



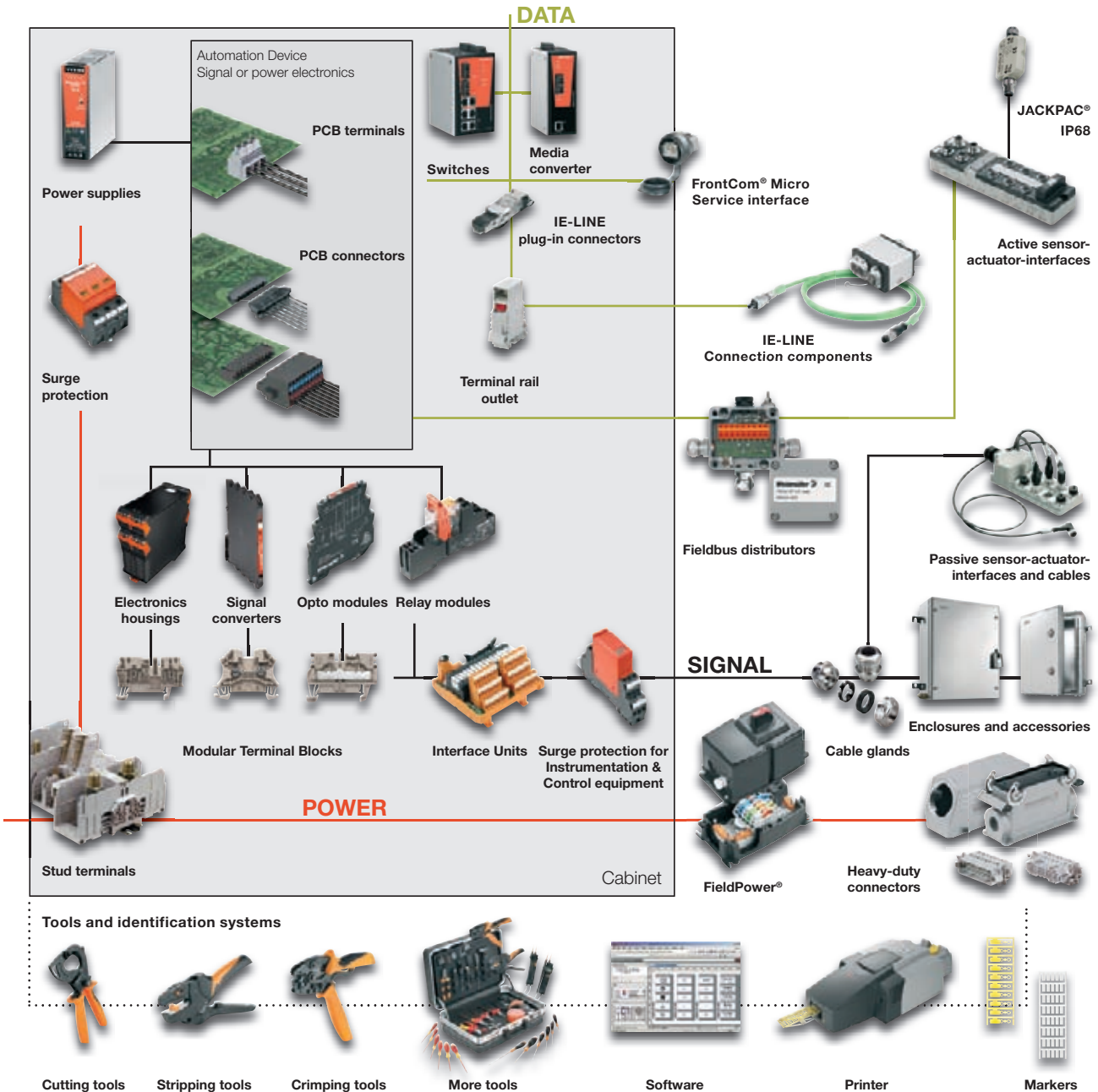
# Industrial Ethernet

Catalogue

# Product Portfolio

Weidmüller is a leading international provider of solutions for electrical connectivity, transmission and conditioning of power, signal and data in industrial environments. The company with headquarters in Detmold/Germany develops, produces and sells products in the field of electrical connectivity and electronics all over the world.

[www.power-signal-data.com](http://www.power-signal-data.com)



## All the catalogues at a glance

	Order No.
Catalog 1 Modular Terminal Blocks	<b>5661400000</b>
Catalog 2 PCB Terminals, PCB Connectors and Housings for Electronics	<b>1250030000</b>
Catalog 3 RockStar® – Heavy Duty Connectors	<b>5664240000</b>
Catalog 4.1 Electronics – Analogue Signal Conditioning	<b>1203510000</b>
Catalog 4.2 Electronics – Relays and Optos	<b>1282330000</b>
Catalog 4.3 Electronics – Power Supplies	<b>1282390000</b>
Catalog 4.4 Electronics – Surge protection	<b>1271290000</b>

	Order No.
Catalog 4.5 Electronics – Interface units and PLC solutions	<b>1252080000</b>
Catalog 5 Enclosures and Cable Glands	<b>1274520000</b>
Catalog 6 Tools	<b>1161520000</b>
Catalog 7 Identification systems	<b>1125590000</b>
Catalog 8 Sensor Actuator Interface	<b>1235620000</b>
Catalog 9 Industrial Ethernet	<b>1274570000</b>
Product information FieldPower® – decentralised power distribution	<b>1229860000</b>

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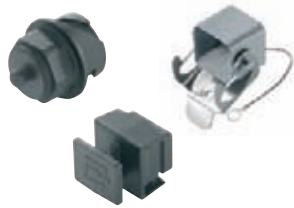
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# Industrial Ethernet

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# Intended for use in Industrial Ethernet



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; automotive, general machine construction, process industry, transportation as well in the energy branch. The requirements of the different branches differ in terms of the protocols,

environmental conditions, certifications and standardisations. As well as being a leading provider of industrial connection and network products, Weidmüller covers these differing requirements with a comprehensive and high-quality product range of active and passive components for Ethernet communications.



The basic requirements of most of these branches are high reliability, availability and safeguarding against failure. These are met by extremely high MTBF times of the active network components. Maximum reliability and simple operation is ensured through Weidmüller's high-quality **STEADYTEC**® connector system.

Together Weidmüller's network components create a complete communications infrastructure for industrial applications in machine construction, process and plant engineering and energy.

# Automotive



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 the corporate management level down to the field level.

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



Important parts 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 wireless modules that are available.

# Process



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 placed on the protection categories of the individual components as these are found in the field. The harsh environments in process plants are characterised by high temperature variations, vibrations, rain, dust as well as electromagnetic influences. Weidmüller's active and passive Ethernet components withstand these influences.

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

With this the devices form a secure and efficient bridge to the office communication and from there to the higher IT systems.

# Active components

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# Active components

Ethernet technology is an established standard in office communication and has existed for many years. Without it, effective communications between the different participants like PCs, printers, data servers etc. would no longer 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 networking 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. There are normally much higher demands placed on the communication devices in the industrial setting. These include, as examples:

- Installation conditions
- Environmental conditions
- Protocols
- Approvals

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

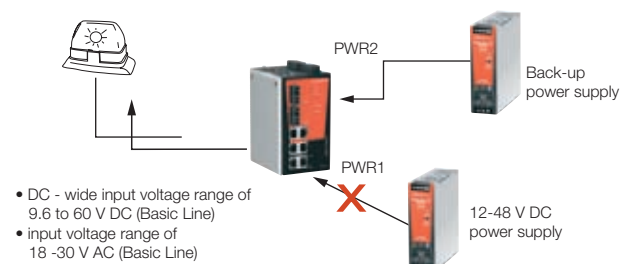
- Reliable (redundant) power supply for uninterrupted network operation
- Resistance to extreme temperatures
- Immune to electromagnetically caused malfunctions
- Insensitive to vibration, shock and corrosive environments
- Conformity with various certification standards
- Longevity

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



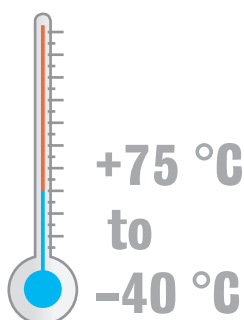
## Stable and versatile power supply inputs for industrial applications

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. As examples, with a rated 48 V DC input, a fluctuation of +20 % is acceptable and in one of 12 V DC a voltage drop of up to 20 % present no problems for the attached devices.



### Suitable for use in extreme temperature environments

Industrial environments often present extreme temperature conditions. This means that devices are needed which can operate under extreme temperature fluctuations flawlessly. Therefore all 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 sturdy design of Weidmüller's Industrial Ethernet components also includes excellent electromagnetic compatibility and fully complies with the requirements of the EN50121-4, DNV and IEC 61000 standards.

### Certified to industry standards

Extensive certifications confirm the reliability of Weidmüller's Industrial Ethernet components

- UL508 and UL60950-1
- Class I, Division 2 / ATEX Zone 2 for safe use in explosive hazard 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 in-service life, this can be seen from the high MTBF value. Weidmüller also guarantees its Industrial Ethernet components for a period of five years.

# Active components

## 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 ports 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 international applicable 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. Managed switches of the Value Line 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

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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 - 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 optional to use SFP transceivers offer a high degree of flexibility and the Gigabit variants allows the use in networks with high traffic loads also.

- Managed Fast Ethernet variants in a high quality metal housing (IP30)
- Managed Power-over-Ethernet switch with 6 Fast Ethernet ports, thereof 4 PoE+ ports
- 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

# Switches – quick-finder

Active components

B

		Ports total	2	5		6	8				
Order No.	Type	Ports copper	1	5	4	6	8	5	6	6	7
		Ports fibre	1		1			3	2	3	1
		Ports SFP									
<b>Industrial Ethernet Switches</b>											
1240840000	IE-SW-BL05-5TX			●							
1240850000	IE-SW-BL05T-5TX			●							
1240870000	IE-SW-BL05-4TX-1SCS				●						
1240880000	IE-SW-BL05-4TX-1ST				●						
1240890000	IE-SW-BL05-4TX-1SC				●						
1240900000	IE-SW-BL08-8TX						●				
1240910000	IE-SW-BL08-6TX-2SC								●		
1240920000	IE-SW-BL08T-6TX-2SC								●		
1240930000	IE-SW-BL08-6TX-2ST								●		
1240950000	IE-SW-BL08-7TX-1SCS										●
1241250000	IE-SW-BL05-5GT			5 GE							
1240980000	IE-SW-VL09T-6TX-3SC									●	
1241000000	IE-SW-VL16-16TX										
1241030000	IE-SW-VL16-14TX-2SC										
1241050000	IE-SW-VL16-14TX-2ST										
1240940000	IE-SW-VL08MT-8TX						●				
1240970000	IE-SW-VL08MT-5TX-3SC							●			
1240990000	IE-SW-VL08MT-6TX-2ST								●		
1241020000	IE-SW-VL08MT-6TX-2SCS								●		
1241270000	IE-SW-VL08-8GT						8 GE				
1241280000	IE-SW-VL08-6GT-2GS								6 GE 2 GEC		
1241040000	IE-SW-PL08M-8TX						●				
1241070000	IE-SW-PL08M-6TX-2SC								●		
1241080000	IE-SW-PL08M-6TX-2ST								●		
1241090000	IE-SW-PL08M-6TX-2SCS								●		
1241100000	IE-SW-PL16M-16TX										
1241120000	IE-SW-PL16M-14TX-2SC										
1241130000	IE-SW-PL16M-14TX-2ST										
1241290000	IE-SW-PL10M-3GT-7TX										
1241300000	IE-SW-PL10M-1GT-2GS-7TX										
1241320000	IE-SW-PL18M-2GC-16TX										
1241330000	IE-SW-PL18M-2GC-14TX2SC										
1241340000	IE-SW-PL18M-2GC14TX2ST										
1241350000	IE-SW-PL18M-2GC14TX2SCS										
1241370000	IE-SW-PL09M-5GC-4GT										
<b>Power over Ethernet Switches</b>											
1241380000	IE-SW-BL06-2TX-4PoE					4 PoE+					
1241390000	IE-SW-PL06M-2TX-4PoE					4 PoE+					

FE = Fast Ethernet  
 GE = Gigabit Ethernet  
 GEC = Gigabit Ethernet Combo Ports  
 PoE+ = Power over Ethernet+



# Unmanaged Switches

## 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 like auto-negotiation, auto-crossing, and flow-control and can automatically adjust to the different transmission speeds or connector wiring.

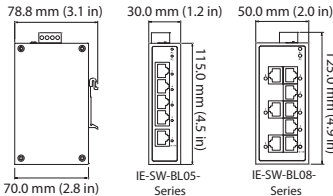
Unmanaged switches are protocol transparent. Each port on the switch creates an individual collision domain. The use of twisted-pair cabling with an RJ45 interface or fibre-optic cable based on the IEEE 802.3 specification interfaces are supported by all Weidmüller switches.





Unmanaged Fast Ethernet Switches

- 10/100BaseT(X) (RJ45 connector), 100BaseFX (multi/singlemode, SC or ST connector)
- Redundant dual 12/24/48 V DC, 18 to 30 V AC power inputs
- IP30 aluminum housing
- Rugged hardware design well suited for hazardous locations (Class I Div. 2 /ATEX) and maritime environments (DNV/GL)
- -40 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	1 K	
Packet Buffer Size	512 Kbit	
Interface		
Fiber Ports	100BaseFX ports (SC/ST connector, multimode, singlemode)	
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	
LED Indicators	Power, 10/100M (TP port), 100M (fiber port)	
Optical Fiber		
	100BaseFX	
	multimode	singlemode
Wavelength	1300 nm	1310 nm
Max. TX	-10 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm
Link Budget	12 dB	29 dB
Typical Distance	5 km (50/125 µm multimode cable) 4 km (62,5/125 µm multimode cable)	40 km (9/125 µm singlemode cable)
Saturation	-6 dBm	-3 dBm
Power Requirements		
Input Voltage	12/24/48 V DC (9.6 to 60 V DC), 18 to 30 V AC (47 to 63 Hz), redundant dual inputs	
Input Current	IE SW BL05 5TX: 0.1 A @ 24 V IE SW BL05 SC/ST/SCS: 0.11 A @ 24 V IE SW BL08 8TX: 0.13 A @ 24 V IE SW BL08 2SC/2ST: 0.22 A @ 24 V IE SW BL08 SCS: 0.17 A @ 24 V	
Overload Current Protection	1.1 A	
Connection	1 removable 4-contact terminal block	
Reverse Polarity Protection	Present	
Physical Characteristics		
Housing	Aluminum, IP30 protection	
Dimensions	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 115 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 mounting	
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)	
Storage Temperature	-40 to 85 °C (-40 to 185 °F)	

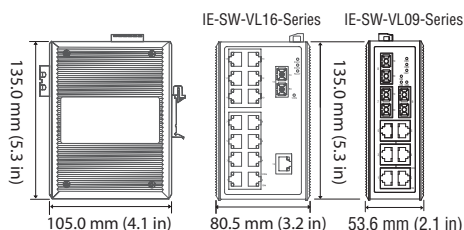
Environmental Limits			
Ambient Relative Humidity	5 to 95 % (non-condensing)		
Regulatory Approvals			
Safety	UL508		
Hazardous Location	UL/cUL Class I, Division 2, Groups A, B, C and D; ATEX Zone 2, Ex nC IIC		
EMI	FCC Part 15, CISPR (EN55022) class A		
EMS	EN61000-4-2 (ESD), level 3; EN61000-4-3 (RS), level 3; EN61000-4-4 (EFT), level 3; EN61000-4-5 (Surge), level 3; EN61000-4-6 (CS), level 3; EN61000-4-8; EN61000-4-11		
Maritime	DNV, GL (IE-SW-BL05-4TX-1SCS/SC/ST: pending)		
Shock	IEC 60068-2-27		
Freefall	IEC 60068-2-32		
Vibration	IEC 60068-2-6		
MTBF (mean time between failures)			
Time	425,000 hrs		
Database	Telcordia (Bellcore), GB		
Warranty			
Warranty Period	5 years		
Ordering Information			
Port Variants	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 <sup>1)</sup>	-10 to +60 °C	1240890000
4 * RJ45, 1 * ST-Multimode	IE-SW-BL05-4TX-1ST <sup>1)</sup>	-10 to +60 °C	1240880000
4 * RJ45, 1 * SC-Singlemode	IE-SW-BL05-4TX-1SCS <sup>1)</sup>	-10 to +60 °C	1240870000
8 * RJ45	IE-SW-BL08-8TX <sup>1)</sup>	-10 to +60 °C	1240900000
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 <sup>1)</sup>	-10 to +60 °C	1240930000
7 * RJ45, 1 * SC-Singlemode	IE-SW-BL08-7TX-1SCS <sup>1)</sup>	-10 to +60 °C	1240950000
<sup>1)</sup> Model with extended operating temperature -40 to +75 °C on request			

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

## Unmanaged Switches Fast Ethernet – Value Line

### Unmanaged Fast Ethernet Switches

- Redundant dual 24 V DC power inputs
- Relay output warning for power failure and port break alarm
- Broadcast storm protection
- Transparent transmission of VLAN tagged packets
- -40 to 75 °C operating temperature range (T models)



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### Technical data

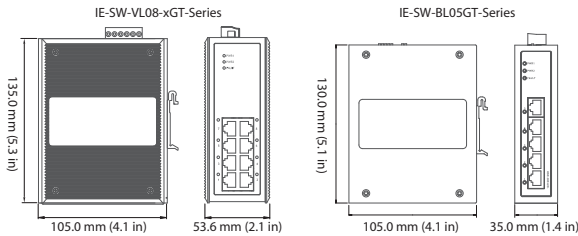
Technology	
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for Flow Control
Processing Type	Store and Forward
Flow Control	IEEE 802.3x flow control, back pressure flow control
Switch Properties	
MAC Table Size	1 K (IE-SW-VL09...Series), 4 K (IE-SW-VL16...Series)
Packet Buffer Size	512 Kbit (IE-SW-VL09...Series), 1.5 Mbit (IE-SW-VL16...Series)
Interface	
Fiber Ports	100BaseFX ports (SC/ST connector)
RJ45 Ports	10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection
DIP Switches	Port break alarm mask
LED Indicators	PWR1, PWR2, FAULT, 10/100M (TP port), 100M (fiber port)
Alarm Contact	1 relay output with current carrying capacity of 1 A @ 24 V DC
Optical Fiber	
	100BaseFX multimode
Wavelength	1300 nm
Max. TX	-10 dBm
Min. TX	-20 dBm
RX Sensitivity	-32 dBm
Link Budget	12 dB
Typical Distance	5 km (50/125 µm multimode cable) 4 km (62,5/125 µm multimode cable)
Saturation	-6 dBm
Power Requirements	
Input Voltage	IE-SW-VL09...16-Ports: 24 V DC (12 to 45 V DC), redundant dual inputs
Input Current	IE-SW-VL09T-6TX-3SC: 0.31 A @ 24 V IE-SW-VL16-16TX: 0.27 A @ 24 V IE-SW-VL16 SC/ST: 0.44 A @ 24 V
Power Requirements	
Overload Current Protection	IE-SW-VL09/16...Series: 1.6 A
Connection	1 removable 6-pin terminal blocks
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	Metal, IP30 protection
Dimensions	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: 630 g IE-SW-VL16: 1140g

