, Cover: die-cast zinc, painted	
Protection degree	IP65	
Ambient temperature (operational)	-40...70 °C	
Connector standard	IEC 61076-3-117 Var. 14, IEC 61754-24	
Approvals	CULUS	
Technical specifications - fibre-optic coupler		
Housing base material (fibre-optic coupling)	PA	
Plugging cycles (fibre-optic coupling)	≥ 500	
Seal material (fibre-optic coupling)	NBR	
Connection 1 / 2	SCRJ / SCRJ	
Insertion attenuation (fibre-optic coupling)	< 0.2 dB	
Fibre type	Multimode, POF	
Note		

Ordering data

Note	

Type	Qty.	Order No.
IE-CD-V14MSCRJ-MM-C-MA	1	1318150000

Accessories

Dust protection cap	
Protective cap	

Type	Qty.	Order No.
IE-BP-V14P	10	1058310000

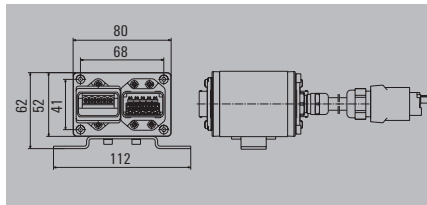
Note	

Note		

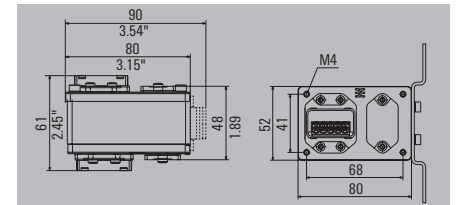
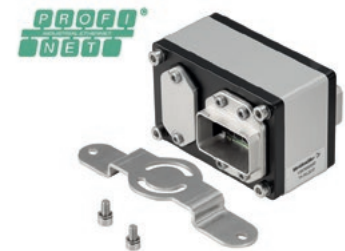
## FreeCon Passive V14

### FreeCon V14 - Power

#### Y-distributor, Power



#### Single coupling, Power



#### Technical data

General data	
Housing main material	
Protection degree	
Ambient temperature (operational)	
Connector standard	
Approvals	
Technical specifications power connector	
Housing base material	
Sealing material	
Cable sealing material	
Contact material	
Contact carrier material	
Contact surface	
UL 94 flammability rating	
Plugging cycles	
Pollution severity level	
Electrical properties power connector	
Current-carrying capacity at 50 °C	
Rated voltage	
No. of poles	
Note	

Aluminium profile, Cover: die-cast zinc, painted	
IP65	
-40...70 °C	
in accordance with PROFINET specification	
CULUS	
Zinc diecast, nickel-plated	
NBR	
TPE	
Copper alloy	
PA	
Gold over nickel	
V-0	
≥ 100	
2	
16 A at 20 °C	
24 V	
5	
Note	

Aluminium profile, Cover: die-cast zinc, painted	
IP65, If thread-locking fluid is used	
-40...70 °C	
in accordance with PROFINET specification	
CULUS	
Zinc diecast, nickel-plated	
NBR	
TPE	
Copper alloy	
PA	
Gold over nickel	
V-0	
≥ 100	
2	
16 A at 20 °C	
24 V	
5	
Note	

#### Ordering data

Type	Qty.	Order No.
IE-CD-VAPM24V-Y-MA	1	1297010000
Note		

Type	Qty.	Order No.
IE-CD-VAPM24V-Y-MA	1	1297010000
Note		

Type	Qty.	Order No.
IE-CD-VAPM24V-C-MA	1	1397690000
Note		

#### Accessories

Dust protection cap	Type	Qty.	Order No.
	IP54 protective cap		

Type	Qty.	Order No.
IE-BP-VAPP	10	1068930000

Type	Qty.	Order No.
IE-BP-VAPP	10	1068930000

Note

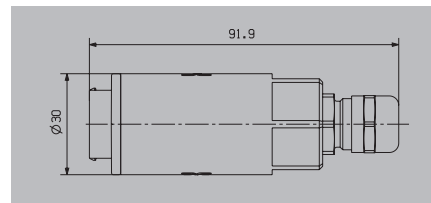
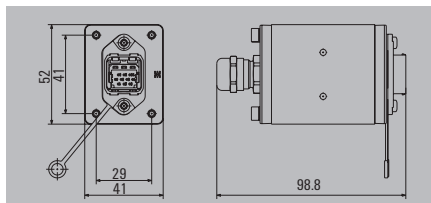
Note

Note

FreeCon V14 - junction box

Single junction box, Hybrid

Hybrid cable coupling



Technical data

General data	
Housing main material	Aluminium profile, Cover: die-cast zinc, painted
Protection degree	IP65
Ambient temperature (operational)	-40 °C...70 °C
Approvals	CULUS
Technical specifications hybrid connector	
Housing base material	Zinc diecast (flange), PA 66
Sealing material	NBR
Contact material	Copper alloy
Contact surface	Gold over nickel
Plugging cycles	500
Pole count	10
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 20
Connection cross-section, flexible, min. / max.	0.08 mm <sup>2</sup> / 0.75 mm <sup>2</sup>
Electrical properties hybrid connector	
Rated current (hybrid connector)	3 A per contact
Rated voltage (DIN EN 61984)	24 V
Contact resistance	≤ 10 mΩ
Note	

General data		
Housing main material	diecast aluminium	
Protection degree	IP65	
Ambient temperature (operational)	-40 °C...70 °C	
Approvals	CULUS	
Technical specifications hybrid connector		
Housing base material	Zinc diecast (flange), PA 66	
Sealing material	NBR	
Contact material	Copper alloy	
Contact surface	Gold over nickel	
Plugging cycles	500	
Pole count	10	
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 20	
Connection cross-section, flexible, min. / max.	0.08 mm <sup>2</sup> / 0.75 mm <sup>2</sup>	
Electrical properties hybrid connector		
Rated current (hybrid connector)	3 A per contact	
Rated voltage (DIN EN 61984)	24 V	
Contact resistance	≤ 10 mΩ	
Note		

General data		
Housing main material	diecast aluminium	
Protection degree	IP65	
Ambient temperature (operational)	-40 °C...70 °C	
Approvals	CULUS	
Technical specifications hybrid connector		
Housing base material	Zinc diecast (flange), PA 66	
Sealing material	NBR	
Contact material	Copper alloy	
Contact surface	Gold over nickel	
Plugging cycles	500	
Pole count	10	
Connection cross-section, flexible, min. / max.	AWG 27 / AWG 20	
Connection cross-section, flexible, min. / max.	0.08 mm <sup>2</sup> / 0.75 mm <sup>2</sup>	
Electrical properties hybrid connector		
Rated current (hybrid connector)	3 A per contact	
Rated voltage (DIN EN 61984)	24 V	
Contact resistance	≤ 10 mΩ	
Note		

Ordering data

Type	Qty.	Order No.
IE-CD-V14MHYB-10P-FJ	1	1068850000
Note		
Order contacts separately		

Type	Qty.	Order No.
IE-CC-V14M-HYB-10P-FJ	1	1990610000
Note		
Contacts should be ordered separately		

Accessories

Mounting foot	
0.08...0.2 mm <sup>2</sup>	
0.2...0.5 mm <sup>2</sup>	
0.75 mm <sup>2</sup>	
Crimping tool	
Protective cap	
Mounting frame	
Note	

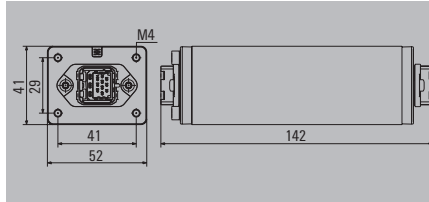
Type	Qty.	Order No.
IE-CD-MA	10	1099580000
IE-BIC-HYB-P-0,2-300	300	1135160000
IE-BIC-HYB-P-0,5-300	300	1096150000
IE-BIC-HYB-P-0,75-300	300	1068970000
HTF HYB	1	1119580000
IE-BP-V14P	10	1058310000
Note		

Type	Qty.	Order No.
IE-BIC-HYB-P-0,2-300	300	1135160000
IE-BIC-HYB-P-0,5-300	300	1096150000
IE-BIC-HYB-P-0,75-300	300	1068970000
HTF HYB	1	1119580000
IE-BP-V14P	10	1058310000
IE-CC-V14M-MF	1	1990620000
Note		

## FreeCon Passive V14

### FreeCon V14 single coupling

### Single coupling, hybrid



#### Technical data

General data	
Housing main material	Aluminium profile, Cover: die-cast zinc, painted
Protection degree	IP65
Ambient temperature (operational)	-40...70 °C
Technical specifications hybrid connector	
Housing base material	Zinc diecast (flange), PA 66
Sealing material	NBR
Contact material	Copper alloy
Contact surface	Gold over nickel
Plugging cycles	500
Electrical properties hybrid connector	
Rated current (hybrid connector)	3 A per contact
Rated voltage (DIN EN 61984)	24
Contact resistance	≤ 10 mΩ
Pole count	10
Approvals	CULUS
Note	

#### Ordering data

Type	Qty.	Order No.
IE-CD-V14MHYB-10P-C-MA	1	1068840000
Note		

#### Accessories

Type	Qty.	Order No.
IE-BP-V14P	10	1058310000

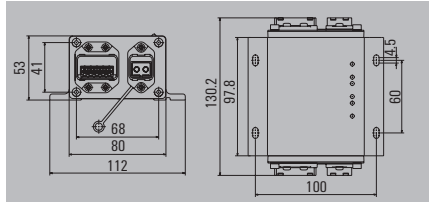
Protective cap

Note

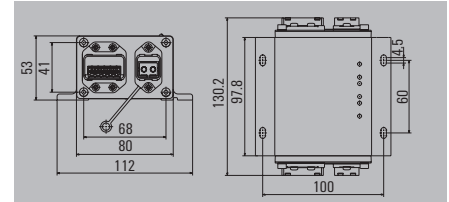


**FreeCon Active PROFINET**  
with diagnostics functionality

**POF repeater**



**POF media converter**



**Technical data**

General data	
Housing main material	
Weight	
Data interface	
Power interface	
Protection degree	
Ambient temperature (operational)	
Network standard	
Connector standard	
Electrical data	
Operating voltage	
Operational voltage range	
Current consumption	
Baud rate	
Protocol	
LED indicator	
Approvals	
Note	

Aluminium profile, Cover: die-cast zinc, painted		
PROFINET PushPull SCRJ POF (V14)		
PROFINET PushPull Power		
IP65		
-20 °C...55 °C		
IEC 61158, IEC 61784		
IEC 61076-3-117 Var. 14, IEC 61754-24		
24 V DC		
18...30 V DC		
200 mA typical		
100 MB		
PROFINET IRT		
F01: port active, F02: port active, SF: general error, BF: bus error, US1: voltage 1 (electronics), US2: voltage 2		
CE; CULUS		
Note		

Aluminium profile, Cover: die-cast zinc, painted		
PROFINET PushPull SCRJ POF (V14), PROFINET PushPull RJ45 (V14)		
PROFINET PushPull Power		
IP65		
-20 °C...55 °C		
IEC 61158, IEC 61784		
IEC 61076-3-117 Var. 14, IEC 61754-24, IEC 60603-7-51		
24 V DC		
18...30 V DC		
200 mA typical		
100 MB		
PROFINET IRT		
P1: port active, P2: port active, SF: general error, BF: bus error, US1: voltage 1 (electronics), US2: voltage 2		
CE; CULUS		
Note		

**Ordering data**

Type	Qty.	Order No.
IE-CDR-V14MSCPOF/VAPM-C	1	1253240000
Delivery incl. protective caps		
Note		

Type	Qty.	Order No.
IE-CDR-V14MSCPOF/VAPM-C	1	1253240000
Delivery incl. protective caps		
Note		

Type	Qty.	Order No.
IE-CDM-V14MRJSCP/VAPM-C	1	1324440000
Delivery incl. protective caps		
Note		

**Accessories**

Type	Qty.	Order No.
Note		

Type	Qty.	Order No.
Note		

Type	Qty.	Order No.
Note		

Note		

Note		

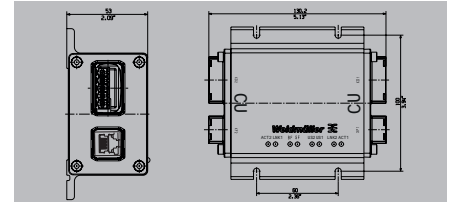
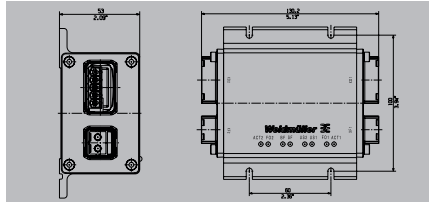
Note		

**FreeCon Active PROFINET**

**FreeCon Active PROFINET with diagnostics functionality**

**POF repeater**

**Copper repeater**



**Technical data**

General data	
Housing main material	
Weight	
Data interface	
Power interface	
Protection degree	
Ambient temperature (operational)	
Network standard	
Connector standard	
Electrical data	
Operating voltage	
Operational voltage range	
Current consumption	
Baud rate	
Protocol	
LED indicator	
Approvals	
Note	

Aluminium profile, Cover: die-cast zinc, nickel plated	
661.8 g	
PROFINET PushPull SCRJ PDF (V14)	
PROFINET PushPull Power	
IP65	
-20 °C...55 °C	
IEC 61158, IEC 61784	
IEC 61076-3-117 Var. 14, IEC 61754-24	
24 V DC	
18...30 V DC	
200 mA typical	
100 MB	
PROFINET IRT	
FD1: port active, FD2: port active, SF: general error, BF: bus error, US1: voltage 1 (electronics), US2: voltage 2, ACT1: activity Port1, ACT2: activity Port2	
CE, CULUS	
Note	

Aluminium profile, Cover: die-cast zinc, nickel plated	
661.8 g	
PROFINET PushPull RJ45 (V14)	
PROFINET PushPull Power	
IP65	
-20 °C...55 °C	
IEC 61158, IEC 61784	
IEC 61076-3-117 Var. 14	
24 V DC	
18...30 V DC	
200 mA typical	
100 MB	
PROFINET IRT	
ACT1: activity Port1, ACT2: activity Port2, SF: general error, BF: bus error, US1: voltage 1 (electronics), US2: voltage 2, LNK1: port active, LNK2: port active	
Note	

**Ordering data**

Type	Qty.	Order No.
IE-CDR-V14MSCPOF/VAPM-C II	1	2455360000
Note		

Type	Qty.	Order No.
IE-CDR-V14MSCPOF/VAPM-C II	1	2455360000
Further development of 1253240000, IE-CDR-V14MSCPOF/VAPM-C. For commissioning, the new GSDML file (see Downloads) must be installed.		
Note		

Type	Qty.	Order No.
IE-CDR-V14MRJ/VAPM-C	1	2581810000
Delivery incl. protective caps		
Note		

**Accessories**

Type	Qty.	Order No.
Note		

Type	Qty.	Order No.
Note		

Type	Qty.	Order No.
Note		

Note		

Note		

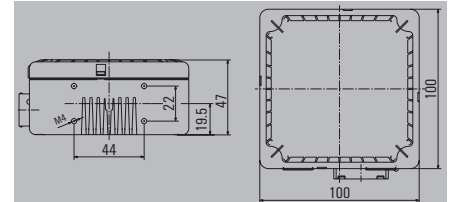
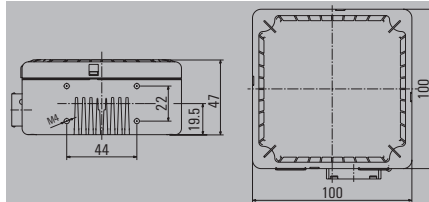
Note		

**FreeCon Contactless**

- Contactless power transmission via air gap

**Primary side (base)**

**Secondary side (remote)**



**Technical data**

General data	
Housing main material	
Technologie, version	
Loads	
Turn-on time	
Coupling time	
Air gap	
Centre offset	
Power interface	
Protection degree	
Ambient temperature (operational)	
Weight	
Electrical data	
Primary voltage	
Secondary voltage	
Secondary current max.	
Degree of efficiency	
LED indicator	
Approvals	
Note	

Diecast zinc, painted, Cover PBT
Inductive resonance coupling
Inductive and resistive loads
1 s
0...5 mm
max. 5mm
PROFINET PushPull Power
IP65
-20...45 °C Consider derating
1020 g
24 V DC (21.6...26.4 V DC)
max. 91 %
Status indication via multi-coloured LED
CE

Diecast zinc, painted, Cover PBT
Inductive resonance coupling
Inductive and resistive loads
< 500 ms
0...5 mm
max. 5mm
PROFINET PushPull Power
IP65
-20...45 °C Consider derating
1020 g
24 V DC (19.2...28.8 V DC)
10 A
max. 91 %
Status indication via multi-coloured LED
CE

**Ordering data**

Type	Qty.	Order No.
IE-CL240W-PP-BASE	1	1547440000
Note		

Type	Qty.	Order No.
IE-CL240W-PP-BASE	1	1547440000

Type	Qty.	Order No.
IE-CL240W-PP-REMOTE	1	1547450000

**Accessories**

Plug	Qty.	Order No.
IE-PS-VAPM-24V	10	1068910000
Markers		
ESG 6/17 K MC NE WS	200	1880120000

Type	Qty.	Order No.
IE-PS-VAPM-24V	10	1068910000
ESG 6/17 K MC NE WS	200	1880120000

Type	Qty.	Order No.
IE-PS-VAPM-24V	10	1068910000
ESG 6/17 K MC NE WS	200	1880120000

Note

Note

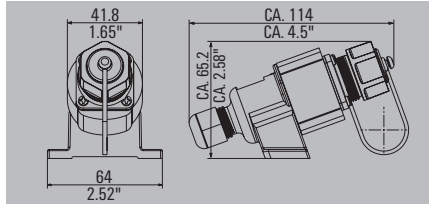
Note



## V1 junction boxes

### V1 junction boxes - plastic

### Single junction box



#### Technical data

Protection degree
Housing main material
Plugging cycles
Ambient temperature (operational)
Connector standard
Sheath diameter min. / max.
Approvals
<b>Note</b>

IP67
PA UL 94 V0
750
-40 °C...70 °C
IEC 61076-3-106 Var. 1
6 mm / 9.5 mm
<b>Note</b>

#### Ordering data

<b>Variant 1</b>
Junction box
<b>Note</b>

Type	Qty.	Order No.
IE-OP-V01P-1S	10	<b>1061830000</b>
Order RJ45 modules separately		

#### Accessories

Inserts, Data
 RJ45 module EIA/TIA T568 B
RJ45 module PROFINET
RJ45 module EIA/TIA T568 A

Type	Qty.	Order No.
IE-BI-RJ45-FJ-B	10	<b>1963840000</b>
IE-BI-RJ45-FJ-P	10	<b>1963830000</b>
IE-BI-RJ45-FJ-A	10	<b>1962850000</b>

<b>Note</b>
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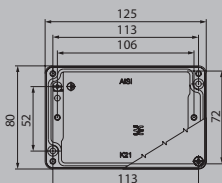
<b>Note</b>
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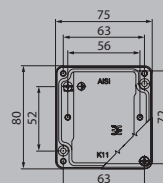
V1 junction boxes - metal

- IP67
- For wall or floor mounting

Double junction box



Single junction box



Technical data

Protection degree	IP67
Housing main material	Al - Si 12
Colour	Grey
Type of mounting	Floor-mounted, Wall mounting
Ambient temperature (operational)	-40 °C...70 °C
Plugging cycles	750
Connector standard	IEC 61076-3-106 Var. 1
Sheath diameter min. / max.	5 mm / 10 mm
Approvals	GOSTME25
Note	

Protection degree	IP67
Housing main material	Al - Si 12
Colour	Grey
Type of mounting	Floor-mounted, Wall mounting
Ambient temperature (operational)	-40 °C...70 °C
Plugging cycles	750
Connector standard	IEC 61076-3-106 Var. 1
Sheath diameter min. / max.	5 mm / 10 mm
Approvals	GOSTME25
Note	

Protection degree	IP67
Housing main material	Al - Si 12
Colour	Grey
Type of mounting	Floor-mounted, Wall mounting
Ambient temperature (operational)	-40 °C...70 °C
Plugging cycles	750
Connector standard	IEC 61076-3-106 Var. 1
Sheath diameter min. / max.	5 mm / 10 mm
Approvals	
Note	

Ordering data

Variant 1	
	2 ports. straight
	1 port. straight
Note	

Type	Qty.	Order No.
IE-OM-V01M-K21-2S	1	1966330000
RJ45 modules can be ordered separately		

Type	Qty.	Order No.
IE-OM-V01M-K11-1S	1	1966300000
RJ45 modules can be ordered separately		

Accessories

Inserts, Data	
	RJ45 module EIA/TIA T568 B
	RJ45 module PROFINET
	RJ45 module EIA/TIA T568 A

Type	Qty.	Order No.
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-RJ45-FJ-A	10	1962850000

Type	Qty.	Order No.
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-RJ45-FJ-A	10	1962850000

Note

Note

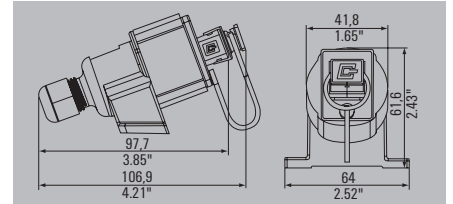
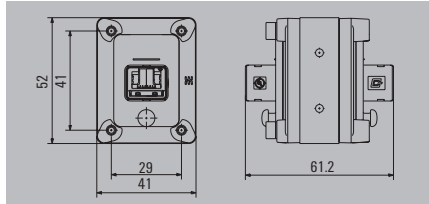
Note

## V4 junction boxes

### FreeCon V4 junction boxes

### Single coupling, RJ45

### Single junction box



#### Technical data

General data	
Plugging cycles	
Housing main material	
Contact surface	
UL 94 flammability rating	
Connector standard	
Protection degree	
Ambient temperature (operational)	
Sheath diameter min. / max.	
Approvals	
Electrical properties for RJ45 module	
Category	
Contact resistance	
Insulation resistance	
Dielectric strength, contact - contact, min.	
Dielectric strength, contact - shielding, max.	
Current carrying capacity	
Material properties RJ45 coupling	
Housing base material	
Note	

750
Aluminium profile, Cover: die-cast zinc, painted
Gold over nickel
IEC 61076-3-106 Var. 4, IEC 60603-7-5
IP65
-40 °C...70 °C
CULUS
Cat.6 <sub>n</sub> / Class E <sub>n</sub> (ISO/IEC 11801 2010)
≤ 20 mΩ
> 500 MΩ
≥ 1000 V DC
≥ 1500 V DC
1 A
Zinc diecast, PA 66

750
PA
Gold over nickel
V-0
IEC 61076-3-106 Var. 4
IP67
-40 °C...70 °C
6 mm / 9.5 mm

#### Ordering data

	Junction box
	Coupling
Note	

Type	Qty.	Order No.
IE-CD-V04PRJ-C-MA	1	1122710000
Including mounting foot		

Type	Qty.	Order No.
IE-OP-V04P-1S	10	1045780000
Order RJ45 modules separately, IP67 protective cap included in delivery		

#### Accessories

Dust protection cap	
	Flange-mounted housing protective cap
Inserts, Data	
	RJ45 module PROFINET
	RJ45 module EIA/TIA T568 A
	RJ45 module EIA/TIA T568 B



Type	Qty.	Order No.
IE-BP-V04P	10	1963900000

Type	Qty.	Order No.
IE-BP-V04P	10	1963900000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000

Note

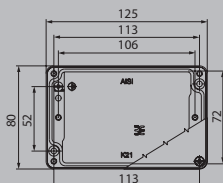
Note

Note

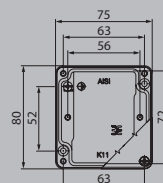
V4 junction boxes

- IP67
- For wall or floor mounting

Double junction box



Single junction box



Technical data

Protection degree
Housing main material
Colour
Type of mounting
Ambient temperature (operational)
Plugging cycles
Connector standard
Sheath diameter min. / max.
Approvals
Note

IP67
Al - Si 12
Grey
Floor-mounted, Wall mounting
-40 °C...70 °C
750
IEC 61076-3-106 Var. 4
5 mm / 10 mm
GOSTME25

IP67
Al - Si 12
Grey
Floor-mounted, Wall mounting
-40 °C...70 °C
750
IEC 61076-3-106 Var. 4
5 mm / 10 mm

Ordering data

Variant 4	
	2 ports. straight
	1 port. straight
Note	

Type	Qty.	Order No.
IE-OM-V04P-K21-2S	1	1966250000
RJ45 modules can be ordered separately		

Type	Qty.	Order No.
IE-OM-V04P-K11-1S	1	1966220000
RJ45 modules can be ordered separately		

Accessories

Inserts, Data	
	RJ45 module EIA/TIA T568 B
	RJ45 module PROFINET
	RJ45 module EIA/TIA T568 A

Type	Qty.	Order No.
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-RJ45-FJ-A	10	1962850000

Type	Qty.	Order No.
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-RJ45-FJ-A	10	1962850000

Note
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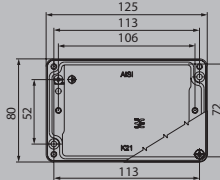
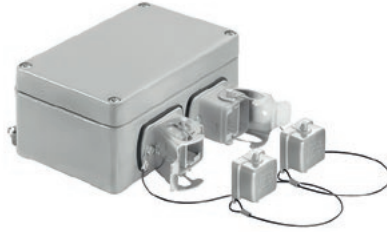
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## V5 junction boxes

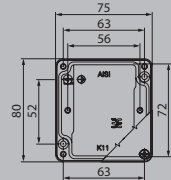
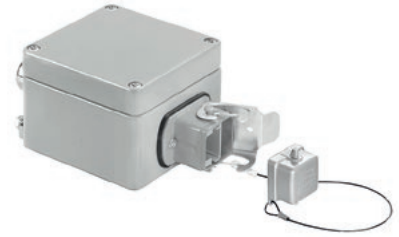
### V5 junction boxes

- IP67
- For wall or floor mounting

### Double junction box



### Single junction box



### Technical data

Protection degree  
Housing main material  
Colour  
Type of mounting  
Ambient temperature (operational)  
Plugging cycles  
Connector standard  
Sheath diameter min. / max.  
Approvals

IP67  
Al - Si 12  
Grey  
Floor-mounted, Wall mounting  
-40 °C...70 °C  
750  
IEC 61076-3-106 Var. 5  
5 mm / 10 mm  
GOSTME25

IP67  
Al - Si 12  
Grey  
Floor-mounted, Wall mounting  
-40 °C...70 °C  
750  
IEC 61076-3-106 Var. 5  
5 mm / 10 mm

**Note**

### Ordering data

Variant 5	
	2 ports. straight
	1 port. straight

**Note**

Type	Qty.	Order No.
IE-OM-V05M-K21-2S	1	1966290000

RJ45 modules can be ordered separately

Type	Qty.	Order No.
IE-OM-V05M-K11-1S	1	1966260000

RJ45 modules can be ordered separately

### Accessories

Inserts, Data	
	RJ45 module EIA/TIA T568 B
	RJ45 module PROFINET
	RJ45 module EIA/TIA T568 A



Type	Qty.	Order No.
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-RJ45-FJ-A	10	1962850000

Type	Qty.	Order No.
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000
IE-BI-RJ45-FJ-A	10	1962850000

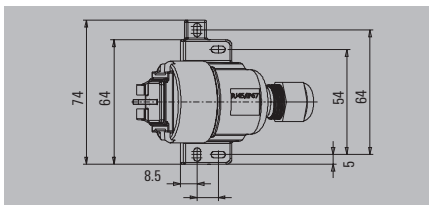
**Note**



V6 junction boxes

- Cat. 6
- IP67

Single junction box, RJ45



Technical data

Protection degree	IP67
Housing main material	PA 66, UL 94: V-0
Colour	Light Grey
Type of mounting	Floor-mounted, for exposed connections, Wall mounting
Configuration	Screw-on junction box including RJ45 module with IDC connection
Wiring	EIA/TIA T568 A, EIA/TIA T568 B
Ambient temperature (operational)	-40 °C...70 °C
Plugging cycles	750
Connector standard	IEC 61076-3-106 Var. 6
Sheath diameter min. / max.	6 mm / 9.5 mm
Approvals	GERMLLOYD
<b>Note</b>	

Ordering data

Type	Qty.	Order No.
IE-S-IP67	1	8808370000
<b>Note</b>		

Accessories

Type	Qty.	Order No.
TT 8 RS MP 8	1	9202800000
<b>Note</b>		



Crimping tool

**Note**

**Note**



# Copper cabling solutions

## Overview

<b>Copper cabling solutions</b>	Introduction AdvancedLine and CabinetLine	L.2
	Product configurator - Copper cables	L.3
	Overview - Copper cables	L.4
	Raw cables - Installation cable	L.6
	Raw cables - Connection cable	L.8
	Raw cables - Dragline cable	L.13
	Raw cables - PROFINET cable	L.14
	Raw cables - Hybrid cable	L.16
	Assembled cables - Patch cable	L.17
	Assembled cables - PROFINET cable	L.25
	Assembled cables - PROFINET cable PushPull Power	L.29
	Assembled cables - PROFINET cable M12	L.30
	Assembled cables - EtherNet/IP	L.37
	Assembled cables - Railway cable M12	L.39
	Assembled cables - Railway cable RJ45	L.44
	Assembled cables - USB cable	L.45

# The ideal solution, whatever your needs

## Our AdvancedLine and CabinetLine product ranges

### AdvancedLine



The AdvancedLine from Weidmüller offers all combinations of cables that are possible with the extensive range of plug connections.

This means flexibility and robustness through the high quality of the used components. The range comprises standard cables and customer-specific versions. Standard cables can be found in the catalogue; customer-specific versions can be freely configured online using the "Galaxy" configuration software. All AdvancedLine cables are particularly suitable for industrial use.

- High-quality cables with very good technical characteristics
- Suitable for demanding IP20 to IP67 applications
- Suitable for temperatures from -40 to +70 °C
- High-quality shielding

### CabinetLine



The new CabinetLine range of patch cables from Weidmüller is available in a variety of colours for visually differentiating between various networks.

Additional benefits:

All CabinetLine cables are fitted with Weidmüller TM marking sleeves for clearly labelling cables and ports. CabinetLine is available in the colours grey, blue, red and violet in combination with LSZH sheathing material and transmission power Cat. 6<sub>A</sub>. CabinetLine is also available in the colour green and Cat. 5 with PUR or PVC sheathing material. All variants are fitted with protected clips which facilitate, e.g., pulling through a cable duct.

- For applications in switching cabinets and simple environmental conditions
- Suitable for temperatures from 0 to +60 °C
- Simple shielding

# Configurators for copper cables

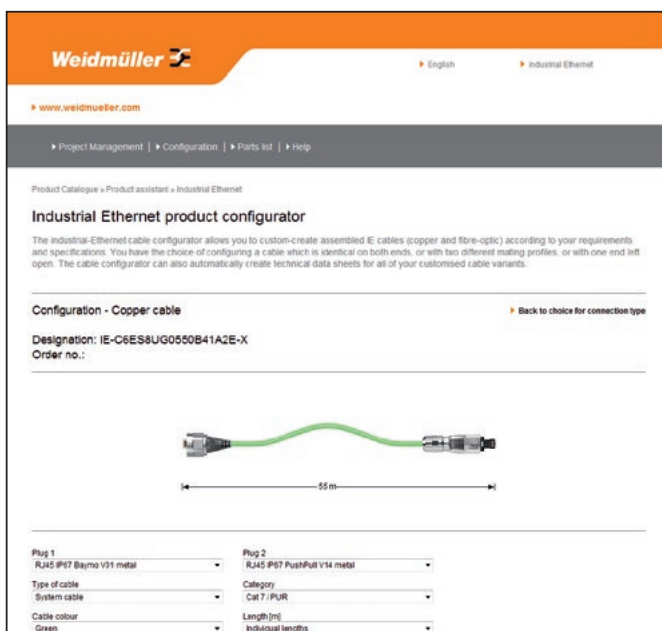
## Tailor-made connections

The cable configurator in Weidmüller's online catalogue makes it possible for you to create fully-assembled cables customised specifically to your requirements and specifications.

An RJ45 plug with IP20 protection is available. The following variants are also available with IP67 protection:

- Variant 1, metal and plastic
- Variant 4, plastic
- Variant 5, metal
- Variant 14, metal
- M12 connector, straight and angled

You have the choice of configuring a cable which is identical on both ends, or with two different mating profiles, or with one end left open.



When selecting the cable, the following types are available:

- 8-wire system cable, AWG 26/7 in Cat. 5 or Cat. 7, with PVC or PUR sheath
- 8-wire dragline cable, AWG 26/7 in Cat. 5, PUR sheath
- 4-wire PROFINET dragline cable in Cat. 5, PUR sheath
- 4-wire PROFINET system cables in Cat. 5, PVC sheathing
- 4-wire railway cable in Cat. 5, Radox sheathing

The cable length can also be customised:

- From 0.3 m to 9.9 m, in 0.1 m steps
- From 10 m to 100 m, in 1 m steps

The cable configurator can automatically create technical data sheets for all of your customised cable variants.

All of your cable selections can be sent to Weidmüller using the "request list". You will then quickly receive a price proposal for the cables from your local Weidmüller representative.

# Overview of copper cables

## Solutions for every environment

Copper cables should be your first choice for applications in offices and harsh industrial environments.

### Advantages:

- Available in many different variations and lengths
- Robust
- Easy to assemble
- RJ45 connections are the most popular

### Raw cables / Metre goods

#### Industrial installation cables, horizontal cables



...for stationary, permanent installation in cable ducts and cable trays

- Cat. 5 or Cat. 7
- Available for PROFINET as well
- With PUR or PVC sheathing

#### Industrial connecting cables



...for flexible installation in machines and plants in industrial applications and difficult environments

- Cat. 5 or Cat. 7
- Available for PROFINET as well
- With PUR or PVC sheathing

#### Industrial trailing cables



...for applications subjected to constant movement

- Cat. 5
- Available for PROFINET as well
- With PUR sheathing

### Assembled cables

#### Industrial patch cables / CabinetLine



...not only for office applications, but also in switching cabinets for industrial applications

- Cat. 6
- With LSZH sheathing – low smoke and zero halogens
- In straight and crossover versions

#### Industrial system cables



...pre-assembled cables for flexible installation in machines and plants in industrial applications and difficult environments

- Cat. 5 or Cat. 6
- With PUR sheathing

#### Industrial trailing cables



...pre-assembled cable for constant motion, e.g., with draglines

- Cat. 5
- Available for PROFINET as well
- With PUR sheathing

#### System cable for railway applications



...pre-assembled cable for flexible wiring on railway vehicles for both interior and exterior installations.