Physical Characteristics			
Installation	DIN-Rail mounting		
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	IE-SW-VL09...Series: UL508, UL60950-1, CSA C22.2 No. 60950-1, EN60950-1 IE-SW-VL16...Series: UL508, UL60950-1, EN60950-1		
Hazardous Location	UL/cUL Class I, Division 2, Groups A, B, C and D; ATEX Zone 2, Ex nC IIC		
EMI	FCC Part 15, CISPR (EN55022) class A		
EMS	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;		
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-VL09...Series: 396,000 hrs IE-SW-VL16...Series: 257,000 hrs		
Database	MIL-HDBK-217F, GB 25 °C		
Warranty			
Warranty Period	5 years		
Ordering Information			
Port Variants	Model Type	Operating Temperature	Order No.
16 * RJ45	IE-SW-VL16-16TX <sup>1)</sup>	0 to 60 °C	<b>1241000000</b>
6 * RJ45, 3 * SC-Multimode	IE-SW-VL09T-6TX-3SC	-40 to +75 °C	<b>1240980000</b>
14 * RJ45, 2 * SC-Multimode	IE-SW-VL16-14TX-2SC <sup>1)</sup>	0 to 60 °C	<b>1241030000</b>
14 * RJ45, 2 * ST-Multimode	IE-SW-VL16-14TX-2ST <sup>1)</sup>	0 to 60 °C	<b>1241050000</b>
<sup>1)</sup> Model with extended operating temperature -40 to +75 °C on request			
Accessories			
	Model Type		Order No.
19" Rack Mounting Kit	RM-KIT		<b>1241440000</b>



### Unmanaged Gigabit Ethernet Switches

- Fibre-optic options for extending distance and electrical noise immunity
- 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 (up to 9.6 KB)



### 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
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	1088 Kbit (IE-SW-BL05-5GT), 1408 Kbit (IE-SW-VL08-xGT)
Interface	
Fiber Ports	100/1000BaseSFP slot (IE-SW-VL08-6GT-2GS)
RJ45 Ports	10/100/1000BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection
DIP Switches	One for port break alarm, one for Enable/Disable broadcast storm protection
LED Indicators	PWR1, PWR2, FAULT, 10/100/1000M
Alarm Contact	1 relay output with current carrying capacity of 1 A @ 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-BL05-5GT: 0.20 A @ 24 V IE-SW-VL08-8GT: 0.32 A @ 24 V IE-SW-VL08-6GT-2GS: 0.34 A @ 24 V
Connection	1 removable 6-contact terminal block
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	Metal, IP30 protection
Dimensions	IE-SW-BL05-5GT: 35 x 130 x 105 mm (1.37 x 5.12 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-BL05-5GT: 290 g IE-SW-VL08-xGT: 630 g
Installation	DIN-Rail mounting
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) (on request)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 to 95 % (non-condensing)
Regulatory Approvals	
Safety	UL508
Hazardous Location	UL/cUL Class I, Division 2, Groups A, B, C, and D; ATEX Zone 2, Ex nC IIC
EMI	FCC Part 15, CISPR (EN55022) class A

Regulatory Approvals			
EMS		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	
Maritime		DNV, GL	
Shock		IEC 60068-2-27	
Freefall		IEC 60068-2-32	
Vibration		IEC 60068-2-6	
MTBF (meantime between failures)			
Time		325,000 hrs (IE-SW-VL08-xGT series)	
Database		Telcordia (Bellcore), GB (IE-SW-VL08-xGT series)	
Warranty			
Warranty Period		5 years	
Ordering Information			
Port Variants	Model Type	Operating Temperature	Order No.
5 * RJ45 10/100/1000BaseT(X)	IE-SW-BL05-5GT	0 to 60 °C	<b>1241250000</b>
8 * RJ45 10/100/1000BaseT(X)	IE-SW-VL08-8GT	0 to 60 °C	<b>1241270000</b>
6 * RJ45 10/100/1000BaseT(X), 2 Combo Ports (10/100/1000 BaseT(X) or 100/1000BaseSFP)	IE-SW-VL08-6GT-2GS	0 to 60 °C	<b>1241280000</b>
Models with extended operating temperature -40 to +75 °C on request			
Accessories			
	Model Type		Order No.
19" Rack Mounting Kit	RM-KIT		<b>1241440000</b>

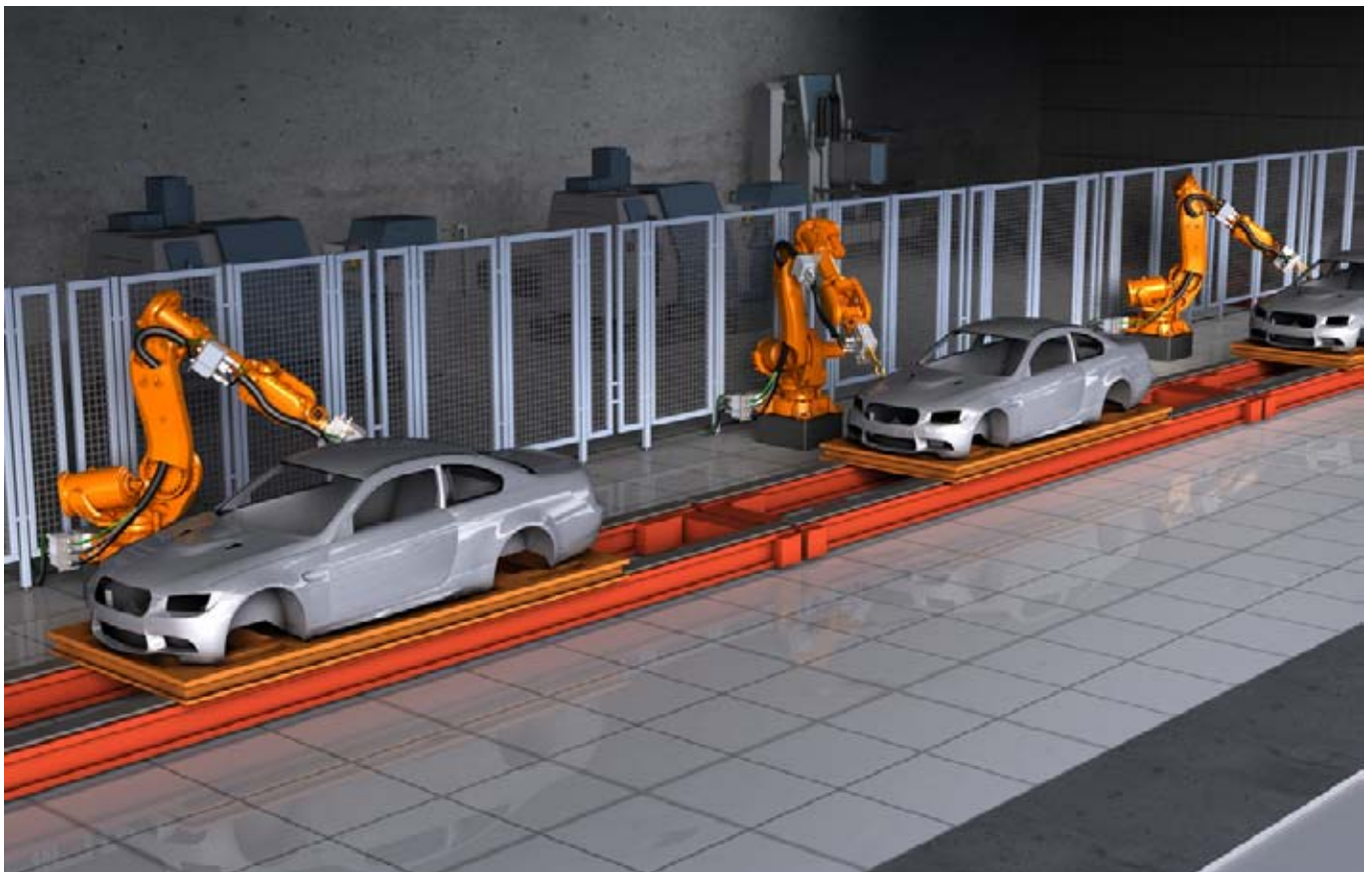
# Managed Switches

## B

Managed switches offer extensive control mechanisms for data distribution and bandwidth management to coordinate 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 using convenient management software in large networks with multiple switches, this could be Weidmüller's Net-Manager software for example.

### 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.



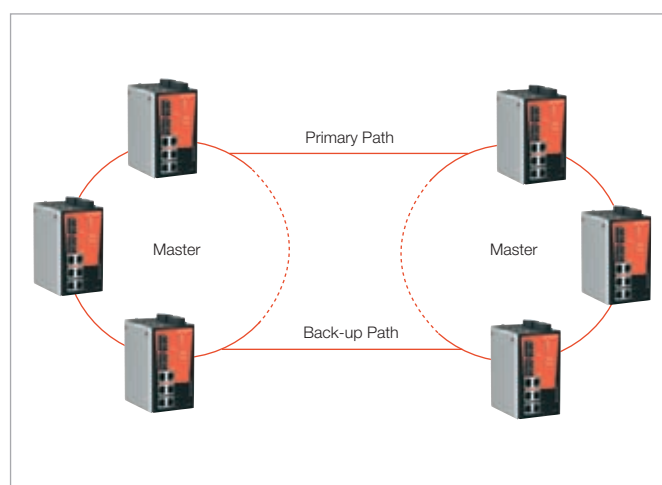
### Ring redundancy

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.



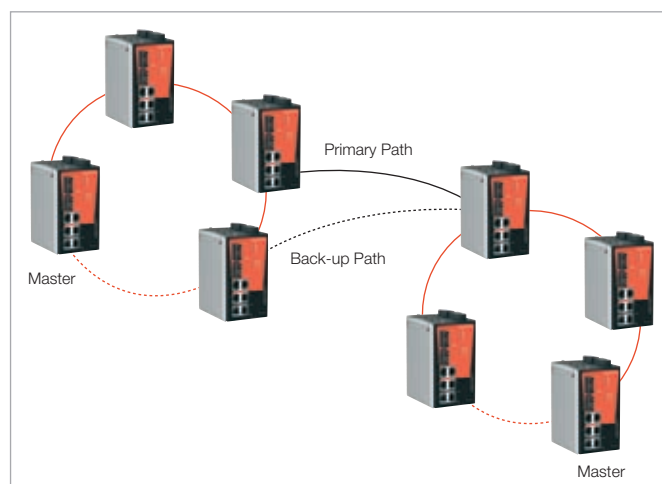
### Ring-Coupling

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

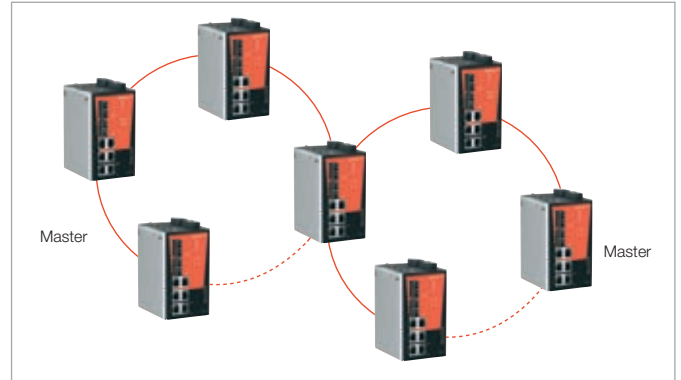
Two separate rings are connected through one managed switch via two independent connection points. The back-up connection is activated if the primary connection fails.



## Managed Switches

### Dual-Ring

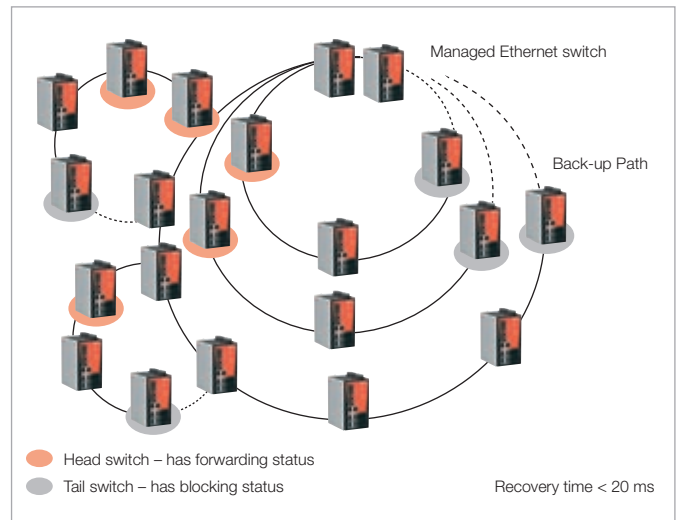
In Dual-Ring two neighbouring rings are connected with one switch without the need for additional ports or cabling. This configuration reduces the total number of ports and saves cabling costs as an additional primary and back-up line is not needed.



### Turbo-Chain

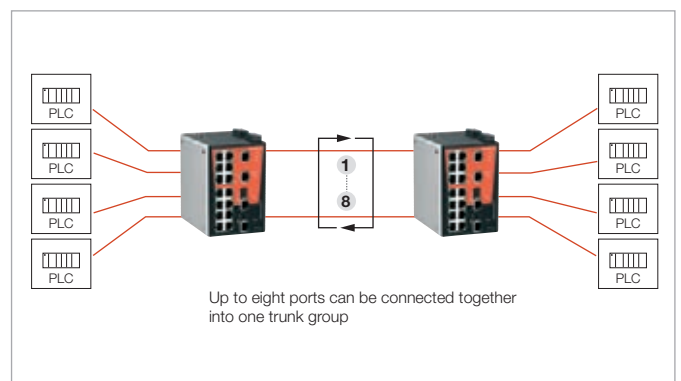
Turbo-Chain offers the possibility of creating multiple redundant networks without the limitations of the ring technology. Turbo-Chain can be simply configured by defining two end-points in a segment. This means you can connect or extend existing redundant networks. When compared with traditional ring 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. It also supports the Turbo-Chain standard 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



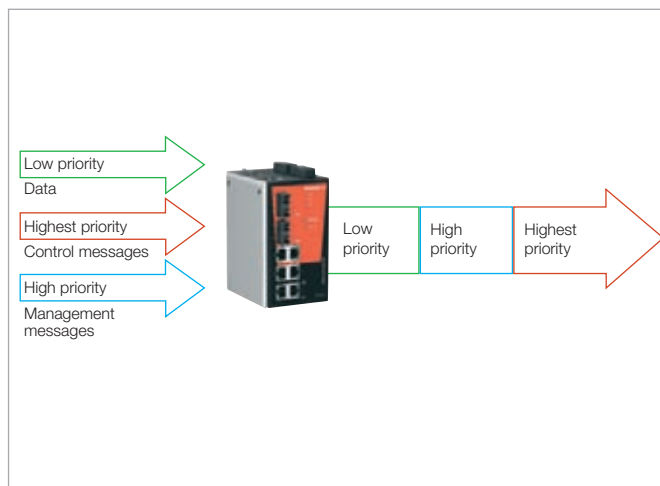
### Port trunking for flexible connections

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



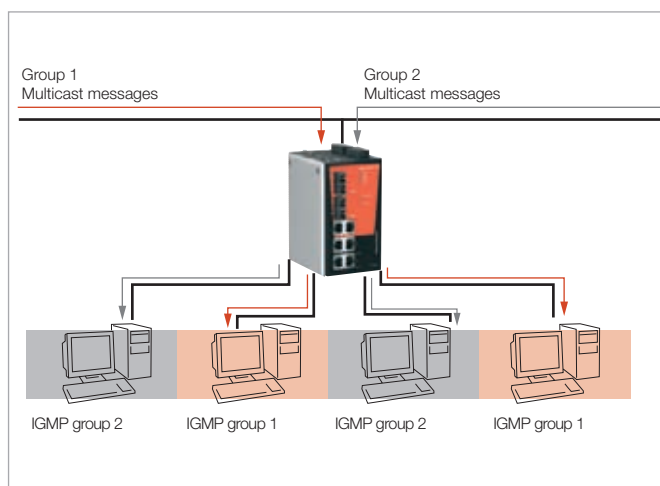
**QoS supports real-time capability**

Quality of Service (QoS) offers the possibility of prioritising data traffic in a network and ensures that important data are consistently and predictably 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 communications.



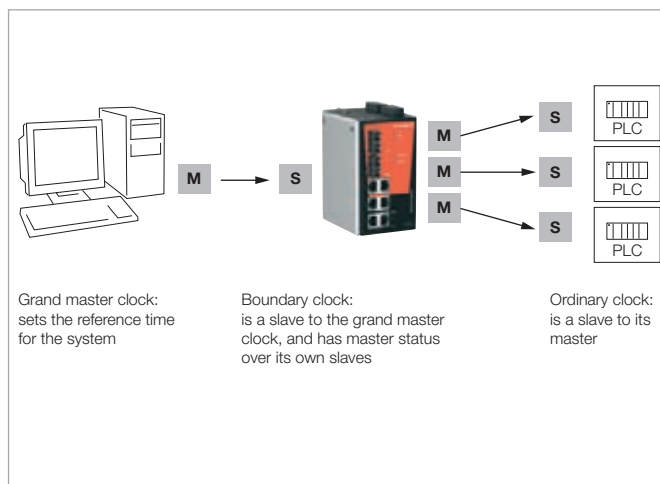
**IGMP snooping and GMRP for filtering multicast data traffic**

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**

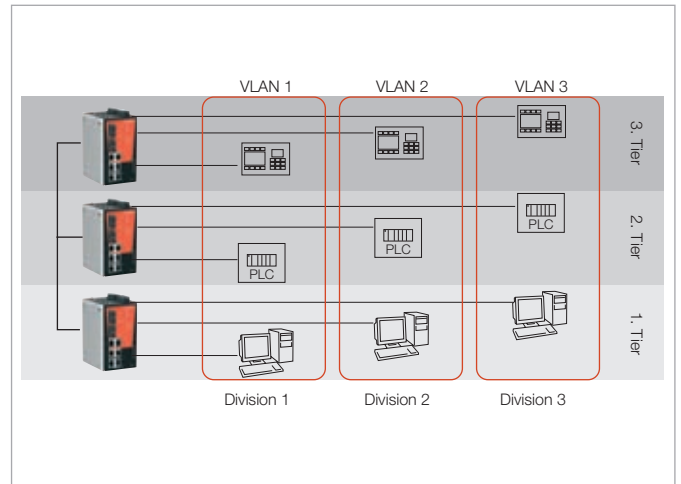
IEEE 1588 PTP, also known as Precision Time Protocol (PTP), was developed to synchronise real-time clocks which are located at specific nodes of a distributed system. Weidmüller managed switches with IEEE 1588 PTP are particularly suited for motion control applications where distributed clocks must be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



## Managed Switches

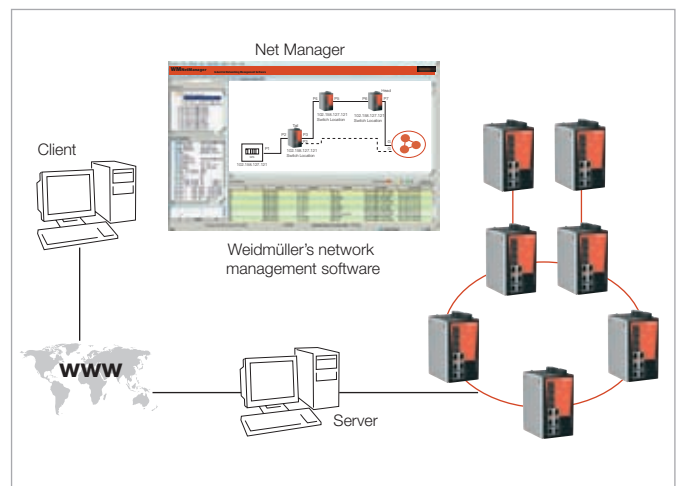
### VLAN – simplifies network planning

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 possibility to isolate VLANs completely from one another serves to increase the security of data transfer and offers additional protection from unauthorised access or unauthorised data traffic.



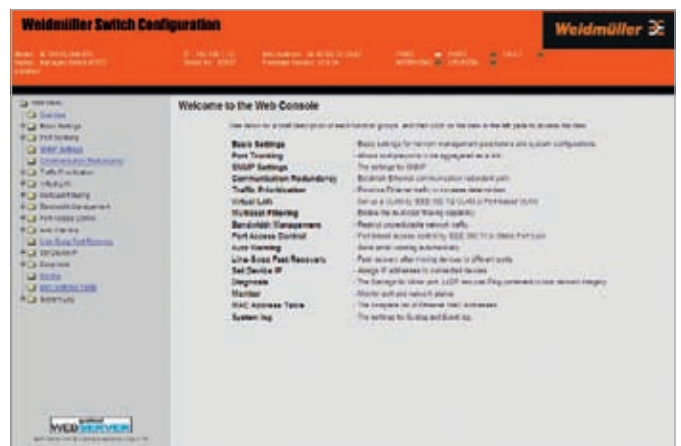
### Automatic topology detection using LLDP

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. Using Weidmüller's Net-Manager network management software LLDP capable devices are detected and managed. The information is used by the system to automatically generate accurate network topologies and to provide information about the connected devices.



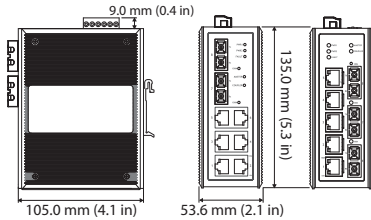
### Simple browser based configuration

Weidmüller's managed switches can be easily configured using a web browser, telnet console or the Weidmüller switch configuration utility. Further switch configurations can be saved or the firmware updated using this user-friendly tool.



### Managed Entry-level Ethernet Switches

- Turbo Ring and Turbo Chain with fast recovery time (under 20 ms)
- QoS, port-based VLAN, SNMPv1/v2c/v3, RMON supported
- Automatic warning by exception through e-mail, relay output
- User-friendly web-based configuration and management
- External Backup and Restoring Module for easy system reconfiguration (optional accessory)



### Technical data

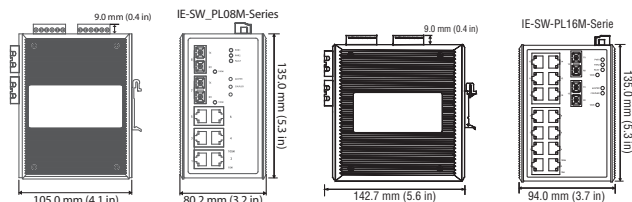
Technology		
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for Flow Control IEEE 802.1D for Spanning Tree Protocol IEEE 802.1w for Rapid STP IEEE 802.1p for Class of Service IEEE 802.1Q for VLAN Tagging	
Protocols	IGMPv1/v2, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, TFTP, SNMP, SMTP, RARP, RMON, HTTP, Telnet, Syslog, DHCP Option 66/67/82, BootP, LLDP, Modbus/TCP, IPv6	
MIB	MIB-II, Ethernet-Like MIB, P-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9	
Flow Control	IEEE 802.3x flow control, back pressure flow control	
Switch Properties		
MAC Table Size	8 K	
Packet Buffer Size	1 Mbit	
Interface		
Fiber Ports	100BaseFX ports (SC/ST connector)	
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	
LED Indicators	PWR1, PWR2, FAULT, MSTR/HEAD, CPLR/TAIL, 10/100M	
Alarm Contact	1 relay output with current carrying capacity of 1 A @ 24 V DC	
Optical Fiber		
	100BaseFX	
	multimode	singlemode
Wavelength	1300 nm	1310 nm
Max. TX	-10 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm
Link Budget	12 dB	29 dB
Typical Distance	5 km <sup>a</sup> 4 km <sup>b</sup>	40 km <sup>c</sup>
Saturation	-6 dBm	-3 dBm
<sup>a</sup> 50/125 μm, 800 MHz*km fiber optic cable		
<sup>b</sup> 62.5/125 μm, 500 MHz*km fiber optic cable		
<sup>c</sup> 9/125 μm singlemode fiber optic cable		
Power Requirements		
Input Voltage	24 V DC (12 to 45 V DC), redundant dual inputs	
Input Current	IE-SW-VL08M-8TX: 0.26 A @ 24 V IE-SW-VL08M-6TX-2ST/SC: 0.35 A @ 24 V IE-SW-VL08M-5TX-3SC: 0.32 A @ 24 V	

Power Requirements			
Overload Current Protection	Present		
Connection	1 removable 6-contact terminal block		
Reverse Polarity Protection	Present		
Physical Characteristics			
Housing	Metal, IP30 protection		
Dimensions	53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)		
Weight	IE-SW-VL08M-...8TX/6TX-2SC/6TX-2ST: 650 g IE-SW-VL08M-5TX-3SC: 890 g		
Installation	DIN-Rail mounting		
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	UL508, UL60950-1, CSA C22.2 No. 60950-1, EN60950-1		
Hazardous Location	UL/cUL Class I, Division 2, Groups A, B, C, and D (IE-SW-VL08M-5TX-3SC Pending); ATEX Zone 2, Ex nC IIC (IE-SW-VL08M-5TX-3SC Pending)		
EMI	FCC Part 15, CISPR (EN55022) class A		
EMS	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 (meantime between failures)			
Time	IE-SW-VL08M-...Series: 363,000 hrs		
Database	Telcordia (Bellcore), GB		
Warranty			
Warranty Period	5 years		
Ordering Information			
Port Variants	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-6TX-3SC	-40 to +75 °C	1240970000
6 * RJ45, 2 * ST-Multimode	IE-SW-VL08MT-6TX-2ST	-40 to +75 °C	1240990000
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
Networkmanagement Software	IE-NM-WMNETMANAGER		1242120000
19" Rack Mounting Kit	RM-KIT		1241440000

## Managed Switches Fast Ethernet – Premium Line

### Managed Fast Ethernet Switches

- Plug-n-play Turbo Ring and Turbo Chain (recovery time < 20 ms), RSTP/STP (IEEE 802.1w/D) for Ethernet redundancy
- IEEE 1588 PTP, Modbus/TCP, LLDP, SNMP Inform, QoS, IGMP snooping, VLAN, IEEE 802.1X, HTTPS, SNMPv3, and SSH supported
- EBR-Module (External Backup and Restore Module) for system configuration backup (optional accessory)



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### Technical data

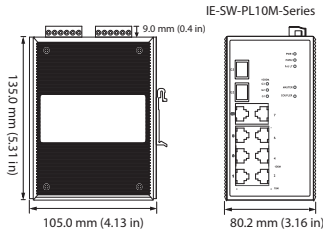
Technology		
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for Flow Control IEEE 802.1D for Spanning Tree Protocol IEEE 802.1w for Rapid STP IEEE 802.1Q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 802.1X for Authentication IEEE 802.3ad for Port Trunk with LACP	
Protocols	IGMPv1/v2, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, BootP, TFTP, SNMP, RARP, GMRP, LACP, RMON, HTTP, HTTPS, Telnet, Syslog, DHCP Option 66/67/82, SSH, SNMP Inform, Modbus/TCP, 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	
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 (IE-SW-PL08M) 2 Mbit (IE-SW-PL16M)	
Interface		
Fiber Ports	100BaseFX ports (SC/ST connector)	
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	
LED Indicators	PWR1, PWR2, FAULT, MSTR/HEAD, CPLR/TAIL, 10/100M	
Alarm Contact	2 relay outputs with current carrying capacity of 1 A @ 24 V DC	
Digital Inputs	2 inputs with the same ground, electrically isolated <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>	
Optical Fiber		
	100BaseFX	
	multimode	singlemode
Wavelength	1300 nm	1310 nm
Max. TX	-10 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm
Link Budget	12 dB	29 dB
Typical Distance	5 km (50/125 µm multimode cable) 4 km (62.5/125 µm multimode cable)	40 km (9/125 µm singlemode cable)
Saturation	-6 dBm	-3 dBm

Power Requirements			
Input Voltage	24 V DC (12 to 45 V DC), redundant dual inputs		
Input Current	IE-SW-PL08M-8TX: 0.26 A @ 24 V IE-SW-PL08M-6TX-2SC/ST/2SCS: 0.36 A @ 24 V IE-SW-PL16M-16TX: 0.41 A @ 24 V IE-SW-PL16M-14TX-2SC/ST: 0.51 A @ 24 V		
Overload Current Protection	Present		
Connection	2 removable 6-contact terminal blocks		
Reverse Polarity Protection	Present		
Physical Characteristics			
Housing	Metal, IP30 protection		
Dimensions	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 mounting		
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) (on request)		
Storage Temperature	-40 to 85 °C (-40 to 185 °F)		
Ambient Relative Humidity	5 to 95 % (non-condensing)		
Regulatory Approvals			
Safety	UL508, UL60950-1, 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 nC IIC		
EMI	FCC Part 15, CISPR (EN55022) class A		
EMS	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 2; 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	IE-SW-PL08M...Series: 339,000 hrs IE-SW-PL16M...Series: 247,000 hrs		
Database	Telcordia (Bellcore), GB		
Warranty			
Warranty Period	5 years		
Ordering Information			
Port Variants	Model Type	Operating Temperature	Order No.
8 * RJ45	IE-SW-PL08M-8TX	0 to 60 °C	1241040000
6 * RJ45, 2 * SC-Multimode	IE-SW-PL08M-6TX-2SC	0 to 60 °C	1241070000
6 * RJ45, 2 * ST-Multimode	IE-SW-PL08M-6TX-2ST	0 to 60 °C	1241080000
6 * RJ45, 2 * SC-Singlemode	IE-SW-PL08M-6TX-2SCS	0 to 60 °C	1241090000
16 * RJ45	IE-SW-PL16M-16TX	0 to 60 °C	1241100000
14 * RJ45, 2 * SC-Multimode	IE-SW-PL16M-14TX-2SC	0 to 60 °C	1241120000
14 * RJ45, 2 * ST-Multimode	IE-SW-PL16M-14TX-2ST	0 to 60 °C	1241130000

Note: Models with extended operating temperature -40 to +75 °C on request

### Managed Gigabit Ethernet Switches

- 2 Gigabit Ethernet ports for redundant ring and 1 Gigabit Ethernet port for uplink solution
- Turbo Ring, Turbo Chain, and RSTP/STP for network redundancy
- IEEE 1588 PTP, Modbus/TCP, LLDP, SNMP Inform, QoS, IGMP snooping, VLAN, IEEE 802.1X, HTTPS, SNMPv3, and SSH supported
- EBR-Module - External Backup and Restoring Module for easy system reconfiguration (optional accessory)



### Technical data

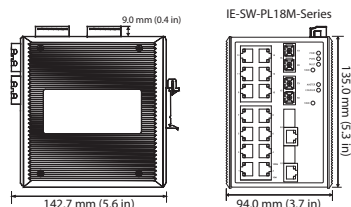
Technology	
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseX IEEE 802.3x for Flow Control IEEE 802.1D for Spanning Tree Protocol IEEE 802.1w for Rapid STP IEEE 802.1Q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 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 • SNTP • SMTP • RARP • RMON • HTTP • HTTPS • Telnet • Syslog • DHCP Option 66/67/82 • SSH • SNMP Inform • Modbus/TCP • 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	
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	
Fiber Ports	1000BaseSFP slot
RJ45 Ports	10/100BaseT(X) or 10/100/1000BaseT(X) auto negotiation speed
Console Port	RS-232 (RJ45 connector)
DIP Switches	Turbo Ring, Master, Coupler, Reserve
LED Indicators	PWR1, PWR2, FAULT, 10/100M (TP port), 1000M (Gigabit port), MSTR/HEAD, CPLR/TAIL
Alarm Contact	2 relay outputs with current carrying capacity of 1 A @ 24 V DC
Digital Inputs	2 inputs with the same ground, but electrically isolated from the electronics. • +13 to +30 V for state "1" • -30 to +3 V for state "0" • Max. input current: 8 mA
Power Requirements	
Input Voltage	24 V DC (12 to 45 V DC), redundant dual inputs
Input Current	IE-SW-PL10M-3GT-7TX: 0.65 A @ 24 V IE-SW-PL10M-1GT-2GS-7TX: 0.44 A @ 24 V
Overload Current Protection	Present
Connection	2 removable 6-contact terminal blocks
Reverse Polarity Protection	Present

Physical Characteristics			
Housing	Metal, IP30 protection		
Dimensions	80.2 x 135 x 105 mm (3.16 x 5.31 x 4.13 in)		
Weight	1170 g		
Installation	DIN-Rail mounting		
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) on request		
Storage Temperature	-40 to 85 °C (-40 to 185 °F)		
Ambient Relative Humidity	5 to 95 % (non-condensing)		
Regulatory Approvals			
Safety	UL508, UL60950-1, 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 nC IIC		
EMI	FCC Part 15, CISPR (EN55022) class A		
EMS	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 (meantime between failures)			
Time	204,000 hrs		
Database	MIL-HDBK-217J, GB 25 °C		
Warranty			
Warranty Period	5 years		
Ordering Information			
Port Variants	Model Type	Operating Temperature	Order No.
3 * RJ45 10/100/1000BaseT(X), 7 * RJ45 10/100BaseT(X)	IE-SW-PL10M-3GT-7TX	0 to 60 °C	1241290000
1 * RJ45 10/100/1000BaseT(X), 2 * Slots 1000BaseSFP, 7 * RJ45 10/100BaseT(X)	IE-SW-PL10M-1GT-2GS-7TX	0 to 60 °C	1241300000
Note: Models with extended operating temperature -40 to +75 °C on request			
Accessories			
	Model Type		Order No.
External Backup and Restore Module	EBR-Module RS232		1241430000
Networkmanagement Software	IE-NM-WMNETMANAGER		1242120000
19" Rack Mounting Kit	RM-KIT		1241440000

## Managed Switches Gigabit Ethernet – Premium Line

### Managed Gigabit Ethernet Switches

- 2 Gigabit Ethernet ports plus 16 Fast Ethernet ports for copper and fibre
- Turbo Ring, Turbo Chain, and RSTP/STP for network redundancy
- IEEE 1588 PTP, Modbus/TCP, LLDP, SNMP Inform, QoS, IGMP snooping, VLAN, IEEE 802.1X, HTTPS, SNMPv3, and SSH supported
- EBR-Module - External Backup and Restoring Module for easy system reconfiguration (optional accessory)



### 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 802.1D 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 ■ 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	
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	2 Mbit
Interface	
Fiber Ports	100BaseFX (SC/ST connector) and 1000BaseSFP slot
RJ45 Ports	10/100BaseT(X) or 10/100/1000BaseT(X) auto negotiation speed
Console Port	RS-232 (RJ45 connector)
LED Indicators	PWR1, PWR2, FAULT, 10/100M (TP port), 100M (fiber port), MSTR/HEAD, CPLR/TAIL
Alarm Contact	2 relay outputs with current carrying capacity of 1 A @ 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>

Optical Fiber		
	100BaseFX	
	multimode	singlemode
Wavelength	1300 nm	1310 nm
Max. TX	-10 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm
Link Budget	12 dB	29 dB
Typical Distance	5 km (50/125 µm multimode cable) 4 km (62.5/125 µm multimode cable)	40 km (9/125 µm singlemode cable)
Saturation	-6 dBm	-3 dBm

Power Requirements	
Input Voltage	24 V DC (12 to 45 V DC), redundant dual inputs
Input Current	IE-SW-PL18M-2GC-16TX: 0.51 A @ 24 V IE-SW-PL18M-SC/ST/SCS: 0.61 A @ 24 V
Overload Current Protection	Present
Connection	2 removable 6-contact terminal blocks
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	Metal, IP30 protection
Dimensions	94 x 135 x 142.7 mm (3.7 x 5.31 x 5.62 in)
Weight	1630 g
Installation	DIN-Rail mounting
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) on request
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 to 95 % (non-condensing)
Regulatory Approvals	
Safety	UL508, UL60950-1, 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 nC IIC
EMI	FCC Part 15, CISPR (EN55022) class A
EMS	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
MTBF (mean time between failures)	
Time	240,000 hrs
Database	Telcordia (Bellcore), GB
Warranty	
Warranty Period	5 years

Ordering Information			
Port Variants	Model Type	Operating Temperature	Order No.
16 * RJ45 10/100BaseT(X), 2 * Combo Ports <sup>1</sup>	IE-SW-PL18M-2GC-16TX	0 to +60 °C	<b>1241320000</b>
14 * RJ45 10/100BaseT(X), 2 * SC-Multimode 100FX, 2 * Combo Ports <sup>1</sup>	IE-SW-PL18M-2GC14TX2SC	0 to +60 °C	<b>1241330000</b>
14 * RJ45 10/100BaseT(X), 2 * ST-Multimode 100FX, 2 * Combo Ports <sup>1</sup>	IE-SW-PL18M-2GC14TX2ST	0 to +60 °C	<b>1241340000</b>
14 * RJ45 10/100BaseT(X), 2 * SC-Singlemode 100FX, 2 * Combo Ports <sup>1</sup>	IE-SW-PL18M-2GC14TX2SCS	0 to +60 °C	<b>1241350000</b>

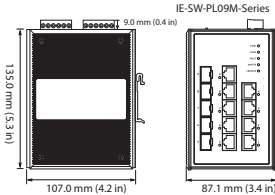
Models with extended operating temperature -40 to +75 °C on request

<sup>1</sup> (10/100/1000BaseT(X) or 100/1000BaseSFP)



**Managed Full Gigabit Ethernet Switch**

- 4 10/100/1000BaseT(X) ports plus 5 combo (10/100/1000BaseT(X) or 100/1000BaseSFP slot) Gigabit ports
- Turbo Ring, Turbo Chain, and RSTP/STP for network redundancy
- IEEE 1588 PTP, Modbus/TCP, LLDP, SNMP Inform, QoS, IGMP snooping, VLAN, IEEE 802.1X, HTTPS, SNMPv3, and SSH supported
- EBR-Module - External Backup and Restoring Module for easy system reconfiguration (optional accessory)



**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 802.1D 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, 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	
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	
Fiber Ports	100/1000Base SFP slot
RJ45 Ports	10/100/1000BaseT(X) auto negotiation speed
Console Port	RS-232 (RJ45 connector)
DIP Switches	Turbo Ring, Master, Coupler, Reserve
LED Indicators	PWR1, PWR2, FAULT, 10/100/1000M, MSTR/HEAD, CPLR/TAIL
Alarm Contact	2 relay outputs with current carrying capacity of 1 A @ 24 V DC
Digital Inputs	2 inputs with the same ground, but electrically isolated from the electronics. • +13 to +30 V for state "1" • -30 to +3 V for state "0" • Max. input current: 8 mA
Power Requirements	
Input Voltage	12/24/48 V DC, redundant dual inputs
Input Current	0.81 A @ 24 V
Overload Current Protection	Present
Connection	2 removable 6-contact terminal blocks
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	Metal, IP30 protection
Dimensions	87.1 × 135 × 107 mm (3.43 × 5.31 × 4.21 in)

Physical Characteristics			
Weight	1510 g		
Installation	DIN-Rail mounting		
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) for T models on request		
Storage Temperature	-40 to 85 °C (-40 to 185 °F)		
Ambient Relative Humidity	5 to 95 % (non-condensing)		
Regulatory Approvals			
Safety	UL508, EN60950-1		
Hazardous Location	UL/cUL Class I, Division 2, Groups A, B, C, and D (Pending); ATEX Zone 2, Ex nC IIC (Pending)		
EMI	FCC Part 15, CISPR (EN55022) class A		
EMS	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		
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		
Ordering Information			
Port Variants	Model Type	Operating Temperature	Order No.
4 * RJ45 10/100/1000BaseT(X), 5 * Combo Ports 10/100/1000BaseT(X) or 100/1000BaseSFP	IE-SW-PL09M-5GC-4GT	0 to 60 °C	1241370000
Model with extended operating temperature -40 to +75 °C on request			
Accessories			
	Model Type	Order No.	
External Backup and Restore Module	EBR-Module RS232	1241430000	
Networkmanagement Software	IE-NM-WMNETMANAGER	1242120000	
19" Rack Mounting Kit	RM-KIT	1241440000	