- In Cat. 5
- Also for PROFINET
- With Radox sheath

## Ordering data for copper cables, metre goods

Type	Cat./Class	Colour	Plug-in connector		Length						
			left	right	100 m	Metre goods	305 m				
<b>Industrial installation cables</b>											
IE-51C4x2xAWG24/1-PUR	Cat. 5	green	-	-	8813160000	8944310000					
IE-51C4x2xAWG24/1-PVC	Cat. 5	green	-	-	8813150000	8953160000					
IE-71C4x2xAWG23/1-PUR	Cat. 7	green	-	-	8813140000	8955350000					
IE-71C4x2xAWG23/1-PVC	Cat. 7	green	-	-	8813130000	8955360000					
IE-C5AS4Vxx	Cat. 5 PROFINET	green	-	-	8899000000	8955950000					
<b>Industrial connecting cables</b>											
IE-5CC4x2xAWG26/7-PUR	Cat. 5	green	-	-	8813200000	8938880000					
IE-5CC4x2xAWG26/7-PVC	Cat. 5	green	-	-	8813190000	8955490000					
IE-7CC4x2xAWG26/7-PUR	Cat. 7	green	-	-	8813180000	8954300000					
IE-7CC4x2xAWG26/7-PVC	Cat. 7	green	-	-	8813170000	8955480000					
IE-C5DS4Vxx	Cat. 5 PROFINET	green	-	-	8898990000	8955560000					
IE-C5DHAGxx	Cat. 5 PROFINET	green	-	-		1172250000					
IE-C7FS8LD-305M	Cat. 7	grey	-	-			1273090000				
IE-C7FS8LB-305M	Cat. 7	blue	-	-			1326540000				
IE-C7FS8LE-305M	Cat. 7	black	-	-			1344690000				
IE-C7FS8LG-305M	Cat. 7	green	-	-			1344680000				
IE-C7FS8LR-305M	Cat. 7	red	-	-			1287910000				
IE-C7FS8LM-305M	Cat. 7	magenta	-	-			1333160000				
IE-C7FS8LY-305M	Cat. 7	yellow	-	-			1344670000				
<b>Industrial trailing cables</b>											
IE-5TC4x2xAWG26/7-PUR	Cat. 5	green	-	-	8813210000	8936390000					
IE-C5ED8UBxx	Cat. 5	blue	-	-	8960670000	8949760000					
IE-C5DD4UGx	Cat. 5 PROFINET	green	-	-	8899010000	8947670000					
IE-C5IT4UGx	Cat. 5 PROFINET	green	-	-		1103010000					

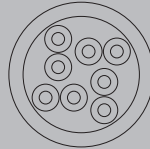
## Raw cables – Installation cable

## Raw cables

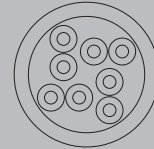
## Installation cable Cat. 5

- In lengths from 100 to 1000 metres

## PUR



## PVC



## Technical data

Product type
Category
Shielding
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation diameter
Min. bending radius, repetitive
Min. bending radius, once only
Ambient temperature (operational)
Installation temperature
Storage temperature
Abrasion resistance
Halogen
Resistance to spread of flame
Resistance to oils
Approvals

## Note

Installation cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
4*2*AWG 24/1 - 4*2*0.205 mm <sup>2</sup>
6.7 mm
PUR
green (RAL 6018)
1 mm
10 *diameter
5 *diameter
-40 °C...80 °C
-15 °C...60 °C
-40 °C...80 °C
very good
halogen-free, according to IEC 60754-2
in accordance with IEC 60332-1
in accordance with IEC 60811-2-1

Installation cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
4*2*AWG 24/1 - 4*2*0.205 mm <sup>2</sup>
6.3 mm
PVC
green (RAL 6018)
1 mm
10 *diameter
5 *diameter
-40 °C...80 °C
-15 °C...60 °C
-40 °C...80 °C
good
in accordance with IEC 60332-1

## Ordering data

100.0 m
By the meter starting at 110.0 m

## Note

Type	Qty.	Order No.
IE-5IC4x2xAWG24/1-PUR	1	8813160000
IE-C5CS8UG-MW		8944310000

Order example, for cut cable: 150 x "article number" = 150 m on drum

Type	Qty.	Order No.
IE-5IC4x2xAWG24/1-PVC	1	8813150000
IE-C5CS8VG-MW		8953160000

Order example, for cut cable: 150 x "article number" = 150 m on drum

## Accessories

Sheathing stripper
For UTP and STP data cables
For coaxial and round data cables

## Markers

Wire and cable marker. ø 4.7 - 7.4 mm
Wire and cable marker. ø 5.8 - 7.8 mm
Insertion label. yellow. 12 mm
Insertion label. yellow. 18 mm
Transparent sleeves. 12-mm length
Transparent sleeves. 18-mm length

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

## Note



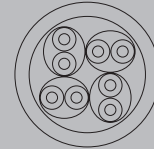
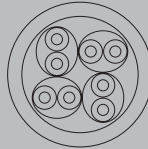
**Raw cables**

**Installation cable Cat. 7**

- In lengths from 100 to 1000 metres

**PUR**

**PVC**



**Technical data**

Product type	Installation cable
Category	Cat.7 (ISO/IEC 11801)
Shielding	S/FTP
Cross-section	4*2*AWG 23/1 - 4*2*0.255 mm <sup>2</sup>
Sheath diameter, max.	8.4 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation diameter	1.4 mm
Min. bending radius, repetitive	10 *diameter
Min. bending radius, once only	5 *diameter
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-15 °C...60 °C
Storage temperature	-40 °C...80 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	in accordance with IEC 60811-2-1
Approvals	
<b>Note</b>	

Product type	Installation cable
Category	Cat.7 (ISO/IEC 11801)
Shielding	S/FTP
Cross-section	4*2*AWG 23/1 - 4*2*0.255 mm <sup>2</sup>
Sheath diameter, max.	8.4 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation diameter	1.4 mm
Min. bending radius, repetitive	10 *diameter
Min. bending radius, once only	5 *diameter
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-15 °C...60 °C
Storage temperature	-40 °C...80 °C
Abrasion resistance	good
Halogen	
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	
Approvals	
<b>Note</b>	

Product type	Installation cable
Category	Cat.7 (ISO/IEC 11801)
Shielding	S/FTP
Cross-section	4*2*AWG 23/1 - 4*2*0.255 mm <sup>2</sup>
Sheath diameter, max.	8.4 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation diameter	1.4 mm
Min. bending radius, repetitive	10 *diameter
Min. bending radius, once only	5 *diameter
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-15 °C...60 °C
Storage temperature	-40 °C...80 °C
Abrasion resistance	good
Halogen	
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	
Approvals	
<b>Note</b>	

**Ordering data**

100.0 m
By the meter starting at 110.0 m
<b>Note</b>

Type	Qty.	Order No.
IE-7IC4x2xAWG23/1-PUR	1	8813140000
IE-C7BS8UG-MW		8955350000
Order example, for cut cable: 150 x "article number" = 150 m on drum		

Type	Qty.	Order No.
IE-7IC4x2xAWG23/1-PVC	1	8813130000
IE-C7BS8VG-MW		8955360000
Order example, for cut cable: 150 x "article number" = 150 m on drum		

**Accessories**

<b>Sheathing stripper</b>	
	For UTP and STP data cables
	For coaxial and round data cables
<b>Markers</b>	
	Wire and cable marker. ø 4.7 - 7.4 mm
	Wire and cable marker. ø 5.8 - 7.8 mm
	Insertion label. yellow. 12 mm
	Insertion label. yellow. 18 mm
	Transparent sleeves. 12-mm length
	Transparent sleeves. 18-mm length

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

<b>Note</b>
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<b>Note</b>
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<b>Note</b>
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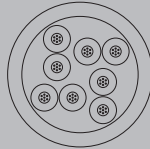
## Raw cables – Connection cable

## Raw cables

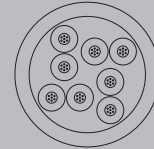
## Connecting cable Cat. 5

- In lengths from 100 to 1000 metres

## PUR



## PVC



## Technical data

Product type
Category
Shielding
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation diameter
Min. bending radius, repetitive
Min. bending radius, once only
Ambient temperature (operational)
Installation temperature
Storage temperature
Abrasion resistance
Halogen
Resistance to spread of flame
Resistance to oils
Standard, assembly
Approvals

## Note

System cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
6.1 mm
PUR
green (RAL 6018)
1 mm
10 *diameter
5 *diameter
-40 °C...80 °C
-10 °C...60 °C
-40 °C...80 °C
very good
halogen-free, according to IEC 60754-2
in accordance with IEC 60332-1
in accordance with IEC 60811-2-1
UL-Style 20963 (80°C/30V)

System cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
5.8 mm
PVC
green (RAL 6018)
1 mm
10 *diameter
5 *diameter
-40 °C...80 °C
-15 °C...60 °C
-40 °C...80 °C
good

in accordance with IEC 60332-1

## Ordering data

100.0 m
By the meter starting at 110.0 m

## Note

Type	Qty.	Order No.
IE-5CC4x2xAWG26/7-PUR	1	8813200000
IE-C5ES8UG-MW		8938880000

Order example, for cut cable: 150 x "article number" = 150 m on drum

Type	Qty.	Order No.
IE-5CC4x2xAWG26/7-PVC	1	8813190000
IE-C5ES8VG-MW		8955490000

Order example, for cut cable: 150 x "article number" = 150 m on drum

## Accessories

Sheathing stripper
For UTP and STP data cables
For coaxial and round data cables

Markers
Wire and cable marker. ø 4.7 - 7.4 mm
Wire and cable marker. ø 5.8 - 7.8 mm
Insertion label. yellow. 12 mm
Insertion label. yellow. 18 mm
Transparent sleeves. 12-mm length
Transparent sleeves. 18-mm length

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

## Note

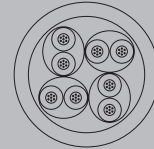
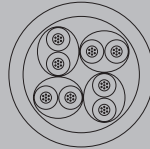
**Raw cables**

**Connecting cable Cat. 7**

- In lengths from 100 to 1000 metres

**PUR**

**PVC**



**Technical data**

Product type	System cable
Category	Cat.7 (ISO/IEC 11801)
Shielding	S/FTP
Cross-section	4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
Sheath diameter, max.	6.6 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation diameter	1.03 mm
Min. bending radius, repetitive	10 *diameter
Min. bending radius, once only	5 *diameter
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-15 °C...60 °C
Storage temperature	-40 °C...80 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	in accordance with IEC 60811-2-1
Standard, assembly	UL-Style 20963 (80°C/30V)

Product type	System cable
Category	Cat.7 (ISO/IEC 11801)
Shielding	S/FTP
Cross-section	4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation diameter	0.98 mm
Min. bending radius, repetitive	10 *diameter
Min. bending radius, once only	5 *diameter
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-15 °C...60 °C
Storage temperature	-40 °C...80 °C
Abrasion resistance	good
Halogen	in accordance with IEC 60332-1
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	in accordance with IEC 60811-2-1
Standard, assembly	UL-Style 2879 (80°C/30V)

Product type	System cable
Category	Cat.7 (ISO/IEC 11801)
Shielding	S/FTP
Cross-section	4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation diameter	0.98 mm
Min. bending radius, repetitive	10 *diameter
Min. bending radius, once only	5 *diameter
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-15 °C...60 °C
Storage temperature	-40 °C...80 °C
Abrasion resistance	good
Halogen	in accordance with IEC 60332-1
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	in accordance with IEC 60811-2-1
Standard, assembly	UL-Style 2879 (80°C/30V)

**Note**

**Ordering data**

100.0 m  
By the meter starting at 110.0 m

**Note**

Type	Qty.	Order No.
IE-7CC4x2xAWG26/7-PUR	1	8813180000
IE-C7ES8UG-MW		8954300000

Order example, for cut cable: 150 x "article number" = 150 m on drum

Type	Qty.	Order No.
IE-7CC4x2xAWG26/7-PVC	1	8813170000
IE-C7ES8VG-MW		8955480000

Order example, for cut cable: 150 x "article number" = 150 m on drum

**Accessories**

**Sheathing stripper**

For UTP and STP data cables  
For coaxial and round data cables

**Markers**

- Wire and cable marker. ø 4.7 - 7.4 mm
- Wire and cable marker. ø 5.8 - 7.8 mm
- Insertion label. yellow. 12 mm
- Insertion label. yellow. 18 mm
- Transparent sleeves. 12-mm length
- Transparent sleeves. 18-mm length

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TMH 12 MC NE GE	320	1718411687
TMH 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TMH 12 MC NE GE	320	1718411687
TMH 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

**Note**

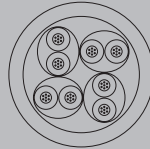
## Raw cables – Connection cable

## Raw cables

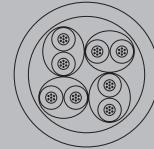
## Connecting cable Cat. 7

- 305 m / 1,000 ft

## LSZH grey



## LSZH blue



## Technical data

Product type
Category
Shielding
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation diameter
Min. bending radius, repetitive
Min. bending radius, once only
Ambient temperature (operational)
Installation temperature
Halogen
Resistance to spread of flame
Resistance to oils
Approvals

## Note

System cable
Cat.7 (ISO/IEC 11801)
S/FTP
4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
5.9 mm
LSZH
light grey (RAL 7035)
1.04 mm
50 mm
25 mm
-20 °C...60 °C
0 °C...50 °C
No
in accordance with IEC 60332-1

## CULUS

System cable
Cat.7 (ISO/IEC 11801)
S/FTP
4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
5.9 mm
LSZH
blue (RAL 5015)
1.04 mm
50 mm
25 mm
-20 °C...60 °C
0 °C...50 °C
No
in accordance with IEC 60332-1

## CULUS

## Ordering data

305 m / 1000 ft

## Note

Type	Qty.	Order No.
IE-C7FS8LD-305M	1	1273090000

Type	Qty.	Order No.
IE-C7FS8LB-305M	1	1326540000

## Accessories

## Sheathing stripper

For UTP and STP data cables  
For coaxial and round data cables

## Markers

Wire and cable marker. ø 4.7 - 7.4 mm  
Wire and cable marker. ø 5.8 - 7.8 mm  
Insertion label, yellow. 12 mm  
Insertion label, yellow. 18 mm  
Transparent sleeves. 12-mm length  
Transparent sleeves. 18-mm length

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

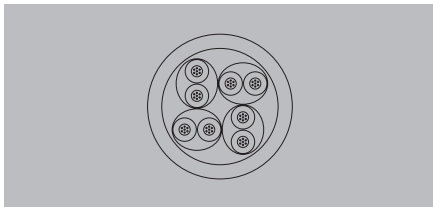
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

## Note

LSZH black

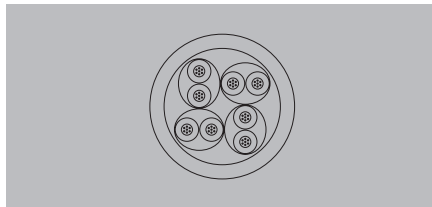


System cable
Cat.7 (ISO/IEC 11801)
S/FTP
4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
5.9 mm
LSZH
Black
1.04 mm
50 mm
25 mm
-20 °C...60 °C
0 °C...50 °C
No
in accordance with IEC 60332-1
CULUS

Type	Qty.	Order No.
IE-C7FS8LE-305M	1	1344690000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TMH 12 MC NE GE	320	1718411687
TMH 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

LSZH green

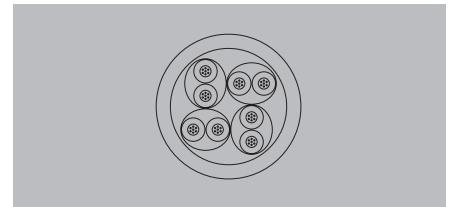


System cable
Cat.7 (ISO/IEC 11801)
S/FTP
4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
5.9 mm
LSZH
Green
1.04 mm
50 mm
25 mm
-20 °C...60 °C
0 °C...50 °C
No
in accordance with IEC 60332-1
CULUS

Type	Qty.	Order No.
IE-C7FS8LG-305M	1	1344680000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TMH 12 MC NE GE	320	1718411687
TMH 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

LSZH red



System cable
Cat.7 (ISO/IEC 11801)
S/FTP
4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
5.9 mm
LSZH
Red
1.04 mm
50 mm
25 mm
-20 °C...60 °C
0 °C...50 °C
No
in accordance with IEC 60332-1
CULUS

Type	Qty.	Order No.
IE-C7FS8LR-305M	1	1287910000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TMH 12 MC NE GE	320	1718411687
TMH 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

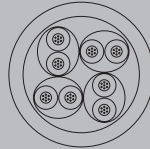
## Raw cables – Connection cable

## Raw cables

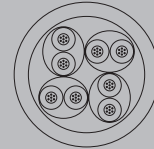
## Connecting cable Cat. 7

- 305 m / 1,000 ft

## LSZH magenta



## LSZH yellow



## Technical data

Product type
Category
Shielding
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation diameter
Min. bending radius, repetitive
Min. bending radius, once only
Ambient temperature (operational)
Installation temperature
Halogen
Resistance to spread of flame
Resistance to oils
Approvals

## Note

System cable
Cat.7 (ISO/IEC 11801)
S/FTP
4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
5.9 mm
LSZH
Magenta
1.04 mm
50 mm
25 mm
-20 °C...60 °C
0 °C...50 °C
No
in accordance with IEC 60332-1

## CULUS

System cable
Cat.7 (ISO/IEC 11801)
S/FTP
4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
5.9 mm
LSZH
Yellow
1.04 mm
50 mm
25 mm
-20 °C...60 °C
0 °C...50 °C
No
in accordance with IEC 60332-1

## CULUS

## Ordering data

305 m / 1000 ft

## Note

Type	Qty.	Order No.
IE-C7FS8LM-305M	1	1333160000

Type	Qty.	Order No.
IE-C7FS8LY-305M	1	1344670000

## Accessories

## Sheathing stripper

For UTP and STP data cables  
For coaxial and round data cables

## Markers

Insertion label, yellow, 12 mm  
Insertion label, yellow, 18 mm  
Transparent sleeves, 12-mm length  
Transparent sleeves, 18-mm length  
Wire and cable marker, ø 4.7 - 7.4 mm  
Wire and cable marker, ø 5.8 - 7.8 mm

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001

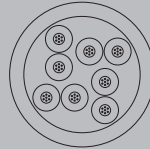
## Note

Raw cables

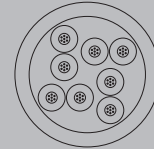
Dragline cable Cat. 5

- In lengths from 100 to 1000 metres

PUR green



PUR blue



Technical data

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	SF/UTP
Cross-section	4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
Sheath diameter, max.	6.8 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation diameter	0.95 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	4 *diameter
Bending cycles	5 Mio
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	in accordance with IEC 60811-2-1
Standard, assembly	UL-Style 20963 (80°C/30V)
Approvals	

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	SF/UTP
Cross-section	4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
Sheath diameter, max.	6.8 mm
Material sheath	PUR
Sheathing colour	blue (RAL 5015)
Insulation diameter	0.95 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	4 *diameter
Bending cycles	5 Mio
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	in accordance with IEC 60811-2-1
Standard, assembly	UL-Style 20963 (80°C/30V)
Approvals	

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	SF/UTP
Cross-section	4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
Sheath diameter, max.	6.8 mm
Material sheath	PUR
Sheathing colour	blue (RAL 5015)
Insulation diameter	0.95 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	4 *diameter
Bending cycles	5 Mio
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	in accordance with IEC 60811-2-1
Standard, assembly	UL-Style 20963 (80°C/30V)
Approvals	

Note

Ordering data

100.0 m
By the meter starting at 110.0 m
Note

Type	Qty.	Order No.
IE-5TC4x2xAWG26/7-PUR	1	8813210000
IE-C5ED8UG-MW		8936390000
Order example, for cut cable: 150 x "article number" = 150 m on drum		

Type	Qty.	Order No.
IE-C5ED8UB-100M	1	8960670000
IE-C5ED8UB-MW		8949760000
Order example, for cut cable: 150 x "article number" = 150 m on drum		

Accessories

Sheathing stripper	For UTP and STP data cables For coaxial and round data cables
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Markers	Wire and cable marker. ø 4.7 - 7.4 mm Wire and cable marker. ø 5.8 - 7.8 mm Insertion label. yellow. 12 mm Insertion label. yellow. 18 mm Transparent sleeves. 12-mm length Transparent sleeves. 18-mm length
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Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

Note

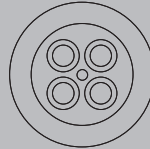
## Raw cables – PROFINET cable

## Raw cables

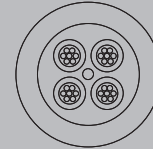
## PROFINET cable

- In lengths from 100 to 1000 metres

## Installation cable type A, PVC



## Connection cable type B, PVC



## Technical data

Product type
Category
Shielding
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation diameter
Min. bending radius, repetitive
Min. bending radius, once only
Ambient temperature (operational)
Installation temperature
Storage temperature
Abrasion resistance
Resistance to spread of flame
Standard, assembly
Approvals

Installation cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
4*AWG 22/1 - 0.33 mm <sup>2</sup>
6.7 mm
PVC
green (RAL 6018)
1.5 mm
7.5 *diameter
3.5 *diameter
-40 °C...75 °C
-20 °C...60 °C
-40 °C...75 °C
good
in accordance with IEC 60332-1 / UL 1685
UL-Style 21694

System cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
4*AWG 22/7 - 0.36 mm <sup>2</sup>
6.7 mm
PVC
green (RAL 6018)
1.5 mm
7.5 *diameter
3.5 *diameter
-40 °C...70 °C
-20 °C...60 °C
-40 °C...70 °C
good
in accordance with IEC 60332-1 / UL 1685
UL-Style 21694

## Note

## Ordering data

100.0 m
By the meter starting at 110.0 m

## Note

Type	Qty.	Order No.
IE-C5AS4V1000	1	8899000000
IE-C5AS4VG-MW		8955950000

Order example, for cut cable: 150 x "article number" = 150 m on drum

Type	Qty.	Order No.
IE-C5DS4V1000	1	8898990000
IE-C5DS4VG-MW		8955560000

Order example, for cut cable: 150 x "article number" = 150 m on drum

## Accessories

Sheathing stripper
For UTP and STP data cables
For coaxial and round data cables

Markers
Wire and cable marker. ø 4.7 - 7.4 mm
Wire and cable marker. ø 5.8 - 7.8 mm
Insertion label. yellow. 12 mm
Insertion label. yellow. 18 mm
Transparent sleeves. 12-mm length
Transparent sleeves. 18-mm length

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

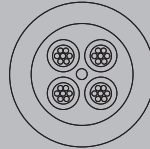
## Note



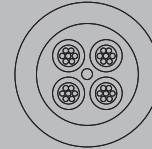
**Raw cables**  
**PROFINET cable**

- In lengths from 100 to 1000 metres

**Dragline cable type C, PUR**



**Torsion cable type C, PUR**



**Technical data**

Product type
Category
Shielding
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation diameter
Min. bending radius, repetitive
Min. bending radius, once only
Bending cycles
Torsion cycles
Torsion resistance
Ambient temperature (operational)
Installation temperature
Storage temperature
Abrasion resistance
Halogen
Resistance to spread of flame
Resistance to oils
Standard, assembly
Approvals

Dragline cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
4*AWG 22/7 - 0.36 mm <sup>2</sup>
6.7 mm
PUR
green (RAL 6018)
1.5 mm
7.5 *diameter
5 *diameter
3 Mio
-40 °C...70 °C
-20 °C...60 °C
-50 °C...70 °C
very good
halogen-free, according to IEC 60754-2
in accordance with IEC 60332-1
in accordance with IEC 60811-2-1

Torsion cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
S/UTP
4* AWG 22/19 - 0.38 mm <sup>2</sup>
6.7 mm
PUR
green (RAL 6018)
1.5 mm
10 *diameter
5 *diameter
1 mill.
180 °/m
-40 °C...80 °C
-40 °C...80 °C
-40 °C...80 °C
very good
halogen-free, according to IEC 60754-2
in accordance with IEC 60332-1
in accordance with IEC 60811-2-1
UL Style 21161

**Note**

**Ordering data**

<b>Cat. 5 PROFINET. PUR</b>
100.0 m
By the meter starting at 110.0 m

**Note**

Type	Qty.	Order No.
IE-C5DD4U1000	1	8899010000
IE-C5DD4UG-MW		8947670000

Order example, for cut cable: 150 x "article number" = 150 m on drum

Type	Qty.	Order No.
IE-C5IT4UG-MW		1103010000

Order example, for cut cable: 150 x "article number" = 150 m on drum

**Accessories**

<b>Sheathing stripper</b>
For UTP and STP data cables
For coaxial and round data cables

**Markers**

Wire and cable marker. ø 4.7 - 7.4 mm
Wire and cable marker. ø 5.8 - 7.8 mm
Insertion label. yellow. 12 mm
Insertion label. yellow. 18 mm
Transparent sleeves. 12-mm length
Transparent sleeves. 18-mm length

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

**Note**

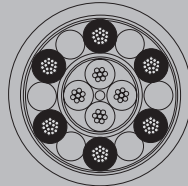
## Raw cables – Hybrid cable

## Raw cables

## Hybrid cable

- In lengths from 100 to 1000 metres

## PVC



## Technical data

Product type
Category
Shielding
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation diameter
Min. bending radius, repetitive
Min. bending radius, once only
Ambient temperature (operational)
Installation temperature
Storage temperature
Abrasion resistance
Halogen
Resistance to spread of flame
Resistance to oils
Standard, assembly
Approvals

## Note

Connecting cables
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
4*AWG 22/7 - 0.36 mm <sup>2</sup> , 6*0.5 mm <sup>2</sup>
9.5 mm
PVC
green (RAL 6018)
1.5 mm / 1.75 mm
7.5 *diameter
3.5 *diameter
-40 °C...70 °C
-20 °C...60 °C
-40 °C...70 °C
good
Yes
in accordance with IEC 60332-1 / UL 1685
limited

## Ordering data

By the meter starting at 110.0 m

## Note

Type	Qty.	Order No.
IE-C5DHAG-MW		1172250000

Order example, for cut cable: 150 x "article number" = 150 m on drum

## Accessories

## Sheathing stripper

For UTP and STP data cables  
For coaxial and round data cables

## Markers

Wire and cable marker. ø 4.7 - 7.4 mm  
Wire and cable marker. ø 5.8 - 7.8 mm  
Insertion label. yellow. 12 mm  
Insertion label. yellow. 18 mm  
Transparent sleeves. 12-mm length  
Transparent sleeves. 18-mm length

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
TMH 12 MC NE GE	320	1718411687
TMH 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

## Note

## Assembled cables

## Patch cable CabinetLine Cat. 6 straight

## LSZH grey



RJ45			RJ45
1	white (orange)	1	RJ45
2	orange	2	
3	white (green)	3	
4	blue	4	
5	white (blue)	5	
6	green	6	
7	white (brown)	7	
8	brown	8	

## Technical data

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Grey
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

## Ordering data

	Type	Qty.	Order No.
0.2 m	IE-C6FP8LD0002M40M40-D	1	1165940002
0.5 m	IE-C6FP8LD0005M40M40-D	1	1165940005
1.0 m	IE-C6FP8LD0010M40M40-D	1	1165940010
1.5 m	IE-C6FP8LD0015M40M40-D	1	1165940015
2.0 m	IE-C6FP8LD0020M40M40-D	1	1165940020
3.0 m	IE-C6FP8LD0030M40M40-D	1	1165940030
5.0 m	IE-C6FP8LD0050M40M40-D	1	1165940050
7.5 m	IE-C6FP8LD0075M40M40-D	1	1165940075
10.0 m	IE-C6FP8LD0100M40M40-D	1	1165940100
15.0 m	IE-C6FP8LD0150M40M40-D	1	1165940150
20.0 m	IE-C6FP8LD0200M40M40-D	1	1165940200
25.0 m	IE-C6FP8LD0250M40M40-D	1	1165940250
<b>Note</b>	Other lengths available on request		

## Accessories

<b>Sheathing stripper</b>			
	For UTP and STP data cables		
	For coaxial and round data cables		
<b>Markers</b>			
	Insertion label, yellow, 12 mm	320	1718411687
	Insertion label, yellow, 18 mm	320	1718431687
<b>Dust protection cap</b>			
	Protective cap	10	2552580000
<b>Note</b>			

## Assembled cables - Patch cable

## Assembled cables

## Patch cable CabinetLine Cat. 6 straight

## LSZH blue



## LSZH black



RJ45				RJ45
1	white (orange)	1		
2	orange	2		
3	white (green)	3		
4	blue	4		
5	white (blue)	5		
6	green	6		
7	white (brown)	7		
8	brown	8		

RJ45				RJ45
1	white (orange)	1		
2	orange	2		
3	white (green)	3		
4	blue	4		
5	white (blue)	5		
6	green	6		
7	white (brown)	7		
8	brown	8		

## Technical data

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Blue
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Black
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Black
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

## Ordering data

	0.2 m
	0.5 m
	1.0 m
	1.5 m
	2.0 m
	3.0 m
	5.0 m
	10.0 m
	15.0 m
	20.0 m
	25.0 m
<b>Note</b>	

Type	Qty.	Order No.
IE-C6FP8LB0002M40M40-B	1	1165900002
IE-C6FP8LB0005M40M40-B	1	1165900005
IE-C6FP8LB0010M40M40-B	1	1165900010
IE-C6FP8LB0015M40M40-B	1	1165900015
IE-C6FP8LB0020M40M40-B	1	1165900020
IE-C6FP8LB0030M40M40-B	1	1165900030
IE-C6FP8LB0050M40M40-B	1	1165900050
IE-C6FP8LB0100M40M40-B	1	1165900100
IE-C6FP8LB0150M40M40-B	1	1165900150
IE-C6FP8LB0200M40M40-B	1	1165900200
IE-C6FP8LB0250M40M40-B	1	1165900250

Type	Qty.	Order No.
IE-C6FP8LE0002M40M40-E	1	1251610002
IE-C6FP8LE0005M40M40-E	1	1251610005
IE-C6FP8LE0010M40M40-E	1	1251610010
IE-C6FP8LE0015M40M40-E	1	1251610015
IE-C6FP8LE0020M40M40-E	1	1251610020
IE-C6FP8LE0030M40M40-E	1	1251610030
IE-C6FP8LE0050M40M40-E	1	1251610050
IE-C6FP8LE0100M40M40-E	1	1251610100
IE-C6FP8LE0150M40M40-E	1	1251610150
IE-C6FP8LE0200M40M40-E	1	1251610200
IE-C6FP8LE0250M40M40-E	1	1251610250

## Accessories

<b>Sheathing stripper</b>	
	For UTP and STP data cables
	For coaxial and round data cables
<b>Markers</b>	
	Insertion label, yellow, 12 mm
	Insertion label, yellow, 18 mm
<b>Dust protection cap</b>	Protective cap
<b>Note</b>	

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000

**Assembled cables**  
Patch cable CabinetLine Cat. 6 straight

**LSZH green**



**LSZH red**



RJ45			RJ45
1	white (orange)	1	RJ45
2	orange	2	
3	white (green)	3	
4	blue	4	
5	white (blue)	5	
6	green	6	
7	white (brown)	7	
8	brown	8	

RJ45			RJ45
1	white (orange)	1	RJ45
2	orange	2	
3	white (green)	3	
4	blue	4	
5	white (blue)	5	
6	green	6	
7	white (brown)	7	
8	brown	8	

**Technical data**

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Green
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Red
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Red
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

**Ordering data**

	0.2 m
	0.5 m
	1.0 m
	1.5 m
	2.0 m
	3.0 m
	5.0 m
	10.0 m
	15.0 m
	20.0 m
	25.0 m
<b>Note</b>	

Type	Qty.	Order No.
IE-C6FP8LG0002M40M40-G	1	1251590002
IE-C6FP8LG0005M40M40-G	1	1251590005
IE-C6FP8LG0010M40M40-G	1	1251590010
IE-C6FP8LG0015M40M40-G	1	1251590015
IE-C6FP8LG0020M40M40-G	1	1251590020
IE-C6FP8LG0030M40M40-G	1	1251590030
IE-C6FP8LG0050M40M40-G	1	1251590050
IE-C6FP8LG0100M40M40-G	1	1251590100
IE-C6FP8LG0150M40M40-G	1	1251590150
IE-C6FP8LG0200M40M40-G	1	1251590200
IE-C6FP8LG0250M40M40-G	1	1251590250

Type	Qty.	Order No.
IE-C6FP8LR0002M40M40-R	1	1166030002
IE-C6FP8LR0005M40M40-R	1	1166030005
IE-C6FP8LR0010M40M40-R	1	1166030010
IE-C6FP8LR0015M40M40-R	1	1166030015
IE-C6FP8LR0020M40M40-R	1	1166030020
IE-C6FP8LR0030M40M40-R	1	1166030030
IE-C6FP8LR0050M40M40-R	1	1166030050
IE-C6FP8LR0100M40M40-R	1	1166030100
IE-C6FP8LR0150M40M40-R	1	1166030150
IE-C6FP8LR0200M40M40-R	1	1166030200
IE-C6FP8LR0250M40M40-R	1	1166030250

**Accessories**

<b>Sheathing stripper</b>	
	For UTP and STP data cables
	For coaxial and round data cables
<b>Markers</b>	
	Insertion label, yellow, 12 mm
	Insertion label, yellow, 18 mm
<b>Dust protection cap</b>	Protective cap
<b>Note</b>	

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000

## Assembled cables - Patch cable

## Assembled cables

## Patch cable CabinetLine Cat. 6 straight

## LSZH magenta



## LSZH yellow



RJ45			RJ45
1	white (orange)	1	RJ45
2	orange	2	
3	white (green)	3	
4	blue	4	
5	white (blue)	5	
6	green	6	
7	white (brown)	7	
8	brown	8	

RJ45			RJ45
1	white (orange)	1	RJ45
2	orange	2	
3	white (green)	3	
4	blue	4	
5	white (blue)	5	
6	green	6	
7	white (brown)	7	
8	brown	8	

## Technical data

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Magenta
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Yellow
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Yellow
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

## Ordering data

	0.2 m
	0.5 m
	1.0 m
	1.5 m
	2.0 m
	3.0 m
	5.0 m
	10.0 m
	15.0 m
	20.0 m
	25.0 m
<b>Note</b>	

Type	Qty.	Order No.
IE-C6FP8LM0002M40M40-M	1	1201270002
IE-C6FP8LM0005M40M40-M	1	1201270005
IE-C6FP8LM0010M40M40-M	1	1201270010
IE-C6FP8LM0015M40M40-M	1	1201270015
IE-C6FP8LM0020M40M40-M	1	1201270020
IE-C6FP8LM0030M40M40-M	1	1201270030
IE-C6FP8LM0050M40M40-M	1	1201270050
IE-C6FP8LM0100M40M40-M	1	1201270100
IE-C6FP8LM0150M40M40-M	1	1201270150
IE-C6FP8LM0200M40M40-M	1	1201270200
<b>Note</b>		

Type	Qty.	Order No.
IE-C6FP8LY0002M40M40-Y	1	1251580002
IE-C6FP8LY0005M40M40-Y	1	1251580005
IE-C6FP8LY0010M40M40-Y	1	1251580010
IE-C6FP8LY0015M40M40-Y	1	1251580015
IE-C6FP8LY0020M40M40-Y	1	1251580020
IE-C6FP8LY0030M40M40-Y	1	1251580030
IE-C6FP8LY0050M40M40-Y	1	1251580050
IE-C6FP8LY0100M40M40-Y	1	1251580100
IE-C6FP8LY0150M40M40-Y	1	1251580150
IE-C6FP8LY0200M40M40-Y	1	1251580200
IE-C6FP8LY0250M40M40-Y	1	1251580250
<b>Note</b>		

## Accessories

<b>Sheathing stripper</b>	
	For UTP and STP data cables
	For coaxial and round data cables
<b>Markers</b>	
	Insertion label, yellow, 12 mm
	Insertion label, yellow, 18 mm
<b>Dust protection cap</b>	Protective cap
<b>Note</b>	

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000
<b>Note</b>		

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000
<b>Note</b>		

## Assembled cables

## Patch cable CabinetLine Cat. 6 angled

## LSZH grey 270°



RJ45			RJ45
1	white (orange)	1	RJ45
2	orange	2	
3	white (green)	3	
4	blue	4	
5	white (blue)	5	
6	green	6	
7	white (brown)	7	
8	brown	8	

## LSZH grey 90°



RJ45			RJ45
1	white (orange)	1	RJ45
2	orange	2	
3	white (green)	3	
4	blue	4	
5	white (blue)	5	
6	green	6	
7	white (brown)	7	
8	brown	8	

## Technical data

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20, Angled 270° / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Grey
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20, Angled 90° / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Grey
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

Product type	Patch cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20, Angled 90° / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	5.9 mm
Material sheath	LSZH
Colour	Grey
Insulation diameter	1.04 mm
Min. bending radius, repetitive	50 mm
Min. bending radius, once only	25 mm
Ambient temperature (operational)	-20 °C...60 °C
Installation temperature	0 °C...50 °C
Storage temperature	-20 °C...60 °C
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Approvals	CULUS
<b>Note</b>	

## Ordering data

	0.5 m
	1.0 m
	1.2 m
	1.5 m
	2.0 m
	3.0 m
	5.0 m
	10.0 m
<b>Note</b>	

Type	Qty.	Order No.
IE-C6FP8LD0005M40W40-D	1	1233160005
IE-C6FP8LD0010M40W40-D	1	1233160010
IE-C6FP8LD0012M40W40-D	1	1233160012
IE-C6FP8LD0015M40W40-D	1	1233160015
IE-C6FP8LD0020M40W40-D	1	1233160020
IE-C6FP8LD0030M40W40-D	1	1233160030
IE-C6FP8LD0050M40W40-D	1	1233160050
IE-C6FP8LD0100M40W40-D	1	1233160100
<b>Note</b>		

Type	Qty.	Order No.
IE-C6FP8LD0005M40V40-D	1	1248280005
IE-C6FP8LD0010M40V40-D	1	1248280010
IE-C6FP8LD0012M40V40-D	1	1248280012
IE-C6FP8LD0015M40V40-D	1	1248280015
IE-C6FP8LD0020M40V40-D	1	1248280020
IE-C6FP8LD0030M40V40-D	1	1248280030
IE-C6FP8LD0050M40V40-D	1	1248280050
IE-C6FP8LD0100M40V40-D	1	1248280100
<b>Note</b>		

## Accessories

<b>Sheathing stripper</b>	
	For UTP and STP data cables
	For coaxial and round data cables
<b>Markers</b>	
	Insertion label, yellow, 12 mm
	Insertion label, yellow, 18 mm
<b>Dust protection cap</b>	
	Protective cap
<b>Note</b>	

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000
<b>Note</b>		

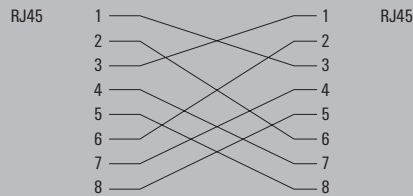
Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000
<b>Note</b>		

## Assembled cables - Patch cable

## Assembled cables

## Patch cable CabinetLine Cat. 6 crossover

## LSZH grey



## Technical data

Product type
Category
Shielding
Version connector left / Version connector right
Connector standard
PoE / PoE+
Cross-section
Sheath diameter, max.
Material sheath
Colour
Insulation diameter
Min. bending radius, repetitive
Min. bending radius, once only
Ambient temperature (operational)
Installation temperature
Storage temperature
Halogen
Resistance to spread of flame
Approvals

Patch cable, crossover
Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
S/FTP
RJ45 IP20 / RJ45 IP20
IEC 60603-7-51
conforming to IEEE 802.3at
4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
5.9 mm
LSZH
Grey
1.04 mm
50 mm
25 mm
-20 °C...60 °C
0 °C...50 °C
-20 °C...60 °C
halogen-free, according to IEC 60754-2
in accordance with IEC 60332-1 / UL 1581 FT2
CULUS

## Note

## Ordering data

0.3 m
0.4 m
0.5 m
1.0 m
2.0 m
3.0 m
5.0 m
10.0 m
15.0 m
20.0 m

Type	Qty.	Order No.
IE-C6FP8LD0003X40X40-Y	1	1312160003
IE-C6FP8LD0004X40X40-Y	1	1312160004
IE-C6FP8LD0005X40X40-Y	1	1312160005
IE-C6FP8LD0010X40X40-Y	1	1312160010
IE-C6FP8LD0020X40X40-Y	1	1312160020
IE-C6FP8LD0030X40X40-Y	1	1312160030
IE-C6FP8LD0050X40X40-Y	1	1312160050
IE-C6FP8LD0100X40X40-Y	1	1312160100
IE-C6FP8LD0150X40X40-Y	1	1312160150
IE-C6FP8LD0200X40X40-Y	1	1312160200

## Note

## Accessories

<b>Sheathing stripper</b>	For UTP and STP data cables For coaxial and round data cables
<b>Markers</b>	Insertion label, yellow, 12 mm Insertion label, yellow, 18 mm
<b>Dust protection cap</b>	Protective cap

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TMH 12 MC NE GE	320	1718411687
TMH 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000

## Note



**Assembled cables**  
**Patch cable CabinetLine Cat. 5 straight**

**PVC green**



**PUR green**



RJ45			RJ45
1	white (orange)	1	RJ45
2	orange	2	
3	white (green)	3	
4	blue	4	
5	white (blue)	5	
6	green	6	
7	white (brown)	7	
8	brown	8	

RJ45			RJ45
1	white (orange)	1	RJ45
2	orange	2	
3	white (green)	3	
4	blue	4	
5	white (blue)	5	
6	green	6	
7	white (brown)	7	
8	brown	8	

**Technical data**

Product type	System cable
Category	Cat.5 (ISO/IEC 11801)
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
Sheath diameter, max.	5.8 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation diameter	0.98 mm
Min. bending radius, repetitive	10 *diameter
Min. bending radius, once only	5 *diameter
Ambient temperature (operational)	-40 °C...75 °C
Abrasion resistance	good
Halogen	
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	
Approvals	
<b>Note</b>	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801)
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
Sheath diameter, max.	6 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation diameter	0.98 mm
Min. bending radius, repetitive	10 *diameter
Min. bending radius, once only	5 *diameter
Ambient temperature (operational)	-40 °C...85 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	EN 50305
Approvals	
<b>Note</b>	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801)
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
Sheath diameter, max.	6 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation diameter	0.98 mm
Min. bending radius, repetitive	10 *diameter
Min. bending radius, once only	5 *diameter
Ambient temperature (operational)	-40 °C...85 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	EN 50305
Approvals	
<b>Note</b>	

**Ordering data**

Length	Type	Qty.	Order No.
0.5 m	IE-C5ES8VG0005M40M40-G	1	1166020005
1.0 m	IE-C5ES8VG0010M40M40-G	1	1166020010
1.5 m	IE-C5ES8VG0015M40M40-G	1	1166020015
2.0 m	IE-C5ES8VG0020M40M40-G	1	1166020020
3.0 m	IE-C5ES8VG0030M40M40-G	1	1166020030
5.0 m	IE-C5ES8VG0050M40M40-G	1	1166020050
10.0 m	IE-C5ES8VG0100M40M40-G	1	1166020100
15.0 m	IE-C5ES8VG0150M40M40-G	1	1166020150
20.0 m	IE-C5ES8VG0200M40M40-G	1	1166020200
<b>Note</b>			

Type	Qty.	Order No.
IE-C5ES8VG0005M40M40-G	1	1166020005
IE-C5ES8VG0010M40M40-G	1	1166020010
IE-C5ES8VG0015M40M40-G	1	1166020015
IE-C5ES8VG0020M40M40-G	1	1166020020
IE-C5ES8VG0030M40M40-G	1	1166020030
IE-C5ES8VG0050M40M40-G	1	1166020050
IE-C5ES8VG0100M40M40-G	1	1166020100
IE-C5ES8VG0150M40M40-G	1	1166020150
IE-C5ES8VG0200M40M40-G	1	1166020200
<b>Note</b>		