# PoE Switches

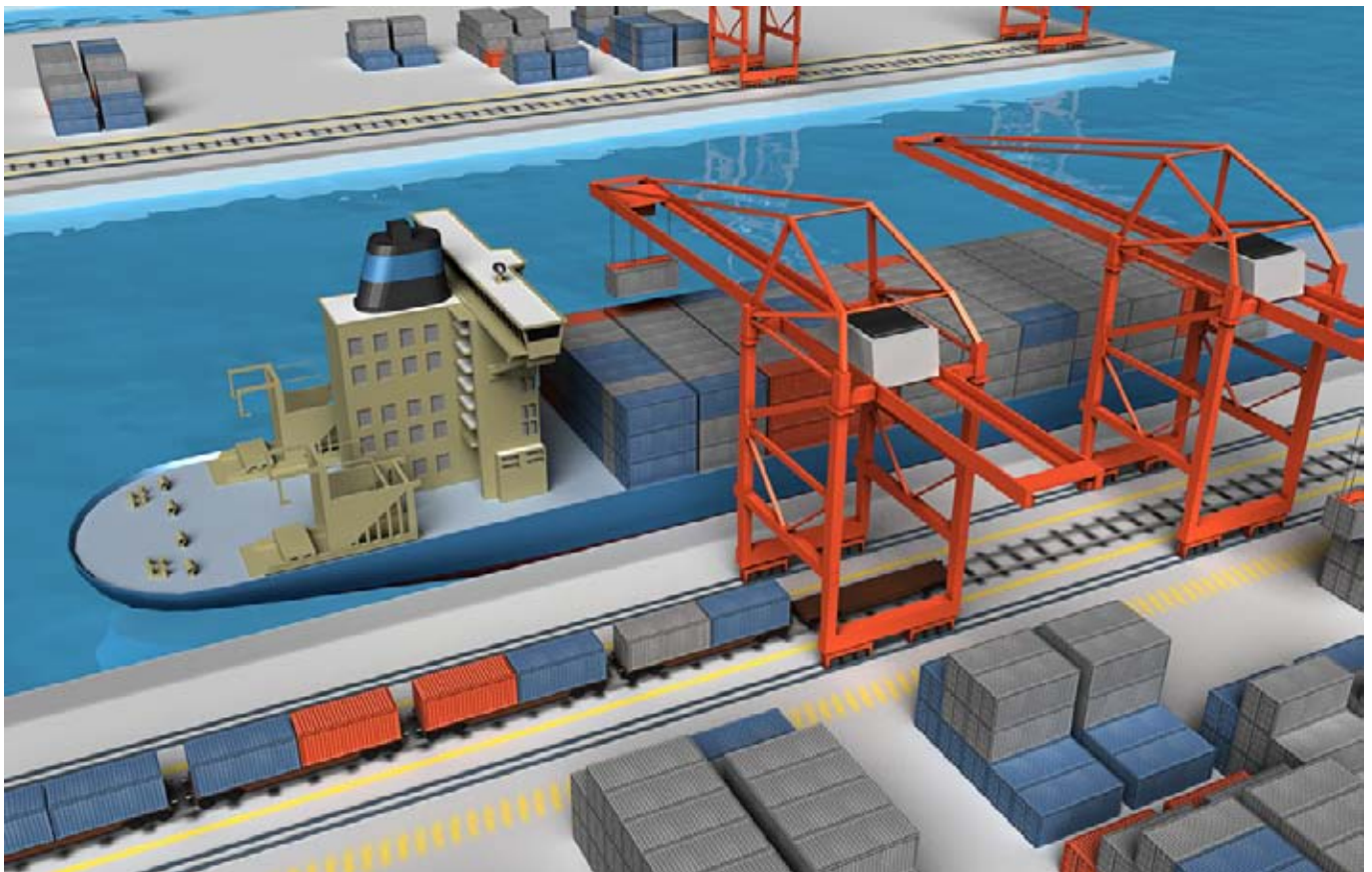
Power over Ethernet (PoE) describes a process where power can be supplied to a network compatible device over the 8-wire Ethernet cable. In a narrower sense PoE today means the IEEE 802.3af (DTE Power over MDI) standard which was adopted in June 2003 in its final form.

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 panel or wireless communications devices like 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.

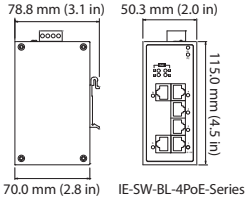
Weidmüller PoE switches also offer further advantages by the simple power supply. They do not require an additional 48 V supply in addition to the standard 24 V supply.





**6-port IEEE 802.3af/at PoE+ unmanaged Ethernet Switch**

- 4 IEEE 802.3af/at compliant PoE and Ethernet combo ports
- Up to 30 watts per PoE port
- 24/48 V DC wide range redundant power inputs
- Intelligent power consumption detection and classification
- Redundant dual V DC power inputs
- Broadcast Storm Protection



**Technical data**

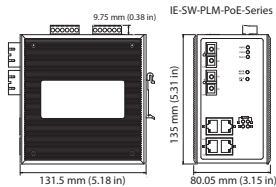
Technology	
Standards	IEEE 802.3at for Power-over-Ethernet IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3x for Flow Control
Processing Type	Store and Forward
Flow Control	IEEE 802.3x flow control, back pressure flow control
Interface	
RJ45 Ports	10/100BaseT(X) auto negotiation speed, Full/Half duplex mode and auto MDI/MDI-X connection
LED Indicators	PWR1, PWR2, 10/100M, PoE
Power Requirements	
Input Voltage	24/48 V DC
Input Current	Max 7.5 A @ 24 V DC (supports up to 4 ports at 30 watts per PoE port)
Overload Current Protection	Present
Connection	1 removable 4-contact terminal block
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	Metal, IP30 protection
Dimensions	50 x 115 x 70 mm (1.96 x 4.52 x 2.76 in)
Weight	375 g
Installation	DIN-Rail mounting, wall mounting (with optional 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) on request
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 to 95 % (non-condensing)
Regulatory Approvals	
Safety	UL508 (Pending)
EMI	FCC Part 15, CISPR (EN55022) class A
EMS	EN61000-4-2 (ESD), level 3; EN61000-4-3 (RS), level 3; EN61000-4-4 (EFT), level 4; EN61000-4-5 (Surge), level 4; EN61000-4-6 (CS), level 3; EN61000-4-8
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Warranty	
Warranty Period	5 years

Ordering Information			
Port Variants	Model Type	Operating Temperature	Order No.
2 * RJ45 10/100 BaseT(X), 4 * RJ45 10/100 BaseT(X) PoE+	IE-SW-BL06-2TX-4POE	0 to 60 °C	1241380000
Note 1: Model with extended operating temperature -40 to +75 °C on request Note 2: Models with Fiber optic ports on request			
Accessories			
	Model Type	Order No.	
19" Rack Mounting Kit	RM-KIT	1241440000	

## Power-over-Ethernet Switches – Premium Line

## 6 Port IEEE 802.3af/at PoE + Managed Ethernet Switch

- 4 IEEE 802.3af/at compliant PoE and Ethernet combo ports
- Up to 30 watts per PoE port
- 24/48 V DC wide range redundant power inputs
- Advanced PoE management functions, including PD failure check and PoE scheduling



## Technical data

Technology	
Standards	IEEE 802.3at/af for Power-over-Ethernet IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for Flow Control IEEE 802.1D 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, 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	
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	
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
LED Indicators	PWR1, PWR2, FAULT, 10/100M, MSTR/HEAD, CPLR/TAIL, PoE
Alarm Contact	2 relay outputs with current carrying capacity of 1 A @ 24 V DC
Digital Inputs	2 inputs with the same ground, electrically isolated <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	24/48 V DC
Input Current	Max. 7.8 A @ 24 V DC (supports up to 4 ports at 30 watts per PoE port)
Overload Current Protection	Present
Connection	2 removable 6-contact terminal blocks
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	Metal, IP30 protection
Dimensions	80 x 135 x 131.5 mm (3.15 x 5.31 x 5.18 in)

Physical Characteristics			
Weight	1270 g		
Installation	DIN-Rail mounting		
Environmental Limits			
Operating Temperature	Standard Models: 0 to 60 °C (32 to 140 °F) Wide Operating 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	UL508 (Pending)		
EMI	FCC Part 15, CISPR (EN55022) class A		
EMS	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		
Shock	IEC 60068-2-27		
Freefall	IEC 60068-2-32		
Vibration	IEC 60068-2-6		
Warranty			
Warranty Period	5 years		
Ordering Information			
Port Variants	Model Type	Operating Temperature	Order No.
2 * RJ45 10/100 BaseT(X), 4 * RJ45 10/100 BaseT(X) PoE+	IE-SW-PL06M-2TX-4PoE	0 to 60 °C	1241390000
Note 1: Model with extended operating temperature -40 to +75 °C on request Note 2: Models with Fiber optic ports on request			
Accessories			
	Model Type		Order No.
External Backup and Restore Module	EBR-Module RS232		1241430000
Networkmanagement Software	IE-NM-WMNETMANAGER		1242120000
19" Rack Mounting Kit	RM-KIT		1241440000



# Media converter

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. They are also not absorbed.

The use of fibre-optic based systems is already established in the process industry, plant engineering, energy distribution and the wind energy branches.

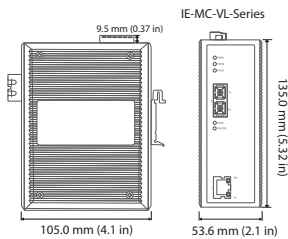
One simple and inexpensive solution is offered by the media converter. This connects the Ethernet via an RJ45 port to an optical fibre-optic cable port with SC or ST glass fibre connections. This retains the collision domain between the two Ethernet participants and means that there is status transparency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

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.



## Industrial Fast Ethernet Media Converter

- 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 (Class 1 Div. 2/Zone 2)



### Technical data

Technology		
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX	
Interface		
Fiber Ports	100BaseFX (SC/ST connectors)	
RJ45 Ports	10/100BaseT(X)	
DIP Switches	100BaseFX Full/Half duplex selection, port break alarm mask	
LED Indicators	PWR1, PWR2, FAULT, 10/100M (TP port), 100M (Fiber port), FDX/COL (Fiber port)	
Alarm Contact	One relay output with current carrying capacity of 1 A @ 24 V DC	
Optical Fiber		
	100BaseFX	
	multimode	
	singlemode	
Wavelength	1300 nm	1310 nm
Max. TX	-10 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm
Link Budget	12 dB	29 dB
Typical Distance	5 km <sup>a</sup> 4 km <sup>b</sup>	40 km <sup>c</sup>
Saturation	-6 dBm	-3 dBm
<sup>a</sup> 50/125 μm, 800 MHz*km fiber optic cable		
<sup>b</sup> 62.5/125 μm, 500 MHz*km fiber optic cable		
<sup>c</sup> 9/125 μm, 3.5 PS/(nm*km) fiber optic cable		
Power Requirements		
Input Voltage	24 V DC (12 to 48 V DC), redundant inputs	
Input Current	0.16 A (@ 24 V)	
Connection	Removable terminal block	
Overload Current Protection	1.1 A	
Reverse Polarity Protection	Present	
Physical Characteristics		
Housing	Metal, IP30 protection	
Dimensions	53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)	
Weight	630 g	
Installation	DIN-Rail mounting, wall mounting (with optional kit)	
Environmental Limits		
Operating Temperature	Standard Models: 0 to 60 °C (32 to 140 °F) Wide Temp. Models: -40 to 75 °C on request (-40 to 167 °F)	
Operating Humidity	5 to 95 % RH	
Storage Temperature	-40 to 85 °C (-40 to 185 °F)	

Regulatory Approvals			
Safety	UL508, UL60950-1, CSA C22.2 No. 60950-1, EN60950-1		
EMI	FCC Part 15, CISPR (EN55022) class A		
EMS	EN61000-4-2 (ESD), level 3 EN61000-4-3 (RS), level 3 EN61000-4-4 (EFT), level 3 EN61000-4-5 (Surge), level 2 EN61000-4-6 (CS), level 3 EN61000-4-8 EN61000-4-11		
Hazardous Location	UL/cUL Class1, Division 2, Groups A, B, C, and D, ATEX Class1, Zone 2, Ex nC IIC		
Freefall	IEC60068-2-32		
Shock	IEC60068-2-27		
Vibration	IEC60068-2-6		
Maritime	DNV, GL		
MTBF	401,000 hrs; Database: MIL-HDBK-217F; GB 25 °C		
Warranty			
Warranty Period	5 years		
Ordering Information			
Port Variants	Model Type	Operating Temperature	Order No.
1 * RJ45, 1 * SC-Multimode	IE-MC-VL-1TX-1SC	0 to +60 °C	<b>1241400000</b>
1 * RJ45, 1 * ST-Multimode	IE-MC-VL-1TX-1ST	0 to +60 °C	<b>1241410000</b>
1 * RJ45, 1 * SC-Singlemode	IE-MC-VL-1TX-1SCS	0 to +60 °C	<b>1241420000</b>
Note: Models with extended operating temperature -40 to +75 °C on request			
Accessories			
	Model Type		Order No.
19" Rack Mounting Kit	RM-KIT		<b>1241440000</b>

## Serial / Ethernet converter

Serial interfaces such as RS 232, RS 422 or RS 485 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.

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.

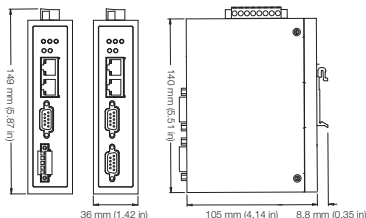
There are two Ethernet ports on the device which can be used as Ethernet switch ports. This helps to reduce your cabling costs since you no longer need to connect each device with a separate Ethernet switch.





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

- Enhanced surge protection for serial, LAN, and power
- 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 Mbps, auto MDI/MDIX
Connector	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	IE-CS-2TX-1RS232/485: 1 IE-CS-2TX-2RS232/485: 2
Serial Standards	RS-232/422/485
Connector	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 to 921.6 Kbps
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, SNTP, 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 x86/x64
Fixed TTY Drivers	SCO Unix, SCO OpenServer, UnixWare 7, UnixWare 2.1, SVR 4.2, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i
Linux Real TTY Drivers	Linux kernel 2.4.x, 2.6.x
Physical Characteristics	
Housing	Metal, IP30 protection
Weight	IE-CS-2TX-1RS232/485: 475 g IE-CS-2TX-2RS232/485: 485 g
Dimensions	36 x 105 x 140 mm (1.42 x 4.13 x 5.51 in)
Environmental Limits	
Operating Temperature	0 to 60 °C (32 to 140 °F)
Operating Humidity	5 to 95% RH
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Power Requirements	
Input Voltage	12 to 48 V DC
Power Consumption	IE-CS-2TX-1RS232/485: 12 to 48 V DC; 220 mA @ 12 V DC, 110 mA @ 24 V DC IE-CS-2TX-2RS232/485: 12 to 48 V DC; 250 mA @ 12 V DC, 125 mA @ 24 V DC

Regulatory Approvals	
EMC	CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A
Safety	UL508 (Pending)
Hazardous Location	UL/cUL Class 1 Division 2 Groups A, B, C and D (Pending)
ATEX	Class I, Zone 2 (Pending)
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
Reliability	
Alert Tools	Built-in buzzer and RTC (real-time clock)
Automatic Reboot Trigger	Built-in WDT (watchdog timer)
Warranty	
Warranty Period	5 years
Pin Assignment	

RS-232/422/485 DB9 male port	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	GND
6	DSR	-	-	-
7	RTS	-	-	-
8	CTS	-	-	-

Pin Assignment

RS-422/485 Terminal Block Wiring	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	GND

Ordering Information

Models	Model Type	Operating Temperature	Order No.
2x RJ45; 1x RS-232; 1x RS-422/485	IE-CS-2TX-1RS232/485	0 to +60 °C	1242080000
2x RJ45; 2x RS-232/422/485	IE-CS-2TX-2RS232/485	0 to +60 °C	1242090000

Accessories

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

# Industrial wireless

## B

Wireless communications are preferred when working with moveable 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 AGB (automatic guide vehicles) are connected over WLAN. Here it is important that roaming between different radio cells is possible, thereby creating an individually configurable radio coverage.

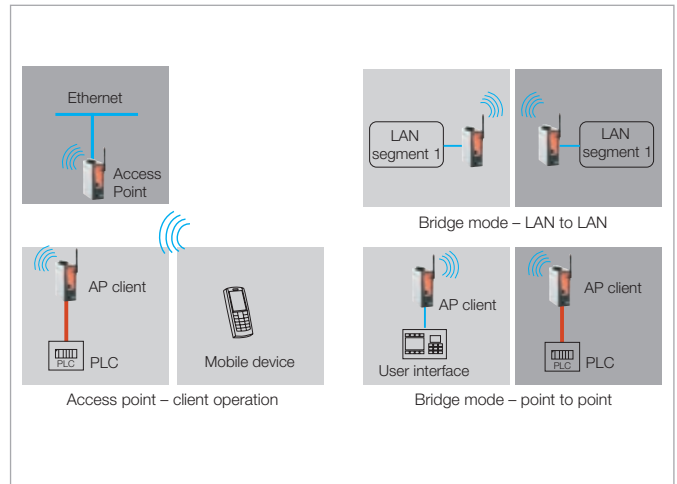
Weidmüller's versatile WLAN module can be used as an access point, bridge or client. It is quite simple to integrate into existing infrastructures because it has an alternative Power over Ethernet supply (using the data cable for the power supply).

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 with versatility by quickly 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.



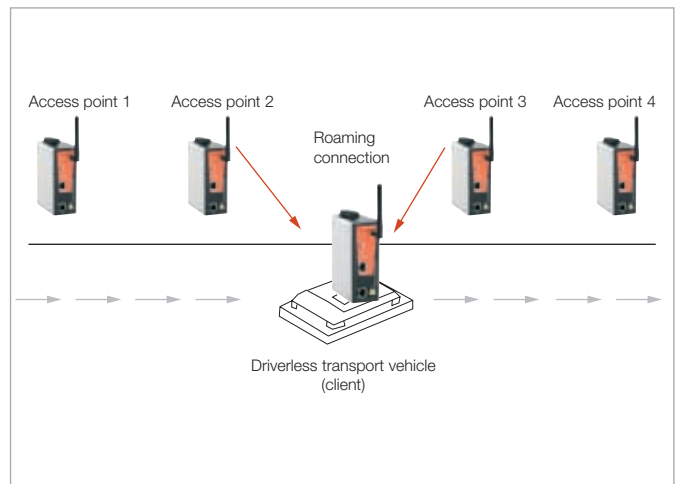
**Wireless operating modes**

The most common operating mode for wireless networks are AP client mode (Access Point) and bridge mode. A WLAN access point is needed and set up to create a Basic Service Set (BSS) for a wireless connection in AP client mode. 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.



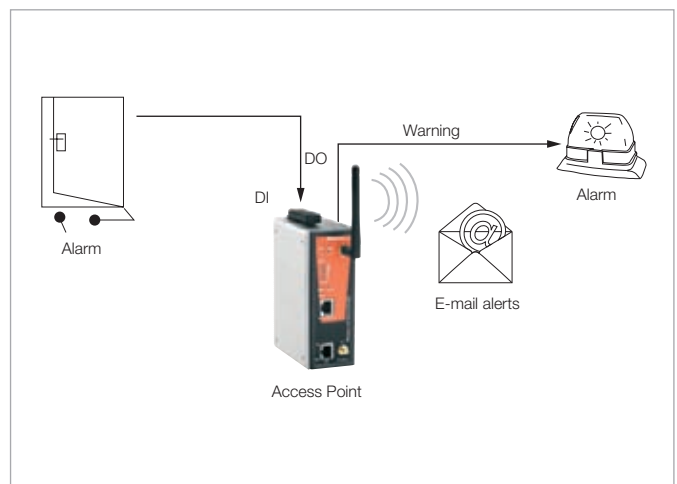
**Turbo roaming for uninterrupted connections**

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. The roaming technology offers a seamless wireless connection and permits a swift change between different wireless access points without the risk of an interruption to the data communication.



**Integrated digital inputs / outputs**

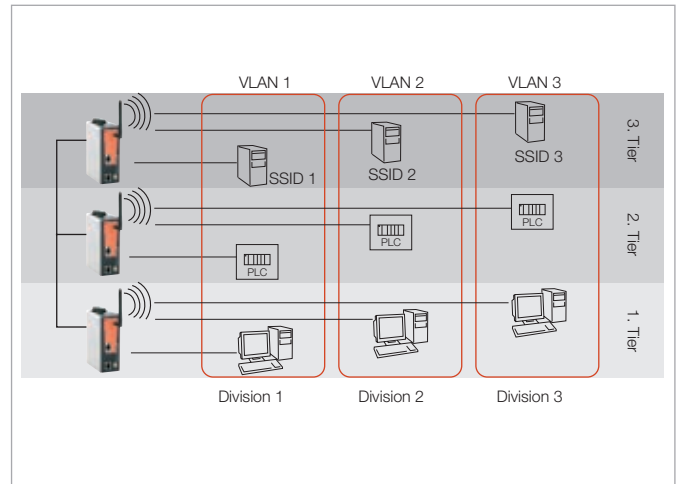
Wireless access points are often located in distant or inaccessible places in an industrial plant. This makes monitoring the status of a device or its environment by the system administrators a difficult task. Weidmüller's WLAN access points therefore have an integrated digital input/output which sends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



### Wireless VLAN (Multi-SSID)

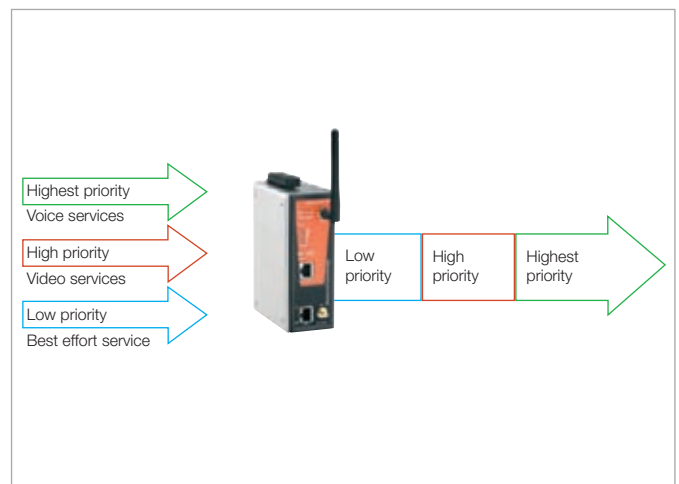
VLAN stands for virtual LAN. It is a network structure with all the characteristics of a normal LAN, but not geographically constrained.

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

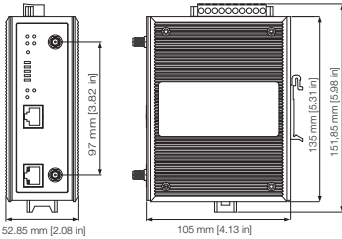
Quality of Service (QoS) is a network term for controlling and measuring data transmission rates, throughput and error rates. It is an essential part of wireless communication when transmitting multimedia data like audio and video. Important data, for example, require a high priority with respect to 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.





**Industrial Wireless - AP/bridge/client**

- IEEE 802.11a/b/g compliant
- Power input by redundant 24 V DC power inputs or Power-over-Ethernet
- Multi-SSID and VLAN support
- Turbo Roaming for seamless wireless connections
- Integrated DI/DO for on-site monitoring and warning
- QoS (WMM) support



**Technical data**

WLAN Interface	
Standards	IEEE 802.11a/b/g/h for Wireless LAN IEEE 802.11i for Wireless Security IEEE 802.3u for 10/100BaseT(X) IEEE 802.3af for Power-over-Ethernet IEEE 802.1D for Spanning Tree Protocol IEEE 802.1w for Rapid STP IEEE 802.1Q VLAN
Spread Spectrum 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 @ 11/5.5 Mbps, DQPSK @ 2 Mbps, DBPSK @ 11 Mbps</li> <li>• 802.11a/g: 64QAM @ 54/48 Mbps, 16QAM @ 36/24 Mbps, QPSK @ 18/12 Mbps, BPSK @ 9/6 Mbps</li> </ul>
Operating Channels (central frequency)	US: 2.412 to 2.462 GHz (11 channels) 5.18 to 5.24 GHz (4 channels) EU: 2.412 to 2.472 GHz (13 channels) 5.18 to 5.24 GHz (4 channels)
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
TX Transmit Power	802.11b: Typ. 23±1.5 dBm @ 1 to 11 Mbps 802.11g: Typ. 20±1.5 dBm @ 6 to 24 Mbps, Typ. 19±1.5 dBm @ 36 Mbps, Typ. 18±1.5 dBm @ 48 Mbps, Typ. 17±1.5 dBm @ 54 Mbps 802.11a: Typ. 18±1.5 dBm @ 6 to 24 Mbps, Typ. 16±1.5 dBm @ 36 to 48 Mbps, Typ. 15±1.5 dBm @ 54 Mbps
RX Sensitivity	802.11b: -97 dBm @ 1 Mbps, -94 dBm @ 2 Mbps, -92 dBm @ 5.5 Mbps, -90 dBm @ 11 Mbps 802.11g: -93 dBm @ 6 Mbps, -91 dBm @ 9 Mbps, -90 dBm @ 12 Mbps, -88 dBm @ 18 Mbps, -84 dBm @ 24 Mbps, -80 dBm @ 36 Mbps, -76 dBm @ 48 Mbps, -74 dBm @ 54 Mbps 802.11a: -90 dBm @ 6 Mbps, -89 dBm @ 9 Mbps, -89 dBm @ 12 Mbps, -85 dBm @ 18 Mbps, -83 dBm @ 24 Mbps, -79 dBm @ 36 Mbps, -75 dBm @ 48 Mbps, -74 dBm @ 54 Mbps
Protocol Support	
General Protocols:	Proxy ARP, DNS, HTTP, HTTPS, IP, ICMP, SNMP, TCP, UDP, RADIUS, SNMP, PPPoE, DHCP
AP-only Protocols:	ARP, BOOTP, DHCP, dynamic VLAN-Tags for 802.1X-Clients, STP/RSTP (IEEE 802.1D/w)

Interface	
Default Antenna	2 dBi dual-band omni-directional antenna, RP-SMA (male)
Connector for External Antennas	RP-SMA (female)
LAN Port	10/100BaseT(X), auto negotiation speed (RJ45-type)
Console Port	RS-232 (RJ45-type)
LED Indicators	PWR1, PWR2, PoE, FAULT, STATE, signal strength, CLIENT MODE, BRIDGE MODE, WLAN, 10M, 100M
Alarm Contact	1 relay output with current carrying capacity of 1 A @ 24 V DC
Digital Inputs	2 electrically isolated inputs <ul style="list-style-type: none"> <li>• +13 to +30 V for state "1"</li> <li>• +3 to -30 V for state "0"</li> <li>• Max. input current: 8 mA</li> </ul>

Physical Characteristics	
Housing	Metal, IP30 protection
Weight	850 g
Dimensions	53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)
Installation	DIN-Rail mounting

Environmental Limits	
Operating Temperature	0 to 60 °C (32 to 140 °F)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5% to 95% (non-condensing)

Power Requirements	
Input Voltage	12 to 48 V DC, redundant dual DC power inputs or 48 V DC Power-over-Ethernet (IEEE 802.3af compliant)
Connector	10-pin removable terminal block
Power Consumption	<ul style="list-style-type: none"> <li>• 0.121 to 0.494 A @ 12 to 48 V DC</li> <li>• 0.3 A @ 24 V DC</li> </ul>
Reverse Polarity Protection	Present

Regulatory Approvals	
Safety	EN60950-1, UL60950-1
Radio	EN300 328, EN301 893,
EMC	EN301 489-1/-17, FCC Part 15 Subpart B Class B, EN55022/55024
Hazardous Location	UL/cUL Class I, Div. 2; ATEX Class I, Zone 2
MTBF	392,209 hrs
Warranty	
Warranty Period	5 years

Ordering Information			
Models	Model Type	Operating Temperature	Order No.
IEEE 802.11a/b/g wireless AP/ Bridge/Client for european market	IE-WL-AP-BR-CL-ABG-EU	0 to +60 °C	1242100000
IEEE 802.11a/b/g wireless AP/ Bridge/Client for american market	IE-WL-AP-BR-CL-ABG-US	0 to +60 °C	1242110000

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

## SFP modules

### 1-port Gigabit Ethernet SFP modules

- Compliant with IEEE 802.3z
- Differential LVPECL inputs and outputs
- TTL signal detect indicator
- Hot pluggable LC duplex connector
- Class 1 laser product; complies with EN60825-1



n

### 1-port Fast Ethernet SFP modules

- Compliant with IEEE 802.3u
- Differential PECL inputs and outputs
- TTL signal detect indicator
- Hot pluggable LC duplex connector
- Class 1 laser product; complies with EN60825-1



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### Technical data

Interface								
Ethernet Ports	1							
Connectors	Duplex LC Connector or Simplex LC							
Optical Fiber								
	Gigabit Ethernet							
	SFP-SX	SFP-LSX	SFP-LX	SFP-LHX	SFP-10A	SFP-10B	SFP-20A	SFP-20B
Wavelength	850 nm	1310 nm	1310 nm	1310 nm	TX 1310 nm, RX 1550 nm	TX 1550 nm, RX 1310 nm	TX 1310 nm, RX 1550 nm	TX 1550 nm, RX 1310 nm
Max. TX	-4 dBm	-1 dBm	-3 dBm	1 dBm	-3 dBm	-3 dBm	-2 dBm	-2 dBm
Min. TX	-9.5 dBm	-9 dBm	-9.5 dBm	-4 dBm	-9 dBm	-9 dBm	-8 dBm	-8 dBm
RX Sensitivity	-18 dBm	-19 dBm	-20 dBm	-24 dBm	-21 dBm	-21 dBm	-23 dBm	-23 dBm
Link Budget	8.5 dB	10 dB	10.5 dB	20 dB	12 dB	12 dB	15 dB	15 dB
Typical Distance	550 m <sup>a)</sup>	2 km <sup>b)</sup>	10 km <sup>c)</sup>	40 km <sup>c)</sup>	10 km <sup>c)</sup>	10 km <sup>c)</sup>	20 km <sup>c)</sup>	20 km <sup>c)</sup>
Saturation	0 dBm	-3 dBm	-3 dBm	-3 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm

<sup>a)</sup> 50/125 µm, 400 MHz \* km or 62.5/125 µm, 500 MHz \* km @ 850 nm multimode fiber optic cable

<sup>b)</sup> 62.5/125 µm, 750 MHz \* km @ 1310 nm multimode fiber optic cable

<sup>c)</sup> 9/125 µm singlemode fiber optic cable

Note: The actual communication distance depends on many factors, including connector loss, cable deployment, and the age of the cabling system. We recommend doing a link budget analysis and reserving a 3 dB margin for such factors.

Environmental Limits	
Operating Temperature	0 to 60 °C (32 to 140 °F)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Ambient Relative Humidity	5 to 95 % (non-condensing)
Regulatory Approvals	
Safety	UL, TÜV
Warranty	
Warranty Period	3 years

Ordering Information			
SFP Variants	Model Type	Operating Temperature	Order No.
Gigabit Ethernet, Multimode, LC Connector, 500 m	IE-SFP-1GSXLC	0 to +60 °C	<b>1241490000</b>
Gigabit Ethernet, Multimode, LC Connector, 2 km	IE-SFP-1GLSXLC	0 to +60 °C	<b>1241500000</b>
Gigabit Ethernet, Singlemode, LC Connector, 10 km	IE-SFP-1GLXLC	0 to +60 °C	<b>1241510000</b>
Gigabit Ethernet, Singlemode, LC Connector, 40 km	IE-SFP-1GLHLC	0 to +60 °C	<b>1241520000</b>
WDM-Type, Gigabit Ethernet, LC Connector, 10 km, Tx 1310 nm, Rx 1550 nm, must be paired with IE-SFP-1G10BLC	IE-SFP-1G10ALC	0 to +60 °C	<b>1241530000</b>
WDM-Type, Gigabit Ethernet, LC Connector, 10 km, Tx 1550 nm, Rx 1310 nm, must be paired with IE-SFP-1G10ALC	IE-SFP-1G10BLC	0 to +60 °C	<b>1241540000</b>
WDM-Type, Gigabit Ethernet, LC Connector, 20 km, Tx 1310 nm, Rx 1550 nm, must be paired with IE-SFP-1G20BLC	IE-SFP-1G20ALC	0 to +60 °C	<b>1241550000</b>
WDM-Type, Gigabit Ethernet, LC Connector, 20 km, Tx 1550 nm, Rx 1310 nm, must be paired with IE-SFP-1G20BLC	IE-SFP-1G20BLC	0 to +60 °C	<b>1241570000</b>

Note: WDM-type SFP modules must be used in pairs (e.g. SFP-1GXXALC and SFP-1GXXBLC)

### Technical data

Interface			
Ethernet Ports	1		
Connectors	Duplex LC Connector		
Optical Fiber			
	Fast Ethernet		
	SFP-M	SFP-S	SFP-L
Wavelength	1300 nm	1310 nm	1550 nm
Max. TX	-18 dBm	0 dBm	0 dBm
Min. TX	-8 dBm	-5 dBm	-5 dBm
RX Sensitivity	-34 dBm	-34 dBm	-34 dBm
Link Budget	26 dB	29 dB	29 dB
Typical Distance	4 km <sup>a)</sup>	40 km <sup>b)</sup>	80 km <sup>b)</sup>
Saturation	0 dBm	-3 dBm	-3 dBm

<sup>a)</sup> 50/125 µm or 62.5/125 µm, 800 MHz \* km @ 1300 nm multimode fiber optic cable

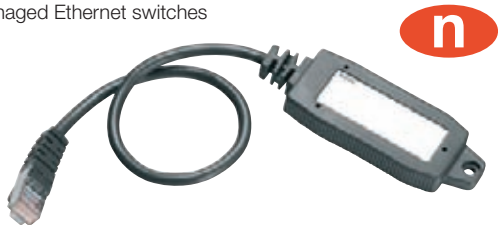
<sup>b)</sup> 9/125 µm singlemode fiber optic cable

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)
Regulatory Approvals	
Safety	UL, TÜV
Warranty	
Warranty Period	3 years

Ordering Information			
Port Variants	Model Type	Operating Temperature	Order No.
Fast Ethernet, Multimode, LC Connector, 4 km	IE-SFP-1FEMLC-T	-40 to +85 °C	<b>1241450000</b>
Fast Ethernet, Singlemode, LC Connector, 40 km	IE-SFP-1FESLC-T	-40 to +85 °C	<b>1241470000</b>
Fast Ethernet, Singlemode, LC Connector, 80 km	IE-SFP-1FELLC-T	-40 to +85 °C	<b>1241480000</b>

### External Backup and Restore Module for System Configuration

- Reduce system downtime by simple reconfiguration in case of replacing devices
- Plug-n-Play system backup and restoration
- Compact, rugged, reliable design
- Supports all managed Ethernet switches



#### Technical data

Basic Operation		
Connector	RS-232 RJ45 port	
Configuration	Use the WEB-Console of managed Switches	
Power Requirements		
Input Voltage	3 to 5 V DC (through the RS-232 port's RTS signal)	
Physical Characteristics		
Housing	PVC molding, IP40 protection	
Dimensions	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)	
Regulatory Approvals		
EMI	FCC Part 15, CISPR (EN55022) Class A	
EMS	EN61000-4-2 (ESD), 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	
Warranty		
Warranty Period	5 years	
Ordering Information		
Models	Type	Order No.
External Backup and Restore Module	EBR-Module RS232	1241430000

### Kit for 19"-rack mounting

- For assembling top-hat rail-based devices in 19" racks



#### Technical data

Physical Characteristics		
Dimensions	481 x 177.8 x 202.4 mm	
Ordering Information		
Models	Type	Order No.
19" Rack Mounting Kit	RM-KIT	1241440000



# Passive components

<b>Passive components</b>		
	IE-line connector	C.2
	Differences between industrial and office Ethernet	C.4
	IE-LINE connectors: the modular principle	C.5
	IE-LINE connectors: selection chart	C.6
	PROFINET and SERCOS III cabling solutions	C.8
	Ethernet/IP cabling solutions	C.12
	IP 20 plug-in connector	C.16
	IP 20 mounting rail outlets	C.20
	19" patch panel	C.25
	IP 65 FrontCom® Micro service interface	C.26
	IP 67 plug-in connector	
	PushPull V14	C.28
	Bayonet V1	C.34
	PushPull V4	C.44
	RockStar® V5	C.52
	SnapIn V6	C.54
	M12	C.58
	Inserts	C.61
	PushPull Power	C.70
	IP 65 connection components	
	FreeCon V14	C.72
	FreeCon Active PROFINET FO repeater	C.75
	V1 junction boxes	C.76
	FreeCon V4	C.78
	V4 junction boxes	C.79
	V5 junction boxes	C.80
	V6 junction box	C.81

# The Weidmüller IE-LINE plug-in connectors with **STEADYTEC**® technology



**STEADYTEC**® – this name stands for the future of connection technology in the field of data and signal transmissions. Established by the leading names in this branch of industry, the technology brand **STEADYTEC**® forms the foundation for reliable, application-centric and conforming solutions, for offices and 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, professional and consistent solutions.

**The result:** An extremely reliable, extraordinarily practical, flexible and especially efficient plug-in connector system for office and industrial applications. Using products whose characteristics reflect perfectly the values from which they originated:

- fast
- reliable
- solution-based
- simple

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

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 are tailored to suit your application.





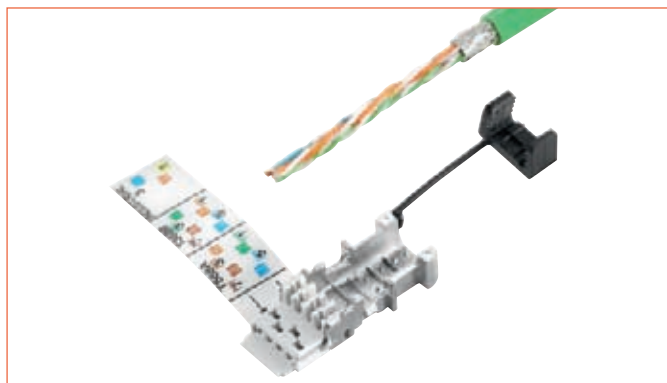
### Tool-free assembly and powerful connections: the RJ45 gigabit connector!

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 extra robust and therefore suitable for industrial applications. It is also fitted with a protected locking clip for tough industrial applications. 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 IP 67 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

# Differences between industrial and office Ethernet

## 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: 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 Module A, B, P
		 Bayonet / Variant 1, plastic		 USB-A coupling
Fibre-optic	 2 x SC	 Bayonet / Variant 1, metal		 2SC/SCRJ adapter
	 LC duplex	 Push-Pull / Variant 4		 LC duplex adapter
		 Push-Pull / Variant 14		

Take advantage of maximum flexibility! The range of products guarantees you decisive advantages for your industrial applications. During planning, assembling and everyday operations. All variants are designed for class of protection IP 67.