Type	Qty.	Order No.
IE-C5ES8UG0005M40M40-G	1	1166000005
IE-C5ES8UG0010M40M40-G	1	1166000010
IE-C5ES8UG0015M40M40-G	1	1166000015
IE-C5ES8UG0020M40M40-G	1	1166000020
IE-C5ES8UG0030M40M40-G	1	1166000030
IE-C5ES8UG0050M40M40-G	1	1166000050
IE-C5ES8UG0100M40M40-G	1	1166000100
IE-C5ES8UG0150M40M40-G	1	1166000150
IE-C5ES8UG0200M40M40-G	1	1166000200
<b>Note</b>		

**Accessories**

<b>Sheathing stripper</b>	For UTP and STP data cables For coaxial and round data cables
<b>Markers</b>	Insertion label, yellow, 12 mm Insertion label, yellow, 18 mm
<b>Dust protection cap</b>	Protective cap
<b>Note</b>	

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TMH 12 MC NE GE	320	1718411687
TMH 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000
<b>Note</b>		

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TMH 12 MC NE GE	320	1718411687
TMH 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000
<b>Note</b>		

## Assembled cables - Patch cable

## Assembled cables

## Patch cable CabinetLine Cat. 6 straight

## PUR green



RJ45			RJ45
1	white (orange)	1	RJ45
2	orange	2	
3	white (green)	3	
4	blue	4	
5	white (blue)	5	
6	green	6	
7	white (brown)	7	
8	brown	8	

## Technical data

Product type	System cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Connector standard	IEC 60603-7-51
PoE / PoE+	conforming to IEEE 802.3at
Cross-section	4*2*AWG 27/7 - 4*2*0.1 mm <sup>2</sup>
Sheath diameter, max.	6.4 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation diameter	1.02 mm
Min. bending radius, repetitive	10 *diameter
Min. bending radius, once only	5 *diameter
Ambient temperature (operational)	-40 °C...85 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1581 FT2
Resistance to oils	in accordance with IEC 60811-2-1
Approvals	

## Note

## Ordering data

	0.3 m
	0.5 m
	1.0 m
	1.5 m
	2.0 m
	3.0 m
	5.0 m
	10.0 m
	15.0 m
	20.0 m

## Note

## Accessories

## Sheathing stripper

For UTP and STP data cables  
For coaxial and round data cables

## Markers

Wire and cable marker. ø 4.7 - 7.4 mm  
Wire and cable marker. ø 5.8 - 7.8 mm  
Insertion label, yellow. 12 mm  
Insertion label, yellow. 18 mm  
Transparent sleeves. 12-mm length  
Transparent sleeves. 18-mm length

## Dust protection cap

Protective cap

## Note

Type	Qty.	Order No.
IE-C6FS8UG0003A40A40-G	1	894 1350003
IE-C6FS8UG0005A40A40-G	1	894 1350005
IE-C6FS8UG0010A40A40-G	1	894 1350010
IE-C6FS8UG0015A40A40-G	1	894 1350015
IE-C6FS8UG0020A40A40-G	1	894 1350020
IE-C6FS8UG0030A40A40-G	1	894 1350030
IE-C6FS8UG0050A40A40-G	1	894 1350050
IE-C6FS8UG0100A40A40-G	1	894 1350100
IE-C6FS8UG0150A40A40-G	1	894 1350150
IE-C6FS8UG0200A40A40-G	1	894 1350200

Other lengths available on request

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
IE-PP-RJ45	10	2552580000

Assembled cables

Patch cable PROFINET dragline cable (type C)

Cat. 5

IP20

RJ45 IP20



RJ45 IP20 incl. protective cap




RJ45		RJ45
1	yellow	1
2	orange	2
3	white	3
6	blue	6

RJ45		RJ45
1	yellow	1
2	orange	2
3	white	3
6	blue	6

Technical data

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PUR
Insulation diameter	1.5 mm
Min. bending radius, repetitive / Min. bending radius, once only	7.5 *diameter / 5 *diameter
Bending cycles	3 Mio
Speed	180 m/min
Acceleration	4 m/s <sup>2</sup>
Pulling force	≤ 150 N
Ambient temperature (operational)	-40 °C...70 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-50 °C...70 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	in accordance with IEC 60811-2-1
Approvals	CULUS
Note	

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP20 with protective cap / RJ45 IP20 with protective cap
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PUR
Insulation diameter	1.5 mm
Min. bending radius, repetitive / Min. bending radius, once only	7.5 *diameter / 5 *diameter
Bending cycles	3 Mio
Speed	180 m/min
Acceleration	4 m/s <sup>2</sup>
Pulling force	≤ 150 N
Ambient temperature (operational)	-40 °C...70 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-50 °C...70 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	in accordance with IEC 60811-2-1
Approvals	
Note	

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP20 with protective cap / RJ45 IP20 with protective cap
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PUR
Insulation diameter	1.5 mm
Min. bending radius, repetitive / Min. bending radius, once only	7.5 *diameter / 5 *diameter
Bending cycles	3 Mio
Speed	180 m/min
Acceleration	4 m/s <sup>2</sup>
Pulling force	≤ 150 N
Ambient temperature (operational)	-40 °C...70 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-50 °C...70 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	in accordance with IEC 60811-2-1
Approvals	
Note	

Ordering data

Type	Qty.	Order No.
IE-C5DD4UG0005A20A20-E	1	1173030005
IE-C5DD4UG0010A20A20-E	1	1173030010
IE-C5DD4UG0020A20A20-E	1	1173030020
IE-C5DD4UG0030A20A20-E	1	1173030030
IE-C5DD4UG0050A20A20-E	1	1173030050
IE-C5DD4UG0100A20A20-E	1	1173030100
IE-C5DD4UG0150A20A20-E	1	1173030150
IE-C5DD4UG0200A20A20-E	1	1173030200
Note		

Type	Qty.	Order No.
IE-C5DD4UG0005A20A20-E	1	1173030005
IE-C5DD4UG0010A20A20-E	1	1173030010
IE-C5DD4UG0020A20A20-E	1	1173030020
IE-C5DD4UG0030A20A20-E	1	1173030030
IE-C5DD4UG0050A20A20-E	1	1173030050
IE-C5DD4UG0100A20A20-E	1	1173030100
IE-C5DD4UG0150A20A20-E	1	1173030150
IE-C5DD4UG0200A20A20-E	1	1173030200
Note		

Type	Qty.	Order No.
IE-C5DD4UG0005A2DA2D-E	1	1376510005
IE-C5DD4UG0010A2DA2D-E	1	1376510010
IE-C5DD4UG0020A2DA2D-E	1	1376510020
IE-C5DD4UG0030A2DA2D-E	1	1376510030
IE-C5DD4UG0050A2DA2D-E	1	1376510050
IE-C5DD4UG0100A2DA2D-E	1	1376510100
IE-C5DD4UG0150A2DA2D-E	1	1376510150
IE-C5DD4UG0200A2DA2D-E	1	1376510200
Note		

Accessories

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000
Note		

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000
Note		

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687
IE-PP-RJ45	10	2552580000
Note		

Assembled cables - PROFINET cable

Assembled cables

Patch cable PROFINET connecting cable

(Type B) Cat.5

IP20

RJ45 IP20 Crimp



RJ45		RJ45
1	yellow	1
2	orange	2
3	white	3
6	blue	6

Technical data

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP20
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PVC
Insulation diameter	1.5 mm
Min. bending radius, repetitive / Min. bending radius, once only	7.5 *diameter / 3.5 *diameter
Bending cycles	
Speed	
Acceleration	
Pulling force	
Ambient temperature (operational)	-40 °C...70 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-40 °C...70 °C
Abrasion resistance	good
Halogen	
Resistance to spread of flame	in accordance with IEC 60332-1 / UL 1685
Resistance to oils	
Approvals	
Note	

Ordering data

	0.5 m
	1.0 m
	2.0 m
	3.0 m
	5.0 m
	10.0 m
	15.0 m
	20.0 m
Note	

Type	Qty.	Order No.
IE-C5DS4VG0005A60A60-E	1	1522100005
IE-C5DS4VG0010A60A60-E	1	1522100010
IE-C5DS4VG0020A60A60-E	1	1522100020
IE-C5DS4VG0030A60A60-E	1	1522100030
IE-C5DS4VG0050A60A60-E	1	1522100050
IE-C5DS4VG0100A60A60-E	1	1522100100
IE-C5DS4VG0150A60A60-E	1	1522100150
IE-C5DS4VG0200A60A60-E	1	1522100200
Other lengths available on request		

Accessories

Dust protection cap	Protective cap
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Type	Qty.	Order No.
IE-PP-RJ45	10	2552580000

Note	
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Note	
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## Assembled cables

## Patch cable PROFINET dragline cable (type C)

Cat. 5

IP67

## V14 RJ45 IP67



RJ45		RJ45
1	yellow	1
2	orange	2
3	white	3
6	blue	6

## Technical data

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Connector standard	IEC 61076-3-117 Var. 14, IEC 60603-7-51
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP67 PushPull V14 metal / RJ45 IP67 PushPull V14 metal
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PUR
Insulation diameter	1.5 mm
Min. bending radius, repetitive / Min. bending radius, once only	7.5 *diameter / 5 *diameter
Bending cycles	3 Mio
Speed	180 m/min
Acceleration	4 m/s <sup>2</sup>
Pulling force	≤ 150 N
Ambient temperature (operational)	-40 °C...70 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-50 °C...70 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	in accordance with IEC 60811-2-1
Approvals	

## Note

## Ordering data

	Type	Qty.	Order No.
1.0 m	IE-C5DD4UG0010A2EA2E-X	1	1119730010
2.0 m	IE-C5DD4UG0020A2EA2E-X	1	1119730020
3.0 m	IE-C5DD4UG0030A2EA2E-X	1	1119730030
5.0 m	IE-C5DD4UG0050A2EA2E-X	1	1119730050
10.0 m	IE-C5DD4UG0100A2EA2E-X	1	1119730100
15.0 m	IE-C5DD4UG0150A2EA2E-X	1	1119730150
20.0 m	IE-C5DD4UG0200A2EA2E-X	1	1119730200

## Note

## Accessories

Sheathing stripper		Type	Qty.	Order No.
	For UTP and STP data cables	AM 12	1	9030060000
	For coaxial and round data cables	IE-CST	1	9204350000
Markers				
	Insertion label, yellow, 12 mm	TMH 12 MC NE GE	320	1718411687
	Insertion label, yellow, 18 mm	TMH 18 MC NE GE	320	1718431687

## Note

## Assembled cables - PROFINET cable

## Assembled cables

## Patch cable PROFINET (Type C) Cat. 5, over-moulded IP67

## V14 RJ45 IP67

## Dragline cable



RJ45		RJ45
1	yellow	1
2	orange	2
3	white	3
6	blue	6

## V14 RJ45 IP67

## Twisted cable



RJ45		RJ45
1	yellow	1
2	orange	2
3	white	3
6	blue	6

## Technical data

Product type  
Category  
Connector standard  
Shielding  
Version connector left / Version connector right

Cross-section  
Sheath diameter, max.  
Material sheath  
Insulation diameter  
Min. bending radius, repetitive / Min. bending radius, once only  
Bending cycles / Pulling force  
Torsion cycles / Torsion resistance  
Speed / Acceleration  
Ambient temperature (operational)  
Installation temperature  
Storage temperature  
Abrasion resistance  
Halogen  
Resistance to spread of flame  
Resistance to oils  
Approvals

## Note

Dragline cable  
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)  
IEC 61076-3-117 Var. 14  
SF/UTP  
RJ45 IP67 PushPull moulded V14 metal / RJ45 IP67 PushPull moulded V14 metal  
4\*AWG 22/7 - 0.36 mm<sup>2</sup>  
6.7 mm  
PUR  
1.5 mm  
7.5 \*diameter / 5 \*diameter  
3 Mio / ≤ 150 N  
  
180 m/min / 4 m/s<sup>2</sup>  
-40 °C...70 °C  
-20 °C...60 °C  
-50 °C...70 °C  
very good  
halogen-free, according to IEC 60754-2  
in accordance with IEC 60332-1  
in accordance with IEC 60811-2-1

Torsion cable  
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)  
IEC 61076-3-117 Var. 14  
S/UTP  
RJ45 IP67 PushPull moulded V14 metal / RJ45 IP67 PushPull moulded V14 metal  
4\* AWG 22/19 - 0.38 mm<sup>2</sup>  
6.7 mm  
PUR  
1.5 mm  
10 \*diameter / 5 \*diameter  
  
1 mill. / 180 °/m  
-40 °C...80 °C  
-40 °C...80 °C  
-40 °C...80 °C  
very good  
halogen-free, according to IEC 60754-2  
in accordance with IEC 60332-1  
in accordance with IEC 60811-2-1

## Ordering data

	1.0 m
	2.0 m
	3.0 m
	5.0 m
	10.0 m

## Note

Type	Qty.	Order No.
IE-C5DD4UG0010B2EB2E-X	1	1307610010
IE-C5DD4UG0020B2EB2E-X	1	1307610020
IE-C5DD4UG0030B2EB2E-X	1	1307610030
IE-C5DD4UG0050B2EB2E-X	1	1307610050
IE-C5DD4UG0100B2EB2E-X	1	1307610100

Type	Qty.	Order No.
IE-C5IT4UG0010B2EB2E-X	1	1312690010
IE-C5IT4UG0020B2EB2E-X	1	1312690020
IE-C5IT4UG0030B2EB2E-X	1	1312690030
IE-C5IT4UG0050B2EB2E-X	1	1312690050
IE-C5IT4UG0100B2EB2E-X	1	1312690100

## Accessories

## Sheathing stripper

For UTP and STP data cables  
For coaxial and round data cables

## Markers

Insertion label, yellow, 12 mm  
Insertion label, yellow, 18 mm

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TMH 12 MC NE GE	320	1718411687
TMH 18 MC NE GE	320	1718431687

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TMH 12 MC NE GE	320	1718411687
TMH 18 MC NE GE	320	1718431687

## Note

**Assembled cables**  
**Patch cable PushPull Power**

**Power IP67, PVC**



**Power IP67, PUR**



**Technical data**

Connector standard
Version connector left / Version connector right
Ambient temperature (operational)
Cross-section
Wire connection cross section AWG, max.
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation
No. of wires
Min. bending radius, once only
Rated voltage
Current-carrying capacity at 50 °C
Approvals
<b>Note</b>

in accordance with PROFINET specification
PushPull Power / PushPull Power
-40 °C...70 °C
5*1,5 mm <sup>2</sup>
AWG 16
8.1 mm
PVC
grey (similar to RAL 7001)
PVC
5
4 *diameter
24 V
16 A
EAC
<b>Note</b>

in accordance with PROFINET specification
PushPull Power / PushPull Power
-40 °C...80 °C
5*1,5 mm <sup>2</sup>
AWG 16
9 mm
PUR
grey (similar to RAL 7001)
TPE
5
5 *diameter
24 V
16 A
EAC
<b>Note</b>

**Ordering data**

	1.0 m
	3.0 m
	5.0 m
	10.0 m
	15.0 m
	20.0 m
<b>Note</b>	

Type	Qty.	Order No.
IE-CSPS5VS0010VAPVAP-X	1	1350120010
IE-CSPS5VS0030VAPVAP-X	1	1350120030
IE-CSPS5VS0050VAPVAP-X	1	1350120050
IE-CSPS5VS0100VAPVAP-X	1	1350120100
IE-CSPS5VS0150VAPVAP-X	1	1350120150
IE-CSPS5VS0200VAPVAP-X	1	1350120200
Other lengths available on request		

Type	Qty.	Order No.
IE-CSPD5US0050VAPVAP-X	1	1403680050
IE-CSPD5US0100VAPVAP-X	1	1403680100
IE-CSPD5US0150VAPVAP-X	1	1403680150
<b>Note</b>		

**Accessories**

<b>Sheathing stripper</b>
For UTP and STP data cables
For coaxial and round data cables
<b>Markers</b>
Insertion label, yellow, 12 mm
Insertion label, yellow, 18 mm

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687

<b>Note</b>
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<b>Note</b>
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<b>Note</b>
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## Assembled cables – PROFINET cable M12

## Assembled cable

## Dragline cable M12

- Cat. 5
- PUR
- D-coded
- PROFINET type C

## M12 - M12

## Plug / plug



## M12 - M12

## Plug / socket



M12		M12
1	yellow	1
2	white	2
3	orange	3
4	blue	4

M12		M12
1	yellow	1
2	white	2
3	orange	3
4	blue	4

## Technical data

Product type
Category
Shielding
Version connector left / Version connector right
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation diameter
Min. bending radius, repetitive
Min. bending radius, once only
Bending cycles
Speed
Acceleration
Pulling force
Ambient temperature (operational)
Installation temperature
Storage temperature
Abrasion resistance
Halogen
Resistance to spread of flame
Resistance to oils
Approvals

Dragline cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
M12 D-code - IP67 straight pin / M12 D-code - IP67 straight pin
4*AWG 22/7 - 0.36 mm <sup>2</sup>
6.7 mm
PUR
green (RAL 6018)
1.5 mm
7.5 *diameter
5 *diameter
3 Mio
180 m/min
4 m/s <sup>2</sup>
≤ 150 N
-40 °C...70 °C
-20 °C...60 °C
-50 °C...70 °C
very good
halogen-free, according to IEC 60754-2
in accordance with IEC 60332-1
in accordance with IEC 60811-2-1
CULUS

Dragline cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
M12 D-code - IP67 straight pin / M12 D-code - IP67 straight socket
4*AWG 22/7 - 0.36 mm <sup>2</sup>
6.7 mm
PUR
green (RAL 6018)
1.5 mm
7.5 *diameter
5 *diameter
3 Mio
180 m/min
4 m/s <sup>2</sup>
≤ 150 N
-40 °C...70 °C
-20 °C...60 °C
-50 °C...70 °C
very good
halogen-free, according to IEC 60754-2
in accordance with IEC 60332-1
in accordance with IEC 60811-2-1
CULUS

## Note

## Ordering data

0.5 m
1.5 m
3.0 m
5.0 m
10.0 m

## Note

Type	Qty.	Order No.
IE-C5DD4UG0005MCSMCS-E	1	1025950005
IE-C5DD4UG0015MCSMCS-E	1	1025950015
IE-C5DD4UG0030MCSMCS-E	1	1025950030
IE-C5DD4UG0050MCSMCS-E	1	1025950050
IE-C5DD4UG0100MCSMCS-E	1	1025950100

Type	Qty.	Order No.
IE-C5DD4UG0015MSSMCS-E	1	1059330015
IE-C5DD4UG0030MSSMCS-E	1	1059330030
IE-C5DD4UG0050MSSMCS-E	1	1059330050
IE-C5DD4UG0100MSSMCS-E	1	1059330100

## Accessories

Markers	
Insertion label, yellow, 12 mm	
Insertion label, yellow, 18 mm	

## Mounting tool

Tool set
Tool set with torque function
Screwty-M12-DM
Screwty-M12

Type	Qty.	Order No.
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687

Screwty Set
Screwty Set -DM
Screwty-M12-DM
Screwty-M12

Type	Qty.	Order No.
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687

Screwty Set
Screwty Set -DM
Screwty-M12-DM
Screwty-M12

## Note





**Assembled cables – PROFINET cable M12**

**Assembled cables**

**M12 dragline cable, angled**

- Cat. 5
- PUR
- D-coded
- PROFINET type C

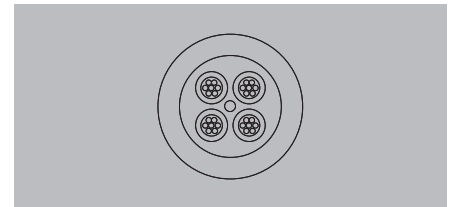
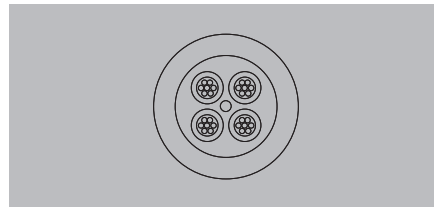
**M12 - M12**

Plug / plug



**M12 - M12**

Plug / plug



**Technical data**

Product type  
Category  
Shielding  
Version connector left / Version connector right

Cross-section  
Sheath diameter, max.  
Material sheath  
Sheathing colour  
Insulation diameter, min. / max.  
Min. bending radius, repetitive  
Ambient temperature (operational)  
Installation temperature  
Storage temperature  
Abrasion resistance  
Halogen  
Resistance to oils  
Fire safety for railway vehicles

**Note**

Dragline cable  
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)  
SF/UTP  
M12 D-code - IP67 straight pin / M12 D-code - IP67 straight pin

4\*AWG 22/7 - 0.36 mm<sup>2</sup>  
6.7 mm  
PUR  
green (RAL 6018)  
1.5 mm  
7.5 \*diameter  
-40 °C...70 °C  
-20 °C...60 °C  
-50 °C...70 °C  
very good  
halogen-free, according to IEC 60754-2  
in accordance with IEC 60811-2-1

Dragline cable  
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)  
SF/UTP  
M12 D-code - IP67 angled pin / M12 D-code - IP67 angled pin

4\*AWG 22/7 - 0.36 mm<sup>2</sup>  
6.7 mm  
PUR  
green (RAL 6018)  
1.5 mm  
7.5 \*diameter  
-40 °C...70 °C  
-20 °C...60 °C  
-50 °C...70 °C  
very good  
halogen-free, according to IEC 60754-2  
in accordance with IEC 60811-2-1

**Ordering data**

Cat. 5 PROFINET. PUR. M12 straight-M12 angled	
	1.5 m
	3.0 m
	5.0 m
	10.0 m
Cat. 5 PROFINET. PUR. M12 angled-M12 angled	
	1.5 m
	3.0 m
	5.0 m
	10.0 m
Cat. 5. PUR. M12 angled-open	
	1.5 m
	3.0 m
	5.0 m
	10.0 m

**Note**

Type	Qty.	Order No.
IE-C5DD4UG0015MCSMCA-E	1	1059770015
IE-C5DD4UG0030MCSMCA-E	1	1059770030
IE-C5DD4UG0050MCSMCA-E	1	1059770050
IE-C5DD4UG0100MCSMCA-E	1	1059770100

Type	Qty.	Order No.
IE-C5DD4UG0015MCAMCA-E	1	1059890015
IE-C5DD4UG0030MCAMCA-E	1	1059890030
IE-C5DD4UG0050MCAMCA-E	1	1059890050
IE-C5DD4UG0100MCAMCA-E	1	1059890100

**Accessories**

Markers	
	Insertion label, yellow, 12 mm
	Insertion label, yellow, 18 mm
	Transparent sleeves, 12-mm length
	Transparent sleeves, 18-mm length

**Note**

Type	Qty.	Order No.
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

Type	Qty.	Order No.
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000



## Assembled cables – PROFINET cable M12

## Assembled cables

## System cable M12 flange

- Cat. 5
- PUR
- D-coded
- PROFINET type B

## M12 flange - M12 male

Plug / socket



## M12 flange - RJ45

Plug / socket



M12		M12
1	yellow	1
2	white	2
3	orange	3
4	blue	4

M12		M12
1	yellow	1
2	white	2
3	orange	3
4	blue	4

## Technical data

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	360° shield contact
Version connector left / Version connector right	M12 D-code - flange / M12 D-code - pin straight
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation diameter	1.5 mm
Min. bending radius, repetitive	15 x cable diameter
Min. bending radius, once only	5 x cable diameter
Ambient temperature (operational)	-40 °C...70 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-50 °C...70 °C
Approvals	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	360° shield contact
Version connector left / Version connector right	M12 D-code - flange / M12 D-code - pin straight
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation diameter	1.5 mm
Min. bending radius, repetitive	15 x cable diameter
Min. bending radius, once only	5 x cable diameter
Ambient temperature (operational)	-40 °C...70 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-50 °C...70 °C
Approvals	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	360° shield contact
Version connector left / Version connector right	M12 D-code - flange / RJ45 IP20
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation diameter	1.5 mm
Min. bending radius, repetitive	15 x cable diameter
Min. bending radius, once only	5 x cable diameter
Ambient temperature (operational)	-40 °C...70 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-50 °C...70 °C
Approvals	

## Note

## Ordering data

	0.5 m
	1.0 m
	1.5 m
	2.0 m
	5.0 m

Type	Qty.	Order No.
IE-C5DS4UG0005MBSMCS-E	1	1244130005
IE-C5DS4UG0010MBSMCS-E	1	1244130010
IE-C5DS4UG0015MBSMCS-E	1	1244130015
IE-C5DS4UG0020MBSMCS-E	1	1244130020
IE-C5DS4UG0050MBSMCS-E	1	1244130050

Type	Qty.	Order No.
IE-C5DS4UG0005MBSA20-E	1	1234750005
IE-C5DS4UG0010MBSA20-E	1	1234750010
IE-C5DS4UG0015MBSA20-E	1	1234750015
IE-C5DS4UG0020MBSA20-E	1	1234750020
IE-C5DS4UG0050MBSA20-E	1	1234750050

## Note

## Accessories

Markers	
	Insertion label, yellow, 12 mm
	Insertion label, yellow, 18 mm
Mounting tool	
	Tool set
	Tool set with torque function
	Screwty-M12-DM
	Screwty-M12
Dust protection cap	
	Protective cap

Type	Qty.	Order No.
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687
Screwty Set		
Screwty Set	1	1910000000
Screwty Set -DM	1	1920000000
Screwty-M12-DM	1	1900001000
Screwty- M12	1	1900000000

Type	Qty.	Order No.
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687
Screwty Set		
Screwty Set	1	1910000000
Screwty Set -DM	1	1920000000
Screwty-M12-DM	1	1900001000
Screwty- M12	1	1900000000
IE-PP-RJ45	10	2552580000

## Note

**Assembled cables****System cable M12 flange**

- Cat. 5
- PUR
- D-coded
- PROFINET type B

**M12 flange - open**

Socket / -



	M12
yellow	1
white	2
orange	3
blue	4

**Technical data**

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	360° shield contact
Version connector left / Version connector right	M12 D-code - flange / Open
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation diameter	1.5 mm
Min. bending radius, repetitive	15 x cable diameter
Min. bending radius, once only	5 x cable diameter
Ambient temperature (operational)	-40 °C...70 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-50 °C...70 °C
Approvals	

Approvals	
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**Note****Ordering data**

	0.5 m
	1.0 m
	1.5 m
	2.0 m
	5.0 m

Type	Qty.	Order No.
IE-C5DS4UG0005MBSXXX-E	1	1234770005
IE-C5DS4UG0010MBSXXX-E	1	1234770010
IE-C5DS4UG0015MBSXXX-E	1	1234770015
IE-C5DS4UG0020MBSXXX-E	1	1234770020
IE-C5DS4UG0050MBSXXX-E	1	1234770050

**Note****Accessories**

<b>Markers</b>	Insertion label, yellow, 12 mm
	Insertion label, yellow, 18 mm
<b>Mounting tool</b>	Tool set
	Tool set with torque function
	Screwty-M12-DM
	Screwty-M12
<b>Dust protection cap</b>	Protective cap

Type	Qty.	Order No.
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687
Screwty Set	1	1910000000
Screwty Set-DM	1	1920000000
Screwty-M12-DM	1	1900001000
Screwty-M12	1	1900000000

**Note**

Assembled cables – PROFINET cable M12

Assembled cable

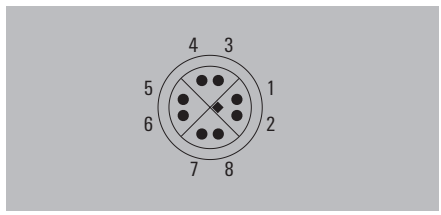
Connecting cable M12

- Cat. 6
- PVC
- X-type
- PROFINET type B

M12 - M12



M12 - open



M12	1	white, orange	1	M12
	2	orange	2	
	3	white, green	3	
	4	green	4	
	5	white, brown	5	
	6	brown	6	
	7	white, blue	7	
	8	blue	8	

	White, Orange	1	M12
	Orange	2	
	White, Green	3	
	Green	4	
	White, Brown	5	
	Brown	6	
	White, Blue	7	
	Blue	8	

Technical data

Product type	Connecting cables
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	M12 X-type IP67 straight male / M12 X-type IP67 straight male
Cross-section	4*2*AWG 23/7
Sheath diameter, max.	8.8 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation diameter	1.58 mm
Min. bending radius, repetitive	8 *diameter
Min. bending radius, once only	4 *diameter
Pulling force	≤ 150 N
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-40 °C...80 °C
Storage temperature	-40 °C...80 °C
Halogen	
Resistance to spread of flame	in accordance with IEC 60332-1-2
Standard, assembly	UL-Style 2461
Approvals	
<b>Note</b>	

Product type	Connecting cables
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	M12 X-type IP67 straight male / Open
Cross-section	4*2*AWG 23/7
Sheath diameter, max.	8.8 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation diameter	1.58 mm
Min. bending radius, repetitive	8 *diameter
Min. bending radius, once only	4 *diameter
Pulling force	≤ 150 N
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-40 °C...80 °C
Storage temperature	-40 °C...80 °C
Halogen	
Resistance to spread of flame	in accordance with IEC 60332-1-2
Standard, assembly	UL-Style 2461
Approvals	
<b>Note</b>	

Product type	Connecting cables
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	M12 X-type IP67 straight male / Open
Cross-section	4*2*AWG 23/7
Sheath diameter, max.	8.8 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation diameter	1.58 mm
Min. bending radius, repetitive	8 *diameter
Min. bending radius, once only	4 *diameter
Pulling force	≤ 150 N
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-40 °C...80 °C
Storage temperature	-40 °C...80 °C
Halogen	
Resistance to spread of flame	in accordance with IEC 60332-1-2
Standard, assembly	UL-Style 2461
Approvals	
<b>Note</b>	

Ordering data

Type	Qty.	Order No.
IE-C6KS8VG0005XCSXCS-E	1	1398070005
IE-C6KS8VG0015XCSXCS-E	1	1398070015
IE-C6KS8VG0030XCSXCS-E	1	1398070030
IE-C6KS8VG0050XCSXCS-E	1	1398070050
IE-C6KS8VG0100XCSXCS-E	1	1398070100

Type	Qty.	Order No.
IE-C6KS8VG0005XCSXXX-E	1	1449470005
IE-C6KS8VG0015XCSXXX-E	1	1449470015
IE-C6KS8VG0050XCSXXX-E	1	1449470050
IE-C6KS8VG0100XCSXXX-E	1	1449470100

Type	Qty.	Order No.
IE-C6KS8VG0005XCSXXX-E	1	1449470005
IE-C6KS8VG0015XCSXXX-E	1	1449470015
IE-C6KS8VG0050XCSXXX-E	1	1449470050
IE-C6KS8VG0100XCSXXX-E	1	1449470100

Accessories

Type	Qty.	Order No.
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687

Type	Qty.	Order No.
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687

Type	Qty.	Order No.
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687

**Note**

**Note**

**Note**

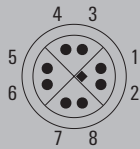
## Assembled cables

## M12 connecting cables

- Cat. 6
- PUR
- X-type

## M12 - RJ45

Plug / plug



RJ45		M12
1	White, Orange	1
2	Orange	2
3	White, Green	3
4	Blue	8
5	White, Blue	7
6	Green	4
7	White, Brown	5
8	Brown	6

## Technical data

Product type	System cable
Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 / M12 X-type IP67 straight male
Cross-section	4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation diameter	0.98 mm
Min. bending radius, repetitive	10 *diameter
Min. bending radius, once only	5 *diameter
Pulling force	
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-20 °C...60 °C
Storage temperature	-40 °C...80 °C
Halogen	halogen-free, according to IEC 60754-1
Resistance to spread of flame	in accordance with IEC 60332-1-2
Standard, assembly	UL Style 20963
Approvals	

## Note

## Ordering data

	1.0 m
	2.0 m
	3.0 m
	5.0 m
	10.0 m
	12.0 m

## Note

Type	Qty.	Order No.
IE-C6EL8UG0010U40XCS-E	1	1457580010
IE-C6EL8UG0020U40XCS-E	1	1457580020
IE-C6EL8UG0030U40XCS-E	1	1457580030
IE-C6EL8UG0050U40XCS-E	1	1457580050
IE-C6EL8UG0100U40XCS-E	1	1457580100
IE-C6EL8UG0120U40XCS-E	1	1457580120

## Accessories

Markers	
	Insertion label, yellow, 12 mm
	Insertion label, yellow, 18 mm

## Dust protection cap

Protective cap

Type	Qty.	Order No.
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687

IE-PP-RJ45	10	2552580000
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## Note

## Assembled cables – EtherNet/IP

## Assembled cables

## EtherNet/IP patch cable

- in PUR

## V1 RJ45 IP67 - metal



RJ45			RJ45
1	white (orange)	1	RJ45
2	orange	2	
3	white (green)	3	
4	blue	4	
5	white (blue)	5	
6	green	6	
7	white (brown)	7	
8	brown	8	

## V1 RJ45 IP67 - plastic



RJ45			RJ45
1	white (orange)	1	RJ45
2	orange	2	
3	white (green)	3	
4	blue	4	
5	white (blue)	5	
6	green	6	
7	white (brown)	7	
8	brown	8	

## Technical data

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP67 Baymo V01 metal / RJ45 IP67 Baymo V01 metal
Cross-section	4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
Sheath diameter, max.	6.1 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation diameter	1 mm
Min. bending radius, repetitive	10 *diameter
Min. bending radius, once only	5 *diameter
Ambient temperature (operational)	-40 °C...80 °C
Installation temperature	-10 °C...60 °C
Storage temperature	-40 °C...80 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to spread of flame	in accordance with IEC 60332-1
Resistance to oils	in accordance with IEC 60811-2-1
Approvals	CULUS

## Note

## Ordering data

	1.0 m
	2.0 m
	5.0 m
	10.0 m

## Note

## Accessories

Markers	
	Insertion label, yellow, 12 mm
	Insertion label, yellow, 18 mm

## Note

Type	Qty.	Order No.
IE-C5ES8UG0010B41B41-E	1	1066850000
IE-C5ES8UG0020B41B41-E	1	1066860000
IE-C5ES8UG0050B41B41-E	1	1066870000
IE-C5ES8UG0100B41B41-E	1	1066880000

Type	Qty.	Order No.
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687

Type	Qty.	Order No.
IE-C5ES8UG0010P41P41-E	1	1106010000
IE-C5ES8UG0020P41P41-E	1	1106020000
IE-C5ES8UG0050P41P41-E	1	1106030000
IE-C5ES8UG0100P41P41-E	1	1106040000

Type	Qty.	Order No.
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687



## Assembled cable Railway cable M12

- Cat. 5
- Radox
- D-coded

### M12 - M12

Plug / plug



M12		M12
1	yellow	1
2	white	2
3	orange	3
4	blue	4

### M12 - M12

Plug / socket



M12		M12
1	yellow	1
2	white	2
3	orange	3
4	blue	4

### Technical data

Product type
Category
Shielding
Version connector left / Version connector right
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation diameter
Min. bending radius, repetitive
Ambient temperature (operational)
Installation temperature
Storage temperature
Abrasion resistance
Halogen
Resistance to oils
Fire safety for railway vehicles

System cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
M12 D-code - IP67 straight pin / M12 D-code - IP67 straight pin
2*2*AWG 22/7 - 2*2*0.36 mm <sup>2</sup>
7.55 mm
Radox GKW S
Black
1.95 mm
6 *diameter
-40 °C...90 °C
-25 °C...90 °C
-40 °C...90 °C
very good
halogen-free, according to IEC 60754-2
in accordance with EN 50306-3
According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2, According to EN 45545, HL1 - HL3
CULUS

System cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
M12 D-code - IP67 straight pin / M12 D-code - IP67 straight socket
2*2*AWG 22/7 - 2*2*0.36 mm <sup>2</sup>
7.55 mm
Radox GKW S
Black
1.95 mm
6 *diameter
-40 °C...90 °C
-25 °C...90 °C
-40 °C...90 °C
very good
halogen-free, according to IEC 60754-2
in accordance with EN 50306-3
According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2, According to EN 45545, HL1 - HL3
CULUS

Approvals

Note

### Ordering data

1.5 m
3.0 m
5.0 m
10.0 m

Note

Type	Qty.	Order No.
IE-C5DB4RE0015MCSMCS-E	1	1010850015
IE-C5DB4RE0030MCSMCS-E	1	1010850030
IE-C5DB4RE0050MCSMCS-E	1	1010850050
IE-C5DB4RE0100MCSMCS-E	1	1010850100

Type	Qty.	Order No.
IE-C5DB4RE0015MSSMCS-E	1	1059340015
IE-C5DB4RE0030MSSMCS-E	1	1059340030
IE-C5DB4RE0050MSSMCS-E	1	1059340050
IE-C5DB4RE0100MSSMCS-E	1	1059340100

### Accessories

Markers	
	Insertion label, yellow, 12 mm
	Insertion label, yellow, 18 mm

Type	Qty.	Order No.
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687

Type	Qty.	Order No.
TM-I 12 MC NE GE	320	1718411687
TM-I 18 MC NE GE	320	1718431687

Note

## Assembled cables - Railway cable M12

Assembled cable  
Railway cable M12

- Cat. 5
- Radox
- D-coded

## M12 - open

Plug / -



	M12
yellow	1
white	2
orange	3
blue	4

## Technical data

Product type
Category
Shielding
Version connector left / Version connector right
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation diameter
Min. bending radius, repetitive
Ambient temperature (operational)
Installation temperature
Storage temperature
Abrasion resistance
Halogen
Resistance to oils
Fire safety for railway vehicles

System cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
SF/UTP
M12 D-code - IP67 straight pin / Open
2*2*AWG 22/7 - 2*2*0.36 mm <sup>2</sup>
7.55 mm
Radox GKW S
Black
1.95 mm
6 *diameter
-40 °C...90 °C
-25 °C...90 °C
-40 °C...90 °C
very good
halogen-free, according to IEC 60754-2
in accordance with EN 50306-3
According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2, According to EN 45545, HL1 - HL3
CULUS

Approvals

Note

## Ordering data

1.5 m
3.0 m
5.0 m
10.0 m

Note

Type	Qty.	Order No.
IE-C5DB4RE0015MCSXXX-X	1	1010840015
IE-C5DB4RE0030MCSXXX-X	1	1010840030
IE-C5DB4RE0050MCSXXX-X	1	1010840050
IE-C5DB4RE0100MCSXXX-X	1	1010840100

## Accessories

## Sheathing stripper

For UTP and STP data cables
For coaxial and round data cables

## Markers

Insertion label, yellow, 12 mm
Insertion label, yellow, 18 mm

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TMH 12 MC NE GE	320	1718411687
TMH 18 MC NE GE	320	1718431687

Note

## Assembled cables

### Railway cable M12

- Cat. 5
- Radox
- D-coded

### M12 - M12

Plug / plug



M12		M12
1	yellow	1
2	white	2
3	orange	3
4	blue	4

### M12 - M12

Plug / plug



M12		M12
1	yellow	1
2	white	2
3	orange	3
4	blue	4

### Technical data

Product type  
Category  
Shielding  
Version connector left / Version connector right

Cross-section  
Sheath diameter, max.  
Material sheath  
Sheathing colour  
Insulation diameter, min. / max.  
Min. bending radius, repetitive  
Ambient temperature (operational)  
Installation temperature  
Storage temperature  
Abrasion resistance  
Halogen  
Resistance to oils  
Fire safety for railway vehicles