The Weidmüller products take account of the latest market conditions and most recent international standards. In doing so we offer you the option of unrestricted 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 IP 20 and IP 67 plug-in connectors.
- Dirt-resistant housing design with enhanced resistance to oils, greases, acids and alkalis.

IE-LINE connectors: selection chart



**Metal plug**

Housings				Variant 1 Bayonet		Variant 14 PushPull RJ		Variant 14 PushPull fibre-optic		Variant 5 HDC
				With KS	Without KS	With KS	Without KS	With KS	Without KS	Without KS
	RJ45 AWG 24 crimp		1962720000	1962560000	1962550000	1011570000	1011560000	1058110000	1058100000	1962540000
				1963150000	1963140000	1012070000	1012160000			1963110000
	RJ45 AWG 22 tool-free	TIA-A/-B/-P TIA-A TIA-B PROFINET	1962730000 1132010000 1132020000 1132030000	1963130000	1963120000	1012090000				1963200000 1271250000
						1012170000				
	LWL SC	multimode	1067380000	1963270000	1963260000			Please order separately		
		singlmode	1067390000	1963310000	1963300000			Please order separately		
		POF	1067410000	1963290000	1963280000				1191550000	
	LWL LC	multimode	1962780000	1963230000	1963220000			Please order separately		
		singlmode	1962790000	1963250000	1963240000			Please order separately		
Protective cap				1965690000		1058280000		1058280000		1968930002

KS = anti-kink protection

**Plastic plug**

Housings				Variant 1 Bayonet		Variant 4 PushPull	
				With KS	Without KS	With KS	Without KS
	RJ45 AWG 24 crimp		1962720000	1012460000	1012440000	1962530000	1962520000
				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
		singlmode	1067390000	Please order separately		1963410000	1963400000
		POF	1067410000	Please order separately		1963390000	1963380000
	LWL LC	multimode	1962780000	Please order separately		1963330000	1963320000
		singlmode	1962790000	Please order separately		1963350000	1963340000
Protective cap				1965690000		1963890000	

Individual components  
 Sets

KS = anti-kink protection

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
	<b>RJ45 coupling</b>		1962840000	1963470000	1012310000	1058250000			1963510000
	<b>RJ45 module</b>	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
	<b>SC/SCRJ coupling</b>	multimode	1964430000	1964450000			1058120000	1062590000	
		singlemode	1962870000	1963440000			1058140000	1062600000	
	<b>LC Duplex coupling</b>	multimode	1964420000	1964440000			1058130000	1062610000	
		singlemode	1962880000	1963430000			1058150000	1062620000	
	<b>USB coupling</b>		1019570000	Please order separately	Please order separately	Please order separately			Please order separately
	<b>Protective cap</b>			1965700000	1058310000	1058310000	1058310000	1058310000	1968930000

**Plastic flange**

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



# PROFINET and SERCOS III cabling solutions

Weidmüller offers all cabling products to create a profile specific infrastructure which meets all the needs of PROFINET and SERCOS III.



The cabling components for copper and fibre-optic cables are designed and tested for use in hard 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 both 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 synchronisations, 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 also have a remarkable ease of handling 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.

## Profile specific guidelines for the connection components

### Cable:

- Quad-star design of AWG 22

### Connector:

- IP 20 RJ45
- IP 20 SC-RJ
- IP 67 PushPull RJ45
- IP 67 PushPull Power
- IP 67 PushPull SC-RJ
- IP 67 M12 D coding



Weidmüller offers you a wide range of cabling solutions for PROFINET and SERCOS III applications. IP 20 plug-in connectors for copper and fibre-optic cables belong to the program as well as IP 67 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.

IP 67  
assembled RJ45 cables



IP 67  
assembled M12 cables



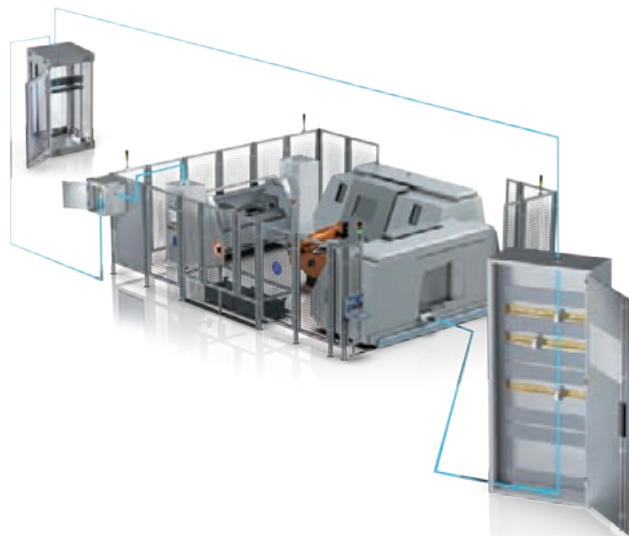
IP 67  
plug-in M12 connectors



IP 67  
connection components



Cable by the metre  
copper and fibre-optic



IP 67  
plug-in connectors data / power



19" patch panel



IP 67  
flanges data / power



IP 20  
plug-in connector



IP 20  
assembled cables



IP 20  
mounting rail outlets



IP 65  
service interfaces



# Selection table



## IP 20 plug-in connector



Description	Type	Order No.	See page
RJ 45 tool-free PROFINET printing	IE-PS-RJ45-FH-BK-P	1132060000	C.16
SC-RJ for 1 mm POF fibres	IE-PS-SCRJ1-POF	1206720000	C.18
SC-RJ for multimode fibres 50/62.5 µm	IE-PS-SCRJ1-MM	1206730000	C.18
SC-RJ for singlemode fibres 9 µm	IE-PS-SCRJ1-SM	1206740000	C.18

## IP 20 assembled data cables



Description	Type	Order No.	See page
RJ 45 PUR patch cable - type C - 1 m	IE-C5DD4UG0010A20A20-E	1173030010	D.20
RJ 45 PUR patch cable - type C - 3 m	IE-C5DD4UG0030A20A20-E	1173030030	D.20
RJ 45 PUR patch cable - type C - 5 m	IE-C5DD4UG0050A20A20-E	1173030050	D.20
RJ 45 PUR patch cable - type C - 10 m	IE-C5DD4UG0100A20A20-E	1173030100	D.20
SC-RJ zipcord patch cable - POF - 1 m	IE-FPOZ2EE0001MSJ0SJ0-X	1273430010	D.35
SC-RJ zipcord patch cable - POF - 3 m	IE-FPOZ2EE0003MSJ0SJ0-X	1273430030	D.35
SC-RJ zipcord patch cable - POF - 5 m	IE-FPOZ2EE0005MSJ0SJ0-X	1273430050	D.35
SC-RJ zipcord patch cable - POF - 10 m	IE-FPOZ2EE0010MSJ0SJ0-X	1273430100	D.35

Further PROFINET cables are available on request - SERCOS 3 cables on request

## IP 20 mounting rail outlets



Description	Type	Order No.	See page
RJ45 coupling	IE-TO-RJ45-C	8946920000	C.20
RJ45 module PROFINET printing	IE-TO-RJ45-FJ-P	8946950000	C.21
SC-RJ POF coupling / multimode	IE-TO-SCRJ-MM	8946990000	C.23
SC-RJ singlemode coupling	IE-TO-SCRJ-SM	8947000000	C.23

## 19" patch panel



Description	Type	Order No.	See page
With adaptor, without RJ45 inserts	IE-PPA19-24P	1049270000	C.25
RJ 45 module PROFINET printing	IE-BI-RJ45-FJ-P	1963830000	C.25
fitted with 24 RJ45 couplings	IE-PPA19-24P-RJ45-C	1049930000	C.25

other inserts from page C.61

## IP 65 service interface



Description	Type	Order No.	See page
FrontCom® Micro RJ45 coupling	IE-FCM-RJ45-C	1018790000	C.26
FrontCom® Micro RJ45 module PROFINET printing	IE-FCM-RJ45-FJ-P	1018830000	C.26

## IP 67 flange data



Description	Type	Order No.	See page
PushPull standard flange RJ45 coupling	IE-BSS-V14M-RJ45-C	1012310000	C.29
PushPull central cable gland RJ45 coupling	IE-BSC-V14M-RJ45-C	1058250000	C.29
PushPull standardised flange RJ45 module PROFINET printing	IE-BSS-V14M-RJ45-FJ-P	1085260000	C.29
PushPull standardised flange hybrid (Q10) 10-pole module without contacts	IE-BSS-V14M-HYB-10P-FJ	1072900000	C.31
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	C.31
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	C.31
PushPull standardised flange SC-RJ coupling POF / multimode	IE-BSS-V14M-SCRJ-MM-C	1058120000	C.33
PushPull standardised flange SC-RJ coupling singlemode	IE-BSS-V14M-SCRJ-SM-C	1058140000	C.33
PushPull central cable gland SC-RJ coupling POF / multimode	IE-BSC-V14M-SCRJ-MM-C	1062590000	C.33
PushPull central cable gland SC-RJ coupling singlemode	IE-BSC-V14M-SCRJ-SM-C	1062600000	C.33
PushPull device flange	IE-BHD-V14M	1047940000	C.33
PushPull flange protective cap IP 67	IE-BP-V14P	1058310000	E.18


other inserts from page C.61

## IP 67 flange power




Description	Type	Order No.	See page
PushPull Power standardised flange with 24 V / 16 A use	IE-BSS-VAPM-24V	1069030000	C.69
PushPull Power device flange	IE-BHD-VAPM	1068920000	C.69
PushPull Power flange protective cap IP 67	IE-BP-VAPP	1068930000	E.18


**IP 67 data connectors**

	Description	Type	Order No.	See page
	PushPull RJ45 tool-free module PROFINET printing	IE-PS-V14M-RJ45-FH-P	1012170000	C.28
	PushPull Hybrid (Q10) use, 10-pole module without contacts	IE-PS-V14M-HYB-10P	1072910000	C.30
	Contacts for Hybrid (Q10) use 0.75 mm <sup>2</sup> VPE 300	IE-PIC-HYB-S-0,75-300	1068950000	C.30
	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	C.30
	PushPull SC-RJ use POF 1 mm	IE-PS-V14M-2SC-POF	1191550000	C.32
	PushPull plug protective cap IP 67	IE-PP-V14P	1058280000	E.18

**IP 67 assembled data cables**

	Description	Type	Order No.	See page
	PushPull RJ 45 patch cable PUR - Type C - 1 m	IE-C5DD4UG0010A2EA2E-X	1119730010	D.20
	PushPull RJ 45 patch cable PUR - Type C - 3 m	IE-C5DD4UG0030A2EA2E-X	1119730030	D.20
	PushPull RJ 45 patch cable PUR - Type C - 5 m	IE-C5DD4UG0050A2EA2E-X	1119730050	D.20
	PushPull RJ 45 patch cable PUR - Type C - 10 m	IE-C5DD4UG0100A2EA2E-X	1119730100	D.20
Further PROFINET cables are available on request - SERCOS 3 cables on request				


**IP 67 Power connectors**

	Description	Type	Order No.	See page
	PushPull Power with 24 V / 16 A use	IE-PS-VAPM-24V	1068910000	C.68


**IP 67 plug-in M12 connectors**

M 12 components can be found from page C.58


**IP 65 connection components**

	Description	Type	Order No.	See page
	FreeCon passive double socket junction box RJ45/Power	IE-CD-V14MRJ/VAPM24V-FJ	1068830000	C.70
	FreeCon passive single socket junction box RJ45	IE-CD-V14MRJ-FJ	1068880000	C.70
	FreeCon passive single socket junction box Hybrid (Q10) without contacts	IE-CD-V14MHYB-10P-FJ	1068850000	C.72
	Contacts for Hybrid (Q10) module 0.75 mm <sup>2</sup> VPE 300	IE-BIC-HYB-P-0,75-300	1068970000	C.31
	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	C.31
	Mounting foot for junction boxes	IE-CD-MA	1099580000	C.70
	FreeCon passive double connection RJ45/Power	IE-CD-V14MRJ/VAPM24V-C-MA	1068820000	C.71
	FreeCon passive single connection RJ45	IE-CD-V14MRJ-C-MA	1068870000	C.71
	FreeCon active FO PROFINET repeater	IE-CDR-V14MSCPOF/VAPM-C	1253240000	C.73
	PushPull flange protective cap IP 67	IE-BP-V14P	1058310000	E.18

**Bulk stock copper cable**

	Description	Type	Order No.	See page
	100 m ring installation cable PVC type A	IE-C5AS4V1000	8899000000	D.12
	Bulk stock installation cable PVC type A from 110 m	IE-C5AS4VG-MW	8955950000	D.12
	100 m ring connection cable PVC type B	IE-C5DS4V1000	8898990000	D.12
	Bulk stock connection cable PVC type B from 110 m	IE-C5DS4VG-MW	8955560000	D.12
	100 m ring dragline cable PUR type C	IE-C5DD4U1000	8899010000	D.13
	Bulk stock dragline cable PUR type C from 110 m	IE-C5DD4UG-MW	8947670000	D.13
	Bulk stock hybrid cable PVC from 110 m	IE-C5DHAG-MW	1172250000	D.14

**Bulk stock fibre-optic cable**

	Description	Type	Order No.	See page
	Multimode breakout cable 2x50 µm PUR from 50 m	IE-FM5B2UE-MW	8946000000	D.31
	POF zip-cord cable 2X980/1000 µm TPE, from 50 m	IE-FPOZ2EE-MW	1242820000	D.32
	POF breakout cable 2X980/1000 µm TPE, from 50 m	IE-FPOD2UE-MW	1172280000	D.32

# Ethernet/IP cabling solutions

The wiring guidelines for Ethernet/IP clearly defines 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 use 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 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:

- IP 20 RJ45
- IP 20 SC-RJ
- IP 67 bayonet RJ45
- IP 67 bayonet SC-RJ
- IP 67 M12 D coding



Weidmüller offers you a wide range of cabling solutions for Ethernet/IP applications. IP 20 plug-in connectors for copper and fibre-optic cables belong to the program as well as IP 67 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.

IP 67  
assembled RJ45 cables



IP 67  
assembled M12 cables



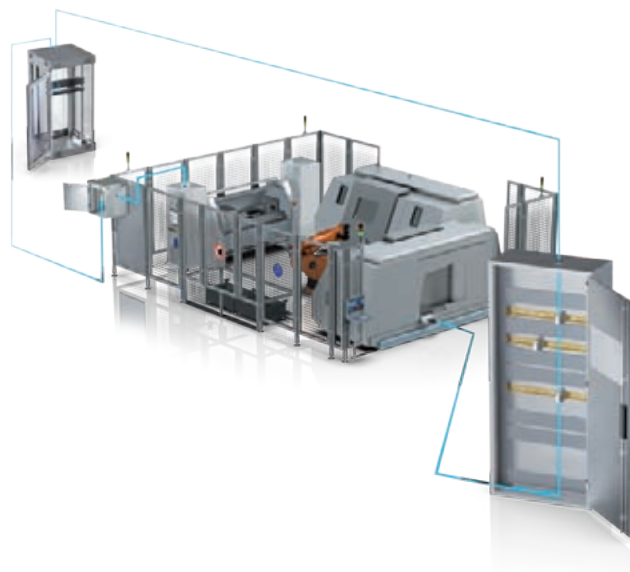
IP 67  
plug-in M12 connectors



IP 67  
connection components



Cable by the metre  
copper and fibre-optic



IP 67  
plug-in connectors data



19" patch panel



IP 67  
flanges data / power



IP 20  
plug-in connector



IP 20  
assembled cables



IP 20  
mounting rail outlets



IP 65  
service interfaces



# Selection table



## IP 20 plug-in connector

	Description	Type	Order No.	See page
	RJ45 crimp	IE-PS-RJ45-TH-BK	1963590000	C.17
	RJ 45 tool-free TIA-A printing	IE-PS-RJ45-FH-BK-A	1132040000	C.16
	RJ 45 tool-free TIA-B printing	IE-PS-RJ45-FH-BK-B	1132050000	C.16
	SC-RJ for 1 mm POF fibres	IE-PS-SCRJ1-POF	1206720000	C.18
	SC-RJ for multimode fibres 50/62.5 µm	IE-PS-SCRJ1-MM	1206730000	C.18
	SC-RJ for singlemode fibres 9 µm	IE-PS-SCRJ1-SM	1206740000	C.18

## IP 20 assembled data cables

	Description	Type	Order No.	See page
	RJ 45 patch cables - see CabinetLine			
	SC-RJ zipcord patch cable - POF - 1 m	IE-FPOZ2EE0001MSJ0SJ0-X	1273430010	D.35
	SC-RJ zipcord patch cable - POF - 3 m	IE-FPOZ2EE0003MSJ0SJ0-X	1273430030	D.35
	SC-RJ zipcord patch cable - POF - 5 m	IE-FPOZ2EE0005MSJ0SJ0-X	1273430050	D.35
	SC-RJ zipcord patch cable - POF - 10 m	IE-FPOZ2EE0010MSJ0SJ0-X	1273430100	D.35

Other Ethernet/IP cables available on request

## IP 20 mounting rail outlets

	Description	Type	Order No.	See page
	RJ45 coupling	IE-TO-RJ45-C	8946920000	C.20
	RJ45 Module TIA-A printing	IE-TO-RJ45-FJ-A	8946930000	C.21
	RJ45 Module TIA-B printing	IE-TO-RJ45-FJ-B	8946940000	C.21
	SC-RJ POF coupling / multimode	IE-TO-SCRJ-MM	8946990000	C.23
	SC-RJ singlemode coupling	IE-TO-SCRJ-SM	8947000000	C.23

## 19" patch panel

	Description	Type	Order No.	See page
	fitted with 24 RJ45 modules TIA-A printing	IE-PPA19-24P-RJ45-FJ-A	1049910000	C.25
	fitted with 24 RJ45 modules TIA-B printing	IE-PPA19-24P-RJ45-FJ-B	1049920000	C.25
	fitted with 24 RJ45 couplings	IE-PPA19-24P-RJ45-C	1049930000	C.25

other inserts from page C.61

## IP 65 service interface

	Description	Type	Order No.	See page
	FrontCom® Micro RJ45 coupling	IE-FCM-RJ45-C	1018790000	C.26
	FrontCom® Micro RJ45 module TIA-A printing	IE-FCM-RJ45-FJ-A	1018810000	C.26
	FrontCom® Micro RJ45 module TIA-B printing	IE-FCM-RJ45-FJ-B	1018820000	C.26

## IP 67 flange data

	Description	Type	Order No.	See page
	Bayonet flange metal RJ45 coupling	IE-BS-V01M-RJ45-C	1963470000	C.35
	Bayonet flange metal RJ45 module TIA-A printing	IE-BS-V01M-RJ45-FJ-A	1963480000	C.35
	Bayonet flange plastic RJ45 coupling	IE-BS-V01P-RJ45-C	1012370000	C.41
	Bayonet flange metal RJ45 module TIA-A printing	IE-BS-V01P-RJ45-FJ-A	1012380000	C.41
	Bayonet flange metal SC-RJ POF / multimode	IE-BS-V01M-SCRJ-MM	1221010000	C.37
	Bayonet flange metal SC-RJ singlemode	IE-BS-V01M-SCRJ-SM	1221020000	C.37
	Bayonet flange protective cap IP 67	IE-BP-V01P	1965700000	C.37
	other inserts from page C.61			

## IP 67 data connectors

	Description	Type	Order No.	See page
	Bayonet plug metal RJ45 crimped	IE-PS-V01M-RJ45-TH	1963140000	C.34
	Bayonet plug metal RJ45 tool-free	IE-PS-V01M-RJ45-FH	1963120000	C.34
	Bayonet plug plastic RJ45 crimped	IE-PS-V01P-RJ45-TH	1012470000	C.40
	Bayonet plug plastic RJ45 tool-free	IE-PS-V01P-RJ45-FH	1012490000	C.40
	Bayonet plug metal SC-RJ use POF	IE-PS-V01M-2SC-POF	1963280000	C.36
	Bayonet plug metal SC-RJ use multimode	IE-PS-V01M-2SC-MM	1963260000	C.36
	Bayonet plug metal SC-RJ use singlemode	IE-PS-V01M-2SC-SM	1963300000	C.36
	Bayonet plug protective cap IP 67	IE-PP-V01P	1965690000	C.36
	other inserts from page C.61			


## IP 67 assembled data cables

	Description	Type	Order No.	See page
	Bayonet metal RJ 45 patch cable PUR 1 m	IE-C5ES8UG0010B41B41-E	1066850000	D.23
	Bayonet metal RJ 45 patch cable PUR 2 m	IE-C5ES8UG0020B41B41-E	1066860000	D.23
	Bayonet metal RJ 45 patch cable PUR 5 m	IE-C5ES8UG0050B41B41-E	1066870000	D.23
	Bayonet metal RJ 45 patch cable PUR 10 m	IE-C5ES8UG0100B41B41-E	1066880000	D.23
	Bayonet plastic RJ 45 patch cable PUR 1 m	IE-C5ES8UG0010P41P41-E	1106010000	D.23
	Bayonet plastic RJ 45 patch cable PUR 2 m	IE-C5ES8UG0020P41P41-E	1106020000	D.23
	Bayonet plastic RJ 45 patch cable PUR 5 m	IE-C5ES8UG0050P41P41-E	1106030000	D.23
	Bayonet plastic RJ 45 patch cable PUR 10 m	IE-C5ES8UG0100P41P41-E	1106040000	D.23
	Other Ethernet/IP cables available on request			


## IP 67 plug-in M12 connectors

M 12 components can be found from page C.58


## IP 65 connection components

	Description	Type	Order No.	See page
	Single junction box, metal straight	IE-OM-V01M-K11-1S	1966300000	C.74
	Double junction box, metal straight	IE-OM-V01M-K21-2S	1966330000	C.74
	Double junction box, metal left	IE-OM-V01M-K21-2L	1966320000	C.74
	Double junction box, metal right	IE-OM-V01M-K21-2R	1966310000	C.74
	Single junction box, plastic	IE-OP-V01P-1S	1061830000	C.75
	Plastic cable coupling	IE-CC-V01P	1061820000	C.42
	RJ45 module TIA-A printing	IE-BI-RJ45-FJ-A	1962850000	C.62
	RJ45 module TIA-B printing	IE-BI-RJ45-FJ-B	1963840000	C.62

## Bulk stock copper cable

	Description	Type	Order No.	See page
	100 m ring installation cable PVC Cat. 5 SF/UTP	IE-5IC4x2xAWG24/1-PVC	8813150000	D.6
	Bulk stock installation cable PVC Cat. 5 SF/UTP from 110 m	IE-C5CS8VG-MW	8953160000	D.6
	100 m ring installation cable PUR Cat. 5 SF/UTP	IE-5IC4x2xAWG24/1-PUR	8813160000	D.6
	Bulk stock installation cable PUR Cat. 5 SF/UTP from 110 m	IE-C5CS8UG-MW	8944310000	D.6
	100 m ring connection cable PVC Cat. 5 SF/UTP	IE-5CC4x2xAWG26/7-PVC	8813190000	D.8
	Bulk stock connection cable PVC Cat. 5 SF/UTP from 110 m	IE-C5ES8VG-MW	8955490000	D.8
	100 m ring connection cable PUR Cat. 5 SF/UTP	IE-5CC4x2xAWG26/7-PUR	8813200000	D.8
	Bulk stock connection cable PUR Cat. 5 SF/UTP from 110 m	IE-C5ES8UG-MW	8938880000	D.8
	Other Ethernet/IP cables available on request			

## Bulk stock fibre-optic cable

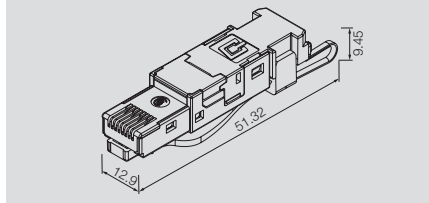
	Description	Type	Order No.	See page
	Multimode breakout cable 2x50 µm PUR from 50 m	IE-FM5B2UE-MW	8946000000	D.31
	POF zip-cord cable 2X980/1000 µm TPE, from 50 m	IE-FPO22EE-MW	1242820000	D.32
	POF breakout cable 2X980/1000 µm TPE, from 50 m	IE-FPOD2UE-MW	1172280000	D.32

## IP20 plug-in connector

## RJ45 plug

- Cat.6<sub>A</sub>
- IP 20

## tool-free



## Technical data

Category
Degree of protection
Housing main material
Wire cross-section, flexible, min. / max.
Wire cross-section, flexible, min. / max.
Wire cross-section, solid, min. / max.
Wire cross-section, solid, min. / max.
Insulation cross-section, max.
Sheath diameter, min. / max.
Shielding
Plugging cycles
Configuration
Ambient temperature (operational), min. / max.
Connector standard
Current-carrying capacity at 50 °C

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP 20
Zinc diecast
0.48 mm / 0.76 mm
AWG 26 / AWG 22
0.4 mm / 0.64 mm
AWG 24 / AWG 22
1.6 mm
5.5 mm / 8.5 mm
360° all-round enclosure
750
Eight-wire field-assembled RJ45 plug with colour coding on the plug, TIA A/B/ProfiNet, multiport-ready
-40 °C...+70 °C
IEC 60603-7-51
1 A

## Note

## Ordering data

<b>Plug</b>
with tear-off flags: EIA / TIA 568 A/B/PROFINET
with printing: PROFINET
with printing: EIA / TIA 568 A
with printing: EIA / TIA 568 B

Type	Qty.	Order No.
IE-PS-RJ45-FH-BK	10	1963600000
IE-PS-RJ45-FH-BK-P	10	1132060000
IE-PS-RJ45-FH-BK-A	10	1132040000
IE-PS-RJ45-FH-BK-B	10	1132050000

## Note

## Accessories

<b>Strain relief</b>
blue
orange
green
grey
white
yellow



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

## Tools

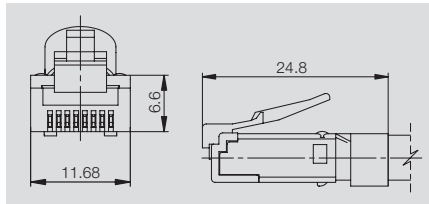
Optional pressing tool

PWZ RJ45	1	1118040000
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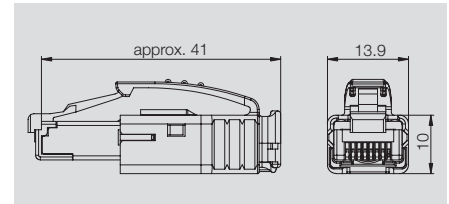
**RJ45 plug**

- Cat.6
- With kink prevention
- With protective mechanism for locking lever

**Crimp / housing 1-part**



**Crimp / housing 2-part**



**Technical data**

Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Degree of protection	IP 20
Wire cross-section, flexible, min. / max.	0.46 mm / 0.61 mm
Wire cross-section, flexible, min. / max.	AWG 27 / AWG 24
Wire cross-section, solid, min. / max.	0.36 mm / 0.51 mm
Wire cross-section, solid, min. / max.	AWG 27 / AWG 24
Insulation cross-section, max.	1.02 mm
Sheath diameter, min. / max.	6.2 mm / 7.1 mm
Shielding	360° all-round enclosure
Plugging cycles	750
Ambient temperature (operational), min. / max.	-40 °C...+70 °C
Connector standard	IEC 60603-7-51
Bending protection sleeve material	Polyamide PA6, UL94-V0
Material insulator	PC UL 94 V-0
Contact material / Contact surface	Phosphor bronze / gold-plated
Shielding material	0,5 mm brass, 2 µm nickel
Cable pull-out force, min.	89 N
Contact resistance	≤ 20 mΩ
Insulation resistance	500 MΩ
Dielectric strength, contact / contact	≤ 1000 V DC
Dielectric strength, contact / shield	≤ 1500 V DC
Current-carrying capacity at 50 °C	1 A

Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Degree of protection	IP 20
Wire cross-section, flexible, min. / max.	0.46 mm / 0.61 mm
Wire cross-section, flexible, min. / max.	AWG 27 / AWG 24
Wire cross-section, solid, min. / max.	0.36 mm / 0.51 mm
Wire cross-section, solid, min. / max.	AWG 27 / AWG 24
Insulation cross-section, max.	1.05 mm
Sheath diameter, min. / max.	5 mm / 7.3 mm
Shielding	360° all-round enclosure
Plugging cycles	750
Ambient temperature (operational), min. / max.	-40 °C...+70 °C
Connector standard	IEC 60603-7-51
Bending protection sleeve material	Polycarbonate PC, UL94 V-0
Material insulator	PC UL 94 V-0
Contact material / Contact surface	Phosphor bronze / gold-plated
Shielding material	0,5 mm brass, 2 µm nickel
Cable pull-out force, min.	89 N
Contact resistance	≤ 20 mΩ
Insulation resistance	500 MΩ
Dielectric strength, contact / contact	≤ 1000 V DC
Dielectric strength, contact / shield	≤ 1500 V DC
Current-carrying capacity at 50 °C	1 A

Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Degree of protection	IP 20
Wire cross-section, flexible, min. / max.	0.46 mm / 0.61 mm
Wire cross-section, flexible, min. / max.	AWG 27 / AWG 24
Wire cross-section, solid, min. / max.	0.36 mm / 0.51 mm
Wire cross-section, solid, min. / max.	AWG 27 / AWG 24
Insulation cross-section, max.	1.05 mm
Sheath diameter, min. / max.	5 mm / 7.3 mm
Shielding	360° all-round enclosure
Plugging cycles	750
Ambient temperature (operational), min. / max.	-40 °C...+70 °C
Connector standard	IEC 60603-7-51
Bending protection sleeve material	Polycarbonate PC, UL94 V-0
Material insulator	PC UL 94 V-0
Contact material / Contact surface	Phosphor bronze / gold-plated
Shielding material	0,5 mm brass, 2 µm nickel
Cable pull-out force, min.	89 N
Contact resistance	≤ 20 mΩ
Insulation resistance	500 MΩ
Dielectric strength, contact / contact	≤ 1000 V DC
Dielectric strength, contact / shield	≤ 1500 V DC
Current-carrying capacity at 50 °C	1 A

**Note**

**Ordering data**

Plug	Type	Qty.	Order No.
with kink prevention; 5,5 - 6,2 mm	IE-P63	10	8813110000
with kink prevention; 6,2 - 7,1 mm	IE-P70	10	8813120000
with kink prevention sleeve, black			
without kink prevention sleeve			

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

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

**Note**

**Accessories**

Kink prevention sleeve	Type	Qty.	Order No.
blue			
orange			
black			
green			
grey			
white			
yellow			



Tools	Type	Qty.	Order No.
Crimping tool	TT 8 RS MP 8	1	9202800000



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

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

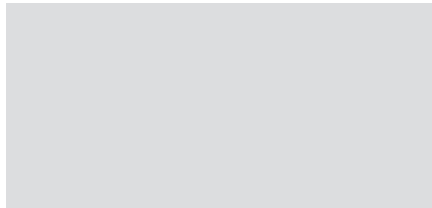
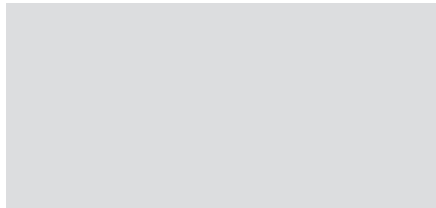
Type	Qty.	Order No.
TT 8 RS MP 8	1	9202800000

## IP20 plug-in connector

### FO connector

- IP 20

### SC-RJ



#### Technical data

Degree of protection	IP 20
Plugging cycles	1000
Ambient temperature (operational), min. / max.	-20 °C...+80 °C
Connector standard	IEC 61754-24
Insertion loss (attenuation)	≤ 0.5 dB
Return loss (attenuation)	≥ 40 dB
Individual wire diameter, min. / max.	0.6 mm...1.4 mm
Crimp barrel material	Copper, nickel-plated
Pressure spring material	Stainless 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

Degree of protection	IP 20
Plugging cycles	1000
Ambient temperature (operational), min. / max.	-20 °C...+80 °C
Connector standard	IEC 61754-24
Insertion loss (attenuation)	≤ 0.5 dB
Return loss (attenuation)	≥ 40 dB
Individual wire diameter, min. / max.	0.6 mm...1.4 mm
Crimp barrel material	Copper, nickel-plated
Pressure spring material	Stainless 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

**Note**

#### Ordering data

	Singlemode
	Multimode
	POF

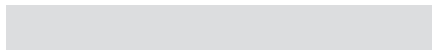
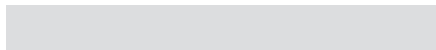
Type	Qty.	Order No.
IE-PS-SCRJ1-SM	10	1206740000
IE-PS-SCRJ1-MM	10	1206730000
IE-PS-SCRJ1-POF	10	1206720000

**Note**

#### Accessories

Tools	Crimping pliers POF
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Type	Qty.	Order No.
HTX-IE-POF	1	1208870000



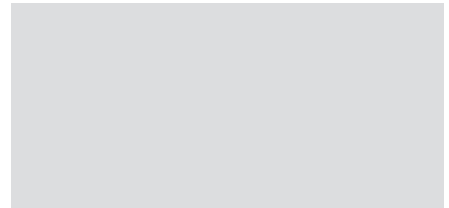
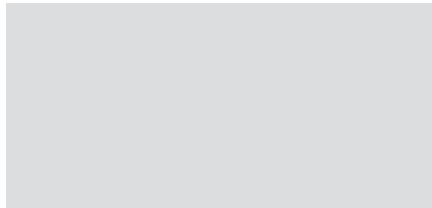
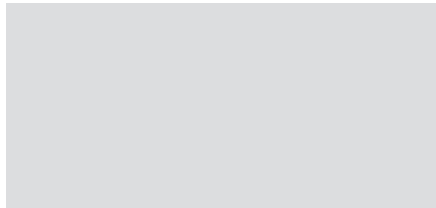
**FO connector**

- IP 20

**SC Duplex**



**LC Duplex**



**Technical data**

Degree of protection	IP 20
Plugging cycles	1000
Ambient temperature (operational), min. / max.	-40 °C...+70 °C
Connector standard	IEC 61754-4
Insertion loss (attenuation)	≤ 0.4 dB
Return loss (attenuation)	≥ 30 dB
Individual wire diameter, min. / max.	0.6 mm...1.4 mm
Crimp barrel material	Copper, nickel-plated
Pressure spring material	Stainless steel
Ferrule material	Zirconia, Hole 127 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

Degree of protection	IP 20
Plugging cycles	1000
Ambient temperature (operational), min. / max.	-40 °C...+70 °C
Connector standard	IEC 61754-20
Insertion loss (attenuation)	≤ 0.4 dB
Return loss (attenuation)	≥ 30 dB
Individual wire diameter, min. / max.	0.6 mm...1.4 mm
Crimp barrel material	Copper, nickel-plated
Pressure spring material	Stainless steel
Ferrule material	Zirconia, Hole 127 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

Degree of protection	IP 20
Plugging cycles	1000
Ambient temperature (operational), min. / max.	-40 °C...+70 °C
Connector standard	IEC 61754-20
Insertion loss (attenuation)	≤ 0.4 dB
Return loss (attenuation)	≥ 30 dB
Individual wire diameter, min. / max.	0.6 mm...1.4 mm
Crimp barrel material	Copper, nickel-plated
Pressure spring material	Stainless steel
Ferrule material	Zirconia, Hole 127 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

**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	10	1962970000

**Note**

**Accessories**

<b>Fibre-optic plug clip</b>	SC duplex, multi-mode, beige
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Type	Qty.	Order No.
IE-PB-SCD-MM	10	1962900000

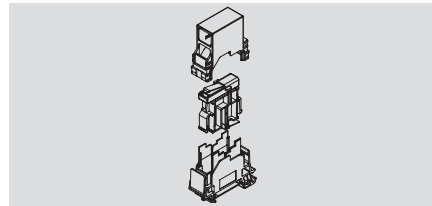
Type	Qty.	Order No.

IP20 mounting rail outlets

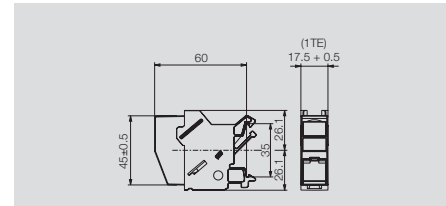
Coupling RJ45

- Cat.6<sub>A</sub>
- IP 20
- TS35

Outlet direction straight



Outlet direction diagonal



Technical data

Category	Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
Degree of protection	IP 20
Housing main material	PA UL 94 V0
Colour	light grey
Type of mounting	TS 35
Plugging cycles	750
Configuration	Switchable voltage connection from module / coupling to mounting rail
Ambient temperature (operational), min. / max.	-25 °C...+70 °C
Humidity	0...93 % rel. humidity
Shock resistance acc. to IEC 60512-4	250 ms <sup>-2</sup>
Vibration resistance acc. to IEC 60512-4	50 ms <sup>-2</sup> sinusoidal (9 – 500 Hz)
Housing material, insert	Zinc diecast
Contact material / Contact surface	Spring steel, Ni 1.2 µm / AU ≥ 0.8 µm
Connector standard	IEC 60603-7-51
<b>Electrical properties</b>	
PoE+	conforming to IEEE 802.3af
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
<b>Note</b>	

Category	Cat.6 (ISO/IEC 11801)
Degree of protection	IP 20
Housing main material	PA 66, UL 94: V-0
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), min. / max.	
Humidity	
Shock resistance acc. to IEC 60512-4	
Vibration resistance acc. to IEC 60512-4	
Housing material, insert	
Contact material / Contact surface	
Connector standard	IEC 60603-7-5
<b>Electrical properties</b>	
PoE+	
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
<b>Note</b>	

Category	Cat.6 (ISO/IEC 11801)
Degree of protection	IP 20
Housing main material	PA 66, UL 94: V-0
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), min. / max.	
Humidity	
Shock resistance acc. to IEC 60512-4	
Vibration resistance acc. to IEC 60512-4	
Housing material, insert	
Contact material / Contact surface	
Connector standard	IEC 60603-7-5
<b>Electrical properties</b>	
PoE+	
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
<b>Note</b>	

Ordering data

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

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

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

Accessories

Labels	Type	Qty.	Order No.
	9*11 mm, blue	10	1964100000
	9*11 mm, green	10	1964120000
	9*11 mm, grey	10	1964080000
	9*11 mm, orange	10	1964090000
	9*11 mm, white	10	1964070000
	9*11 mm, yellow	10	1964110000
Markers	ESG 9/11K MC NEUTRAL	200	1857440000

Type	Qty.	Order No.
LM MT DIN A5 9/11 BL	10	1964100000
LM MT DIN A5 9/11 GN	10	1964120000
LM MT DIN A5 9/11 GR	10	1964080000
LM MT DIN A5 9/11 OR	10	1964090000
LM MT DIN A5 9/11 WS	10	1964070000
LM MT DIN A5 9/11 GE	10	1964110000
ESG 9/11K MC NEUTRAL	200	1857440000