#### Note

### Ordering data

1.5 m
3.0 m
5.0 m
10.0 m

#### Note

### Accessories

Markers	
Insertion label, yellow, 12 mm	
Insertion label, yellow, 18 mm	
Transparent sleeves, 12-mm length	
Transparent sleeves, 18-mm length	

#### Note

System cable  
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)  
SF/UTP  
M12 D-code - IP67 straight pin / M12 D-code - IP67 angled pin

2\*2\*AWG 22/7 - 2\*2\*0.36 mm<sup>2</sup>  
7.55 mm  
Radox GKW S  
Black  
1.95 mm  
6 \*diameter  
-40 °C...90 °C  
-25 °C...90 °C  
-40 °C...90 °C  
very good  
halogen-free, according to IEC 60754-2  
in accordance with EN 50306-3  
According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2, According to EN 45545, HL1 - HL3

Type	Qty.	Order No.
IE-C5DB4RE0015MCSMCA-E	1	1059940015
IE-C5DB4RE0030MCSMCA-E	1	1059940030
IE-C5DB4RE0050MCSMCA-E	1	1059940050
IE-C5DB4RE0100MCSMCA-E	1	1059940100

Type	Qty.	Order No.
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

System cable  
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)  
SF/UTP  
M12 D-code - IP67 angled pin / M12 D-code - IP67 angled pin

2\*2\*AWG 22/7 - 2\*2\*0.36 mm<sup>2</sup>  
7.55 mm  
Radox GKW S  
Black  
1.95 mm  
6 \*diameter  
-40 °C...90 °C  
-25 °C...90 °C  
-40 °C...90 °C  
very good  
halogen-free, according to IEC 60754-2  
in accordance with EN 50306-3  
According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2, According to EN 45545, HL1 - HL3

Type	Qty.	Order No.
IE-C5DB4RE0015MCAMCA-E	1	1059970015
IE-C5DB4RE0030MCAMCA-E	1	1059970030
IE-C5DB4RE0050MCAMCA-E	1	1059970050
IE-C5DB4RE0100MCAMCA-E	1	1059970100

Type	Qty.	Order No.
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000

## Assembled cables - Railway cable M12

## Assembled cables

## Railway cable M12

- Cat. 5
- Radox
- D-coded

## M12 - open

Plug / -



	M12
yellow	1
white	2
orange	3
blue	4

## Technical data

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA T568-B)
Shielding	SF/UTP
Version connector left / Version connector right	M12 D-code - IP67 angled pin / Open
Cross-section	2*2*AWG 22/7 - 2*2*0.36 mm <sup>2</sup>
Sheath diameter, max.	7.55 mm
Material sheath	Radox GKW S
Sheathing colour	Black
Insulation diameter, min. / max.	1.95 mm
Min. bending radius, repetitive	6 *diameter
Ambient temperature (operational)	-40 °C...90 °C
Installation temperature	-25 °C...90 °C
Storage temperature	-40 °C...90 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to oils	in accordance with EN 50306-3
Fire safety for railway vehicles	According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2, According to EN 45545, HL1 - HL3
<b>Note</b>	

## Ordering data

	1.5 m	<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
	3.0 m	IE-C5DB4RE0015MCAXXX-X	1	<b>1059900015</b>
	5.0 m	IE-C5DB4RE0030MCAXXX-X	1	<b>1059900030</b>
	10.0 m	IE-C5DB4RE0050MCAXXX-X	1	<b>1059900050</b>
		IE-C5DB4RE0100MCAXXX-X	1	<b>1059900100</b>
<b>Note</b>				

## Accessories

<b>Markers</b>		<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
	Insertion label, yellow, 12 mm	TM-I 12 MC NE GE	320	<b>1718411687</b>
	Insertion label, yellow, 18 mm	TM-I 18 MC NE GE	320	<b>1718431687</b>
	Transparent sleeves, 12-mm length	TM 4/12 HF/HB	500	<b>1719840000</b>
	Transparent sleeves, 18-mm length	TM 4/18 HF/HB	500	<b>1719850000</b>
<b>Note</b>				

**Assembled cables**

**Railway cable RW M12**

- Cat. 5
- Radox
- D-coded
- RW (reduced wire): suitable for RJ45 connectors

**M12 - open**

Plug / -



**M12 - RJ45**

Plug / plug



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	M12
yellow	1
white	2
orange	3
blue	4

RJ45		M12
1	yellow	1
3	white	2
2	orange	3
6	blue	4

**Technical data**

Product type	System cable
Category	Cat.5 (ISO/IEC 11801)
Shielding	SF/UTP
Version connector left / Version connector right	M12 D-code - IP67 straight pin / Open
Cross-section	2*2*AWG 22/7 - 2*2*0.36 mm <sup>2</sup>
Sheath diameter, max.	7 mm
Material sheath	Radox GKW S
Sheathing colour	Black
Insulation diameter	1.58 mm
Min. bending radius, repetitive	6 *diameter
Ambient temperature (operational)	-40 °C...90 °C
Storage temperature	-40 °C...90 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to oils	in accordance with EN 50306-3
Fire safety for railway vehicles	According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2, According to EN 45545, HL1 - HL3
Approvals	
<b>Note</b>	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801)
Shielding	SF/UTP
Version connector left / Version connector right	M12 D-code - IP67 straight pin / RJ45 IP20 no tools needed
Cross-section	2*2*AWG 22/7 - 2*2*0.36 mm <sup>2</sup>
Sheath diameter, max.	7 mm
Material sheath	Radox GKW S
Sheathing colour	Black
Insulation diameter	1.58 mm
Min. bending radius, repetitive	6 *diameter
Ambient temperature (operational)	-40 °C...90 °C
Storage temperature	-40 °C...90 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to oils	in accordance with EN 50306-3
Fire safety for railway vehicles	According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2, According to EN 45545, HL1 - HL3
Approvals	
<b>Note</b>	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801)
Shielding	SF/UTP
Version connector left / Version connector right	M12 D-code - IP67 straight pin / RJ45 IP20 no tools needed
Cross-section	2*2*AWG 22/7 - 2*2*0.36 mm <sup>2</sup>
Sheath diameter, max.	7 mm
Material sheath	Radox GKW S
Sheathing colour	Black
Insulation diameter	1.58 mm
Min. bending radius, repetitive	6 *diameter
Ambient temperature (operational)	-40 °C...90 °C
Storage temperature	-40 °C...90 °C
Abrasion resistance	very good
Halogen	halogen-free, according to IEC 60754-2
Resistance to oils	in accordance with EN 50306-3
Fire safety for railway vehicles	According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2, According to EN 45545, HL1 - HL3
Approvals	
<b>Note</b>	

**Ordering data**

	4.0 m
	5.0 m
	10.0 m
<b>Note</b>	

Type	Qty.	Order No.
IE-C5DB4WE0050MCSXXX-E	1	1269740050
IE-C5DB4WE0100MCSXXX-E	1	1269740100

Type	Qty.	Order No.
IE-C5DB4WE0040MCSA20-E	1	1220310040

**Accessories**

<b>Sheathing stripper</b>	For UTP and STP data cables For coaxial and round data cables
<b>Markers</b>	Transparent sleeves. 12-mm length Transparent sleeves. 18-mm length
<b>Dust protection cap</b>	Protective cap
<b>Note</b>	

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
<b>Note</b>		

Type	Qty.	Order No.
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
IE-PP-RJ45	10	2552580000
<b>Note</b>		

## Assembled cables – Railway cable RJ45

## Assembled cables

## Railway cable RJ45 - RJ45

- Cat. 5
- Radox
- RW (reduced wire)

## RJ45 - RJ45

## Plug / plug



RJ45		RJ45
1	yellow	1
2	orange	2
3	white	3
6	blue	6

## Technical data

Product type
Category
Shielding
Version connector left / Version connector right
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation diameter
Min. bending radius, repetitive
Ambient temperature (operational)
Storage temperature
Abrasion resistance
Halogen
Resistance to oils
Fire safety for railway vehicles

## Approvals

## Note

System cable
Cat.5 (ISO/IEC 11801)
SF/UTP
RJ45 IP20 no tools needed / RJ45 IP20 no tools needed
2*2*AWG 22/7 - 2*2*0.36 mm <sup>2</sup>
7 mm
Radox GKW S
Black
1.58 mm
6 *diameter
-40 °C...90 °C
-40 °C...90 °C
very good
halogen-free, according to IEC 60754-2
in accordance with EN 50306-3
According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2, According to EN 45545, HL1 - HL3

## Ordering data

1.0 m
2.0 m
3.0 m
4.0 m
5.0 m
10.0 m
20.0 m

## Note

Type	Qty.	Order No.
IE-C5DB4WE0010A20A20-E	1	1421710010
IE-C5DB4WE0020A20A20-E	1	1421710020
IE-C5DB4WE0030A20A20-E	1	1421710030
IE-C5DB4WE0040A20A20-E	1	1421710040
IE-C5DB4WE0050A20A20-E	1	1421710050
IE-C5DB4WE0100A20A20-E	1	1421710100
IE-C5DB4WE0200A20A20-E	1	1421710200

## Accessories

## Markers

Transparent sleeves. 12-mm length
Transparent sleeves. 18-mm length

## Dust protection cap

Protective cap

Type	Qty.	Order No.
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
IE-PP-RJ45	10	2552580000

## Note

**Assembled cables**  
**USB cable**

**USB A - USB A**



**USB A - USB Micro**



**Technical data**

Sheathing colour
Material sheath
Version connector left
Version connector right
Ambient temperature (operational)
<b>Note</b>

Black
PVC
USB A
USB A
-15 °C...80 °C
<b>Note</b>

Black
PVC
USB A
USB Micro
-15 °C...80 °C
<b>Note</b>

**Ordering data**

	0.5 m
	1.0 m
	1.5 m
	1.8 m
	3.0 m
<b>Note</b>	

Type	Qty.	Order No.
IE-USB-A-A-0.5M	1	1993550005
IE-USB-A-A-1.0M	1	1993550010
IE-USB-A-A-1.5M	1	1993550015
IE-USB-A-A-1.8M	1	1993550018
IE-USB-A-A-3.0M	1	1993550030
<b>Note</b>		

Type	Qty.	Order No.
IE-USB-A-MICRO-1.8M	1	1487980000
<b>Note</b>		

**Accessories**

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>

<b>Note</b>
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<b>Note</b>
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<b>Note</b>
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## Assembled cables - USB cable

Assembled cables  
USB cable

## USB A 3.0 - USB A 3.0



## Technical data

Sheathing colour  
Material sheath  
Version connector left  
Version connector right  
Ambient temperature (operational)

## Note

Blue  
PVC  
USB A 3.0  
USB A 3.0  
-15 °C...80 °C

## Ordering data

0.5 m  
1.8 m  
3.0 m  
5.0 m

## Note

Type	Qty.	Order No.
IE-USB-3.0-A-A-0.5M	1	2581730005
IE-USB-3.0-A-A-1.8M	1	2581730018
IE-USB-3.0-A-A-3M	1	2581730030
IE-USB-3.0-A-A-5M	1	2581730050

## Accessories

Type	Qty.	Order No.

## Note



# Fibre-optic cabling solutions

## Overview

<b>Fibre-optic cabling solutions</b>	Overview - Fibre-optic cables	M.2
	Product configurator - Fibre-optic cables	M.4
	Raw cables - FO connection cable / dragline cable	M.5
	Assembled cables - FO patch cable	M.7
	Assembled cables - FO PROFINET cable	M.12
	Assembled cables - FO dragline cable	M.13

# Overview – Fibre-optic cables

## First choice for industry

Fibre-optic cables are the best option for working in harsh industrial environments, especially if you:

- Need long transmission paths (up to 120 km!)
- Need to take account of EMC issues
- Must ensure electrical isolation in the case of potential differences

### Raw cables

#### Industrial fibre-optic dragline cable



For flexible installations in and around machinery and plants – for harsh, industrial surroundings, dragline cable compatible

- Polymer optic fibre (POF)
- Multimode glass fibre
- Breakout cable
- Zipcord cable
- Cable by the metre for assembling your own connecting cables

### Assembled cables

#### Industrial FO patch cables



...for use in industrial switching cabinets or junction boxes

- Multimode glass fibre
- Zipcord cable

#### Industrial FO adapter cables



...for linking ST and SC connections

- Multimode glass fibre
- Zipcord cable

#### Industrial fibre-optic dragline cable

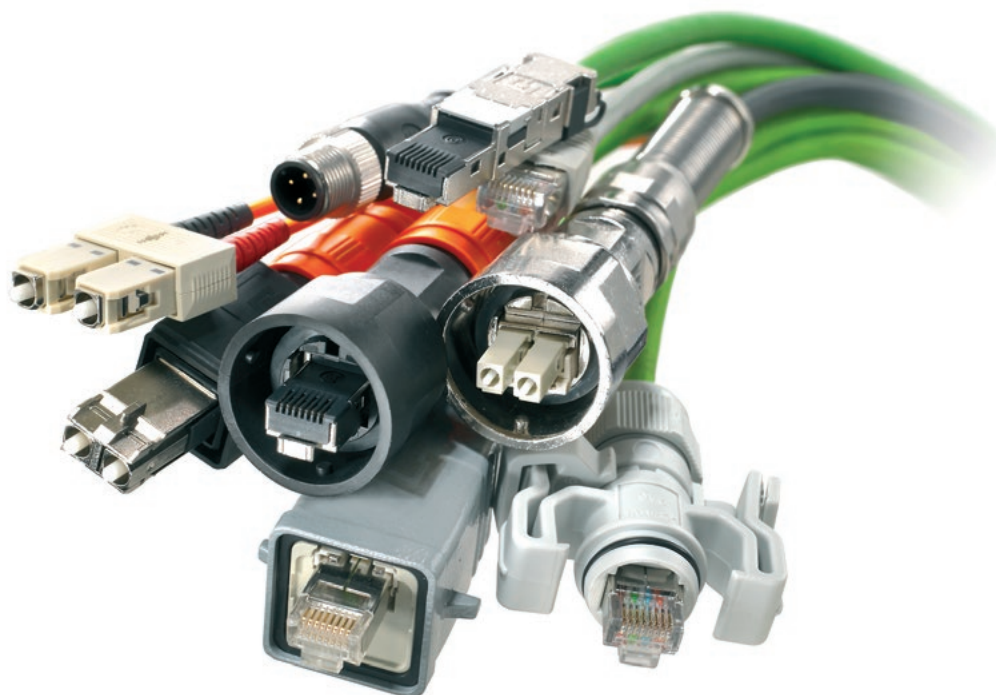


...for flexible installations in and around machinery and plants – for harsh, industrial surroundings, dragline cable compatible

- Multimode fibre-optic
- Breakout cable
- Pre-assembled cable

**Ordering data for Fibre-optic cables (FO), sold by the metre**

Type	Breakout/ Zipcord	Plug-in connector		Length	Metre goods						
		left	right								
<b>GOF dragline, standard temperature range</b>											
IE-FM5D2UE-MW	Breakout	-	-	8946000000							
IE-FM6D2UE-MW	Breakout	-	-	8956060000							
<b>GOF dragline, extended temperature range</b>											
IE-FM5C2UE-MW	Breakout	-	-	8956070000							
IE-FM6C2UE-MW	Breakout	-	-	8956050000							
<b>POF</b>											
IE-FPOZ2EE-MW	Zipcord	-	-	1242820000							
IE-FPOD2UE-MW	Breakout, black	-	-	1172280000							
IE-FPOD2UG-MW	Breakout, green	-	-	1398770000							



# Configurators for fibre-optic cables

## Tailor-made connections

The cable configurator in Weidmüller's online catalogue makes it possible for you to create a fully-assembled cable adapted to your requirements and specifications.

A variety of plug types in the following protective classes are available:

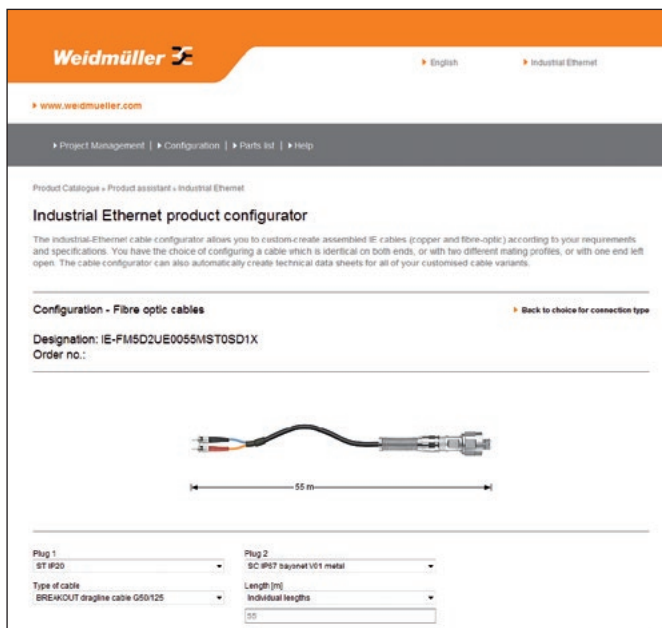
### IP20

- SCRJ
- ST
- LC Duplex
- SC duplex

### IP67

- Variant 1, metal with SC- or LC-Duplex plugs
- Variant 4, plastic with SC- or LC-Duplex plugs
- Additional housing variants to follow shortly.
- Variant 14, metal with SC or LC Duplex plugs

You then have the choice of configuring a cable which is identical on both ends, or with two different mating profiles, or with one end left open.



When selecting the cable, the following types are available:

- Zipcord, inner conductor G50 µm/125 µm and G62.5 µm/125 µm with PVC sheath
- Breakout, interior wire G50 µm/125 µm and G62.5 µm/125 µm with PVC sheath
- Breakout dragline cable, inner conductor G50 µm/125 µm and G62.5 µm/125 µm with PUR sheath.
- Zipcord inner conductor POF 980/1000 µm with PE sheathing

The cable length can also be customised:

- From 0.3 m to 9.9 m, in 0.1 m steps
- From 10 m to 9999 m, in 1 m steps

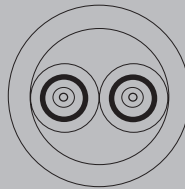
The cable configurator can also automatically create technical data sheets for all of your customised cable variants.

All of your customised cable selections can be sent to Weidmüller using the "request list". You will then quickly receive a price proposal for the cables from your local Weidmüller representative.

**Raw cables**

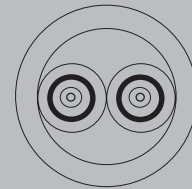
- Multimode glass optical fibre
- Customisable

**Dragline cable**



**Dragline cable**

Extended temperature range



**Technical data**

Product type
Cable layout
Sheath diameter
Material sheath
Sheathing colour
Min. bending radius, repetitive
Min. bending radius, once only
Bending cycles
Ambient temperature (operational)
Installation temperature
Storage temperature
Approvals

**Note**

Dragline cable
Break-out dragline
6 mm
PUR
Black
77 mm
25 mm
100,000
-40 °C...80 °C
-20 °C...60 °C
-40 °C...80 °C

Dragline cable
Break-out dragline
7.5-8 mm
PUR
Black
70 mm
25 mm
100,000
-40 °C...85 °C
-55 °C...60 °C
-55 °C...85 °C

**Ordering data**

<b>Core 62.5 µm, OM1</b>	By the meter starting at 50.0 m
--------------------------	---------------------------------

<b>Core 50 µm, OM2</b>	By the meter starting at 50.0 m
------------------------	---------------------------------

**Note**

Type	Qty.	Order No.
IE-FM6D2UE-MW		8956060000
IE-FM5D2UE-MW		8946000000

Order example, for cut cable: 150 x "article number" = 150 m on drum

Type	Qty.	Order No.
IE-FM6C2UE-MW		8956050000
IE-FM5C2UE-MW		8956070000

Order example, for cut cable: 150 x "article number" = 150 m on drum

**Accessories**

<b>Markers</b>	Insertion label, yellow, 12 mm
	Insertion label, yellow, 18 mm
	Transparent sleeves, 12-mm length
	Transparent sleeves, 18-mm length
	Wire and cable marker, ø 4.7 - 7.4 mm
	Wire and cable marker, ø 5.8 - 7.8 mm

**Tools**

	Crimping pliers GOF LC
	Crimping pliers GOF SC

Type	Qty.	Order No.
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
IE-CT-LC-GOF	1	9205330000
IE-CT-SC-GOF	1	9205320000

Type	Qty.	Order No.
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001
IE-CT-LC-GOF	1	9205330000
IE-CT-SC-GOF	1	9205320000

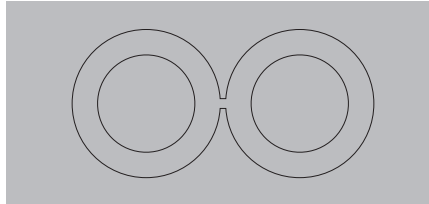
**Note**

Raw cables – FO connection cable / dragline cable

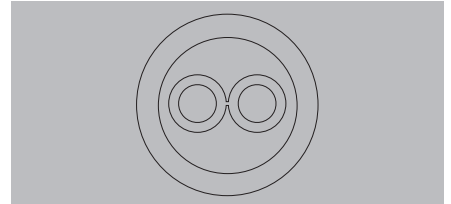
Raw cables

- Polymer optical fibre
- Customisable

Zipcord



Breakout



Technical data

Product type
Cable layout
Sheath diameter
Material sheath
Insulation
Min. bending radius, repetitive
Min. bending radius, once only
Bending cycles
Ambient temperature (operational)
Fibre type
Bandwidth
Attenuation
Core diameter
Installation temperature
Storage temperature
Halogen
Approvals

Connecting cables
ZIPCORD
2.2*4.5 mm
PE
25 mm
25 mm
10.000
-55 °C...85 °C
POF
≥ 100 MHz*km at 650 nm
≤ 160 dB/km at 650 nm
980 µm
-5 °C...50 °C
-55 °C...85 °C
No

Dragline cable
Break-out dragline
7,5 mm
PUR
60 mm
25 mm
100,000
-40 °C...85 °C
POF
> 35 MHz*100 m at 650 nm
≤ 160 dB/km at 650 nm
980 µm
-30 °C...60 °C
-40 °C...85 °C
No

Note

Ordering data

POF 980/1000 µm
Meter goods above 50.0 m. black
Meter goods above 50.0 m. green

Note

Type	Qty.	Order No.
IE-FPOZ2EE-MW		1242820000

Order example, for cut cable: 150 x "article number" = 150 m on drum

Type	Qty.	Order No.
IE-FPOD2UE-MW		1172280000
IE-FPOD2UG-MW		1398770000

Order example, for cut cable: 150 x "article number" = 150 m on drum

Accessories

Markers
Insertion label. yellow. 12 mm
Insertion label. yellow. 18 mm
Transparent sleeves. 12-mm length
Transparent sleeves. 18-mm length
Wire and cable marker. ø 4.7 - 7.4 mm
Wire and cable marker. ø 5.8 - 7.8 mm

Tools

Crimping tool POF
POF tool set

Type	Qty.	Order No.
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001

HTX-IE-POF	1	1208870000
TOOL SET IE-POF	1	1208930000

Type	Qty.	Order No.
TM-H 12 MC NE GE	320	1718411687
TM-H 18 MC NE GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 MC NE WS VO	160	1689470001
VT SF 6/21 MC NE WS VO	160	1730560001

HTX-IE-POF	1	1208870000
TOOL SET IE-POF	1	1208930000

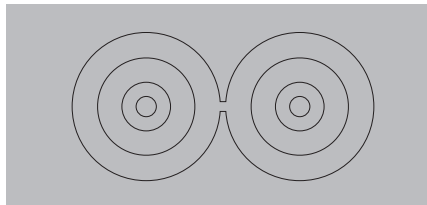
Note

## Assembled cables

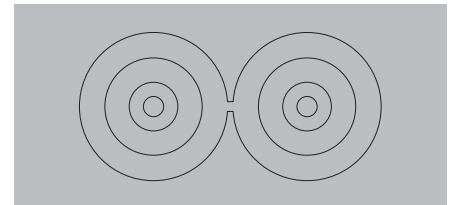
## CabinetLine FO patch cable

- Multimode glass optical fibre
- LSZH outer cladding

## SC-Duplex / SC-Duplex



## ST / ST



## Technical data

Product type
Cable layout
Sheath diameter
Material sheath
Sheathing colour
Ambient temperature (operational)
Installation temperature
Storage temperature
Approvals

## Note

Patch cable, duplex clip included
ZIPCORD
2.8 * 5.7 mm
LSZH
Orange
-20 °C...70 °C

## Note

Patch cable
ZIPCORD
2.8 * 5.7 mm
LSZH
Orange
-20 °C...70 °C

## Note

## Ordering data

Core 62.5 µm, OM1	
0.5 m	
1.0 m	
2.0 m	
3.0 m	
5.0 m	
10.0 m	

## Core 50 µm, OM2

0.5 m
1.0 m
2.0 m
3.0 m
5.0 m
10.0 m

## Note

Type	Qty.	Order No.
IE-FM6Z2L00005DSD0SD0-X	1	1433960005
IE-FM6Z2L00001MSD0SD0-X	1	1433960010
IE-FM6Z2L00002MSD0SD0-X	1	1433960020
IE-FM6Z2L00003MSD0SD0-X	1	1433960030
IE-FM6Z2L00005MSD0SD0-X	1	1433960050
IE-FM6Z2L00010MSD0SD0-X	1	1433960100

IE-FM5Z2L00005DSD0SD0-X	1	1433970005
IE-FM5Z2L00001MSD0SD0-X	1	1433970010
IE-FM5Z2L00002MSD0SD0-X	1	1433970020
IE-FM5Z2L00003MSD0SD0-X	1	1433970030
IE-FM5Z2L00005MSD0SD0-X	1	1433970050
IE-FM5Z2L00010MSD0SD0-X	1	1433970100

## Note

Type	Qty.	Order No.
IE-FM6Z2L00005DST0ST0-X	1	1433980005
IE-FM6Z2L00001MST0ST0-X	1	1433980010
IE-FM6Z2L00002MST0ST0-X	1	1433980020
IE-FM6Z2L00003MST0ST0-X	1	1433980030
IE-FM6Z2L00005MST0ST0-X	1	1433980050
IE-FM6Z2L00010MST0ST0-X	1	1433980100

IE-FM5Z2L00005DST0ST0-X	1	1433990005
IE-FM5Z2L00001MST0ST0-X	1	1433990010
IE-FM5Z2L00002MST0ST0-X	1	1433990020
IE-FM5Z2L00003MST0ST0-X	1	1433990030
IE-FM5Z2L00005MST0ST0-X	1	1433990050
IE-FM5Z2L00010MST0ST0-X	1	1433990100

## Note

## Accessories

Markers	
Wire and cable marker. ø 4.7 - 7.4 mm	
Wire and cable marker. ø 5.8 - 7.8 mm	

Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001

## Note

Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001

## Note

## Note

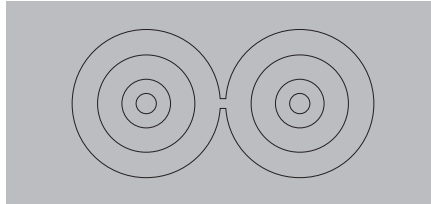
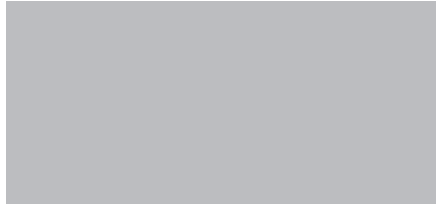
**Assembled cables - FO patch cable**

**Assembled cables**

**CabinetLine FO patch cable**

- Multimode glass optical fibre
- LSZH outer cladding

**LC-Duplex / LC-Duplex**



**Technical data**

Product type
Cable layout
Sheath diameter
Material sheath
Sheathing colour
Ambient temperature (operational)
Installation temperature
Storage temperature
Approvals
<b>Note</b>

Patch cable, duplex clip included
ZIPCORD
2.0 * 4.1 mm
LSZH
Orange
-20 °C...70 °C
<b>Note</b>

**Ordering data**

<b>Core 62.5 µm, OM1</b>	
0.5 m	
1.0 m	
2.0 m	
3.0 m	
5.0 m	
10.0 m	
<b>Core 50 µm, OM2</b>	
0.5 m	
1.0 m	
2.0 m	
3.0 m	
5.0 m	
10.0 m	
<b>Note</b>	

Type	Qty.	Order No.
IE-FM6Z2L00005DLDO-X	1	1433930005
IE-FM6Z2L00001MLDO-X	1	1433930010
IE-FM6Z2L00002MLDO-X	1	1433930020
IE-FM6Z2L00003MLDO-X	1	1433930030
IE-FM6Z2L00005MLDO-X	1	1433930050
IE-FM6Z2L00010MLDO-X	1	1433930100
IE-FM5Z2L00005DLDO-X	1	1433940005
IE-FM5Z2L00001MLDO-X	1	1433940010
IE-FM5Z2L00002MLDO-X	1	1433940020
IE-FM5Z2L00003MLDO-X	1	1433940030
IE-FM5Z2L00005MLDO-X	1	1433940050
IE-FM5Z2L00010MLDO-X	1	1433940100
<b>Note</b>		

**Accessories**

<b>Markers</b>
Wire and cable marker. ø 4.7 - 7.4 mm
Wire and cable marker. ø 5.8 - 7.8 mm

Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001
<b>Note</b>		

<b>Note</b>
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**Assembled cables - FO patch cable**

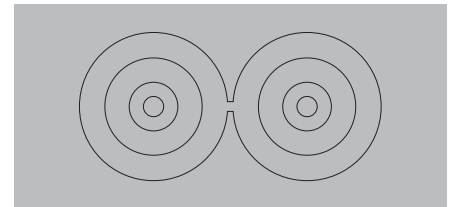
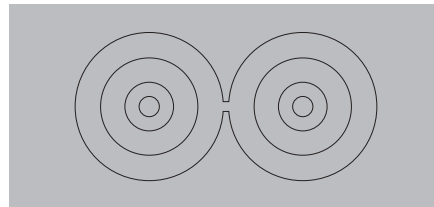
**Assembled cable**

**FO patch cable**

- Multimode glass optical fibre
- PVC outer cladding

**SC-Duplex / SC-Duplex**

**ST / ST**



**Technical data**

Product type
Cable layout
Sheath diameter
Material sheath
Sheathing colour
Ambient temperature (operational)
Installation temperature
Storage temperature
Approvals
Note

Pre-assembled patch cable, crossover
ZIPCORD
3*6 mm
PVC
Orange
-5 °C...75 °C
-5 °C...50 °C
-25 °C...75 °C
Note

Patch cable
ZIPCORD
3*6 mm
PVC
Orange
-5 °C...75 °C
-5 °C...50 °C
-25 °C...75 °C
Note

**Ordering data**

Core 50 µm, OM2	
1.0 m	
2.0 m	
3.0 m	
5.0 m	
10.0 m	
Core 62.5 µm, OM1	
1.0 m	
2.0 m	
3.0 m	
5.0 m	
10.0 m	
Note	

Type	Qty.	Order No.
IE-FM5Z2V00001MSD0SD0X	1	8813300000
IE-FM5Z2V00002MSD0SD0X	1	8813310000
IE-FM5Z2V00003MSD0SD0X	1	8813320000
IE-FM5Z2V00005MSD0SD0X	1	8876350050
IE-FM5Z2V00010MSD0SD0X	1	8876350100
IE-FM6Z2V00001MSD0SD0X	1	8813330000
IE-FM6Z2V00002MSD0SD0X	1	8813340000
IE-FM6Z2V00003MSD0SD0X	1	8813350000
IE-FM6Z2V00005MSD0SD0X	1	8876360050
IE-FM6Z2V00010MSD0SD0X	1	8876360100
Note		

Type	Qty.	Order No.
IE-FM5Z2V00005MST0ST0X	1	8876370050
IE-FM5Z2V00010MST0ST0X	1	8876370100
IE-FM6Z2V00001MST0ST0X	1	8813270000
IE-FM6Z2V00002MST0ST0X	1	8813280000
IE-FM6Z2V00003MST0ST0X	1	8813290000
IE-FM6Z2V00005MST0ST0X	1	8876380050
IE-FM6Z2V00010MST0ST0X	1	8876380100
Note		

**Accessories**

Markers
Wire and cable marker. ø 4.7 - 7.4 mm
Wire and cable marker. ø 5.8 - 7.8 mm
Note

Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001
Note		

Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001
Note		

Note
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Note
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Note
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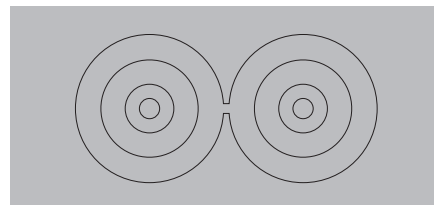
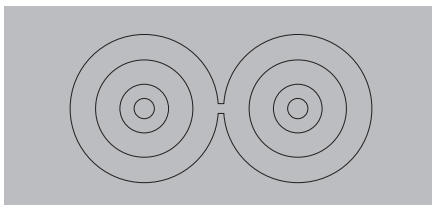
**Assembled cable**  
**FO patch cable**

- Multimode glass optical fibre
- PVC outer cladding

**ST / SC-Duplex**



**LC-Duplex / LC-Duplex**



**Technical data**

Product type
Cable layout
Sheath diameter
Material sheath
Sheathing colour
Ambient temperature (operational)
Installation temperature
Storage temperature
Approvals
Note

Pre-assembled patch cable, crossover
ZIPCORD
3*6 mm
PVC
Orange
-5 °C...75 °C
-5 °C...50 °C
-25 °C...75 °C
Note

Pre-assembled patch cable, crossover
ZIPCORD
3*6 mm
PVC
Orange
-5 °C...75 °C
-5 °C...50 °C
-25 °C...75 °C
Note

**Ordering data**

<b>Core 62.5 µm, OM1</b>
1.0 m
2.0 m
<b>Core 50 µm, OM2</b>
1.0 m
2.0 m
5.0 m
10.0 m
Note

Type	Qty.	Order No.
IE-FM6Z2V00002MSTOSDOX	1	8813400000
IE-FM5Z2V00002MSTOSDOX	1	8813390000
Note		

Type	Qty.	Order No.
IE-FM6Z2V00001MLDOLD0X	1	1296450000
IE-FM5Z2V00001MLDOLD0X	1	1276880000
IE-FM5Z2V00002MLDOLD0X	1	1062570000
IE-FM5Z2V00005MLDOLD0X	1	1062550000
IE-FM5Z2V00010MLDOLD0X	1	1062580000
Note		

**Accessories**

<b>Markers</b>
Wire and cable marker. ø 4.7 - 7.4 mm
Wire and cable marker. ø 5.8 - 7.8 mm

Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001
Note		

Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001
Note		

Note
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Note
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Note
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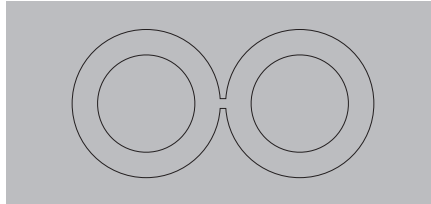
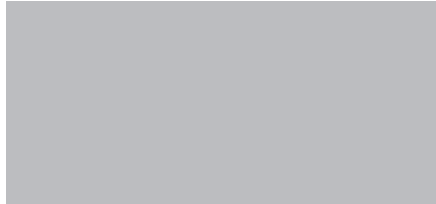


**Assembled cables - FO PROFINET cable**

**Assembled cable  
FO patch cable PROFINET**

- Polymer optical fibre

**SC-RJ / SC-RJ**



**Technical data**

Product type	Connecting cables
Version connector left / Version connector right	SCRJ IP20 / SCRJ IP20
Cable layout	ZIPCORD
Sheath diameter	2.2*4.5 mm
Insulation	PE
Sheathing colour	Black
Fibre type	POF
Core diameter	980 µm
Ambient temperature (operational)	-20 °C...80 °C
Attenuation	≤ 160 dB/km at 650 nm
Insertion loss	≤ 1.0 dB
Bandwidth	≥ 100 MHz*km at 650 nm
Halogen	No
Approvals	

Product type	Connecting cables
Version connector left / Version connector right	SCRJ IP20 / SCRJ IP20
Cable layout	ZIPCORD
Sheath diameter	2.2*4.5 mm
Insulation	PE
Sheathing colour	Black
Fibre type	POF
Core diameter	980 µm
Ambient temperature (operational)	-20 °C...80 °C
Attenuation	≤ 160 dB/km at 650 nm
Insertion loss	≤ 1.0 dB
Bandwidth	≥ 100 MHz*km at 650 nm
Halogen	No
Approvals	

**Note**

**Note**

**Ordering data**

POF 980/1000 µm	
	1.0 m
	3.0 m
	5.0 m
	10.0 m
	20.0 m

Type	Qty.	Order No.
IE-FPOZ2EE0001MSJOSJO-X	1	1273430010
IE-FPOZ2EE0003MSJOSJO-X	1	1273430030
IE-FPOZ2EE0005MSJOSJO-X	1	1273430050
IE-FPOZ2EE0010MSJOSJO-X	1	1273430100
IE-FPOZ2EE0020MSJOSJO-X	1	1273430200

**Note**

**Note**

**Accessories**

Markers	
	Wire and cable marker. ø 4.7 - 7.4 mm
	Wire and cable marker. ø 5.8 - 7.8 mm

Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001

**Note**

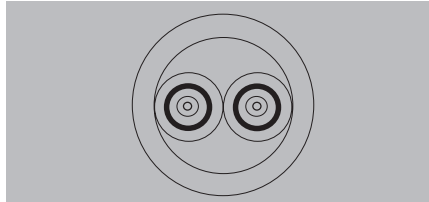
**Note**

**Assembled cables**

**FO dragline cable**

- Multimode glass optical fibre

**LC-Duplex / LC-Duplex**



**Technical data**

Product type  
Version connector left / Version connector right  
Cable layout  
Sheath diameter  
Material sheath  
Sheathing colour  
Ambient temperature (operational)  
Installation temperature  
Storage temperature  
Approvals

Dragline cable  
LC-Duplex IP20 / LC-Duplex IP20  
Break-out dragline  
6 mm  
PUR  
Black  
-40 °C...80 °C  
-20 °C...60 °C  
-40 °C...80 °C

**Note**

**Ordering data**

Core 62.5 µm, OM1	
	5.0 m
	20.0 m
	50.0 m
Core 50 µm, OM2	
	10.0 m
	50.0 m
	100.0 m

**Note**

Type	Qty.	Order No.
IE-FM6D2UE0005MLDOLD0X	1	1220930000
IE-FM6D2UE0020MLDOLD0X	1	1174830000
IE-FM6D2UE0050MLDOLD0X	1	8993220000
IE-FM5D2UE0010MLDOLD0X	1	8979020000
IE-FM5D2UE0050MLDOLD0X	1	8979040000
IE-FM5D2UE0100MLDOLD0X	1	8979030000

**Accessories**

Markers	
	Wire and cable marker. ø 4.7 - 7.4 mm
	Wire and cable marker. ø 5.8 - 7.8 mm

Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001

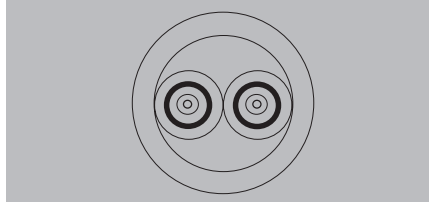
**Note**

**Assembled cables - FO dragline cable**

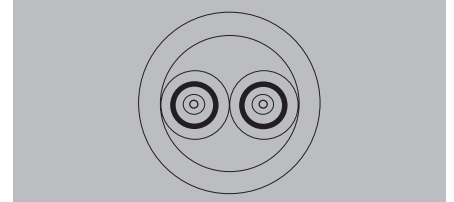
**Assembled cable  
FO dragline cable**

- Multimode glass optical fibre

**SC-Duplex / SC-Duplex**



**ST / ST**



**Technical data**

Product type
Cable layout
Sheath diameter
Material sheath
Sheathing colour
Ambient temperature (operational)
Installation temperature
Storage temperature
Approvals

Dragline cable
Break-out dragline
6 mm
PUR
Black
-40 °C...80 °C
-20 °C...60 °C
-40 °C...80 °C

Dragline cable
Break-out dragline
6 mm
PUR
Black
-40 °C...80 °C
-20 °C...60 °C
-40 °C...80 °C

**Note**

**Ordering data**

Core 62.5 µm, OM1	
1.0 m	
3.0 m	
5.0 m	
10.0 m	
100.0 m	
Core 50 µm, OM2	
1.0 m	
3.0 m	
5.0 m	
10.0 m	
50.0 m	
100.0 m	

Type	Qty.	Order No.
IE-FM6D2UE0001MSDOSDOX	1	8876440010
IE-FM6D2UE0003MSDOSDOX	1	8876440030
IE-FM6D2UE0005MSDOSDOX	1	8876440050
IE-FM6D2UE0010MSDOSDOX	1	8876440100
IE-FM5D2UE0001MSDOSDOX	1	8876430010
IE-FM5D2UE0003MSDOSDOX	1	8876430030
IE-FM5D2UE0005MSDOSDOX	1	8876430050
IE-FM5D2UE0010MSDOSDOX	1	8876430100
IE-FM5D2UE0100MSDOSDOX	1	8876431000

Type	Qty.	Order No.
IE-FM6D2UE0001MSTOSTOX	1	8876460010
IE-FM6D2UE0003MSTOSTOX	1	8876460030
IE-FM6D2UE0005MSTOSTOX	1	8876460050
IE-FM6D2UE0010MSTOSTOX	1	8876460100
IE-FM5D2UE0001MSTOSTOX	1	8876450010
IE-FM5D2UE0003MSTOSTOX	1	8876450030
IE-FM5D2UE0005MSTOSTOX	1	8876450050
IE-FM5D2UE0010MSTOSTOX	1	8876450100
IE-FM5D2UE0050MSTOSTOX	1	8876450500
IE-FM5D2UE0100MSTOSTOX	1	8876451000

**Note**

**Accessories**

Markers	
Wire and cable marker. ø 4.7 - 7.4 mm	
Wire and cable marker. ø 5.8 - 7.8 mm	

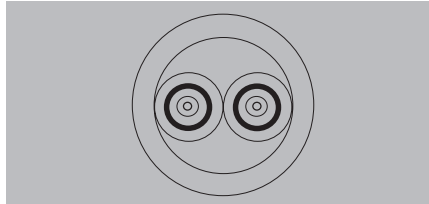
Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001

Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001

**Note**

**Assembled cables****FO dragline cable with extended temperature range**

- Multimode glass optical fibre

**SC-Duplex IP67****Technical data**

Product type
Cable layout
Version connector left / Version connector right
Sheath diameter
Material sheath
Sheathing colour
Fibre type
Bandwidth
Attenuation
Ambient temperature (operational)
Installation temperature
Storage temperature
Approvals

Dragline cable
Break-out dragline
SC IP67 bayonet V01 metal / SC IP67 bayonet V01 metal
7.5-8 mm
PUR
Black
GOF, Multimode, OM1
200 MHz*km at 850 nm, 500 MHz*km at 1300 nm
2.7 dB/km at 850 nm, ≤ 0.5 dB/km at 1300 nm
-40 °C...85 °C
-55 °C...60 °C
-55 °C...85 °C

**Note****Ordering data**

<b>Core 62.5 µm. OM1</b>
100.0 m
180.0 m
200.0 m
250.0 m
300.0 m
350.0 m
500.0 m

Type	Qty.	Order No.
IE-FM6C2UE0100MSD1SD1X	1	1318011000
IE-FM6C2UE0180MSD1SD1X	1	1318011800
IE-FM6C2UE0200MSD1SD1X	1	1318012000
IE-FM6C2UE0250MSD1SD1X	1	1318012500
IE-FM6C2UE0300MSD1SD1X	1	1318013000
IE-FM6C2UE0350MSD1SD1X	1	1318013500
IE-FM6C2UE0500MSD1SD1X	1	1318015000

**Note****Accessories**

<b>Markers</b>
Wire and cable marker. ø 4.7 - 7.4 mm
Wire and cable marker. ø 5.8 - 7.8 mm

Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001

**Note**

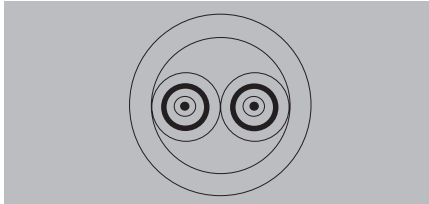
**Assembled cables - FO dragline cable**

**Assembled cables**

**FO dragline cable**

- Singlemode glass optical fibre

**SC-Duplex IP67**



**Technical data**

Product type
Cable layout
Version connector left / Version connector right
Sheath diameter
Material sheath
Sheathing colour
Fibre type
Bandwidth
Insertion loss
Attenuation
Ambient temperature (operational)
Installation temperature
Storage temperature
Approvals

Dragline cable
Break-out dragline
SC IP67 PushPull V14 metal / SC IP67 PushPull V14 metal
6 mm
PUR
Black
Singlemode, OS 2
≤ 0.5 dB
≤0.4 dB/km at 1310 nm
-40 °C...80 °C
-20 °C...60 °C
-40 °C...80 °C

**Note**

**Note**

**Ordering data**

<b>Core 9 µm. OS2</b>
5.0 m
20.0 m
25.0 m
40.0 m

Type	Qty.	Order No.
IE-FSMD2UE0005MSDESDEX	1	1449420050
IE-FSMD2UE0020MSDESDEX	1	1449420200
IE-FSMD2UE0025MSDESDEX	1	1449420250
IE-FSMD2UE0040MSDESDEX	1	1449420400

**Note**

**Note**

**Accessories**

<b>Markers</b>
Wire and cable marker. ø 4.7 - 7.4 mm
Wire and cable marker. ø 5.8 - 7.8 mm

Type	Qty.	Order No.
VT SF 5/21 MC NE WS V0	160	1689470001
VT SF 6/21 MC NE WS V0	160	1730560001

**Note**

**Note**



# Passive components

## Overview of accessories

<b>Accessories – Passive components</b>	Introduction	N.2
	Connection system	N.3
	Copper cabling tools	N.4
	Fibre-optic cabling tools	N.10
	General tools	N.15
	Cabtite cable entry system	N.17
	Protective caps	N.20
	Inkjet printer	N.21
	Markers for cables and <b>STEADYTEC®</b>	N.23
	Surge protection for data interfaces	N.24

# Overview of accessories

## Everything from a single source

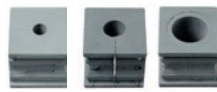
### Cable connector



Connection, repair or extension of Industrial Ethernet cables to Cat.7<sub>A</sub>

- fieldattachable with IDC connection technology
- Specified for class F<sub>A</sub>
- IP67

### Cabtite



System-based cable entry

- Cable entry strips
- Cable grommets

### Copper cabling tools

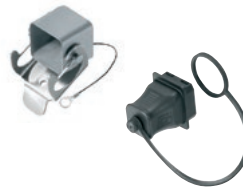


For assembling

- RJ45 crimp
- Hybrid insert

for stripping  
to test the wiring

### Protective caps



to protect all IE-LINE connectors with **STEADYTEC**® technology

### Fibre-optic cabling tools



For assembling

- SCRJ-POF
- SC-GOF
- ST-GOF

### Marker



... for identifying conductors, plugs and devices

- Line markers
- Housing and plug marker

### General tools



... for pressing conductors into IDC terminals and pressing RJ45 contacts

- Indentation tool
- Pressing tool

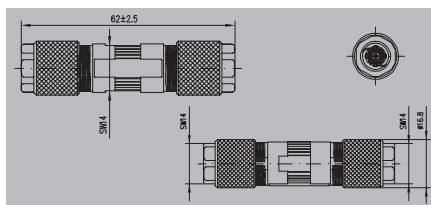
### Surge protection for data interfaces



For the protection of Cat. 5 and Cat. 6 data lines - also in PoE and PoE + applications

Cable connector class 7

Cable connector



Technical data

Category	
Protection degree	
Connection 1 / 2	
Housing main material	
Ambient temperature (operational)	
Current-carrying capacity at 50 °C	
Rated voltage	
Insulation resistance	
Shielding	
Connection diameter, flexible, min. / max.	
Connection cross-section, flexible, min. / max.	
Connection diameter, solid, min. / max.	
Connection cross-section, solid, min. / max.	
Insulation cross-section, max.	
Sheath diameter min. / max.	
Approvals	
<b>Note</b>	

Class F <sub>A</sub> (ISO/IEC11801 2011) with cat. 7 <sub>A</sub> Cable
IP67
Insulation displacement technology / Insulation displacement technology
Zinc diecast
-40 °C...85 °C
0.5 A at 40 °C
63 V
100 MΩ
360° all-round enclosure
0.48 mm / 0.76 mm
AWG 26 / AWG 22
0.4 mm / 0.64 mm
AWG 24 / AWG 22
1.6 mm
5 mm / 9.7 mm

Ordering data

<b>Note</b>
-------------

Type	Qty.	Order No.
IE-CC-8W-FA-IP67	1	1499940000

Accessories

--

Type	Qty.	Order No.

<b>Note</b>
-------------

--



**Pressing tools**

- Press (punch-down) tool for Ethernet connectors
- Ratchet for precise crimping
- Release option in the event of incorrect operation

**TT 8 RS MP 8**

For 8-pole shielded RJ45 plug

- AWG 27...24

**Technical data**

<b>Description of contact</b>	
No. of poles	
<b>Tool data</b>	
Length	mm
Weight	g
<b>Note</b>	

<b>TT 8 RS MP 8</b>		
No. of poles	8	
Length	255	
Weight	1251	
<b>Note</b>		

**Ordering data**

<b>Version</b>	
<b>Note</b>	

Type	Qty.	Order No.
TT 8 RS MP 8	1	9202800000
<b>Note</b>		

**Copper cabling tools**

**Pressing tools**

- Optional crimping tool for Ethernet connectors to facilitate the joining of the upper and lower parts of the RJ45 plug/module

**PWZ RJ45**



**Technical data**

Tool data	
Weight	g

<b>PWZ RJ45</b>
367

<b>Note</b>
-------------

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**Ordering data**

Version	
<b>Note</b>	

Type	Qty.	Order No.
PWZ RJ45	1	1118040000

**N**

### Cable Tester

Test devices for testing Ethernet cables, including remote box

### LAN USB TESTER



- Indication of connection errors:  
 Connection error  
 Interrupt  
 Short-circuit  
 Permutation
- Network cable tester for LAN and USB connections



### IE-CT



- Indication of connection errors:  
 Connection error  
 Interrupt  
 Short-circuit  
 Permutation  
 Wire mix-up (split pair)  
 External voltage
- External voltage resistance: 80 V AC / DC

### Technical data

Display	
Supply	
Type of connection	
Remote box dimensions	
Remote box weight	
Length / Width / Height	mm
Weight	
<b>Note</b>	

LED
9 V battery
RJ45, USB A, USB B
65 x 28 x 27 mm
30 g
135 / 65 / 27
174 g

7-segment display
9 V battery
RJ45
30 x 68 x 23 mm
31 g
140 / 70 / 36
185 g

### Ordering data

Version
<b>Note</b>

Type	Qty.	Order No.
LAN USB TESTER	1	9205400000
Battery, accessories and bag included in delivery.		

Type	Qty.	Order No.
IE-CT	1	8808420000
Battery, accessories and bag included in delivery. Spare IE-CT: 1506880000		

## Copper cabling tools

### Cutting tools

- The cutting blade design for different cable sizes increases the quality of the cuts for smaller cross-sections
- Not suitable for steel wires, steel-armoured cables, aluminium alloys and hard-drawn copper conductors!
- Cutting without deformation of the conductor
- Do not cut live conductors
- Individually tested protective insulation, 1000V, VDE and GS tested in accordance with EN/IEC 60900
- Optimised handle ergonomics
- Minimal hand force required

### KT 8



-  max. 8 mm
-  max. 16 mm<sup>2</sup>
-  max. 16 mm<sup>2</sup>
-  max. 16 mm<sup>2</sup>

### Technical data

Max. cutting performance, copper cable	
Copper cable - solid, max.	mm <sup>2</sup> /-
Copper cable - stranded, max.	mm <sup>2</sup> /-
Copper cable - flexible, max.	mm <sup>2</sup> /-
Copper cable, max. diameter	mm
Max. cutting performance, aluminium cable	
Stranded aluminium cable, max (mm <sup>2</sup> )	mm <sup>2</sup> /-
Stranded aluminium cable, max. diameter	mm
Single-core aluminium cable, max.(mm <sup>2</sup> )	mm <sup>2</sup>
Data / telephone / control cable	
Data / telephone / control cable, max. Ø	mm
Tool data	
Length / Width / Height	mm
Weight	g
Note	

KT8	
16	
16 / 6	
16 / 6	
8	
16 / 6	
8	
16	
8	
185 / 65,5 / 30	
180	
Tool closed	

### Ordering data

Version
Note

Type	Qty.	Order No.
KT 8	1	9002650000
Note		



**SEE ESD 120****Electronic ESD diagonal-cutting pliers with pointed head**

- Hard wire (spring wire or steel nails):  
0.4 mm/AWG 26
- Semi-hard wire (iron or nails):  
1.0 mm/AWG 18
- Soft wire (copper or aluminium):  
1.5 mm/AWG 15

**Ordering data**

Type	Qty.	Order No.
SEE ESD 120	1	9205130000

**Technical data**

Weight 90 g

**SEE ESD 125****Electronic ESD diagonal-cutting pliers with oval head**

- Semi-hard wire (iron or nails):  
0.8 mm/AWG 20
- Soft wire (copper or aluminium):  
1.5 mm/AWG 15

**Ordering data**

Type	Qty.	Order No.
SEE ESD 125	1	9204750000

**Technical data**

Weight 90 g

**FZE ESD 130****Electronic ESD flat-nosed pliers****Ordering data**

Type	Qty.	Order No.
FZE ESD 130	1	9204760000

**Technical data**

Weight 90 g

**SZE ESD 130****Electronic ESD Snipe-nosed pliers****Ordering data**

Type	Qty.	Order No.
SZE ESD 130	1	9204770000

**Technical data**

Weight 90 g

**SVSE ESD 130****Electronic ESD angle-cutting pliers**

- Hard wire (spring wire or steel nails):  
0.6 mm/AWG 22
- Semi-hard wire (iron or nails):  
1.0 mm/AWG 18
- Soft wire (copper or aluminium):  
1.2 mm/AWG 16

**Ordering data**

Type	Qty.	Order No.
SVSE ESD 130	1	9205140000

**Technical data**

Weight 90 g

**SUPER CUT****Electronic diagonal-cutting pliers**

- Soft wire (copper or aluminium):  
1.2 mm/AWG 16

**Ordering data**

Type	Qty.	Order No.
SUPER CUT	1	9205150000

**Technical data**

Weight 78 g

**KOF SET ESD****Electronic ESD case set**

Contents:

- Diagonal-cutting pliers
- Snipe-nosed pliers
- Flat-nose pliers
- Angle-cutting pliers

**Ordering data**

Type	Qty.	Order No.
KOF SET ESD	1	9205210000

**Technical data**

Weight 547 g



## Fibre-optic cabling tools

### Crimping tools

Cutting, stripping and crimping tools for processing POF fibres in compliance with IEC 60793-2 A4A fibres (1000 µm/980 µm POF)

- Multifunction tool for POF fibres
- Processing the duplex POF fibres
- Stripping tool for processing POF fibres and cables
- The new set of blades for POF cables makes stripping the outer covering and the POF fibres simple
- Cable shears specially designed for aramid fibres
- Only for cutting aramid fibres (strain relief in fibre-optic cables)

### Tool-Set IE-POF



#### Contents:

- Assortment case PSC 80
- Kevlar scissors for aramid fibres
- Multifunction tool HTX-IE-POF
- Stripping tool multi-stripax® IE-POF

### multi-stripax® POF



- Excellent stripping quality for industrial applications
- Specially shaped blades enable stripping of special types of insulation and conductor configurations
- Stripping length with end stop, adjustable from 2.3...30 mm
- Very versatile thanks to interchangeable stripping units
- Stripping results reproduced accurately over and over again
- No damage to the conductor
- A long-lasting, reliable tool thanks to its sturdy design
- Integrated cutting function up to 6 mm<sup>2</sup>

### Technical data

Length / Width / Height	mm	241 / 338 / 79
Weight	g	1,800
<b>Note</b>		

Length / Width / Height	mm	250 / 85 / 40
Weight	g	250
<b>Note</b>		

Length / Width / Height	mm	250 / 85 / 40
Weight	g	250
<b>Note</b>		

### Ordering data

Version
<b>Note</b>

Type	Qty.	Order No.
TOOL SET IE-POF	1	1208930000
<b>Note</b>		

Type	Qty.	Order No.
MULTI-STRIPAX IE-POF	1	1208880000
<b>Note</b>		

### Accessories

Type	Qty.	Order No.
HTX-IE-POF	1	1208870000
MULTI-STRIPAX IE-POF	1	1208880000
KEVLAR SCISSORS	1	1208910000
<b>Note</b>		

Type	Qty.	Order No.
Replacement cutting blade	1	9203100000
Replacement stop set	1	9203070000
AIE MULTI-STRIPAX POF	1	1212770000
<b>Note</b>		

Type	Qty.	Order No.
Replacement cutting blade	1	9203100000
Replacement stop set	1	9203070000
AIE MULTI-STRIPAX POF	1	1212770000
<b>Note</b>		

**Crimping tools**

- Ratchet for precise crimping
- Release option in the event of incorrect operation
- With end stop for exact positioning of the contacts

**HTX-IE-POF**



- Only one tool needed for all SC-RJ plug processing steps
- For processing 1 mm thick polymer optical fibres, especially for the PROFINET and EtherNet/IP-SC-RJ connectors
- For stripping Duplex polymer optical fibres
- The plug is crimped and the polymer optical fibres are separated, all in a single step
- Cut surfaces do not need to be polished after cutting
- Locator for precise positioning of the SC-RJ plugs
- Ergonomic handles
- High repeat accuracy

Three steps to produce IP67 connectors:

- 1) Strip the Duplex polymer optical fibres
- 2) Crimp and separate
- 3) Crimp the strain relief

**SCISSOR Kevlar**



- Cable shears specially designed for aramid fibres
- Only for cutting aramid fibres (strain relief in fibre-optic cables)
- Do not use for other materials
- Special blade geometry
- Blades ground
- With teeth on the cutting edge
- Riveted joint
- Hand-friendly, impact-resistant plastic handles

**Technical data**

<b>Material data</b>
Length
Weight
<b>Note</b>

<b>HTX-IE-POF</b>
220
450

<b>SCISSORS KEVLAR</b>
147
100

**Ordering data**

<b>Version</b>
<b>Note</b>

Type	Qty.	Order No.
HTX-IE-POF	1	1208870000

Type	Qty.	Order No.
SCISSORS KEVLAR	1	1208910000

**Fibre-optic cabling tools**

**Crimping tools for other contacts**

- Ratchet for precise crimping
- Release option in the event of incorrect operation

**IE-CT-SC-GOF / IE-CT-LC-GOF**

Crimping tools for IP20 + 67 connectors



- For fibre-optic SC/ST, IP20 and IP67 connectors
- For fibre-optic LC and IP67 connectors



**Technical data**

Tool data
Length
Weight
Note

IE-CT-SC-GOF	IE-CT-LC-GOF
250	250
730	730

**Ordering data**

Version
Note

Type	Qty.	Order No.
IE-CT-SC-GOF	1	9205320000
IE-CT-LC-GOF	1	9205330000

**Accessories**

Type
Note

Type	Qty.	Order No.

N

**Crimping tool for other contacts**

- Ratchet for precise crimping
- Release option in the event of incorrect operation
- With end stop for exact positioning of the contacts
- Contact and insulation are crimped in one step

**HTF HYB**

0.08...1.0 mm<sup>2</sup>



For Weidmüller hybrid sockets and pins

- ~AWG 28...AWG 17



**Technical data**

Description of contact	
Type of contact	
Crimping range	mm <sup>2</sup>
Crimping range 1 (with multiple crimping positions)	mm <sup>2</sup>
Crimping range 2 (with multiple crimping positions)	mm <sup>2</sup>
Crimping range 3 (with multiple crimping positions)	mm <sup>2</sup>
Tool data	
Length	mm
Weight	g
Note	

HTF HYB		
Hybrid sockets / plugs		
		0.08...1
		0.08...0.2
		0.2...0.5
		0.75...1

**Ordering data**

Version	
Note	

Type	Qty.	Order No.
HTF HYB	1	1119580000
Note		



## Fibre-optic cabling tools

### Special stripping tools

- Quick and accurate stripping
- No need to adjust cutting depth
- No damage to inner conductors

### LWL-stripax®



Stripping and cutting tool for plastic fibre-optic cables with 1-mm diameter inner conductor

- Stripping length adjustable via end stop
- Automatic opening of the clamping jaws after stripping

### Technical data

Max. stripping performance	
Cable type	-
Conductor diameter	-
Stripping length, max.	-
Tool data	
Length	mm
Weight	g
Note	

M-D-STRIPAX LWL	
POF conductor with an inner conductor of 1 mm Ø	
...	1
...	7.5
...	135
...	110
Note	
POF: polymer optical fibre	

### Ordering data

Version
Note

Type	Qty.	Order No.
M-D-STRIPAX LWL	1	9003750000
Note		

### Accessories

Version
Note

Type	Qty.	Order No.
Spare stripping blades	1	9003760000
Note		

N

### Incision tool for twisted-pair cable

For connecting twisted-pair cable to terminal rails with IDC contacts e.g. in main and floor distributors, and in modular wall junction boxes for structured building cabling.

### PDT



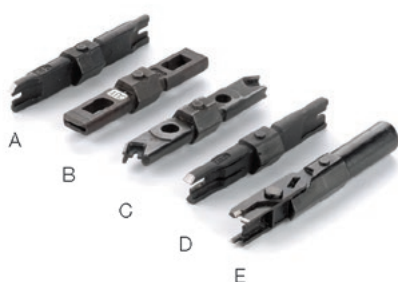
The punch-down tool has the following features:

- Mechanics made from metal components
- Adjustable pressing force for conductor sizes AWG 20 to AWG 28
- Different blades for connector blocks of type 110 from AT&T, type 66, type LSA Plus from Krone (Standard and scissors cutting function) as well as for telephone outlets 630A6
- Incision blades with 2 functions: incision or incision with cutting off of remaining conductor
- Storage compartment for one blade

### IE-FISP-V4



Fastening tool for the hexagon cap nut from **STEADYTEC**® V4 flange and FrontCom® Micro.



- A = PD blade 110
- B = PD blade 66
- C = PD blade 630
- D = PD blade Krone LSA (standard)
- E = PD blade Krone LSA (scissor)

#### Technical data

Length / Width / Height	mm
Weight	g
<b>Note</b>	

#### Ordering data

Version	
<b>Note</b>	

#### Accessories

<b>Note</b>	
-------------	--

<b>PUNCH DOWN TOOL PDT</b>		
160 / 37 / 29		
142		

Type	Qty.	Order No.
PUNCH DOWN TOOL PDT	1	9013970000
(without blade)		

Type	Qty.	Order No.
PD blade Krone LSA Plus (scissor)	1	9014050000
PD blade 110	1	9013960000
PD blade 630	1	9013990000
PD blade 66	1	9013980000
PD blade Krone LSA Plus (standard)	1	9014000000

<b>Fixing tool</b>		
115 / 28 / 28		
21		

Type	Qty.	Order No.
IE-FISP-V4	2	9204370000

Type	Qty.	Order No.

## General tools

### Hydraulic sheet holes

Incl. accessories:

- 1 hydraulic screw  $\varnothing$  19 mm
- 1 hydraulic screw  $\varnothing$  19 x 9.5 mm
- 1 HSS pre-drill  $\varnothing$  10 mm
- 1 spacer nut set (3-part)
- 1 bridge

### IE-KO-HAT



- Overpressure valve protects against overloading
- Cylinder head angled 90°
- Angled head can be rotated through 360°
- Ergonomic handle springs back automatically
- The piece of waste no longer becomes jammed thanks to 3-fold cleaving
- Hydraulic punch manufactured from high-strength aluminium (approx. 40 % less weight)

### Technical data

Maximum steel-sheet punching performance	
Round holes from 1 to $\varnothing$ 85 mm	-
Round holes from 2 to $\varnothing$ 64 mm	-
Square holes up to	-
Rectangular holes up to	-
Maximum stainless steel sheet punching performance	
Round holes from 3 to $\varnothing$ 64 mm	-
Tool data	
Length x width x height	mm
Weight	kg
Punching force	kN
Max. operating pressure	bar
Note	

IE-KO-HAT	
2.0 mm F = 370 N/mm <sup>2</sup>	
3.0 mm F = 370 N/mm <sup>2</sup>	
68 x 68 mm; 2.0 mm F = 370 N/mm <sup>2</sup>	
36 x 112 mm; 2.0 mm F = 370 N/mm <sup>2</sup>	
2.5 mm F = 600 N/mm <sup>2</sup>	
290 / 120 / 70	
1.9	
75	
650	
Note	

### Ordering data

Version
Note

Type	Qty.	Order No.
IE-KO-HAT	1	1966810000
Note		

### Accessories

Note

Type	Qty.	Order No.
KDHS 19	1	9205010000
KDHS 9.5+19	1	9205000000
KOPD 10.0	1	9205020000
Note		

### Custom stamp for Industrial Ethernet connections



Type	Description	Dimensions	Qty.	Order No.
IE-KOK-V1	Custom shape for Bajonet 01 metal	Diameter 27 mm x 1 side 25.9 mm	1	1966780000
IE-KOK-V4	Custom shape for Push Pull V04 plastic	Diameter 23.2 mm x 2 sides 20.2 mm	1	1966790000
IE-KOK-V5	Custom shape for RockStar® V05 metal	22.0 x 22.0 mm	1	9204790000



**HDC KT – Cable grommets, small**

Cable grommets, small, grey

**HDC KT – Cable grommets, small**

Cable grommets, small, black



**Technical data**

Material  
Colour  
Temperature range  
Ingress protection class  
UL 94 flammability rating

**Note**

free from elastomers, halogens and silicone  
grey  
-40 °C to +90 °C (static)

V0

elastomers with very high chemical resistance  
black  
-30 °C to +90 °C (static)

HB

**Ordering data**

Type	Clamping range [mm]	Qty.	Order No.
HDC KT 5	5-6	10	1826480000
HDC KT 6	6-7	10	1826490000
HDC KT 7	7-8	10	1826500000
HDC KT 8	8-9	10	1826510000
<b>Blanking plugs, small</b>			
HDC BTK		10	1828170000

Type	Clamping range [mm]	Qty.	Order No.
HDC KT 5	5-6	10	1827810000
HDC KT 6	6-7	10	1827830000
HDC KT 7	7-8	10	1827840000
HDC KT 8	8-9	10	1827850000
<b>Blanking plugs, small</b>			
HDC BTK		10	1828200000

**Note**

**HDC KEL 16**

Cable entry strip



KEL 16/8 with 8 small grommets



KEL 16/4 with closed half-shell for 4 small grommets



Snap frame KEL 16 SNAP

**Technical data**

Material  
Colour  
Temperature range  
Ingress protection class  
UL 94 flammability rating

Polyamide, halogenfree, siliconfree  
black  
-40 °C to +140 °C (static)  
IP54, when correct cable grommet is used  
V0

Note

**Ordering data**

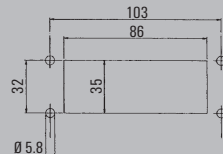
Type	No. of grommet positions		Qty.	Order No.
	small	large		
HDC KEL 16/8	8	-	10	1825910000
HDC KEL 16/4	4	-*)	10	1825900000

**Blanking plugs, small**  
HDC KEL 16 SNAP 10 1827770000

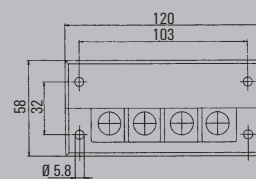
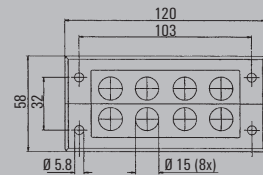
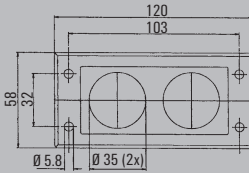
\*) with closed half-shell

Note

**Dimensioned drawings**



Cut-out size 16  
35 x 86 mm

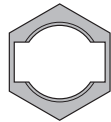


**KVT 32**

KVT 32 and locknut for D-Sub 9



KVT 32



Locknut for D-Sub 9  
KGM-SUB-D9

**Technical data**

Material  
Colour  
Temperature range  
Ingress protection class  
UL 94 flammability rating

**Note**

Polycarbonate, free from halogens and silicone  
grey, similar to RAL 7035  
-30 °C to +100 °C (static)  
IP54, when the correct cable grommet is selected  
V0

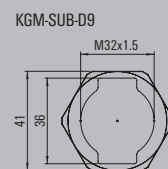
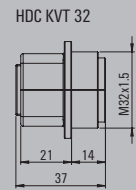
**Ordering data**

Type	Thread	For grommet		Qty.	Order No.
		small	large		
HDC KVT 32	M 32 x 1.5	1	-	10	1826670000
<b>Locknut for D-Sub 9</b>					
KGM-SUB-D9	M 32 x 1.5			10	1828250000

Please refer to catalogue 5 for the complete range.

**Note**

**Dimensioned drawings**



## Protective caps

### Dust-protection plugs for protecting empty ports

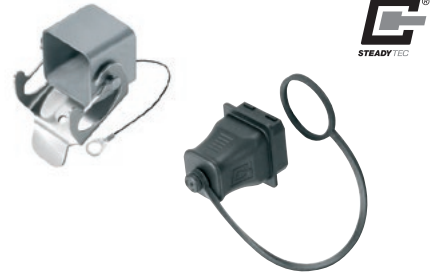
- RJ45
- **STEADYTEC**® variants
- M12

### Dust Cap RJ45



- Dust Cap RJ45 with finger grip

### Protective caps IP67



- Protective caps for all **STEADYTEC**® variants and for M12 plug-in connectors

### Ordering data

Type	Qty.	Order No.
IE-DPC	100	8813490000

Type	Qty.	Order No.
V1 Bayonet plug	10	1965690000
V1 Bayonet flange	10	1965700000
V4 PushPull plug	10	1963890000
V4 PushPull flange	10	1963900000
V5 HDC plug	10	1968920000
V5 HDC flange	10	1968930000
V14 PushPull plug	10	1058280000
V14 PushPull flange	10	1058310000
PushPull Power flange	10	1068930000
M12 plug	1	2330260000
M12 flange	1	8425960000

Type	Qty.	Order No.
V1 Bayonet plug	10	1965690000
V1 Bayonet flange	10	1965700000
V4 PushPull plug	10	1963890000
V4 PushPull flange	10	1963900000
V5 HDC plug	10	1968920000
V5 HDC flange	10	1968930000
V14 PushPull plug	10	1058280000
V14 PushPull flange	10	1058310000
PushPull Power flange	10	1068930000
M12 plug	1	2330260000
M12 flange	1	8425960000

Note

# The advanced inkjet printer

## Our PrintJet ADVANCED for exacting standards

### Flexible printing of plastic and metal markers

The PrintJet ADVANCED is an inkjet printer which prints plastic markers in MultiCard format and metal markers from the MetalliCard family. Thanks to its high magazine capacity, it is ideal for printing large volumes in continuous operation. The precise colour printing and thermal fixing guarantee optimum print results for durable equipment identification. With these properties, the PrintJet ADVANCED brings efficiency to the operating process – whether operated with our M-Print® PRO software or as a stand-alone solution with pre-installed print templates.



### The advantages for you at a glance:

- Precise colour printing
- Printing of metal markers as standard
- High level of automation thanks to magazine capacity of 30 MultiCards
- Durable and robust markers thanks to thermal fixing
- User-friendly thanks to intuitive touch display
- Can be used as stand-alone solution

### Technical data

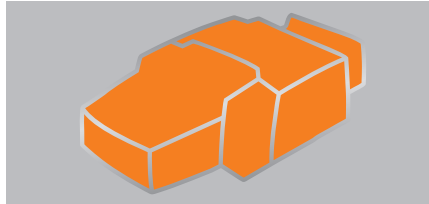
	Description
Intended use	Printing Weidmüller MultiCards and MetalliCards
Technology	Inkjet procedure with integrated thermal fixing unit
Feed	Automatic magazine for max. 30 MultiCards Individual feed for MetalliCards and MultiCards
Fuses	Right fuse: 10 ATH 240/120 V Left fuse: 2.5 ATH 240/120 V
Application site	Office conditions
Ambient temperature	10 °C - 35 °C 0 °F - 95 °F
Dimensions	Length including output rail: approx. 1.138 mm (44.80") Length not including output rail: approx. 945 mm (37.20") Width: 554 mm (21.81") Height with touch panel folded down: 328 mm (12.91") Height with touch panel folded up: 422 mm (16.61")
Weight	57.8 kg (127.43 lb) with packaging 37.2 kg (82.01 lb) without packaging
Ink system	Colour system – black, cyan, magenta, yellow
Included in delivery	<ul style="list-style-type: none"> <li>• PrintJet ADVANCED</li> <li>• Mains cable</li> <li>• USB cable</li> <li>• One MultiCard DEK 5/5</li> <li>• One output rail</li> <li>• DVD with M-Print® PRO software</li> <li>• Quick start guide</li> <li>• Operating manual</li> </ul>

The ink cartridges and ink collector tray are installed in the printer.

**Inkjet printer**

**Inkjet printer**

**PrintJet Advanced**



**Technical data**

EAN	4032248140121
Length	950 mm
Width	555 mm
Height	310 mm
Weight	58 kg
Net weight	37.2 kg
Printing method	Ink jet technology
Printer driver	Windows XP, Windows Vista, Windows 7, Windows 8
Printing speed	Depends on printing quality
Print quality	600 dpi / 1200 dpi
Marker type	MultiCard / MetalliCard
Interface	LAN, USB
Fueling system	Ink cartridge, CMYK
Supply voltage	230 V AC / 16 A, 115 V AC / 20 A
Operating system	Windows XP, Windows Vista, Windows 7, Windows 8
Software	M-Print® PRO

**Note**

**Ordering data**

Type	Qty.	Order No.
PRINTJET ADVANCED 230V	1	1324380000
PRINTJET ADVANCED 115V	1	1338700000

**Note**

**Accessories**

PrintJet Advanced		Type	Qty.	Order No.
	Software	M-PRINT PRO	1	1905490000
	Ink collecting tray	PJ ADV TNAW	1	1338710000
	Cyan ink	PJ ADV TNTK INK C	1	1338680000
	Magenta ink	PJ ADV TNTK INK M	1	1338670000
	Yellow ink	PJ ADV TNTK INK Y	1	1338650000
	Black ink	PJ ADV TNTK INK K	1	1338690000
	Ink set	PJ ADV TNTK INK SET	1	1338720000
PrintJet PRO		Type	Qty.	Order No.
	Ink collecting tray	PJ PRO TNAW	1	1024140000
	Cyan ink	PJ PRO TNTK INK C	1	1027050000
	Magenta ink	PJ PRO TNTK INK M	1	1027060000
	Yellow ink	PJ PRO TNTK INK Y	1	1027070000
	Black ink	PJ PRO TNTK INK K	1	1027040000
	Ink set	PJ PRO TINTENSET FARBE	1	1027110000

**Note**

**Markers for cables and wires**



SlimFix V0 for cables and wires

- Ø 4.7 to 6.8 mm SF5/21
- Ø 5.8 to 8.5 mm SF6/21

**Ordering data**

Type	Qty.	Order No.
VT SF 5/21 NE WS V0	160	1689470001
VT SF 6/21 NE WS V0	160	1730560001

Note: Can be printed with PrintJet PRO.

**Accessories**

Type	Qty.	Order No.

**Markers for IE-Line **STEADYTEC®****



MultiCard ESG 9/11 K for IE-Line **STEADYTEC®**

- 9 x 11 mm
- White

**Ordering data**

Type	Qty.	Order No.
ESG 9/11 K MC NE WS	200	1857440000

Note: Can be printed with PrintJet PRO.

**Accessories**

Type	Qty.	Order No.

**TM-I for pre-assembled M12 cables**



MultiCard markers for labelling transparent M12 TM-I sleeves

- Tag length: 18 mm
- Tag width: 4 mm

**Ordering data**

Type	Qty.	Order No.
TM-I 18 MC NE WS	320	1718431044
TM-I 18 MC NE GE	320	1718431687

**Accessories**

Type	Qty.	Order No.
TM 4/12 HF/HB Length 12 mm	500	1719840000
TM 4/18 HF/HB Length 18 mm	500	1719850000

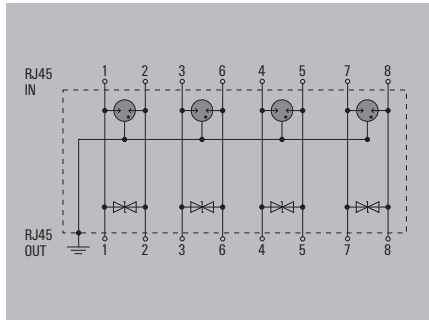
Note: Can be printed with PrintJet PRO.

**Surge protection for data interfaces**

**V DATA Cat. 6 - surge protection for 8 wires with RJ45 socket**

- RJ45 connection
- All 4 lines are protected
- Robust and compact metal housing
- Suitable for Cat. 5 (to 100 MHz) and Cat. 6 to 250 MHz (class E)
- Suitable for PoE (IEEE 802.3af) and PoE + (IEEE 802.3at)

**V DATA CAT6**



**Technical data**

Requirements category acc. to IEC 61643-21  
 Surge current-carrying capacity C2  
 Surge current-carrying capacity D1  
 Discharge current  $I_n$  (8/20  $\mu$ s) wire-wire/wire-PE/GND-PE  
 Discharge  $I_{max}$  (8/20  $\mu$ s) wire-wire/wire-PE/GND-PE  
 Lightning test  $I_{imp}$  (10/350  $\mu$ s) wire-wire/wire-PE/GND-PE  
 Type of connection  
 Storage temperature  
 Ambient temperature (operational)  
 Protection degree  
 Rated voltage (AC)  
 Rated current  
 Insertion loss at 250 MHz  
 Protection level  $U_p$  typical

**Approvals**

Standards

**Dimensions of complete module (arrester + base element)**

Height x width x depth

**Note**

C2, D1  
 10 kA  
 1 kA 10/350  $\mu$ s  
 150 A / 1,25 kA  
 10 kA / 5 kA  
 1 kA / 1 kA  
 RJ45-Port  
 -40 ... +85 °C  
 -40 ... +80 °C  
 IP20  
 48 V  
 1 A  
 $\leq$  1 dB at 250 MHz  
 $\leq$  550 V

According to IEC61643-21

75 / 19 / 46 mm

Can also be used for Cat.5 applications

**Ordering data**

**Note**

Type	Qty.	Order No.
VDATA CAT6	1 ST	1348590000

N



# Service and support

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<b>Service and support</b>	Our expertise for your requirements	V.2
	Benefit from optimum support when using our products	V.4

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## Our expertise for your requirements

### Service connects - worldwide

Automation technology functions are becoming more complex in a globally-oriented world facing ambitious targets in terms of energy efficiency and smart production. We are your equal partners for the best connections in Industrial Connectivity. Our worldwide network of industrial managers for machine construction, process automation, energy and traffic engineering and for device manufacturers know the challenges you face and can support you in your specific applications.

Training course on technologies, applications and the detailed functionality of our products is available to you locally or at our headquarter in Germany. Our personal support can answer any questions reliably and expertly. Our online services are available 365 day a year around the clock to provide answers to your questions on our products - from user documentation through software to planning tools.

In short: Weidmüller's global service combines our expertise with your requirements.





### **Professional advice on planning**

Our global network of industrial managers has extensive experience in automation technology and electrical connectivity. This expertise allows us to assist you with advice and planning support in order to work with you on resolving the everyday challenges of your applications.



### **Technology and application training**

Industrial automation is moving towards smart production. It faces the challenges of new technologies and applications. Our varied range of training courses develops this knowledge further or provides more in-depth information on the handling of our products and solutions. Our seminars are modular and can be customised. We can train you and your employees in our academy, on your premises if you wish or online in our webinars at any time.



### **Customised installation**

The challenges for the future are reducing costs and increasing efficiency. This requires intelligent, individual solutions which are tailored to your requirements. We can offer a highly qualified customer-specific production service in our application centre. Whether you need modified products, pre-assembled terminal rails or complete small cabinets: we produce the solutions developed for your application quickly and flexibly.

## Online support and downloads

# Exactly the right help and information on our solutions and products

If our products are used in your automation technology applications, you need the best possible individual support, from planning through installation to operation.

For every stage of your application, we can offer the right tools and information for our products and solutions. Up-to-date, uncomplicated, comprehensive and around the clock via our service portal at [www.weidmueller.com/service](http://www.weidmueller.com/service).

Fast access to our support and services is available via Weidmüller webcodes. Simply select the service you want on the right hand side, then enter the webcode made up of five digits with a preceding hashtag into the search field in the top right corner of [www.weidmueller.com](http://www.weidmueller.com) and it will bring up the details you need.



### Online and personal support

From planning through installation to operation, we can provide exactly the right help and information for each step of your application based on our solutions and products: up-to-date, uncomplicated and comprehensive, around the clock, online or in person.



Visit our website  
for more information

[www.weidmueller.com/service](http://www.weidmueller.com/service)

Let's connect.

**Engineering Support**

As a developer, you need simple processes and system-wide tools. We support you in your development environment with comprehensive data, software tools and interfaces, product selection guides and development samples.

**Technical data and downloads**

Download all the documents and software relating to our products by simply entering the item number. You can also view our Online Catalogue and research the technical properties of our products.

**Commercial support**

Integrate our product data into your commercial system using standardised interfaces or familiarise yourself with the wide range of products in our technical catalogues.



**Engineering data**  
Webcode #01219



**Find downloads**  
Webcode #11379



**Electronic catalogue in BMECat format and other formats**  
Webcode #11378



**Product software**  
Webcode #01212



**Products in the Online Catalogue**  
Webcode #01217



**Access our Webshop**  
Webcode #11382



**Whitepaper for device connectivity**  
Webcode #11359



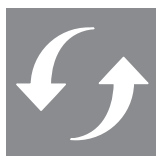
**Security Advisory Board**  
Webcode #11424



**Technical catalogue in PDF Format**  
Webcode #01218



**Engineering software**  
Webcode #11377



**Product Change Notification**  
Webcode #11425



**Product configurators, product selection guides and samples**  
Webcode #01214

**More offers in online support and downloads**

Not found what you are looking for? We have even more to offer you in online support and downloads.



**Approvals, certificates and declaration of conformity**  
Webcode #11374

Here you will find information on the CE declaration of conformity, on RoHS and REACH and other company related certificates and approvals.



# Technical appendix

## Added value for your application

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<b>Technical appendix</b>	Online services	W.2
	Cable configurator	W.3
	Service and certificates	W.4
	Glossary	W.6

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# Online product catalogue

## Your digital information source

If you have questions about the specifications and details of our products, even when outside normal working hours,

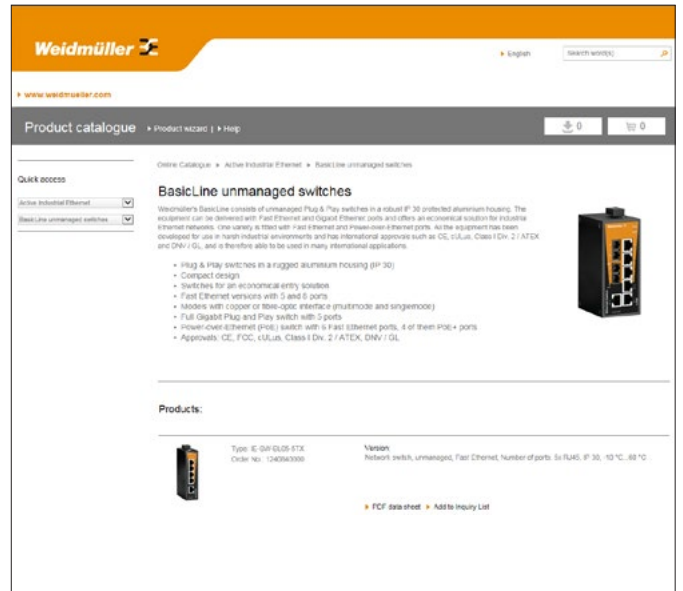
then our online catalogue at:

<http://catalog.weidmueller.com>

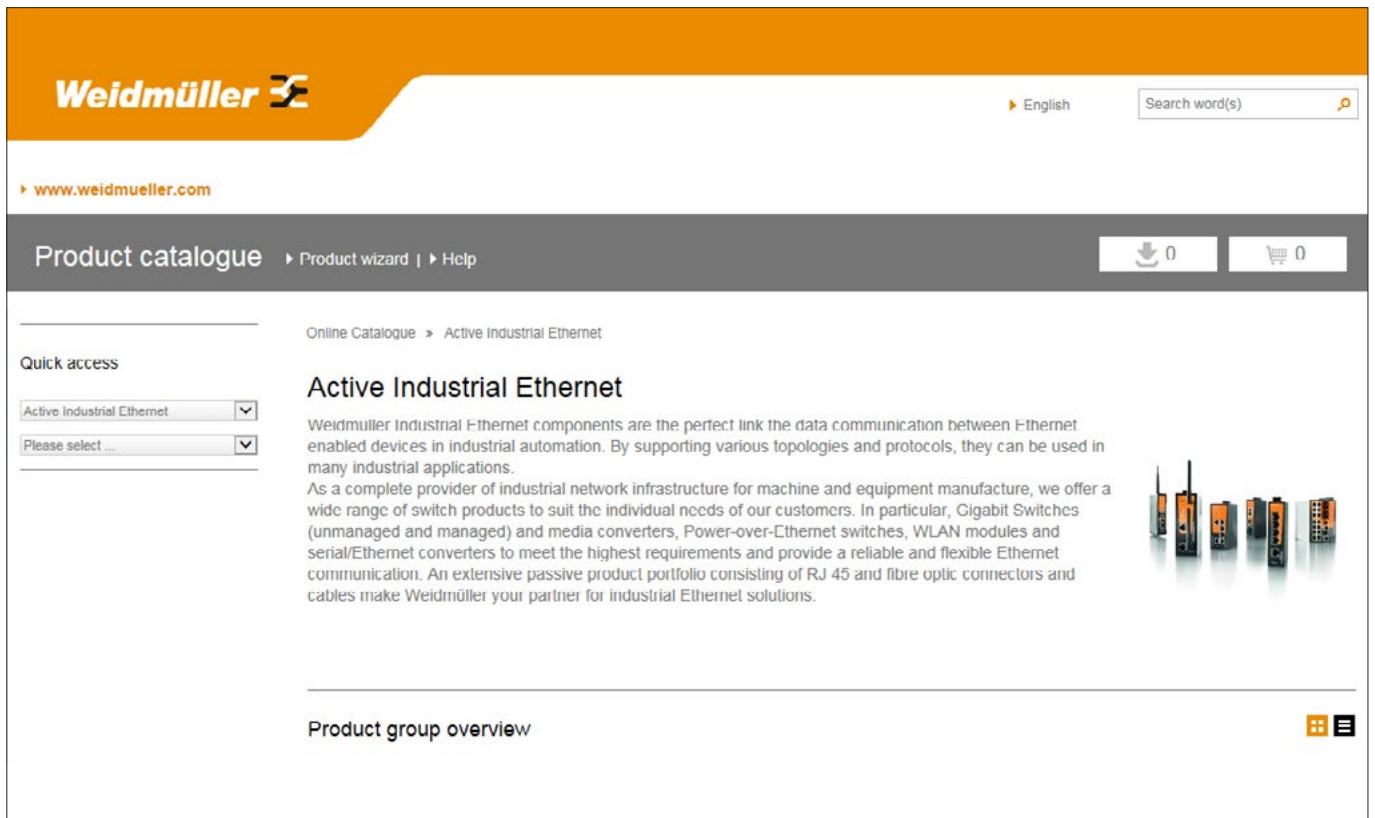
is open 24 hours a day, 365 days a year. As well as product features and part numbers, it contains extensive information on all our product groups.

For further information, simply visit our Weidmuller website at:

[www.weidmueller.com](http://www.weidmueller.com)



With one-click selection for the product data sheet of your choice.





# Cable configurator

## Tailor-made connections

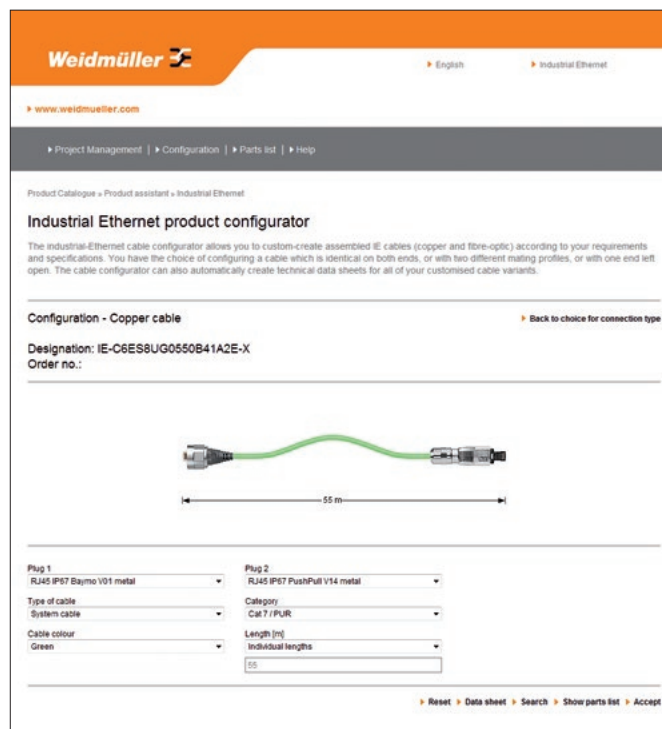
The cable configurator allows you to configure your specific cable with comfort, speed and simplicity. Just select, request order – and you are finished!

Make your selection from the list of available cables (material for cable sheathing, category, colour, ...). Next, choose the connector for both the right and left cable ends and then choose the cable length. Configurations which are not possible are marked in red, so that it is not possible to create an unsupported or wrong configuration.

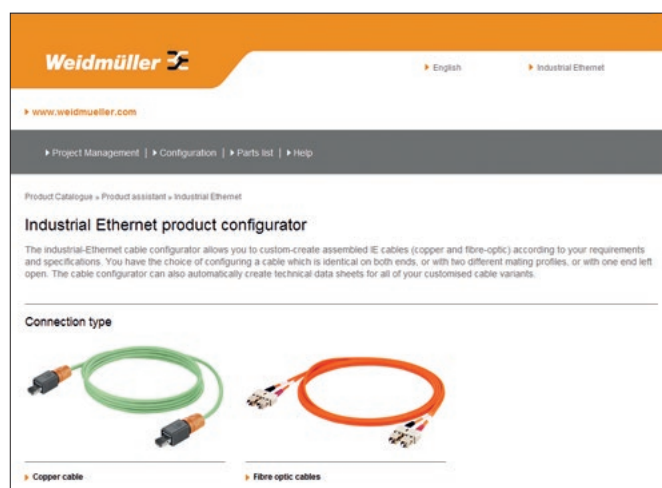
A variety of cables and connectors are available from our Industrial Ethernet product line. These selections include category 5 or 7 cable, with PVC sheathing, in PUR, and of course PROFINET-specific cable. A number of versions are available on the plug side of the RJ45, including: IP20, an extra-strong IP67 PushPull (V4) versions, bayonet (V1) and RockStar® HDC (V5). The fibre-optic cable is configured similarly: simply choose the fibre-optic (MM/SM) and the desired connector in order to build your customised cable. IP67 versions are also available.

After you have made your selection, there are several available options:

- Locate and display the data sheet for the assembled cable
- Export the information in Excel or CSV format
- Save the configuration
- Create additional cables or load previous cables
- Place the assembled cable in the shopping cart to obtain a quote or to order



The cable configurator is your quickest path to finding the specific industrial Ethernet cable which you need.



Whether you are looking for a fibre-optic or copper cable, the configurator will find it for you.

# Practical service

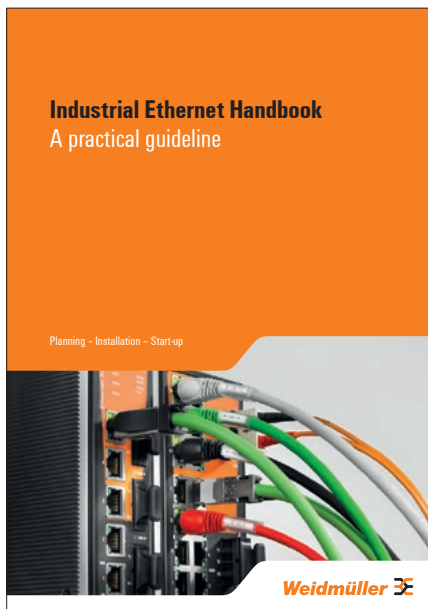
## In-depth planning support

### Practical Guidelines for Industrial Ethernet

Are you an electrical engineer, installer or contractor working on Industrial Ethernet installations and in search of assistance, tips or checklists? Our practical guidelines provide detailed descriptions for the implementation of industrial networks.

- You'll find helpful tips and recommendations for selecting the proper components and for documenting your network
- Practical advice for assembling copper and fibre-optic cables
- Pointers to the current standards and regulations in the industrial networking sector
- Simple network implementation, including tips for operation and security
- Maintenance tips for preventing crashes
- ...and much more!

Please ask your personal sales representative about these practical guidelines.



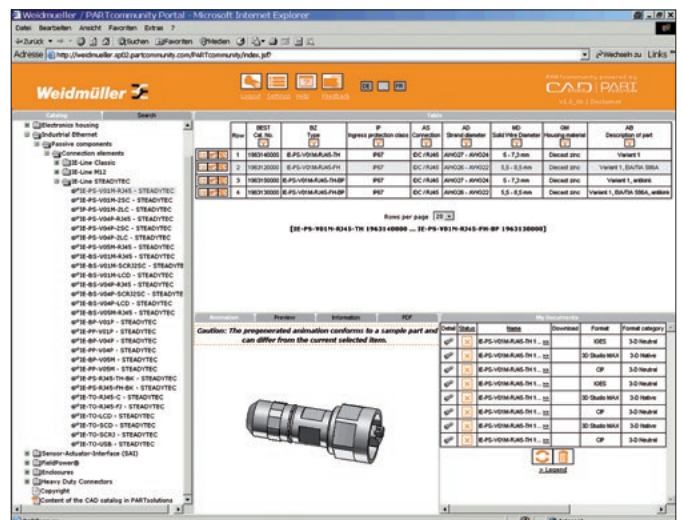
### 3-D data

Do you require 3-D models of your components so you can design them into your application? And accurately portrayed in your own CAD format?

Each component part is located in our Online Catalogue with a direct link to the Partserver (www.partserver.com). You simply input your product specification, CAD format and e-mail address and you will then receive a rapid e-mail response from us with your 3-D model attached.



You can also login at the web site <http://weidmueller.partcommunity.com/portal/portal/weidmueller> to view and download 3-D files.

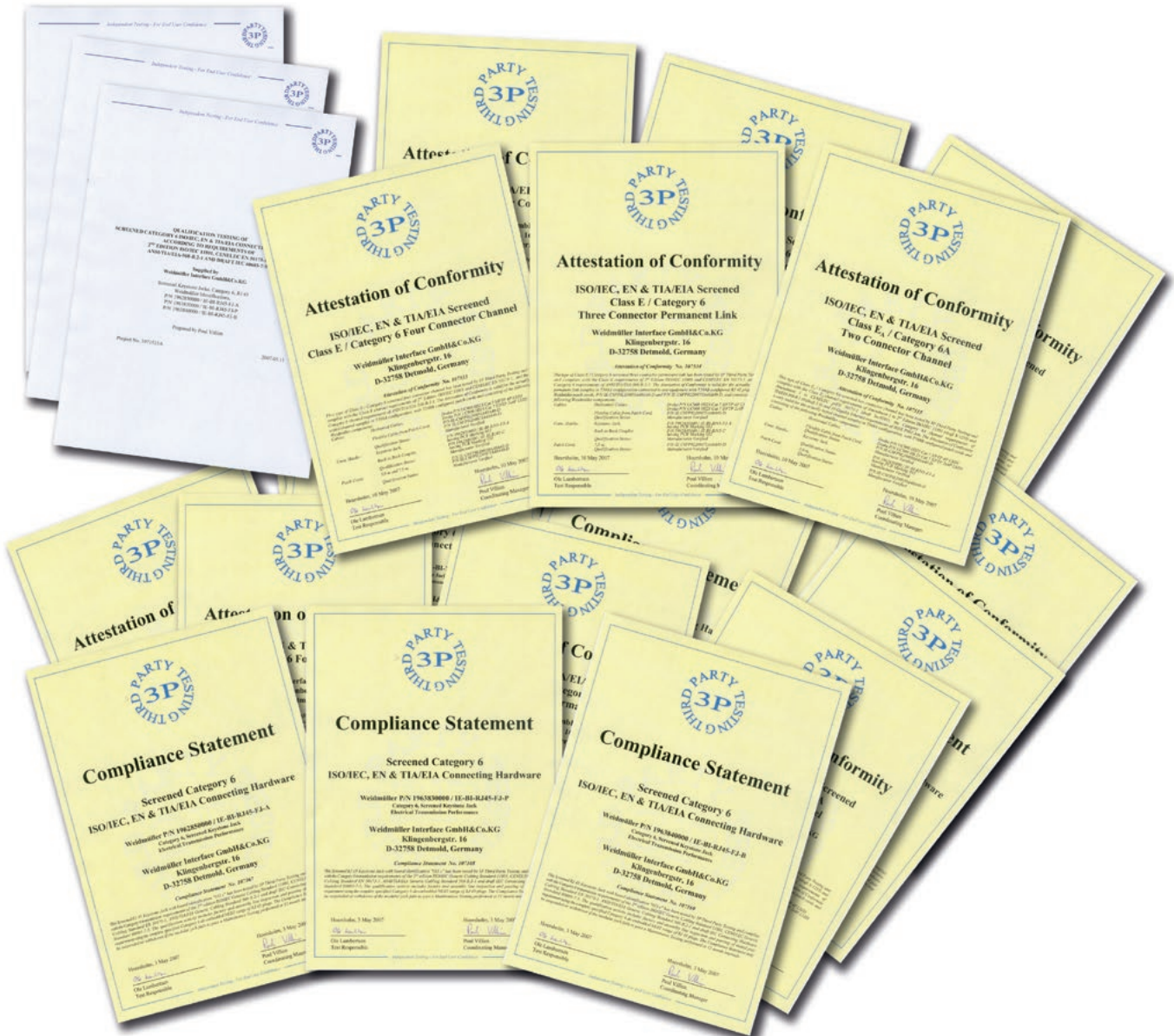


# Quality through certification

## Certified reliability of our solutions

Do you want to prove to your customer that you have installed only the highest quality components? The GHMT (Society for High-frequency Measuring Technology) and the 3P (Third Party Testing) are independent testing institutes and recognised specialists for industrial cabling. These institutes support the industry by means of test certifications for communication cables, connection hardware, patch cords and permanent links and channels.

Their other primary functions are brand testing, safety testing, quality analyses, and error analyses. These certificates are solid proof of the superior quality and performance expectations from our products. Please ask your personal sales partner if you would like to see a copy of our certifications. You can also download the individual certificates from our online catalogue.



# Glossary

## Specialist vocabulary for Industrial Ethernet

Interest in Industrial Ethernet has produced an entirely new dictionary with specialist terms. Some of the most important terms are briefly explained here.

### **4B/5B**

A block encoding system for FDDI and ATM. In 4B/5B encoding, all data is divided into 4-bit units (a nibble) and converted to 5-bit units (symbols) by reference to a matrix.

### **100BaseFX**

100 Mbps Fast Ethernet, based on 4B/5B encoding with fibre optics.

### **100BaseSX**

100 Mbps Fast Ethernet system, identical to operations in the 100BaseFx, but 850 nm fibre-optic technology is used.

### **100BaseTX**

100 Mbps Fast Ethernet system based on 4B/5B encoding and transmission via two copper cables.

### **100BaseX**

This term is used to describe Fast Ethernet technologies based on the 4B/5B encoding. Includes 100BaseTX and 100BaseFX systems.

### **Gigabit-/10 Gigabit Ethernet**

For particularly high data transfer requirements there is Gigabit-Ethernet and 10 Gigabit Ethernet, both are still the exception in the industrial sector, however, development is moving in this direction due to the increasingly high data volumes.

### **802.3.IEEE**

The CSMA/CD group is the oldest working group in the 802 project. It defines the norms according to the CSMA/CD access procedures proposed by the DIX-group. The focus of this working group is on high-speed protocols.

### **AUI**

Stands for "Attachment Unit Interface". Interface between the transceiver and the network board.

### **Auto-negotiation**

Auto-negotiation means automatic recognition of the opposite end's functions. By using RJ45 plugs for the different protocols, from 10Base-T to 100Base-T, a compatibility problem occurs which is solved due to automatic recognition of the opposite end. Using the auto-negotiation procedure, repeaters or terminal equipment can determine what functions the other end has, so that different devices can be configured automatically.

### **Bandwidth**

Bandwidth states how much information can flow within a set period from one location to the other. Units: Bps, Kbps, Mbps, Gbps.

### **Baud**

Baud is the unit of step speed. A step always lasts for a pre-set time e. g. 1 bit, 1\_character. If you multiply the number of bits per state with the baud rate you obtain the transmission speed. Only if the number of states is exactly two (i.e. encoding was carried out at a state of exactly 1 bit), is the baud rate exactly the same as the bit rate.

### **Bit**

Bit is an artificial word made up of binary and digit and constitutes the smallest unit of digital information, either a 0 or a 1.

### **Bitrate**

Bitrate is also referred to as transmission speed, transmission rate or data rate. It is the number of bits that are transmitted per unit of time (typically one second). The bitrate is stated in Bps (bits per second) or in the appropriate powers of 10 as Kbps, Mbps and Gbps. In American English the abbreviation Bps is used.

### **Blowfish**

In the digital information age, the handling of sensitive data is becoming ever more important. Therefore, we have incorporated Blowfish, a symmetrical encryption algorithm, into the software of our routers in order to guarantee a secure link between a pair of Weidmüller routers.

### **Bridge**

According to their OSI definition, bridges connect sub-network protocols on layer 2 of the OSI reference model.

### **Broadcast**

A broadcast transmission is a simultaneous transmission from one point to all network stations.

### **Bus**

Buses are connection systems for electronic and electrical components. The topology of a bus is always a physical medium which the individual components are connected to and which is terminated at both ends. Transmission on a bus can be done bit or byte parallel, as in the PC-bus, or serially, as for networks in bus topology.

**Cable material / properties**• **LSZH**

LSZH is the abbreviation for Low Smoke Zero Halogen. This material is used in the wire and cable industry for cable sheathing. It consists of a thermoplastic or duroplastic compound. In the event of fire, the LSZH cable only releases very small quantities of toxic and corrosive gases and no halogens. It is mainly used in offices and the IP20 part of the electrical cabinet. The cable is light and environmentally friendly.

• **FRNC**

FRNC is the abbreviation for Flame Retardant Non Corrosive. FRNC cables are specified, fire-retardant, special cables with low waste gas levels according to IEC standards 60332, 60754 and VDE0472/804. The FRNC cable contains no halogen and so only produces very little waste gas and a low fire load. One disadvantage of the cables is that they are not resistant to oil or chemicals and absorb a lot of water.

• **PUR (polyurethane)**

PUR is one of the so-called thermoplastic elastomers and possesses properties similar to rubber. PUR contains no halogen, is self-extinguishing and has very good resistance to UV light, chemicals and oil. It is suited to outdoor use and for heavily polluted, industrial environments. Compared with PVC, PUR offers major advantages in terms of its high tensile strength, wear resistance and increased resistance to chemical substances. Examples include mineral oils, alcohol-free benzene and many solvents.

• **PVC (polyvinyl chloride)**

PVC is an amorphous, thermoplastic synthetic material. It burns with a yellow, sooty flame and goes out quickly without further external sources of flame. Given its high chlorine content, unlike other technical synthetic materials such as polyethylene or polypropylene, PVC is flame-resistant. PVC is not halogen-free and releases toxic and corrosive gases in the event of fire. PVC is an easily processed material, is cheap and has good insulating properties.

**Category 5**

Signifies compliance to features specified in EIA/TIA-T568-5. With category 5 (Cat. 5) components, networks can be set up that are suitable for all twisted-pair cable Ethernet transmission systems up to 100 Mbps, including 10Base-T and 100Base-TX and 1000Base-T.

The current Category 5 corresponds with the formerly stricter Category 5e, i.e. there is no difference here between 5 and 5e.

**Category 6**

A Cat. 6 twisted-pair cable is sufficient for Gigabit Ethernet, with a 250-MHz performance. This is an extension of the Cat. 5e cable.

**Category 7**

Cat. 7 cable is suitable for operating frequencies up to 600 MHz. It is made with four individually-shielded core pairs, all within another shielding.

**Collision**

Collision is when two or more stations transmit at the same time in a joint data channel – e.g. a semi-duplex Ethernet or a shared Ethernet. This means that the data transmitted is worthless because they overlay. By overlaying both signals, the signal level increases to what is known as the collision level. This aborts the transmission to both stations.

**Collision domain**

A collision domain is a segment of a CSMA/CD network. In 802.3 Ethernet networks all terminal equipment is on a physical Ethernet segment, including equipment that is interconnected via a repeater, on the same collision domain. In contrast to repeaters that do not affect the collision domain, bridges and routers separate the collision domains.

**CRC**

CRC is an error correction method that creates checksums based on binary numbers by calculating the sums of data groups prior to transmission. CRC is based on the division of polynomials. The principal is that during cyclical block checking, the bits to be monitored are successively fed into a feedback shift register. The length number and position of the feedback from the register are stated according to each procedure. The checksum procedure detects individual errors reliably and multiple errors with a high degree of probability.

**Crossover-cable**

A crossover-cable is a special patch cable where the transmitter and receiver lines at one end have been swapped. Crossover-cables are used to connect two pieces of terminal equipment (computers) or two infrastructure components (switches). Modern switches, because of their auto-crossing function, make connecting normal patch cables with one another possible.

**CSMA/CD**

An access procedure where several network stations have access to the transmission medium. In the CSMA-system the transmitting station listens to the channel (carrier sensing) before it transmits. A station can then only transmit if the transmission medium has not yet been occupied by another station. If the transmission medium is occupied, the station waits till it is free and can transmit. Because of the signalling times it is still possible for two devices to transmit at the same time. To avoid data loss in this type of collision, both transmitters have to detect the collision (collision detect) and after a randomly-selected waiting time send each of their data packets again. CSMA/CD is a widespread standard process in 10-MBit-networks with hubs.

In Industrial Ethernet networks the CSMA/CD system is only used rarely nowadays, because of high demands on network performance.

**DCE**

(Data Communication Equipment)

Any facility that can relay data between data terminal equipment. DCEs are part of the infrastructure and not terminal equipment.

**DHCP**

DHCP (Dynamic Host Configuration Protocol) enables a specially configured server to allocate dynamic IP addresses and other network parameters to the computers in a network.

**DNS-Server**

On the Internet, computers are addressed using their numeric IP address (e.g., 211.163.5.38). The DNS server maintains the structure of the domain name system (DNS). It administers and updates the logical names which are associated with the IP addresses. The name server converts less-accessible dotted-decimal-notation numbers into domain addresses. It then makes this information available to DNS clients on request. A network may include an unlimited number of name servers. Since DNS servers must have built-in redundancy, a server implementation consists of two servers: the primary (PNS) and secondary (SNS) name server. If the primary name server is down, the secondary name server, running in parallel, takes over.

**DTE**

(Data Terminal Equipment) data terminal unit: Every device in the network where a communications route starts or finishes. A station (computer or host) in the network that can transmit or receive data.

**DynDNS**

DynDNS stands for dynamic domain name system. DNS is responsible for resolving host names to IP addresses. Services such as DynDNS were developed for users using a DSL connection with dynamic IP addresses. DynDNS enables the registration of a dynamic (changeable) IP address to a host name. For this to work, a DSL router must support it or a DynDNS client must be installed on a PC.

**Error Detection**

The error detection code is a detection code (CRC or checksum) used where errors are identified but not corrected as in ECC.

**Ethernet**

Ethernet is computer networking technology for local networks (LANs). It refers to cable types and signalling for the bit transfer layer (physical layer), packet formats and protocols for checking media access (media access control, MAC) / link layer of the OSI model. Ethernet is standardised to a large extent in the IEEE norm 802.3.

**Fast-Ethernet**

Nowadays a very widespread version of Ethernet with 100 Mbps over a twisted pair cable according to category 5 or higher. The maximum range is 100 m.

**Fibre-optic cables**

A type of cable with fibre-optics or plastic core that transmits digital signals in the form of light pulses. (Wave lengths 850 nm in 10BaseFL and 100BaseSX or 1300 nm in 100BaseFX).

**Flow Control**

This is a function to modify transmission to the capacity of the receiver. Flow control regulates transmission between the transmitter and receiver by causing the transmitter only to send as much data as the receiver can deal with. The different types of Ethernet have different flow control systems. In credit systems (FO cable) the receiver relays to the transmitter the number of data packets that can be transmitted without confirmation. Duplex connections use the PAUSE signal for flow control and back pressure is used in semi-duplex systems to control the data rate.

**FO (Fibre-optic cables)**

Fibre-optic cables provide an alternative transmission medium to copper. A distinction is made between pure glass fibres (GOF: multimode/singlemode), combined fibres (PCF/HCS) and plastic fibres (POF). They are primarily used because of their insensitivity to electromagnetic interference, but also, in the case GOF, on account of the significantly longer cable lengths compared to copper.

The fibres are usually defined according to the core/sheathing diameter in microns ( $\mu\text{m}$ ):

GOF/MM: 50/125 or 62.5/125

GOF/SM: 9/125

PCF: 200/230

POF: 980/1000

Conventional fibre-optic connector standards include SC Duplex, SC-RJ, LC Duplex and ST (also BFOC).

**Forwarding**

The process whereby frames are relayed from one port to another in the switch.

**Frame**

A frame is a data transmission frame on the link layer (layer 2 in the OSI model), which includes the header and trailer information that the bits transmission layer requires for transmission. All frame formats together form the start delimiter of a frame, the destination and source address (destination and source address), the data itself and an errorchecking device (a frame check sequence). A maximum of 1500 bytes, with VPN-information of 1524 bytes of payload data per packet are possible in the Ethernet.

**Full Duplex Operation**

In full duplex operation or duplex operation both communications partners can communicate bi-directionally at the same time.

**Gigabit Ethernet**

A version of Ethernet operating at a data transmission rate of 1000 Mbps.

**Hub**

A hub is a data communications facility (DCE) that makes it possible to connect three or more devices in a star topology. Modern Ethernet installations hardly use hubs any more but use switches for this purpose because of the higher network output that occurs as a result and the predictable transmission times.

**IEEE**

Association of American Engineers dealing with norm issues.

**IGMP snooping**

A switch equipped with IGMP (Internet Group Multicast Protocol) snooping can check whether join requests for a multicast group occur behind the ports. If this is the case, the port concerned is accepted in the forward table for this group. This reduces the load on the network because the switch does not flood all ports with multicast traffic.

**Jabber**

The jabber messaging protocol is a method in Ethernet networks that prevents a station from occupying the transmission medium for longer than permitted. The jabber function is an element of the IEEE 802.3 standard and provides an interrupt mechanism with which a MAU (Medium Attachment Unit) is interrupted during the transmission process when this transmits data on the cable for longer than 30 ms, or the standard defined packet length of 1518 bytes is exceeded. SQE (Signal Quality Error) signals are sent to the terminal equipment at the same time as the interruption and these cause the terminal equipment to terminate the data transfer. An error function in which a network component continuously sends meaningless signals to the network is also known as a jabber.

**LAN**

(Local Area Network) local network e.g. within a building.

**Link Integrity Test**

This test ensures that the Ethernet link is connected properly and that the signals are transmitted correctly. This can be helpful but does not guarantee that the link is fully functional.

**Link Layer**

The link layer in the OSI reference model.

**Link Pulse**

The NLP pulse is a recognition pulse that is transmitted from 10Base-T-stations to 100Base-T stations for auto-negotiation. The NLP is a periodic pulse with an interval of 16 +/- 8ms.

**LLDP – Link Layer Discovery Protocol**

LLDP is a layer-2 protocol in compliance with the IEEE-802.1AB standard. It defines the possibilities for exchanging information with neighbouring devices. Information is periodically sent from supported devices to all devices on the network. Neighbouring devices which support LLDP are then able to receive this data independently.

**M12 D-coded**

M12, D-coded is a 4-pole plug-in connector variation for Industrial Ethernet according to ISO IEC 61076-2-101. It carries out data transmissions according to Cat. 5 and guarantees IP67 protection.

**M12, X-coded (X-type)**

M12 X-coded is an 8-pin plug connection variation for Industrial Ethernet according to IEC 61076-2-109. It performs the data transmission as per Cat.6<sub>A</sub> and ensures protection class IP67.

**MAC Address**

The MAC address is the six byte long hardware address that uniquely identifies a node in the network. The MAC address is hard-coded onto a chip and cannot be manipulated. MAC addresses are assigned according to a particular key that includes unique adapter recognition, identification of the manufacturer and an ID for operating and managing.

**Manchester Encoding**

Signal encoding where the binary information is shown by the sign of a change in voltage within the bit time. This means that transmitters and receivers are very easy to synchronise, as the transfer in the middle of the bit time produces a reliable frequency. The first half of the bit time includes representing the complementary bit value to be transmitted, the second half represents the bit value (specified for IEEE 802.3 Ethernet and used in 10 Mbit networks).

**MDI**

The Physical Medium Attachment (PMA) and the Medium Dependent Interface (MDI) both form the actual transceiver (MAU) for the 802.3 standard. The MDI is the physical (electrical, optical) and mechanical interface up to the medium. In the different 802.3-types the interface has a different structure.

**MDI-X**

MDI stands for Medium Dependent Interface and refers to an Ethernet connection. Auto MDI/MDIX (autocrossing) makes the automatic modification of the transmitting and receiving line of a port possible, i.e. the connected Ethernet cable (crossed/uncrossed) and the configuration of the opposite station (MDI/MDIX) are recognised automatically and its own port is configured appropriately. So all auto MDI/MDIX ports can be used as uplink port.

**Media converters**

Media converters connect different types of cable and maintain the structure and the functions of the network. In its simplest form a media converter is a quadrupole in the form of a box or network adapter card with a power supply. It modifies different cables – coaxial cables, TP-cables and FO cables – and different plugs to fit one another. In this way media converters can for example be used to modify 100Base-TX to 100Base-FX or to convert monomode fibres to multimode fibres. By using media converters the boundaries of network extension can be increased by using fibre-optic routes. In addition, existing networks can be inexpensively integrated into new network concepts. The Weidmüller range includes media converters on copper-based 10Base-T or 100Base-TX on fibre-optic transmission and vice versa.

**MIB**

Management Information Base is a description for network devices that is used by network management tools to read status information and to transmit control information to the device.

**Multicast**

Multicast is a type of transmission from a single point to several subscribers at the same time (group).

**Multimode**

Refer to FO

**NIC**

A network adapter board is a circuit board or another hardware component that connects the network directly with the terminal equipment. It can be a plug-in board for the bus system in the terminal equipment. The network adapter board is the physical interface to the communications network. It includes the appropriate jacks for connection to the physical medium.

**OLE**

Object Linking and Embedding (OLE) is an interface developed by Microsoft to link and embed data across different applications. In this way external, but OLE-compatible, texts, graphics or tables can be embedded in other OLE applications. Linking OLE-compatible data is carried out via a link to the appropriate file. The original file remains untouched. During embedding, a copy of the file is inserted into the document.



**OSI**

OSI are internationally-agreed standards which open systems should work with and define the rules for implementing these norms. Communications systems are a combination of network hardware and network and systems software in a group of networked devices that permit free exchange of information between these devices on the basis of joint protocol agreements and interfaces, independently of the type of these devices or how they are equipped. Systems that implement OSI protocols are an example of this. The OSI standards are freely available and not protected by licences.

**Packet**

A data packet is a defined arrangement of characters as part of the data network, that are treated as a unit in transmission services with data packet transmission. As well as the payload data, data packets also include control information for addressing, sequence of transmission, flow control and error adjustment at all protocol levels. A data packet can be of a predetermined or variable length, but a maximum length is specified. If the whole destination address is included in each data packet, it is called a datagramme. On the other hand in a virtual connection only the first data packet has the whole address, whereas in the following data packets an assignment is made to the appropriate connection.

**Patch cable**

In the floor distribution point the patch cable creates a flexible connection between floor distribution point and the horizontal wiring. Patch cables are FO cables or copper cables and are also called jumper cords. Patch cables should be very flexible, have a tight bending radius and if possible should max the fixed cable. Patch cables are taken into account in the ISO/IEC 11801 and EN 50173 standards, but are not included in the transmission features specified for the link classes. This should be changed when ie. the channel standards are revised. The patch cable should then, at a length of up to 5 m, be part of a new definition, the channel specification and included in all the transmission features. The jumper cord and a connection cable, also 5 m long, will then be taken into account in this specification.

**PAUSE**

A single frame is sent via the full-duplex mode to the available stations, to signify that transmissions are to be reduced.

**PCF**

Refer to FO

**PHY**

Physical Layer device. This term is mostly used for a transceiver in Fast and Gigabit Ethernet.

**Physical Layer**

The Physical Layer (PHY) is the top sublayer or physical layer consisting of the PMD-sublayer and the PHY-sublayer. The PHY-sublayer is underneath the MAC layer and encodes, decodes and synchronises the station with the transmission frequency and the regeneration of the transmission frequency.

**PoE (Power over Ethernet)**

Power over Ethernet (PoE) is a procedure which allows power to be supplied to a network compatible device over the 8-wire Ethernet cable. The first version of the procedure is defined under IEEE802.3af and includes performance classes up to max. 15.4 W. There has since been a further development called PoE+. The respective standard is IEEE802.3at and it primarily involves an increase in max. power to 30 W.

**Overview of PoE/PoE Plus**

	PoE	PoE Plus
Minimum cable type	Cat. 5	Cat. 5
IEEE standard definition	802.3af	802.3at
Maximum power per PSE port	15.4 W	30 W
Maximum power to PD	12.95 W	25.5 W
Twisted pair used	2-pair	2-pair

**POF**

Refer to FO

**Point-to-Point Technology**

A type of connection where a connection is generated between two pieces of terminal equipment. Point-to-Point connections occur in the networked environment, in radio broadcasting, in beam radio and in the service area. In networks, where point-to-point connections are concerned, instead of a user network interface, an interface to a central facility in the network can also be operated. The connection can be permanent or on demand.

**Port**

Connector on a hardware unit. Usually an input/output channel on the computer or other hardware unit such as modem, router, hub or multiplexer.

**Port Mirroring**

Port mirroring means that the data traffic of a switch port can be mirrored, in order to detect errors or to measure throughput, onto another port to which a management station can be connected.

**PPPoE**

The PPOE (Point to Point Protocol over Ethernet) was developed in order to connect components and LANs to the Internet. It takes advantage of the divided Ethernet environment together with the trusted and secure dial-up access user model from PPP. It allows individual PCs to establish PPP sessions to various target networks simultaneously. A LAN and multiple components can also establish multiple simultaneous PPP sessions for connection to various target networks.

**Promiscuous Mode**

The Promiscuous Mode is a particular receiver mode for network equipment. In this mode the device reads all the incoming data traffic sent to the network interface that has been switched to this mode and transmits the data to be processed to the operating system. Normally this device would only process packets directed to itself, which is done for example in Ethernet networks by evaluating the MAC address.

**Propagation Delay**

The delay is the time that the signal requires to go from one point in a transmission channel to another. Depending on the transmission medium, the delay is the speed of light, as in satellite transmission, or less when transmitting in data cables and FO cables. It does not depend on the speed of light, but depends mostly on the dielectric constant of the medium or in FO cables on the refraction.

**Protocol**

A data transmission protocol establishes the rules for the exchange of information in the form of a directory. This includes all formats, parameters and specifications for a complete, perfect and effective transmission of data. Protocols include conventions on data formats, times and how errors are treated when exchanging data between computers. A protocol is a convention on setting up connections, monitoring connections and terminating connections. Different protocols are necessary in a data connection. Protocols can be assigned to each layer of the reference model. There are communication protocols for the bottom four layers of the reference model and higher protocols for control and data provisioning and its application.

**Quality of Service (QoS)**

QoS are all procedures that influence the flow of data in LANs and WANs so that the service which arrives at the receiver is of a particular quality. The ITU has developed a hierarchical QoS model, which takes both the technical aspects of the service into account and the availability and handling of the terminal equipment. The ITU defined three QoS classes on this basis.

**Rapid Spanning Tree**

The IEEE Standard Rapid Spanning Tree protocol (RSTP, IEEE 802.3w) is – apart from RapidRing™ – another option to provide redundancy in a network. The RSTP makes a structure similar to the network possible. In this way multi-redundancy can be achieved. Using RSTP in a network is not as simple as using RapidRing™, but RSTP does have a lot of interesting options.

**Remote Management**

Remote Management of a switch from every network station equipped with Telnet or web browsers. Remote Management assumes that each switch has its own IP address.

**RJ45**

The advantages of the RJ45 slot system are its compactness and simplicity. It is used for horizontal wiring and wiring work places. The RJ45 slot system is an eight pole miniature slot system for use in connections with SDP and UTP cables. The plug's eight contacts have serial numbers and are protected from corrosion and mechanical stress with a thin gold layer. The contact points are situated between guide rails and the cable is connected with insulation piercing. On the side opposite to the contact side, the RJ45 plug has a fluke that locks the slot when sticking it into a RJ45 jack.

**RMON**

Remote Monitoring is a standard for network management and an extension of SNMP MIB for proactive monitoring and diagnosis of distributed networks.

**SC-plug-in connection**

The SC-plug is a small polarised push/pull plug with high packing density. This LWL-plug is square and can be used for multimode fibres and monomode fibres. Typical insertion loss is at 0.2 dB to 0.4 dB, operating loss in monomode fibres at 50 dB and multimode fibres at least 40 dB. If monomode fibres with a skew angle coupler are used instead of an oval coupler, the operating loss increases to at least 70 dB. In the duplex type, as a SC-Duplex plug, the plug must be used where there is fibre-optic wiring to the terminal equipment. It is also increasingly used in new installations and in FCS and ATM applications.

**Segment**

The term segment has many meanings. In networks a segment is a network section delimited by bridges, routers or switches. Where LANs are concerned, a LAN segment or a collision domain is referred to. In token ring networks, it means the transmission section between two neighbouring data stations. In the TCP specifications, a segment describes a single information unit on the communication network.

**Semi-duplex operation**

The semi-duplex procedure allows bidirectional use of a single transmission line. The interfaces, however, can only either transmit or receive at any given time.

**Singlemode**

Refer to FO

**Slot time**

This is an important Ethernet value. The slot time is twice the speed of the signal propagation time between the two networks that are farthest away from one another and the minimum packet length of 64 bytes or 512 bits. At a frequency clock speed of 10 Mbps, or a frequency clock cycle of a 100 ns, this produces a slot time of 51.2  $\mu$ s. At 100 Mbps the frequency is 10 ns, so therefore the slot time for the same packet length is 51.2  $\mu$ s. The greater the slot time, the poorer the Ethernet performance.

**SNMP**

The SNMP protocol means that central network management for many network components is possible. SNMP's main objectives are to decrease the complexity of the management functions, to extend the protocol and to be independent of any network components. The SNMP protocol supports monitoring, controlling and administration of networks. According to the SNMP architecture model a network is divided into network management stations (NMS) and network components. The network management stations carry out applications to monitor and control the network components. The network components have management agents, which carry out management functions.

**Spanning Tree Protocol**

-> see Rapid Spanning Tree.

**ST connector**

This LWL-plug (IEC-SC 86B) specified by AT&T is suitable for both monomode fibres and multimode fibres. The ST-plug is a commonly-available plug, used in LANs. It uses a bayonet lock as its locking system. In this LWL-plug the FO cable is guided through a ceramic or metal ferrule with a pin diameter of 2.5 mm and is prevented from twisting by a metal pin. The ceramic ferrule has been grounded to make its contact area convex. A spring means that there is constant contact to the front of the fibres to be connected.

**Star topology**

In star topology the transmission stations are connected in a star shape to a central node. Star topologies can only exchange data indirectly via the central node. There is a difference between active and passive star systems. In the former, the middle node is a computer that takes over relaying the messages. Its capacity determines the performance of the network. For example: private exchanges. Passive systems only have one node in the middle that combines the routes. This node does not have any exchange role, its purpose is signal regeneration. Passive star systems can for example be operated with TDMA, CSMA/CD or token access procedures.

**Straight-through**

A type of cable where the cable connections at both ends are the same. This type of cable is mostly used to connect devices such as switches with the station. Straight-through is the normal way of wiring cables – in contrast to crossover cables.

**Station**

Each hardware component in a network and the terminal equipment connected to the network. Server, router, telephone, fax machine etc and all communication devices connected with a network adapter (NIC).

**Switching Hub**

Switches are network components that have switching functions. These switching functions can also take place as exchange functions in long-distance networks and in local networks. In long-distance networks the local exchanges have local switches and the remote exchanges have central switches.

**Topology**

The configuration of the network nodes and connections is called the physical topology. The logical connections of network nodes possible are referred to as the logical topology. This states which node pairs can communicate with one another and whether they have a direct physical connection. The physical and logical topology does not have to be identical in networks. As a rule network topologies can be divided into two classes, where in the first class connections from one node to the next one are set up and in the second class all network nodes are directly connected to the transmission medium. The most well-known network topologies are ring topology, bus topology, tree topology and star topology. There is also meshed topology in long-distance networks

**Transceiver**

Transceiver is a compound word made up of transmitter and receiver and signifying a transmitting/receiving device. The transceiver implements network access of a station to the Ethernet and is sometimes called a MAU.

**Trunking**

The term trunking occurs in Ethernet networks but also in private exchanges and in mobile communication. In large Ethernet networks trunking is the parallel switching of several Ethernet links. The transmission via the parallel links is used to scale the bandwidth and is activated by the spanning tree algorithm. As the spanning tree protocol is unsuitable for granular bandwidth scaling, this technology has been standardised in the IEE 802.3ad working group and called "Aggregation of multiple link segments".

**Twisted-Pair Cable**

A twisted-pair cable is a symmetrical copper cable consisting of two wires that are twisted together. The conductors consist of insulated copper conductors. In contrast to asymmetrical cables, such as coaxial cables, symmetrical cables do not have reference potential. The advantage is that wires can be arranged to prevent interference between the lines.

**VLAN**

Virtual networks or virtual LANs (VLAN) are a technological concept for implementing logical work groups within a network. This type of network is implemented using LAN-switching or virtual routing on the link layer or on the network layer.

**VPN**

VPN is the abbreviation for Virtual Private Network. These virtual networks are used to connect local networks together via public networks such as the Internet. They thus form a virtual network. There are various VPN technologies. The most widely distributed are OpenVPN and IPsec.

**Web server**

A web server is a server programme that provides files via HTTP protocol. These files are usually websites, pictures and style sheets. It makes no difference to the web server what type of files it supplies. Each time a website is requested (for example by clicking a link), the browser sends an HTTP query to a web server. This web server can then send the site requested back. The standard ports for the web server are 80 HTTP protocol and 443 for HTTPS, the encrypted HTTP (for example with SSL). Usually all page requests are saved in a log file, from where – by using log file analysis – different statistics on access can be generated. However these do not give the full picture, as HTTP is a connectionless protocol.





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IE-C5DB4WE0010A20A20-E	1421710010	L.44	IE-C5D54V1000	8898990000	L.15	IE-C6FP8L80300M40M40-D	1312160010	L.22	IE-C6FP8LM280M40M40-R	1166030195	L.19
IE-C5DB4WE0020A20A20-E	1421710020	L.44	IE-C5D54V1000	8898990000	G.14	IE-C6FP8L80350M40M40-D	1248280012	L.21	IE-C6FP8LM285M40M40-R	1166030200	L.19
IE-C5DB4WE0030A20A20-E	1421710030	L.44	IE-C5D54V-MW	8955560000	G.13	IE-C6FP8L80400M40M40-D	1233160012	L.21	IE-C6FP8LM290M40M40-R	1166030205	L.19
IE-C5DB4WE0040A20A20-E	1421710040	L.44	IE-C5D54V-MW	8955560000	L.5	IE-C6FP8L80450M40M40-D	1165940015	L.17	IE-C6FP8LM295M40M40-R	1166030210	L.19
IE-C5DB4WE0040MCA-MCA-E	1220310040	L.43	IE-C5D54V-MW	8955560000	L.14	IE-C6FP8L80500M40M40-D	1248280015	L.21	IE-C6FP8LM300M40M40-R	1166030215	L.19
IE-C5DB4WE0050A20A20-E	1421710050	L.44	IE-C5D54V-MW	1522100005	L.26	IE-C6FP8L80550M40M40-D	1233160015	L.21	IE-C6FP8LM305M40M40-R	1166030220	L.19
IE-C5DB4WE0050MCSXXX-E	1269740050	L.43	IE-C5D54V-G0010A60A60-E	1522100010	G.12	IE-C6FP8L80600M40M40-D	1165940020	L.17	IE-C6FP8LM310M40M40-R	1166030225	L.19
IE-C5DB4WE0100A20A20-E	1421710100	L.44	IE-C5D54V-G0010A60A60-E	1522100010	L.28	IE-C6FP8L80650M40M40-D	1248280020	L.21	IE-C6FP8LM315M40M40-R	1166030230	L.19
IE-C5DB4WE0100MCSXXX-E	1269740100	L.43	IE-C5D54V-G0020A60A60-E	1522100020	L.26	IE-C6FP8L80700M40M40-D	1233160020	L.21	IE-C6FP8LM320M40M40-R	1166030235	L.19
IE-C5DB4WE0200A20A20-E	1421710200	L.44	IE-C5D54V-G0030A60A60-E	1522100030	G.12	IE-C6FP8L80750M40M40-D	1312160020	L.22	IE-C6FP8LM325M40M40-R	1166030240	L.19
IE-C5DD4U1000	8899010000	G.13	IE-C5D54V-G0030A60A60-E	1522100030	L.26	IE-C6FP8L80800M40M40-D	1165940030	L.17	IE-C6FP8LM330M40M40-R	1166030245	L.19
IE-C5DD4U1000	8899010000	L.5	IE-C5D54V-G0050A60A60-E	1522100050	L.12	IE-C6FP8L80850M40M40-D	1248280030	L.21	IE-C6FP8LM335M40M40-R	1166030250	L.19
IE-C5DD4U1000	8899010000	L.15	IE-C5D54V-G0050A60A60-E	1522100050	G.16	IE-C6FP8L80900M40M40-D	1233160030	L.21	IE-C6FP8LM340M40M40-R	1166030255	L.19
IE-C5DD4UG-MW	8947670000	G.13	IE-C5D54V-G010A60A60-E	1522100100	L.28	IE-C6FP8L80950M40M40-D	1312160030	L.22	IE-C6FP8LM345M40M40-R	1166030260	L.19
IE-C5DD4UG-MW	8947670000	L.5	IE-C5D54V-G010A60A60-E	1522100100	G.12	IE-C6FP8L81000M40M40-D	1165940050	L.17	IE-C6FP8LM350M40M40-R	1166030265	L.19
IE-C5DD4UG-MW	8947670000	L.15	IE-C5D54V-G015A60A60-E	1522100150	L.26	IE-C6FP8L81050M40M40-D	1248280050				

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IECD-V14MRJ-CMA	1068870000	K.4	IEFC-DSP-PWB/ZST/FLS	2067080000	I.4	IEFCI-PWB-GB	1450770000	I.4	IEFM6D2UE-MW	8956060000	M.3
IECD-V14MRJ-FJ	1068880000	G.13	IEFC-IP-1ST/1D9/1D25	1450650000	I.11	IEFCI-PWB-GB	1450770000	I.18	IEFM6D2UE-MW	8956060000	M.5
IECD-V14MRJ-FJ	1068880000	K.2	IEFC-IP-2ST/2D9	1450670000	I.11	IEFCI-PWB-IND	2500710000	H.17	IEFM6D2UE0001MSDSD0X	8876440010	M.14
IECD-V14MRJ/VAPM24V-CMA	1068820000	G.13	IEFC-IP-BP	1450710000	I.6	IEFCI-PWB-IND	2500710000	I.4	IEFM6D2UE0001MSTOSTOX	8876460010	M.14
IECD-V14MRJ/VAPM24V-CMA	1068820000	K.4	IEFC-IP-PWB	2548060000	I.8	IEFCI-PWB-IND	2500710000	I.21	IEFM6D2UE0003MSDSD0X	8876440030	M.14
IECD-V14MRJ/VAPM24V-FJ	1068830000	G.13	IEFC-IP-PWB/1D9	2003350000	I.7	IEFCI-PWB-ISR	2531060000	H.17	IEFM6D2UE0003MSTOSTOX	8876460030	M.14
IECD-V14MRJ/VAPM24V-FJ	1068830000	K.2	IEFC-IP-PWB/ZST	1450630000	I.7	IEFCI-PWB-ISR	2531060000	I.21	IEFM6D2UE0005MLDLD0X	1229300000	M.13
IECD-V14MSCRJ-MM-CMA	1318150000	G.13	IEFC-IP-PWS/2D9	1450680000	I.9	IEFCI-PWB-RCB0	1534250000	H.17	IEFM6D2UE0005MSDSD0X	8876440050	M.14
IECD-V14MSCRJ-MM-CMA	1318150000	K.5	IEFC-IP-PWS/2ST/1D9	1450690000	I.8	IEFCI-PWB-RCB0	1534250000	I.4	IEFM6D2UE0005MSTOSTOX	8876460050	M.14
IECD-VAPM24V-CMA	1397690000	G.13	IEFC-IP-PWS/4ST	1450640000	I.9	IEFCI-PWB-RCB0	1534250000	I.22	IEFM6D2UE0010MSDSD0X	8876440100	M.14
IECD-VAPM24V-CMA	1397690000	K.6	IEFC-IP-PWU/1ST/CB	1543710000	I.10	IEFCI-PWB-RC3A	1543690000	I.5	IEFM6D2UE0010MSTOSTOX	8876460100	M.14
IECD-VAPM24V-Y-MA	1297010000	G.13	IEFC-IP-PWU/2ST	1450700000	I.10	IEFCI-PWB-RC3A	1543690000	I.10	IEFM6D2UE0020MLDLD0X	1174830000	M.13
IECD-VAPM24V-Y-MA	1297010000	K.6	IEFC-KEYZ	2066850000	I.2	IEFCI-PWB-RC3A	1543690000	I.24	IEFM6D2UE005MLDLD0X	8993220000	M.13
IECDM-V14MRJSCP/VAPM-C	1324440000	G.13	IEFC-KEYZ	2066850000	I.3	IEFCI-PWS-IT	1450810000	H.17	IEFM6Z2L00001MLDLD0X	1433930010	M.8
IECDM-V14MRJSCP/VAPM-C	1324440000	K.9	IEFC-PWPC	1450820000	I.2	IEFCI-PWS-IT	1450810000	I.4	IEFM6Z2L00001MSDSD0X	1433960010	M.7
IEDR-V14MRJSCP/VAPM-C	2581180000	K.10	IEFC-PWPC	1450820000	I.3	IEFCI-PWS-IT	1450810000	I.9	IEFM6Z2L00001MSTOSTOX	1433980010	M.7
IEDR-V14MRJSCP/VAPM-C	2581180000	G.13	IEFC-PWPC	1450820000	I.4	IEFCI-PWS-IT	1450810000	I.18	IEFM6Z2L00002MLDLD0X	1433930020	M.8
IEDR-V14MSCPOF/VAPM-C	1253240000	K.9	IEFC-PWPC	1450820000	I.7	IEFCI-PWS-US	1450800000	I.10	IEFM6Z2L00002MSDSD0X	1433960020	M.7
IEDR-V14MSCPOF/VAPM-C II	2545536000	K.10	IEFC-PWPC	1450820000	I.8	IEFCI-PWS-US	1450800000	I.20	IEFM6Z2L00002MSTOSTOX	1433980020	M.7
IECL240V-PP-BASE	1547440000	K.11	IEFC-PWPC	1450820000	I.9	IEFCM-RJ45-C	1018790000	G.12	IEFM6Z2L00003MLDLD0X	1433930030	M.8
IECL240V-PP-REMOTE	1547450000	K.11	IEFC-PWPC	1450820000	I.10	IEFCM-RJ45-C	1018790000	G.16	IEFM6Z2L00003MSDSD0X	1433960030	M.7
IECRP20-RJ45-FH-BU	1963080000	H.2	IEFC-PWPC	1450820000	I.11	IEFCM-RJ45-C	1018790000	I.29	IEFM6Z2L00003MSTOSTOX	1433980030	M.7
IECRP20-RJ45-FH-GN	1963100000	H.2	IEFC-PWPC	1450820000	I.25	IEFCM-RJ45-FJA	1018810000	G.16	IEFM6Z2L00005MLDLD0X	1433930050	M.8
IECRP20-RJ45-FH-GY	1963060000	H.2	IEFC-SET-IPDEK001-KY-P	1543680000	I.26	IEFCM-RJ45-FJA	1018810000	I.28	IEFM6Z2L00005SDSD0X	1433960050	M.7
IECRP20-RJ45-FH-HG	1963070000	H.2	IEFC-SET-SPDEK001-KY-P	1989020000	I.26	IEFCM-RJ45-FJB	1018820000	G.16	IEFM6Z2L00005MSTOSTOX	1433980050	M.7
IECRP20-RJ45-FH-WH	1963050000	H.2	IEFC-SFM-KEY2	1450540000	I.2	IEFCM-RJ45-FJB	1018820000	I.28	IEFM6Z2L00005MLDLD0X	1433930050	M.8
IECRP20-RJ45-FH-YE	1963090000	H.2	IEFC-SFM-KNOB	1450530000	I.2	IEFCM-RJ45-FJP	1018830000	G.12	IEFM6Z2L00005MSDSD0X	1433960050	M.7
IECS-2TX-1RS232/485	1242080000	D.5	IEFC-SFP-KEY2	1450520000	I.2	IEFCM-RJ45-FJP	1018830000	I.28	IEFM6Z2L00005MSTOSTOX	1433980050	M.7
IECS-2TX-2RS232/485	1242090000	D.5	IEFC-SFP-KNOB	1450510000	I.2	IEFCM-USB-3.0A	1427960000	I.30	IEFM6Z2L00002MLDLD0X	1433930100	M.8
IECSPD5U0050VAPVAP-X	1403680050	L.29	IEFC-SP-1ST/1D9/1D25	1450580000	I.11	IEFCM-USB-A	1018840000	I.30	IEFM6Z2L00001MSDSD0X	1433960100	M.7
IECSPD5U0100VAPVAP-X	1403680100	L.29	IEFC-SP-2ST/2D9	1450590000	I.11	IEFCM-USB-AB	1222550000	I.30	IEFM6Z2L00001MSTOSTOX	1433980100	M.7
IECSPD5U0150VAPVAP-X	1403680150	L.29	IEFC-SP-PWB/ZST	1450550000	I.7	IEFISPV4	9204370000	I.12	IEFM6Z2V00001MLDLD0X	1296450000	M.11
IECSPSSV00100VAPVAP-X	1350120010	L.29	IEFC-SP-PWS/2D9	1450610000	I.9	IEFISPV4	9204370000	I.28	IEFM6Z2V00001MSDSD0X	8813330000	M.10
IECSPSSV00300VAPVAP-X	1350120030	L.29	IEFC-SP-PWS/2ST/1D9	1450600000	I.8	IEFISPV4	9204370000	I.29	IEFM6Z2V00001MSTOSTOX	8813270000	M.10
IECSPSSV00500VAPVAP-X	1350120050	L.29	IEFC-SP-PWS/4ST	1450570000	I.9	IEFISPV4	9204370000	I.30	IEFM6Z2V00002MSDSD0X	8813340000	M.10
IECSPSSV0100VAPVAP-X	1350120100	L.29	IEFC-SP-PWU/2ST	1450620000	I.10	IEFISPV4	9204370000	J.23	IEFM6Z2V00002MSTOSTOX	8813400000	M.11
IECSPSSV0150VAPVAP-X	1350120150	L.29	IEFCHD25-FF	1450880000	I.11	IEFISPV4	9204370000	J.25	IEFM6Z2V00002MSTOSTOX	8813280000	M.10
IECSPSSV0200VAPVAP-X	1350120200	L.29	IEFCHD25-FF	1450880000	I.14	IEFISPV4	9204370000	J.27	IEFM6Z2V00003MSDSD0X	8813350000	M.10
IECST	9204350000	L.6	IEFCHD25-FM	1450890000	I.11	IEFISPV4	9204370000	J.29	IEFM6Z2V00003MSTOSTOX	8813290000	M.10
IECST	9204350000	L.7	IEFCHD25-FM	1450890000	I.14	IEFISPV4	9204370000	N.15	IEFM6Z2V00005MSDSD0X	8876360050	M.10
IECST	9204350000	L.8	IEFCHD25-FS	1450900000	I.11	IEFM5C2UE-MW	8956070000	M.3	IEFM6Z2V00005MSTOSTOX	8876380050	M.10
IECST	9204350000	L.9	IEFCHD25-FS	1450900000	I.14	IEFM5C2UE-MW	8956070000	M.5	IEFM6Z2V00001MSDSD0X	8876360100	M.10
IECST	9204350000	L.10	IEFCHD9-FF	1450840000	I.5	IEFM5D2UE-MW	8946000000	G.13	IEFM6Z2V00001MSTOSTOX	8876380100	M.10
IECST	9204350000	L.11	IEFCHD9-FF	1450840000	I.7	IEFM5D2UE-MW	8946000000	G.17	IEFPD02UE-MW	1172280000	G.13
IECST	9204350000	L.12	IEFCHD9-FF	1450840000	I.8	IEFM5D2UE-MW	8946000000	M.3	IEFPD02UE-MW	1172280000	G.17
IECST	9204350000	L.13	IEFCHD9-FF	1450840000	I.9	IEFM5D2UE-MW	8946000000	M.5	IEFPD02UE-MW	1172280000	M.3
IECST	9204350000	L.14	IEFCHD9-FF	1450840000	I.11	IEFM5D2UE0001MSDSD0X	8876430010	M.14	IEFPD02UE-MW	1172280000	M.6
IECST	9204350000	L.15	IEFCHD9-FF	1450840000	I.14	IEFM5D2UE0001MSTOSTOX	8876450010	M.14	IEFPD02UG-MW	1398770000	M.3
IECST	9204350000	L.16	IEFCHD9-FM	1450850000	I.5	IEFM5D2UE0003MSDSD0X	8876430030	M.14	IEFPD02UG-MW	1398770000	M.6
IECST	9204350000	L.17	IEFCHD9-FM	1450850000	I.7	IEFM5D2UE0003MSTOSTOX	8876450030	M.14	IEFPD02EE-MW	1242820000	G.13
IECST	9204350000	L.18	IEFCHD9-FM	1450850000	I.8	IEFM5D2UE0005MSDSD0X	8876430050	M.14	IEFPD02EE-MW	1242820000	G.17
IECST	9204350000	L.19	IEFCHD9-FM	1450850000	I.9	IEFM5D2UE0005MSTOSTOX	8876450050	M.14	IEFPD02EE-MW	1242820000	M.3
IECST	9204350000	L.20	IEFCHD9-FM	1450850000	I.11	IEFM5D2UE010MLDLD0X	8979020000	M.13	IEFPD02EE-MW	1242820000	M.6
IECST	9204350000	L.21	IEFCHD9-FM	1450850000	I.14	IEFM5D2UE010MSDSD0X	8876430100	M.14	IEFPD02EE0001MSJOSJ0X	1273430010	G.12
IECST	9204350000	L.22	IEFCHD9-FS	1450870000	I.5	IEFM5D2UE010MSTOSTOX	8876450100	M.14	IEFPD02EE0001MSJOSJ0X	1273430010	G.16
IECST	9204350000	L.23	IEFCHD9-FS	1450870000	I.7	IEFM5D2UE005MLDLD0X	8979040000	M.13	IEFPD02EE0001MSJOSJ0X	1273430010	M.12
IECST	9204350000	L.24	IEFCHD9-FS	1450870000	I.8	IEFM5D2UE005MSTOSTOX	8876450050	M.14	IEFPD02EE0003MSJOSJ0X	1273430030	G.12
IECST	9204350000	L.25	IEFCHD9-FS	1450870000	I.9	IEFM5D2UE010MLDLD0X	8979030000	M.13	IEFPD02EE0003MSJOSJ0X	1273430030	G.16
IECST	9204350000	L.27	IEFCHD9-FS	1450870000	I.11	IEFM5D2UE010MSDSD0X	8876431000	M.14	IEFPD02EE0003MSJOSJ0X	1273430030	M.12
IECST	9204350000	L.28	IEFCHD9-FS	1450870000	I.14	IEFM5D2UE010MSTOSTOX	8876451000	M.14	IEFPD02EE0005MSJOSJ0X	1273430050	G.12
IECST	9204350000	L.29	IEFCHD15-FF	1556290000	I.7	IEFM52L00001MLDLD0X	1433940010	M.8	IEFPD02EE0005MSJOSJ0X	1273430050	G.16
IECST	9204350000	L.31	IEFCHD15-FF	1556290000	I.8	IEFM52L00001MSDSD0X	1433970010	M.7	IEFPD02EE0005MSJOSJ0X	1273430050	M.12
IECST	9204350000	L.40	IEFCHD15-FF	1556290000	I.9	IEFM52L00001MSTOSTOX	1433990010	M.7	IEFPD02EE0010MSJOSJ0X	1273430100	G.12
IECST	9204350000	L.43	IEFCHD15-FF	1556290000	I.14	IEFM52L00002MLDLD0X	1433940020	M.8	IEFPD02EE0010MSJOSJ0X	1273430100	G.16
IECST	9204350000	N.4	IEFCHD15-FF	1556290000	I.15	IEFM52L00002MSDSD0X	1433970020	M.7	IEFPD02EE0010MSJOSJ0X	1273430100	M.12
IECST-2TX-1RS232/485	1285830000	D.5	IEFCHDM1-FF	2003390000	I.7	IEFM52L00002MSTOSTOX	1433990020	M.7	IEFPD02EE0020MSJOSJ0X	1273430020	M.12
IECST-2TX-2RS232/485	1285840000	D.5	IEFCHDM1-FF	2003390000	I.8	IEFM52L00003MLDLD0X	1433940030	M.7	IEFSMD2UE0005MSDSD0X	1449420050	M.16
IECT	8808420000	N.7	IEFCHDM1-FF	2003390000	I.9	IEFM52L00003MSDSD0X	1433970030	M.7	IEFSMD2UE0020MSDSD0X	1449420200	M.16
IECT-LC-GOF	9205330000	J.55	IEFCHDM1-FF	2003390000	I.10	IEFM52L00003MSTOSTOX	1433990030	M.7	IEFSMD2UE0025MSDSD0X	1449420250	M.16
IECT-LC-GOF	9205330000	J.56	IEFCHDM1-FF	2003390000	I.15	IEFM52L00005MLDLD0X	1433940005	M.8	IEFSMD2UE0040MSDSD0X	1449420400	M.16
IECT-LC-GOF	9205330000	M.5	IEFCI-PWB-2USB-A-5V	2505070000	I.23	IEFM52L00005MSDSD0X	1433970005	M.7	IEFSM2LY0001MLDLD0X	1433950010	M.9
IECT-LC-GOF	9205330000	N.12	IEFCI-PWB-AU	1450830000	H.17	IEFM52L00005MSTOSTOX	1433990005	M.7	IEFSM2LY0002MLDLD0X	1433950020	M.9
IECT-SC-GOF	9205320000	M.5	IEFCI-PWB-AU	1450830000	I.4	IEFM52L00005MLDLD0X	1433940050	M.8	IEFSM2LY0003MLDLD0X	1433950030	M.9
IECT-SC-GOF	9205320000	N.12	IEFCI-PWB-AU	1450830000	H.17	IEFM52L00005MSDSD0X	1433970050	M.7	IEFSM2LY0005MLDLD0X	1433950050	M.9
IECWZ-RJ45-THP	2614210000	H.7	IEFCI-PWB-AU-10A	1546590000	I.19	IEFM52L00005MSTOSTOX	1433990050	M.7	IEFSM2LY0005MLDLD0X	1433950050	M.9
IEDINRAIL-AD-PWB	2534680000	H.17	IEFCI-PWB-AU-10A	1546590000	I.4	IEFM52L00001MLDLD0X	1433940100	M.8	IEFSM2LY0010MLDLD0X	1433950100	M.9
IEDINRAIL-AD-PWB	2534680000	I.16	IEFCI-PWB-AU-10A	1546590000	I.19	IEFM52L00001MSDSD0X	1433970100	M.7	IEFSM-MB-2TX-1RS232/485	1504460000	D.8
IEDINRAIL-AD-PWB	2534680000										

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IEOM-V05M-K11-S	1966260000	K.16	IEPP-RJ45	2552580000	L.24	IEPS-V01P-RJ45-FH	1012490000	J.18	IESW-BL06T-1TX-4POE-1ST	1504290000	B.20
IEOM-V05M-K21-2S	1966290000	K.16	IEPP-RJ45	2552580000	L.25	IEPS-V01P-RJ45-FHP	1012570000	G.8	IESW-BL06T-2TX-4POE	1286920000	B.20
IEOP-V01P-1S	1061830000	G.17	IEPP-RJ45	2552580000	L.26	IEPS-V01P-RJ45-FHP	1012570000	J.18	IESW-BL06T-4POE-2SC	1504220000	B.20
IEOP-V01P-1S	1061830000	K.12	IEPP-RJ45	2552580000	L.31	IEPS-V01P-RJ45-FH	1012470000	G.8	IESW-BL06T-4POE-2ST	1504240000	B.20
IEOP-V04P-1S	1045780000	K.14	IEPP-RJ45	2552580000	L.34	IEPS-V01P-RJ45-FH	1012470000	G.16	IESW-BL08-6TX-2SC	1240910000	B.3
IEP	8813100000	H.6	IEPP-RJ45	2552580000	L.37	IEPS-V01P-RJ45-FH	1012470000	J.18	IESW-BL08-6TX-2SCS	1412110000	B.3
IEP-P67	8808380000	J.32	IEPP-RJ45	2552580000	L.43	IEPS-V01P-RJ45-FH	1012560000	G.8	IESW-BL08-6TX-2ST	1240930000	B.3
IEP-P63	8813110000	H.6	IEPP-RJ45	2552580000	L.44	IEPS-V01P-RJ45-FHP	1012560000	J.18	IESW-BL08-7TX-1SC	1412070000	B.3
IEP-P70	8813120000	H.6	IEPP-V01P	1965690000	G.8	IEPS-V04P-2L2C-MM	1963320000	G.8	IESW-BL08-7TX-1SCS	1240950000	B.3
IEPCB-M12X-S-180	1324010000	J.44	IEPP-V01P	1965690000	G.16	IEPS-V04P-2L2C-MM	1963320000	J.28	IESW-BL08-7TX-1ST	1412090000	B.3
IEPCB-M12X-S-90	2168220000	J.45	IEPP-V01P	1965690000	J.12	IEPS-V04P-2L2C-MM-BP	1963330000	G.8	IESW-BL08-8TX	1240900000	B.3
IEPCB-M12X-S-180	1393080000	J.44	IEPP-V01P	1965690000	J.14	IEPS-V04P-2L2C-MM-BP	1963330000	J.28	IESW-BL08T-6TX-2SC	1240920000	B.3
IEPCB-M12X-S-180	1427670000	J.44	IEPP-V01P	1965690000	J.16	IEPS-V04P-2L2C-MM	1963340000	G.8	IESW-BL08T-6TX-2SCS	1412120000	B.3
IEPCB-M12X-S-180	1444850000	J.44	IEPP-V01P	1965690000	J.18	IEPS-V04P-2L2C-MM	1963340000	J.28	IESW-BL08T-6TX-2ST	1286570000	B.3
IEPH-A05M-RJ45	1993540000	J.30	IEPP-V01P	1965690000	N.20	IEPS-V04P-2L2C-MM-BP	1963350000	G.8	IESW-BL08T-7TX-1SC	1412080000	B.3
IEPH-RJ45-THBK	1962500000	H.6	IEPP-V04P	1963890000	G.8	IEPS-V04P-2L2C-MM-BP	1963350000	J.28	IESW-BL08T-7TX-1SCS	1286580000	B.3
IEPH-RJ45-THBU	1962470000	H.6	IEPP-V04P	1963890000	J.22	IEPS-V04P-2SC-MM	1963360000	G.8	IESW-BL08T-7TX-1ST	1412100000	B.3
IEPH-RJ45-THGN	1962490000	H.6	IEPP-V04P	1963890000	J.26	IEPS-V04P-2SC-MM	1963360000	J.26	IESW-BL08T-8TX	1286560000	B.3
IEPH-RJ45-THGY	1962440000	H.6	IEPP-V04P	1963890000	J.28	IEPS-V04P-2SC-MM-BP	1963370000	G.8	IESW-IP67-5M12	1504410000	B.5
IEPH-RJ45-THOG	1962450000	H.6	IEPP-V04P	1963890000	N.20	IEPS-V04P-2SC-MM-BP	1963370000	J.26	IESW-IP67T-5M12	1504420000	B.5
IEPH-RJ45-THWH	1962430000	H.6	IEPP-V05M	1968920000	G.8	IEPS-V04P-2SC-MM	1963400000	G.8	IESW-IP67T-5M12	1241070000	B.5
IEPH-RJ45-THYE	1962480000	H.6	IEPP-V05M	1968920000	J.30	IEPS-V04P-2SC-MM	1963400000	J.26	IESW-IP67T-5M12	1241090000	B.5
IEPH-V01M	1962550000	G.8	IEPP-V05M	1968920000	N.20	IEPS-V04P-2SC-MM-BP	1963410000	G.8	IESW-IP67T-5M12	1241080000	B.5
IEPH-V01M	1962550000	J.12	IEPP-V14P	1068280000	G.8	IEPS-V04P-2SC-MM-BP	1963410000	J.26	IESW-IP67T-5M12	1241040000	B.5
IEPH-V01M	1962550000	J.14	IEPP-V14P	1068280000	G.13	IEPS-V04P-RJ45-FH	1963160000	G.8	IESW-IP67T-5M12	1286790000	B.5
IEPH-V01M	1962550000	J.16	IEPP-V14P	1068280000	J.12	IEPS-V04P-RJ45-FH	1963160000	J.22	IESW-IP67T-5M12	1286810000	B.5
IEPH-V01M-BP	1962560000	G.8	IEPP-V14P	1068280000	J.16	IEPS-V04P-RJ45-FH-B	1271240000	G.8	IESW-IP67T-5M12	1286800000	B.5
IEPH-V01M-BP	1962560000	J.12	IEPP-V14P	1068280000	J.10	IEPS-V04P-RJ45-FH-B	1271240000	J.22	IESW-IP67T-5M12	1286780000	B.5
IEPH-V01M-BP	1962560000	J.14	IEPP-V14P	1068280000	N.20	IEPS-V04P-RJ45-FHP	1963170000	G.8	IESW-IP67T-5M12	1241370000	B.5
IEPH-V01M-BP	1962560000	J.16	IEPS-LCD-MM	1962970000	H.9	IEPS-V04P-RJ45-FHP	1963170000	J.22	IESW-IP67T-5M12	1287020000	B.5
IEPH-V01P	1012440000	G.8	IEPS-LCD-MM	1962980000	H.9	IEPS-V04P-RJ45-FH	1963180000	G.8	IESW-IP67T-5M12	1241300000	B.5
IEPH-V01P	1012440000	J.18	IEPS-M12X-P-AWG22/27FH	2007500000	J.41	IEPS-V04P-RJ45-FH	1963180000	J.22	IESW-IP67T-5M12	1241290000	B.5
IEPH-V01P	1012460000	G.8	IEPS-M12X-P-FH	1324020000	J.41	IEPS-V04P-RJ45-FHP	1963190000	G.8	IESW-IP67T-5M12	1286940000	B.5
IEPH-V01P-BP	1012460000	J.18	IEPS-M12X-S-FH	1516330000	J.42	IEPS-V04P-RJ45-FHP	1963190000	J.22	IESW-IP67T-5M12	1286930000	B.5
IEPH-V04P	1962520000	G.8	IEPS-RJ45-FH-180-A-1.1	1992850000	H.3	IEPS-V05M-A-RJ45-FH	1077300000	J.30	IESW-IP67T-5M12	1241120000	B.5
IEPH-V04P	1962520000	J.22	IEPS-RJ45-FH-180-A-1.6	1992820000	H.3	IEPS-V05M-M-RJ45-FH	1963200000	G.8	IESW-IP67T-5M12	1241130000	B.5
IEPH-V04P	1962520000	J.26	IEPS-RJ45-FH-180-B-1.1	1992860000	H.3	IEPS-V05M-M-RJ45-FH	1963200000	J.30	IESW-IP67T-5M12	1241100000	B.5
IEPH-V04P	1962520000	J.28	IEPS-RJ45-FH-180-B-1.6	1992830000	H.3	IEPS-V05M-M-RJ45-FH-B	1271250000	G.8	IESW-IP67T-5M12	1286830000	B.5
IEPH-V04P-BP	1962530000	G.8	IEPS-RJ45-FH-180-P-1.6	1992840000	H.5	IEPS-V05M-M-RJ45-FH-B	1271250000	J.30	IESW-IP67T-5M12	1286840000	B.5
IEPH-V04P-BP	1962530000	J.22	IEPS-RJ45-FH-90-A-1.1	1518200000	H.4	IEPS-V05M-M-RJ45-FH	1963110000	G.8	IESW-IP67T-5M12	1286820000	B.5
IEPH-V04P-BP	1962530000	J.26	IEPS-RJ45-FH-90-A-1.6	1992870000	H.4	IEPS-V05M-M-RJ45-FH	1963110000	J.30	IESW-IP67T-5M12	1241320000	B.5
IEPH-V04P-BP	1962530000	J.28	IEPS-RJ45-FH-90-B-1.1	1518090000	H.4	IEPS-V14M-2SC-POF	1191550000	G.8	IESW-IP67T-5M12	1241330000	B.5
IEPH-V05M	1962540000	G.8	IEPS-RJ45-FH-90-B-1.6	1992890000	H.4	IEPS-V14M-2SC-POF	1191550000	G.13	IESW-IP67T-5M12	1241350000	B.5
IEPH-V05M	1962540000	J.30	IEPS-RJ45-FH-90-P-1.6	1518100000	G.12	IEPS-V14M-2SC-POF	1191550000	J.10	IESW-IP67T-5M12	1241340000	B.5
IEPH-V14M-FD	1058100000	G.8	IEPS-RJ45-FH-90-P-1.6	1518100000	H.5	IEPS-V14M-HYB-10P	1072910000	G.13	IESW-IP67T-5M12	1286970000	B.5
IEPH-V14M-FD	1058100000	J.10	IEPS-RJ45-FH-BK	1963600000	H.2	IEPS-V14M-HYB-10P	1072910000	J.6	IESW-IP67T-5M12	1286990000	B.5
IEPH-V14M-RJ	1011560000	G.8	IEPS-RJ45-FH-BKA	1132040000	G.16	IEPS-V14M-RJ45-FHP	1012170000	G.8	IESW-IP67T-5M12	1287010000	B.5
IEPH-V14M-RJ	1011560000	J.2	IEPS-RJ45-FH-BKB	1132040000	H.2	IEPS-V14M-RJ45-FHP	1012170000	G.13	IESW-IP67T-5M12	1287000000	B.5
IEPH-V14M-RJ	1011560000	J.6	IEPS-RJ45-FH-BKB-B	1132050000	G.16	IEPS-V14M-RJ45-FH	1012170000	J.2	IESW-IP67T-5M12	1504330000	B.3
IEPL-2L2C-MM	1962780000	G.8	IEPS-RJ45-FH-BKB-B	1132050000	H.2	IEPS-V14M-RJ45-FH	1012160000	G.8	IESW-IP67T-5M12	1504370000	B.3
IEPL-2L2C-MM	1962780000	J.55	IEPS-RJ45-FH-BK-P	1132060000	G.12	IEPS-V14M-RJ45-FH	1012160000	J.2	IESW-IP67T-5M12	1504280000	B.3
IEPL-2L2C-MM	1962790000	G.8	IEPS-RJ45-FH-BK-P	1132060000	H.2	IEPS-VAPM-24V	1068910000	G.12	IESW-IP67T-5M12	1504350000	B.3
IEPL-2L2C-MM	1962790000	J.55	IEPS-RJ45-FH-BK	1963590000	G.16	IEPS-VAPM-24V	1068910000	K.11	IESW-IP67T-5M12	1504390000	B.3
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IEPR-RJ45-FH	1962730000	G.8	IEPS-RJ45-FH-BK-P	2584980000	H.7	IEPS-VAPM-5P-2.5	2465440000	J.58	IESW-IP67T-5M12	1241280000	B.6
IEPR-RJ45-FH	1962730000	J.46	IEPS-SCD-MM	1964480000	H.9	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1241270000	B.6
IEPR-RJ45-FHA	1132010000	G.8	IEPS-SCD-MM	1964410000	H.9	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1345240000	B.4
IEPR-RJ45-FHA	1132010000	J.46	IEPS-SCRJ1-MM	1206730000	G.12	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1240970000	B.4
IEPR-RJ45-FHA-1.1	1992920000	H.3	IEPS-SCRJ1-MM	1206730000	G.16	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1345240000	B.4
IEPR-RJ45-FHA-1.1	1992920000	H.4	IEPS-SCRJ1-MM	1206730000	H.8	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1240970000	B.4
IEPR-RJ45-FHA-1.6	1992880000	H.3	IEPS-SCRJ1-MM	1206730000	G.12	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1240970000	B.4
IEPR-RJ45-FHA-1.6	1992880000	H.4	IEPS-SCRJ1-MM	1206730000	G.16	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1240940000	B.4
IEPR-RJ45-FHB	1132020000	G.8	IEPS-SCRJ1-MM	1206730000	H.8	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1286870000	B.6
IEPR-RJ45-FHB	1132020000	J.46	IEPS-SCRJ1-MM	1206730000	G.12	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1286870000	B.6
IEPR-RJ45-FHB-1.1	1992930000	H.3	IEPS-SCRJ1-MM	1206740000	G.16	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1286870000	B.6
IEPR-RJ45-FHB-1.1	1992930000	H.4	IEPS-SCRJ1-MM	1206740000	H.8	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1240980000	B.4
IEPR-RJ45-FHB-1.6	1992900000	H.3	IEPS-SCRJ1-MM	1206740000	H.8	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1241030000	B.4
IEPR-RJ45-FHB-1.6	1992900000	H.4	IEPS-ST-MM	1968150000	H.8	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1241050000	B.4
IEPR-RJ45-FHB-1.6	1992900000	H.8	IEPS-ST-MM	1968150000	H.8	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1241000000	B.4
IEPR-RJ45-FHP	1132030000	G.8	IEPS-V01M-2L2C-MM	1963220000	G.8	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1286610000	B.4
IEPR-RJ45-FHP	1132030000	J.46	IEPS-V01M-2L2C-MM	1963220000	J.16	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1286620000	B.4
IEPR-RJ45-FHP-1.6	1992910000	H.5	IEPS-V01M-2L2C-MM-BP	1963230000	G.8	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	1286590000	B.4
IEPR-RJ45-TH	1962720000	G.8	IEPS-V01M-2L2C-MM-BP	1963230000	J.16	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	8947010000	H.16
IEPR-RJ45-TH	1962720000	J.47	IEPS-V01M-2L2C-MM	1963240000	G.8	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	8947020000	H.16
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IEPR-RJ45-TH	1962720000	J.47	IEPS-V01M-2L2C-MM	1963240000	G.8	IE-S-IP67	8808370000	K.17	IESW-IP67T-5M12	8946920000	G.12
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1300000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1302000000 series.

1190000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1191550000 series.

1200000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1201270002 series.

1260000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1269740050 series.

1310000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1312160003 series.

1210000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1212770000 series.

Table with 3 columns: Order No., Type, Page. Contains part of the 1241450000 series.

1280000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1285830000 series.

1320000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1324010000 series.

1220000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1220310040 series.

1330000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1333160000 series.

1230000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1233160005 series.

1340000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1344670000 series.

1350000000

Table with 3 columns: Order No., Type, Page. Contains part of the 1350120010 series.

Order No.	Type	Page
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1350120200 IE-CSPSSV0200VAPVAP-X L.29

## 136000000

1362950000 IE-MCT-1RS232/485-1ST D.7

## 137000000

1376510005 IE-C5DD4UG005A2DA2D-E L.25  
 1376510010 IE-C5DD4UG0010A2DA2D-E L.25  
 1376510020 IE-C5DD4UG0020A2DA2D-E L.25  
 1376510030 IE-C5DD4UG0030A2DA2D-E L.25  
 1376510050 IE-C5DD4UG0050A2DA2D-E L.25  
 1376510100 IE-C5DD4UG0100A2DA2D-E L.25  
 1376510150 IE-C5DD4UG0150A2DA2D-E L.25  
 1376510200 IE-C5DD4UG0200A2DA2D-E L.25

## 139000000

1393080000 IE-PCB2-M12X-S180 J.44  
 1393470000 IE-M12-PCBCF-PANEL-A J.40  
 1397690000 IE-CD-VAPM24V-CMA G.13  
 1397690000 IE-CD-VAPM24V-CMA K.6  
 1398070005 IE-C6K8S8VG005XCSCXCS-E L.36  
 1398070015 IE-C6K8S8VG0015XCSCXCS-E L.36  
 1398070030 IE-C6K8S8VG0030XCSCXCS-E L.36  
 1398070050 IE-C6K8S8VG0050XCSCXCS-E L.36  
 1398070100 IE-C6K8S8VG0100XCSCXCS-E L.36  
 1398770000 IE-FP02UG-MW M.3  
 1398770000 IE-FP02UG-MW M.6

## 140000000

1400610000 IE-AD-M12XRJ45-90 J.43  
 1400620000 IE-AD-M12XRJ45-180 J.43  
 1403680050 IE-CSP05US0050VAPVAP-X L.29  
 1403680100 IE-CSP05US0100VAPVAP-X L.29  
 1403680150 IE-CSP05US0150VAPVAP-X L.29

## 141000000

1412070000 IE-SW-BL08-7TX-1SC B.3  
 1412080000 IE-SW-BL08-7TX-1SC B.3  
 1412090000 IE-SW-BL08-7TX-1ST B.3  
 1412100000 IE-SW-BL08-7TX-1ST B.3  
 1412110000 IE-SW-BL08-6TX-2SCS B.3  
 1412120000 IE-SW-BL08-6TX-2SCS B.3  
 1414680000 IE-PS-ST-SM H.8

## 142000000

1421710010 IE-C5DB4VE0010A20A2D-E L.44  
 1421710020 IE-C5DB4VE0020A20A2D-E L.44  
 1421710030 IE-C5DB4VE0030A20A2D-E L.44  
 1421710040 IE-C5DB4VE0040A20A2D-E L.44  
 1421710050 IE-C5DB4VE0050A20A2D-E L.44  
 1421710100 IE-C5DB4VE0100A20A2D-E L.44  
 1421710200 IE-C5DB4VE0200A20A2D-E L.44  
 1427670000 IE-PCBR-M12X-S180 J.44  
 1427960000 IE-FCM-USB-3.0-A I.30

## 143000000

1433930005 IE-FM6Z2L00005DLDD0D-X M.8  
 1433930010 IE-FM6Z2L00010MLDD0D-X M.8  
 1433930020 IE-FM6Z2L00020MLDD0D-X M.8  
 1433930030 IE-FM6Z2L00030MLDD0D-X M.8  
 1433930050 IE-FM6Z2L00050MLDD0D-X M.8  
 1433930100 IE-FM6Z2L00010MLDD0D-X M.8  
 1433940005 IE-FM5Z2L00005DLDD0D-X M.8  
 1433940010 IE-FM5Z2L00010MLDD0D-X M.8  
 1433940020 IE-FM5Z2L00020MLDD0D-X M.8  
 1433940030 IE-FM5Z2L00030MLDD0D-X M.8  
 1433940050 IE-FM5Z2L00050MLDD0D-X M.8  
 1433940100 IE-FM5Z2L00010MLDD0D-X M.8  
 1433950005 IE-FSMZ2LY0005DLDD0D-X M.9  
 1433950010 IE-FSMZ2LY00010MLDD0D-X M.9  
 1433950020 IE-FSMZ2LY00020MLDD0D-X M.9  
 1433950030 IE-FSMZ2LY00030MLDD0D-X M.9  
 1433950050 IE-FSMZ2LY00050MLDD0D-X M.9  
 1433950100 IE-FSMZ2LY0010MLDD0D-X M.9  
 1433960005 IE-FM6Z2L00005SDSD0D-X M.7  
 1433960010 IE-FM6Z2L00010MSDSD0D-X M.7  
 1433960020 IE-FM6Z2L00020MSDSD0D-X M.7  
 1433960030 IE-FM6Z2L00030MSDSD0D-X M.7  
 1433960050 IE-FM6Z2L00050MSDSD0D-X M.7  
 1433960100 IE-FM6Z2L00010MSDSD0D-X M.7  
 1433970005 IE-FM5Z2L00005SDSD0D-X M.7  
 1433970010 IE-FM5Z2L00010MSDSD0D-X M.7  
 1433970020 IE-FM5Z2L00020MSDSD0D-X M.7  
 1433970030 IE-FM5Z2L00030MSDSD0D-X M.7  
 1433970050 IE-FM5Z2L00050MSDSD0D-X M.7  
 1433970100 IE-FM5Z2L00010MSDSD0D-X M.7  
 1433980005 IE-FM6Z2L00005DSTOSTO-X M.7  
 1433980010 IE-FM6Z2L00010MSTOSTO-X M.7  
 1433980020 IE-FM6Z2L00020MSTOSTO-X M.7  
 1433980030 IE-FM6Z2L00030MSTOSTO-X M.7  
 1433980050 IE-FM6Z2L00050MSTOSTO-X M.7  
 1433980100 IE-FM6Z2L00010MSTOSTO-X M.7

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1433990005 IE-FM5Z2L00005DSTOSTO-X M.7  
 1433990010 IE-FM5Z2L00010MSTOSTO-X M.7  
 1433990020 IE-FM5Z2L00020MSTOSTO-X M.7  
 1433990030 IE-FM5Z2L00030MSTOSTO-X M.7  
 1433990050 IE-FM5Z2L00050MSTOSTO-X M.7  
 1433990100 IE-FM5Z2L00010MSTOSTO-X M.7  
 1438180000 IE-TQ-USB-AB H.14

## 144000000

1444650000 IE-PCBR-M12X-S180 J.44  
 1449420050 IE-FSM02UE0005MSDESDEX M.16  
 1449420200 IE-FSM02UE0020MSDESDEX M.16  
 1449420250 IE-FSM02UE0025MSDESDEX M.16  
 1449420400 IE-FSM02UE0040MSDESDEX M.16  
 1449470005 IE-C6K8S8VG0005XCSCXCS-E L.36  
 1449470015 IE-C6K8S8VG0015XCSCXCS-E L.36  
 1449470050 IE-C6K8S8VG0050XCSCXCS-E L.36  
 1449470100 IE-C6K8S8VG0100XCSCXCS-E L.36

## 145000000

1450510000 IE-FC-SFP-KNOB I.2  
 1450520000 IE-FC-SFP-KEY2 I.2  
 1450530000 IE-FC-SFM-KNOB I.2  
 1450540000 IE-FC-SFM-KEY2 I.2  
 1450550000 IE-FC-SP-PWV/2ST I.9  
 1450570000 IE-FC-SP-PWS/4ST I.7  
 1450580000 IE-FC-SP-1ST/109/1D25 I.11  
 1450590000 IE-FC-SP-2ST/2D9 I.11  
 1450600000 IE-FC-SP-PWS/2ST/109 I.8  
 1450610000 IE-FC-SP-PWS/2D9 I.9  
 1450620000 IE-FC-SP-PWU/2ST I.10  
 1450630000 IE-FC-IP-PWB/2ST I.9  
 1450640000 IE-FC-IP-PWS/4ST I.7  
 1450650000 IE-FC-IP-1ST/109/1D25 I.11  
 1450670000 IE-FC-IP-2ST/2D9 I.11  
 1450680000 IE-FC-IP-PWS/2D9 I.9  
 1450690000 IE-FC-IP-PWS/2ST/109 I.8  
 1450700000 IE-FC-IP-PWU/2ST I.10  
 1450710000 IE-FC-IP-BP I.6  
 1450730000 IE-FC-IP-PWB-DE H.17  
 1450730000 IE-FC-IP-PWB-DE I.4  
 1450730000 IE-FC-IP-PWB-DE I.16  
 1450750000 IE-FC-IP-PWB-FR H.17  
 1450750000 IE-FC-IP-PWB-FR I.4  
 1450750000 IE-FC-IP-PWB-FR I.17  
 1450770000 IE-FC-IP-PWB-GB I.4  
 1450770000 IE-FC-IP-PWB-GB I.18  
 1450780000 IE-FC-IP-PWB-CH H.17  
 1450780000 IE-FC-IP-PWB-CH I.4  
 1450780000 IE-FC-IP-PWB-CH I.17  
 1450790000 IE-FC-IP-PWB-CN H.17  
 1450790000 IE-FC-IP-PWB-CN I.4  
 1450790000 IE-FC-IP-PWB-CN I.20  
 1450800000 IE-FC-IP-PWS-US I.10  
 1450800000 IE-FC-IP-PWS-US I.20  
 1450810000 IE-FC-IP-PWS-IT H.17  
 1450810000 IE-FC-IP-PWS-IT I.4  
 1450810000 IE-FC-IP-PWS-IT I.9  
 1450810000 IE-FC-IP-PWS-IT I.18  
 1450820000 IE-FC-PWPC I.2  
 1450820000 IE-FC-PWPC I.3  
 1450820000 IE-FC-PWPC I.4  
 1450820000 IE-FC-PWPC I.7  
 1450820000 IE-FC-PWPC I.9  
 1450820000 IE-FC-PWPC I.10  
 1450820000 IE-FC-PWPC I.11  
 1450820000 IE-FC-PWPC I.25  
 1450830000 IE-FC-IP-PWB-AU I.4  
 1450830000 IE-FC-IP-PWB-AU I.14  
 1450840000 IE-FC-IP-D9-F I.5  
 1450840000 IE-FC-IP-D9-F I.7  
 1450840000 IE-FC-IP-D9-F I.8  
 1450840000 IE-FC-IP-D9-F I.9  
 1450840000 IE-FC-IP-D9-F I.11  
 1450840000 IE-FC-IP-D9-F I.14  
 1450850000 IE-FC-IP-D9-FM I.5  
 1450850000 IE-FC-IP-D9-FM I.7  
 1450850000 IE-FC-IP-D9-FM I.8  
 1450850000 IE-FC-IP-D9-FM I.9  
 1450850000 IE-FC-IP-D9-FM I.11  
 1450870000 IE-FC-IP-D9-FS I.5  
 1450870000 IE-FC-IP-D9-FS I.7  
 1450870000 IE-FC-IP-D9-FS I.8  
 1450870000 IE-FC-IP-D9-FS I.9  
 1450870000 IE-FC-IP-D9-FS I.11  
 1450870000 IE-FC-IP-D9-FM I.5  
 1450880000 IE-FC-IP-D25-F I.11  
 1450880000 IE-FC-IP-D25-F I.14  
 1450890000 IE-FC-IP-D25-FM I.11  
 1450890000 IE-FC-IP-D25-FM I.14  
 1450900000 IE-FC-IP-D25-FS I.11  
 1450900000 IE-FC-IP-D25-FS I.14  
 1457580010 IE-C6EL8UG0010U40XCS-E L.37

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1457580020 IE-C6EL8UG0020U40XCS-E L.37  
 1457580030 IE-C6EL8UG0030U40XCS-E L.37  
 1457580050 IE-C6EL8UG0050U40XCS-E L.37  
 1457580100 IE-C6EL8UG0100U40XCS-E L.37  
 1457580120 IE-C6EL8UG0120U40XCS-E L.37

## 148000000

1487920000 IE-BHUSB-3.0-A I.4  
 1487920000 IE-BHUSB-3.0-A I.5  
 1487920000 IE-BHUSB-3.0-A I.7  
 1487920000 IE-BHUSB-3.0-A I.8  
 1487920000 IE-BHUSB-3.0-A I.9  
 1487920000 IE-BHUSB-3.0-A I.10  
 1487920000 IE-BHUSB-3.0-A I.11  
 1487920000 IE-BHUSB-3.0-A I.13  
 1487920000 IE-BHUSB-3.0-A J.52  
 1487980000 IE-USB-A-MICRO-1.8M L.45  
 1489940000 IE-SR-2GT-LAN-FM C.7

## 149000000

1491920000 VFSKHV/1.5-2.5/485 I.20  
 1491940000 VFSKHV/1.5-2.5/6/38 I.24  
 1491970000 VFSKHV/1.5-2.5 I.24  
 1499940000 IE-CC-8W-FAN-IP N.3

## 150000000

1504210000 IE-SW-BL06-4POE-2SC B.20  
 1504220000 IE-SW-BL06T-4POE-2SC B.20  
 1504230000 IE-SW-BL06-4POE-2ST B.20  
 1504240000 IE-SW-BL06T-4POE-2ST B.20  
 1504250000 IE-SW-BL06-1TX-4POE-1SC B.20  
 1504260000 IE-SW-BL06T-1TX-4POE-1SC B.20  
 1504270000 IE-SW-BL06-1TX-4POE-1ST B.20  
 1504280000 IE-SW-VL05M-STX B.13  
 1504290000 IE-SW-BL06T-1TX-4POE-1ST B.20  
 1504310000 IE-SW-VL05M-STX B.13  
 1504320000 IE-SW-BL05-1GT-4GTPOE B.21  
 1504330000 IE-SW-VL05M-3TX-2SC B.13  
 1504340000 IE-SW-BL05T-1GT-4GTPOE B.21  
 1504350000 IE-SW-VL05M-3TX-2SC B.13  
 1504360000 IE-SW-BL05-1GS-4GTPOE B.21  
 1504370000 IE-SW-VL05M-3TX-2ST B.13  
 1504380000 IE-SW-BL05T-1GS-4GTPOE B.21  
 1504390000 IE-SW-VL05M-3TX-2ST B.13  
 1504410000 IE-SW-IP67-5M12 B.5  
 1504420000 IE-SW-IP67-5M12 B.5  
 1504430000 IE-DINRAILMOUNT-KIT D.7  
 1504430000 IE-DINRAILMOUNT-KIT F.3  
 1504440000 IE-WALLMOUNT-KIT-46MM B.5  
 1504440000 IE-WALLMOUNT-KIT-46MM B.6  
 1504440000 IE-WALLMOUNT-KIT-46MM B.8  
 1504440000 IE-WALLMOUNT-KIT-46MM B.13  
 1504440000 IE-WALLMOUNT-KIT-46MM B.14  
 1504440000 IE-WALLMOUNT-KIT-46MM B.16  
 1504440000 IE-WALLMOUNT-KIT-46MM B.18  
 1504440000 IE-WALLMOUNT-KIT-46MM B.20  
 1504440000 IE-WALLMOUNT-KIT-46MM D.3  
 1504440000 IE-WALLMOUNT-KIT-46MM E.7  
 1504440000 IE-WALLMOUNT-KIT-46MM E.9  
 1504440000 IE-WALLMOUNT-KIT-46MM F.5  
 1504450000 IE-WALLMOUNT-KIT-30MM B.3  
 1504450000 IE-WALLMOUNT-KIT-30MM B.6  
 1504450000 IE-WALLMOUNT-KIT-30MM B.21  
 1504450000 IE-WALLMOUNT-KIT-30MM F.4  
 1504460000 IE-GW-MB-2TX-1RS232/485 D.8  
 1504470000 IE-GWT-MB-2TX-1RS232/485 D.8

## 151000000

1514940000 IE-AD-M12DRJ45-MF-90 J.38  
 1514970000 IE-AD-M12DRJ45-MF-180 J.38  
 1516330000 IE-PS-M12X-S-FH J.42  
 1516340000 IE-BS-M12X-S-FH J.42  
 1518080000 IE-PS-RJ45-FH-90A-1.1 H.4  
 1518090000 IE-PS-RJ45-FH-90B-1.1 H.4  
 1518100000 IE-PS-RJ45-FH-90P-1.6 G.12  
 1518100000 IE-PS-RJ45-FH-90P-1.6 H.5

## 152000000

1522100005 IE-C5DS4V60005A60A60-E L.26  
 1522100010 IE-C5DS4V60010A60A60-E G.12  
 1522100010 IE-C5DS4V60020A60A60-E L.26  
 1522100020 IE-C5DS4V60020A60A60-E L.26  
 1522100030 IE-C5DS4V60030A60A60-E G.12  
 1522100030 IE-C5DS4V60030A60A60-E L.26  
 1522100050 IE-C5DS4V60050A60A60-E G.12  
 1522100100 IE-C5DS4V60100A60A60-E G.12  
 1522100100 IE-C5DS4V60100A60A60-E L.26  
 1522100150 IE-C5DS4V60150A60A60-E L.26  
 1522100200 IE-C5DS4V60200A60A60-E L.26

## 153000000

1534250000 IE-FC-IP-PWB-RCB0 H.17

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1534250000 IE-FC-PWB-RCB0 I.4  
 1534250000 IE-FC-IP-PWB-RCB0 I.22

## 154000000

1543680000 IE-FC-SET-IPBEK001-KY-P I.26  
 1543690000 IE-FC-IP-PWB-3A I.5  
 1543690000 IE-FC-IP-PWB-3A I.10  
 1543690000 IE-FC-IP-PWB-3A I.24  
 1543710000 IE-FC-IP-PWU/1ST/CB I.10  
 1546590000 IE-FC-IP-PWB-AU-10A H.17  
 1546590000 IE-FC-IP-PWB-AU-10A I.4  
 1546590000 IE-FC-IP-PWB-AU-10A I.19  
 1547440000 IE-CL240W-PP-BASE K.11  
 1547450000 IE-CL240W-PP-REMOTE K.11

## 155000000

1554000000 IE-FC-IP-PWB-DE-OR H.17  
 1554000000 IE-FC-IP-PWB-DE-OR I.4  
 1554000000 IE-FC-IP-PWB-DE-OR I.16  
 1556290000 IE-FC-HD15FF I.7  
 1556290000 IE-FC-HD15FF I.8  
 1556290000 IE-FC-HD15FF I.9  
 1556290000 IE-FC-HD15FF I.11  
 1556290000 IE-FC-HD15FF I.15

## 168000000

1689470001 VT SF 5/21 MC NE WS VO L.6  
 1689470001 VT SF 5/21 MC NE WS VO L.7  
 1689470001 VT SF 5/21 MC NE WS VO L.8  
 1689470001 VT SF 5/21 MC NE WS VO L.9  
 1689470001 VT SF 5/21 MC NE WS VO L.10  
 1689470001 VT SF 5/21 MC NE WS VO L.11  
 1689470001 VT SF 5/21 MC NE WS VO L.12  
 1689470001 VT SF 5/21 MC NE WS VO L.13  
 1689470001 VT SF 5/21 MC NE WS VO L.14  
 1689470001 VT SF 5/21 MC NE WS VO L.15  
 1689470001 VT SF 5/21 MC NE WS VO L.16  
 1689470001 VT SF 5/21 MC NE WS VO L.24  
 1689470001 VT SF 5/21 MC NE WS VO M.5  
 1689470001 VT SF 5/21 MC NE WS VO M.6  
 1689470001 VT SF 5/21 MC NE WS VO M.7  
 1689470001 VT SF 5/21 MC NE WS VO M.8  
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 1689470001 VT SF 5/21 MC NE WS VO M.15  
 1689470001 VT SF 5/21 MC NE WS VO M.16  
 1689470001 VT SF 5/21 MC NE WS VO N.23

## 169000000

1699860000 SM 27/18 MC NE WS I.12  
 1699860000 SM 27/18 MC NE WS I.28  
 1699860000 SM 27/18 MC NE WS I.29  
 1699860000 SM 27/18 MC NE WS I.30

## 170000000

1707270000 SM 27/18 K MC NE WS I.2  
 1707270000 SM 27/18 K MC NE WS I.3

## 171000000

1713760000 SM 27/18 K MC NE SI I.2  
 1713760000 SM 27/18 K MC NE SI I.3  
 1716630000 SMH 27/18 SW I.12  
 1716630000 SMH 27/18 SW I.28  
 1716630000 SMH 27/18 SW I.29  
 1716630000 SMH 27/18 SW I.30  
 1718411687 TMI 12 MC NE GE L.6  
 1718411687 TMI 12 MC NE GE L.7  
 1718411687 TMI 12 MC NE GE L.8  
 1718411687 TMI 12 MC NE GE L.9  
 1718411687 TMI 12 MC NE GE L.10  
 1718411687 TMI 12 MC NE GE L.11  
 1718411687 TMI 12 MC NE GE L.12  
 1718411687 TMI 12 MC NE GE L.13  
 1718411687 TMI 12 MC NE GE L.14  
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 1718411687 TMI 12 MC NE GE L.21  
 1718411687 TMI 12 MC NE GE L.22  
 1718411687 TMI 12 MC NE GE L.23  
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 1718411687 TMI 12 MC NE GE L.25  
 1718411687 TMI 12 MC NE GE L.27  
 1718411687 TMI 12 MC NE GE L.28  
 1718411687 TMI 12 MC NE GE L.29  
 1718411687 TMI 12 MC NE GE L.30





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1963590000	IE-PS-RJ45-TH-BK	H.6
1963600000	IE-PS-RJ45-FH-BK	H.2
1963700000	IE-BS-V05M-RJ45-FJP	G.9
1963700000	IE-BS-V05M-RJ45-FJP	J.31
1963730000	IE-BS-V04P-RJ45-FJB	G.9
1963730000	IE-BS-V04P-RJ45-FJB	J.23
1963830000	IE-BJRJ45-FJP	G.9
1963830000	IE-BJRJ45-FJP	I.4
1963830000	IE-BJRJ45-FJP	I.5
1963830000	IE-BJRJ45-FJP	I.7
1963830000	IE-BJRJ45-FJP	I.8
1963830000	IE-BJRJ45-FJP	I.9
1963830000	IE-BJRJ45-FJP	I.10
1963830000	IE-BJRJ45-FJP	I.11
1963830000	IE-BJRJ45-FJP	I.12
1963830000	IE-BJRJ45-FJP	J.20
1963830000	IE-BJRJ45-FJP	J.24
1963830000	IE-BJRJ45-FJP	J.28
1963830000	IE-BJRJ45-FJP	K.12
1963830000	IE-BJRJ45-FJP	K.13
1963830000	IE-BJRJ45-FJP	K.14
1963830000	IE-BJRJ45-FJP	K.15
1963830000	IE-BJRJ45-FJP	K.16
1963840000	IE-BJRJ45-FJB	G.9
1963840000	IE-BJRJ45-FJB	G.17
1963840000	IE-BJRJ45-FJB	I.4
1963840000	IE-BJRJ45-FJB	I.5
1963840000	IE-BJRJ45-FJB	I.7
1963840000	IE-BJRJ45-FJB	I.8
1963840000	IE-BJRJ45-FJB	I.9
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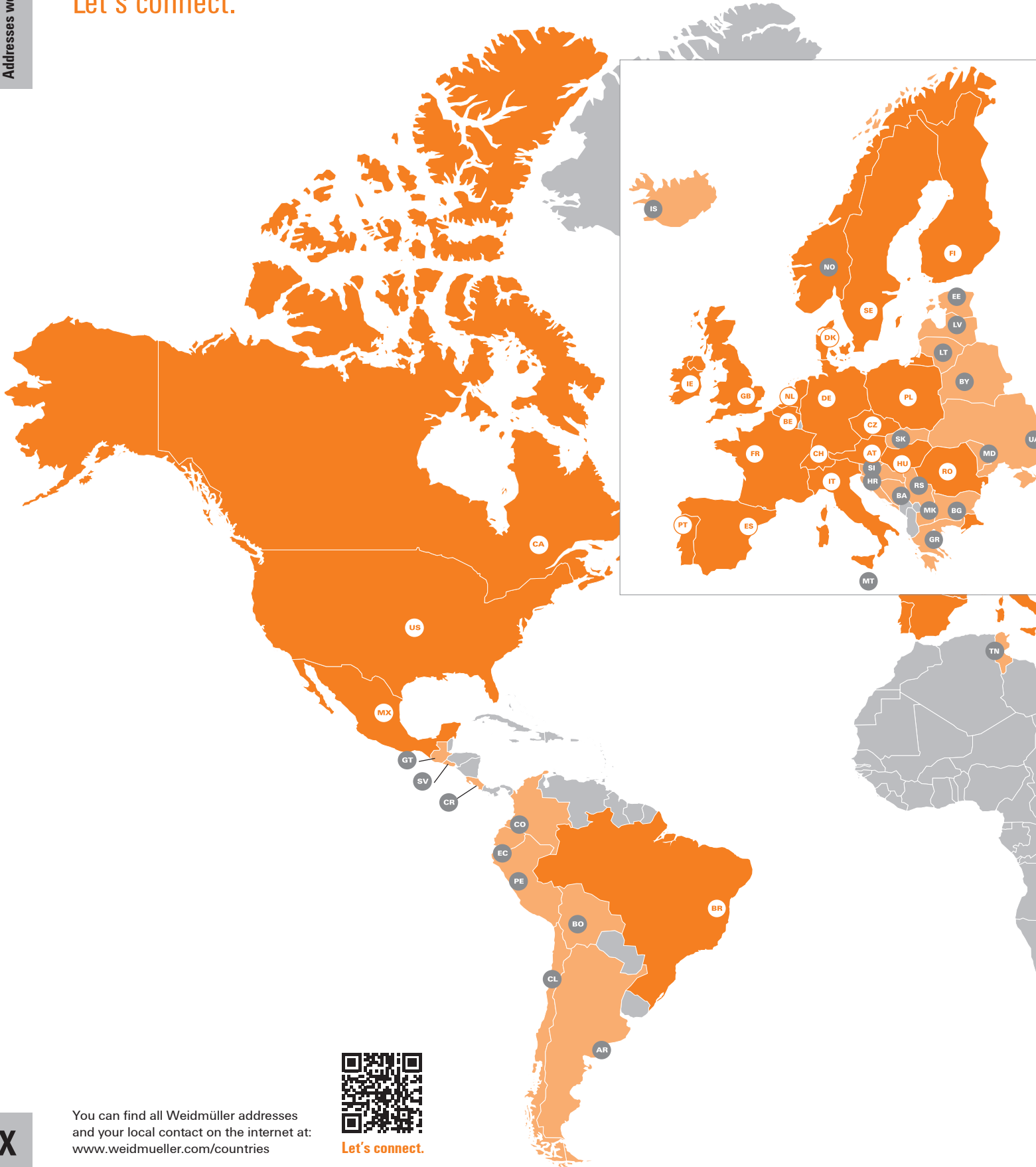
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9204350000	IE-CST	L.22
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9204350000	IE-CST	L.28
9204350000	IE-CST	L.29
9204350000	IE-CST	L.31
9204350000	IE-CST	L.40
9204350000	IE-CST	L.43
9204350000	IE-CST	N.4
9204370000	IE-FISP-V4	L.12
9204370000	IE-FISP-V4	L.28
9204370000	IE-FISP-V4	L.29
9204370000	IE-FISP-V4	L.30
9204370000	IE-FISP-V4	J.23
9204370000	IE-FISP-V4	J.25
9204370000	IE-FISP-V4	J.27
9204370000	IE-FISP-V4	J.29
9204370000	IE-FISP-V4	N.15
9204750000	SEE ESD 125	N.9
9204760000	FZE ESD 130	N.9
9204770000	SZE ESD 130	N.9
9204790000	IE-KOK-V5	N.16
9205000000	KOHS 9.5+19	N.16
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9205130000	SEE ESD 120	N.9
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9205320000	IE-CT-SC-GOF	M.5
9205320000	IE-CT-SC-GOF	N.12
9205330000	IE-CT-LC-GOF	J.55
9205330000	IE-CT-LC-GOF	J.56
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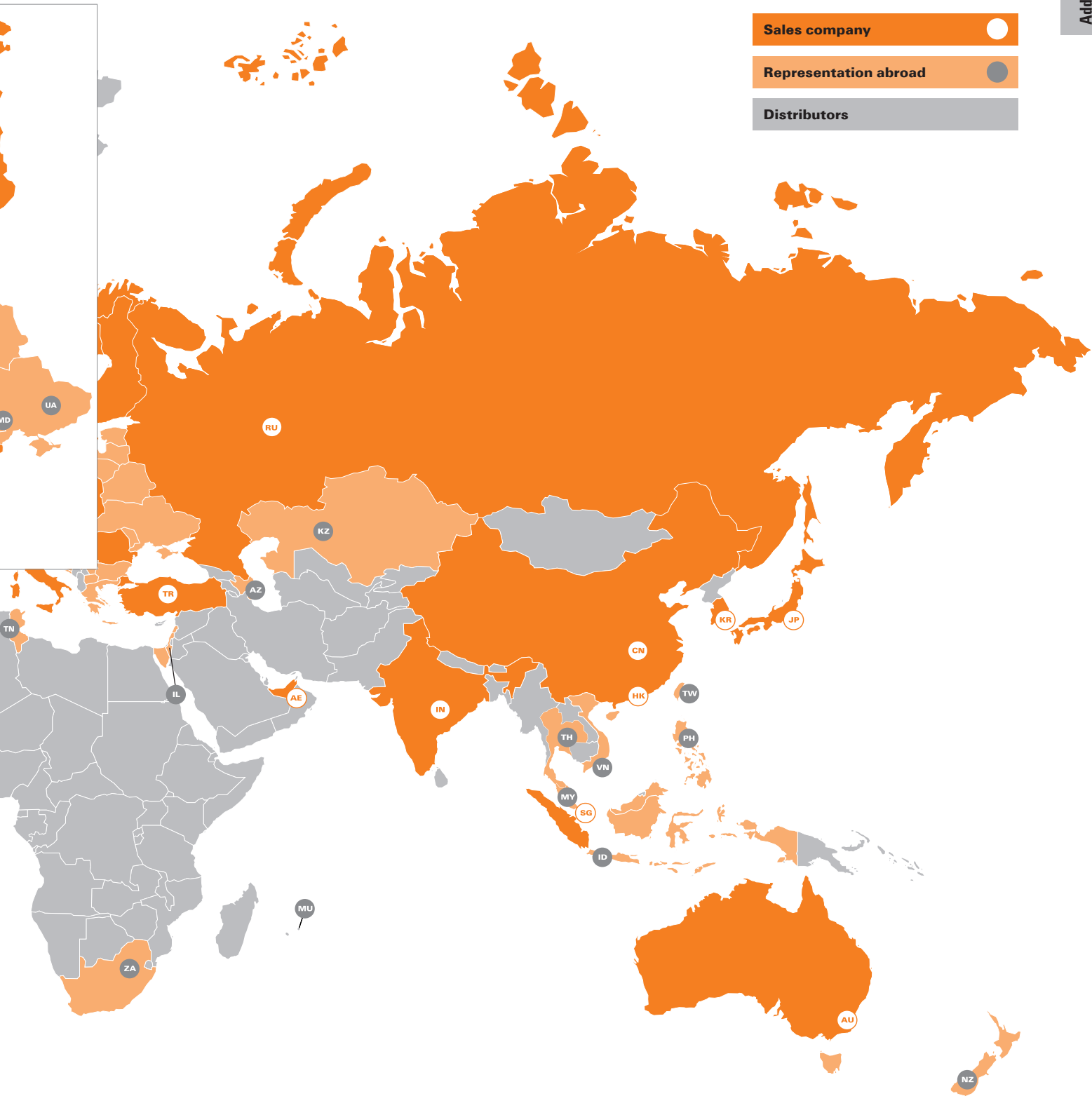
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