Type	Qty.	Order No.
IE-DM	50	8813500000

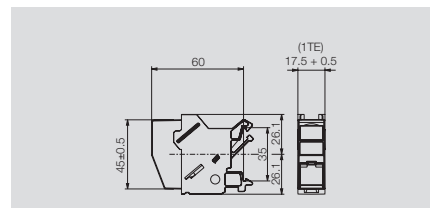
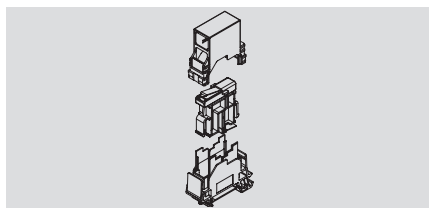
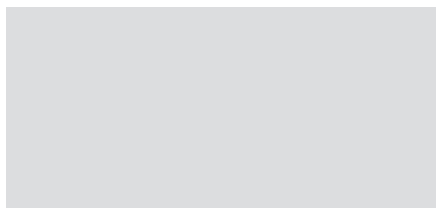
Module RJ45

- Cat.6<sub>A</sub>
- IP 20
- TS35

Outlet direction straight



Outlet direction diagonal



Technical data

Category
Degree of protection
Housing main material
Colour
Type of mounting
Plugging cycles
Configuration
Ambient temperature (operational), min. / max.
Connector standard
<b>Electrical properties</b>
PoE+
Contact resistance
Current-carrying capacity at 50 °C
Dielectric strength, contact / contact
Dielectric strength, contact / shield
Insulation resistance
Wire cross-section, flexible, min. / max.
Wire cross-section, flexible, min. / max.
Wire cross-section, solid, min. / max.
Wire cross-section, solid, min. / max.
<b>Note</b>

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP 20
PA UL 94 V0
light grey
TS 35
750
Switchable voltage connection from module / coupling to mounting rail
-25 °C...+70 °C
IEC 60603-7-51
conforming to IEEE 802.3af
≤ 20 mΩ
1 A
≥ 1000 V DC
≥ 1500 V DC
500 MΩ
AWG 26 / AWG 22
0.48 mm / 0.76 mm
AWG 24 / AWG 22
0.4 mm / 0.64 mm

Cat.6 (ISO/IEC 11801)
IP 20
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
IEC 60603-7-5
≤ 20 mΩ
1 A
≥ 1000 V DC
≥ 1500 V DC
500 MΩ
AWG 26 / AWG 26
0.48 mm <sup>2</sup> / 0.48 mm <sup>2</sup>
AWG 24 / AWG 22
0.4 mm <sup>2</sup> / 0.64 mm <sup>2</sup>

Ordering data

Outlet RJ45 A-coded
Outlet RJ45 B-coded
Outlet RJ45 PROFINET-coded
<b>Note</b>

Type	Qty.	Order No.
IE-TO-RJ45-FJ-A	10	8946930000
IE-TO-RJ45-FJ-B	10	8946940000
IE-TO-RJ45-FJ-P	10	8946950000

Type	Qty.	Order No.
IE-XM-RJ45/DC	1	8808360000
IE-XM-RJ45/DC-B	1	8891980000

Accessories

<b>Labels</b>
9*11 mm, blue
9*11 mm, green
9*11 mm, grey
9*11 mm, orange
9*11 mm, white
9*11 mm, yellow
<b>Markers</b>
9*11 mm, white
Marking tag

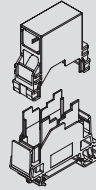
Type	Qty.	Order No.
LM MT DIN A5 9/11 BL	10	1964100000
LM MT DIN A5 9/11 GN	10	1964120000
LM MT DIN A5 9/11 GR	10	1964080000
LM MT DIN A5 9/11 OR	10	1964090000
LM MT DIN A5 9/11 WS	10	1964070000
LM MT DIN A5 9/11 GE	10	1964110000
ESG 9/11K MC NEUTRAL	200	1857440000

Type	Qty.	Order No.
IE-DM	50	8813500000

IP20 mounting rail outlets

Coupling USB

Outlet direction straight



Technical data

Degree of protection  
 Housing main material  
 Colour  
 Type of mounting  
 Ambient temperature (operational), min. / max.  
 Connector standard  
 Connection 1 / 2

IP 20  
 PA UL 94 V0  
 light grey  
 TS 35  
 -25 °C...+70 °C  
 IEC 61076-3-107  
 USB A / USB A

Note

Ordering data

USB

Type	Qty.	Order No.
IE-TO-USB	10	8946960000

Note

Accessories

Labels

- 9\*11 mm, blue
- 9\*11 mm, green
- 9\*11 mm, grey
- 9\*11 mm, orange
- 9\*11 mm, white
- 9\*11 mm, yellow



Markers

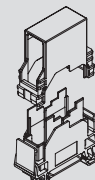
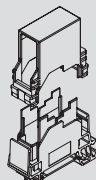
- 9\*11 mm, white

Type	Qty.	Order No.
LM MT DIN A5 9/11 BL	10	1964100000
LM MT DIN A5 9/11 GN	10	1964120000
LM MT DIN A5 9/11 GR	10	1964080000
LM MT DIN A5 9/11 OR	10	1964090000
LM MT DIN A5 9/11 WS	10	1964070000
LM MT DIN A5 9/11 GE	10	1964110000
ESG 9/11K MC NEUTRAL	200	1857440000

Coupling fibre-optic

SC duplex

SC-RJ



Technical data

Degree of protection
Housing main material
Colour
Type of mounting
Plugging cycles
Ambient temperature (operational), min. / max.
Connector standard
<b>Note</b>

IP 20
PA UL 94 V0
light grey
TS 35
1000
-25 °C...+70 °C
IEC 61754-4
<b>Note</b>

IP 20
PA UL 94 V0
light grey
TS 35
1000
-25 °C...+70 °C
IEC 61754-24
<b>Note</b>

Ordering data

<b>Fibre-optic</b>
Singlemode
Multimode/POF
<b>Note</b>

Type	Qty.	Order No.
IE-TO-SCD-SM	10	8946980000
IE-TO-SCD-MM	10	8946970000
<b>Note</b>		

Type	Qty.	Order No.
IE-TO-SCRJ-SM	10	8947000000
IE-TO-SCRJ-MM	10	8946990000
<b>Note</b>		

Accessories

<b>Labels</b>
9*11 mm, blue
9*11 mm, green
9*11 mm, grey
9*11 mm, orange
9*11 mm, white
9*11 mm, yellow
<b>Markers</b>
9*11 mm, white



Type	Qty.	Order No.
LM MT DIN A5 9/11 BL	10	1964100000
LM MT DIN A5 9/11 GN	10	1964120000
LM MT DIN A5 9/11 GR	10	1964080000
LM MT DIN A5 9/11 OR	10	1964090000
LM MT DIN A5 9/11 WS	10	1964070000
LM MT DIN A5 9/11 GE	10	1964110000
ESG 9/11K MC NEUTRAL	200	1857440000
<b>Note</b>		

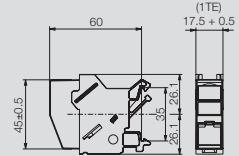
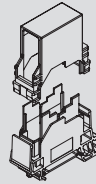
Type	Qty.	Order No.
LM MT DIN A5 9/11 BL	10	1964100000
LM MT DIN A5 9/11 GN	10	1964120000
LM MT DIN A5 9/11 GR	10	1964080000
LM MT DIN A5 9/11 OR	10	1964090000
LM MT DIN A5 9/11 WS	10	1964070000
LM MT DIN A5 9/11 GE	10	1964110000
ESG 9/11K MC NEUTRAL	200	1857440000
<b>Note</b>		

IP20 mounting rail outlets

Coupling fibre-optic

LC Duplex

ST



Technical data

Degree of protection  
 Housing main material  
 Colour  
 Type of mounting  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Connector standard

IP 20  
 PA UL 94 V0  
 light grey  
 TS 35  
 1000  
 -25 °C...+70 °C  
 IEC 61754-20

IP 20  
 PA 66, UL 94: V-0  
 light grey  
 TS 35  
 750  
 IEC 61754-2

Note

Ordering data

Singlemode  
 Multimode

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

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

Note

Accessories

Labels

9\*11 mm, blue  
 9\*11 mm, green  
 9\*11 mm, grey  
 9\*11 mm, orange  
 9\*11 mm, white  
 9\*11 mm, yellow



Type	Qty.	Order No.
LM MT DIN A5 9/11 BL	10	1964100000
LM MT DIN A5 9/11 GN	10	1964120000
LM MT DIN A5 9/11 GR	10	1964080000
LM MT DIN A5 9/11 OR	10	1964090000
LM MT DIN A5 9/11 WS	10	1964070000
LM MT DIN A5 9/11 GE	10	1964110000

Type	Qty.	Order No.

Markers

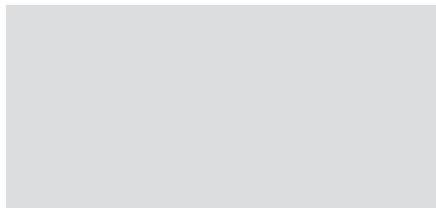
Marking tag  
 9\*11 mm, white

ESG 9/11K MC NEUTRAL	200	1857440000
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IE-DM	50	8813500000
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**RJ45**

- Cat.6<sub>A</sub>
- IP 20



**Technical data**

Category
Degree of protection
Housing main material
Colour
Plugging cycles
Ambient temperature (operational), min. / max.


**Note**

**Ordering data**

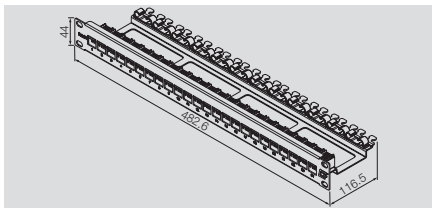
19" Patch Panel	
	with 24 RJ45 couplings
	with 24 RJ45 modules A
	with 24 RJ45 modules B
	with 24 RJ45 adapters, without inserts

**Note**

**Accessories**

Flange insert	
	RJ45 EIA/TIA 568 A
	RJ45 EIA/TIA 568 B
	RJ45 PROFINET
	USB coupling, type A

**RJ45**



Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP 20
Powder-coated steel sheet
light grey
750
-40 °C...+70 °C

**Note**

Type	Qty.	Order No.
IE-PPA19-24P-RJ45-C	1	1049930000
IE-PPA19-24P-RJ45-FJ-A	1	1049910000
IE-PPA19-24P-RJ45-FJ-B	1	1049920000
IE-PPA19-24P	1	1049270000

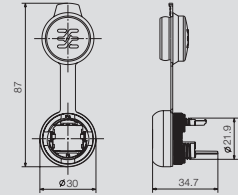
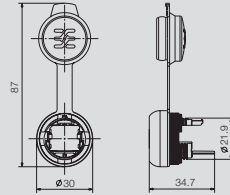
**Note**

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
IE-BI-USB-A	10	1019570000

FrontCom® Micro RJ45

Module

Coupling



Technical data

Category  
Degree of protection  
Housing main material  
Colour  
Shielding  
Type of mounting  
Plugging cycles  
Connector standard  
Connection 1 / 2  
Dust protection cap material

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
IP 65 according to DIN EN 60529  
PA UL 94 V0  
black  
360° shield contact  
Cabinet, Distribution box  
750  
IEC 60603-7-51  
RJ45 / IDC  
EPDM

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
IP 65 according to DIN EN 60529  
PA UL 94 V0  
black  
360° shield contact  
Cabinet, Distribution box  
750  
IEC 60603-7-51  
RJ45 / RJ45  
EPDM

Note

Ordering data

PROFINET module  
TIA-A module  
TIA-B module  
Coupling

Type	Qty.	Order No.
IE-FCM-RJ45-FJ-P	10	1018830000
IE-FCM-RJ45-FJ-A	10	1018810000
IE-FCM-RJ45-FJ-B	10	1018820000

Type	Qty.	Order No.
IE-FCM-RJ45-C	10	1018790000

Note

Accessories

Fixing tool



Type	Qty.	Order No.
IE-FISP-V4	2	9204370000

Type	Qty.	Order No.
IE-FISP-V4	2	9204370000

Markers



SwitchMark markers, white  
SwitchMark holder

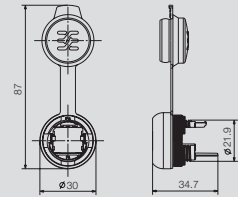
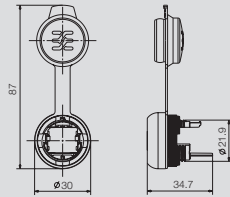
SM 27/18 NEUTRAL WS	80	1699860000
SM-H 27/18 SW	25	1716630000

SM 27/18 NEUTRAL WS	80	1699860000
SM-H 27/18 SW	25	1716630000

FrontCom® Micro USB

Coupling AA

Coupling AB



Technical data

Operating temperature  
Degree of protection  
Housing main material  
Colour  
Shielding  
Type of mounting  
Connector standard  
Connection 1 / 2  
Dust protection cap material

-40 °C...+70 °C  
IP 65 according to DIN EN 60529  
PA UL 94 V0  
black  
360° shield contact  
Cabinet, Distribution box  
IEC 61076-3-107  
USB A / USB A  
EPDM

-40 °C...+70 °C  
IP 65 according to DIN EN 60529  
PA UL 94 V0  
black  
360° shield contact  
Cabinet, Distribution box  
IEC 61076-3-107  
USB A / USB B  
EPDM

Note

Ordering data

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

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

Note

Accessories

Fixing tool



Type	Qty.	Order No.
IE-FISP-V4	2	9204370000

Type	Qty.	Order No.
IE-FISP-V4	2	9204370000

Markers



SwitchMark markers, white  
SwitchMark holder

SM 27/18 NEUTRAL WS	80	1699860000
SM-H 27/18 SW	25	1716630000

SM 27/18 NEUTRAL WS	80	1699860000
SM-H 27/18 SW	25	1716630000

## IP67 plug-in connector

### Plug PushPull V14 - RJ45

- 8-wire, on-site-assembled RJ45 plug with colour-coding on plug

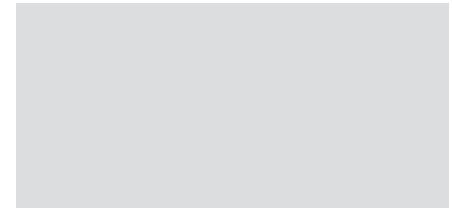
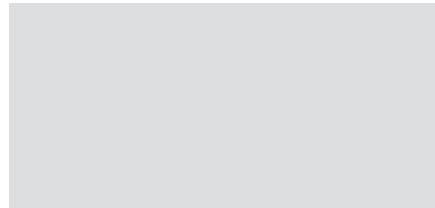
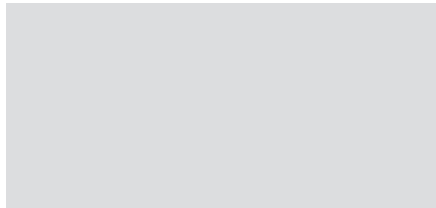
### With kink prevention

#### Tear-off flags with TIA-A/-B/PROFINET



### Without kink prevention

#### PROFINET printing



### Technical data

Degree of protection  
 Housing main material  
 Sheath diameter, min. / max.  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Connector standard  
 Wire cross-section, flexible, min. / max.  
 Wire cross-section, flexible, min. / max.  
 Wire cross-section, solid, min. / max.  
 Wire cross-section, solid, min. / max.

IP 67  
 Zinc diecast  
 5 mm / 10 mm  
 750  
 -40 °C...+70 °C  
 IEC 61076-3-117 Var. 14, IEC 60603-7-51  
 AWG 26 / AWG 22  
 0.48 mm / 0.76 mm  
 AWG 24 / AWG 22  
 0.4 mm<sup>2</sup> / 0.64 mm<sup>2</sup>

IP 67  
 Zinc diecast  
 5 mm / 10 mm  
 750  
 -40 °C...+70 °C  
 IEC 61076-3-117 Var. 14, IEC 60603-7-51  
 AWG 26 / AWG 22  
 0.48 mm / 0.76 mm  
 AWG 24 / AWG 22  
 0.4 mm<sup>2</sup> / 0.64 mm<sup>2</sup>

#### Note

### Ordering data - Sets

RJ45 tool-free

Type	Qty.	Order No.
IE-PS-V14M-RJ45-FH-BP	10	1012090000

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

#### Note

### Ordering data - Empty housings

Type	Qty.	Order No.
IE-PH-V14M-RJ-BP	10	1011570000

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

#### Note

### Accessories

#### Colour coding



blue  
 orange  
 green  
 grey  
 white  
 yellow

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

#### Dust protection cap



IE-PP-V14P	10	1058280000
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IE-PP-V14P	10	1058280000
------------	----	------------

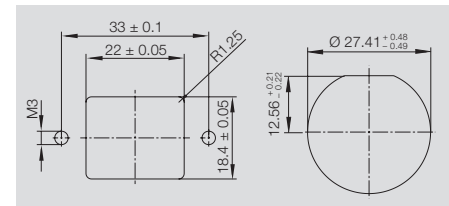
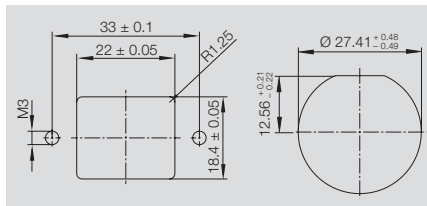
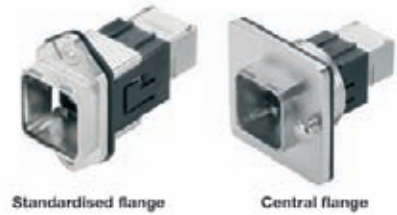
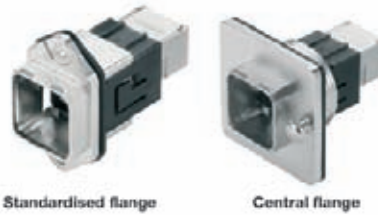
Plug inserts can also be ordered separately. Refer to Inserts.

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

Flange PushPull V14 - RJ45

Module

Coupling



Technical data

Degree of protection  
 Housing main material  
 Sheath diameter, min. / max.  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Connector standard  
 Wire cross-section, flexible, min. / max.  
 Wire cross-section, flexible, min. / max.  
 Wire cross-section, solid, min. / max.  
 Wire cross-section, solid, min. / max.

IP 67  
 Zinc diecast  
 5 mm / 10 mm  
 750  
 -40 °C...+70 °C  
 IEC 61076-3-117 Var. 14, IEC 60603-7-51  
 AWG 26 / AWG 22  
 0.48 mm / 0.76 mm  
 AWG 24 / AWG 22  
 0.4 mm / 0.64 mm

IP 67  
 Zinc diecast  
 5 mm / 10 mm  
 750  
 -40 °C...+70 °C  
 IEC 61076-3-117 Var. 14, IEC 60603-7-51

Note

Ordering data - Sets

Standardised flange, PROFINET  
 Standardised flange  
 Central flange TIA-A  
 Central flange

Type	Qty.	Order No.
IE-BSS-V14M-RJ45-FJ-P	10	1085260000
IE-BSC-V14M-RJ45-FJ-A	10	1058270000

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

Note

Ordering data - Empty housings

Central flange  
 Device flange  
 Standardised flange

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

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

Note

Accessories

Dust protection cap



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

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

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

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

## IP67 plug-in connector

## Plug PushPull V14 - hybrid

## Without kink prevention



## Technical data

Category
Degree of protection
Housing main material
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational), min. / max.
Connection 1 / 2
Connector standard
Wire cross-section, flexible, min. / max.
Wire cross-section, flexible, min. / max.
Rated current
Volume resistance

## Note

Cat.5 (ISO/IEC 11801)
IP 67
Zinc diecast
5 mm / 10 mm
500
-40 °C...+70 °C
Hybrid (Q10) / Crimp
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

## Ordering data - Sets

## Note

Type	Qty.	Order No.
IE-PS-V14M-HYB-10P	10	1072910000

Order contacts separately

## Ordering data - Empty housings

## Note

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

## Accessories

## Crimp contacts



0,33...0,5 mm <sup>2</sup>
0,75 mm <sup>2</sup>
0,08...0,2 mm <sup>2</sup>

## Crimping tool



## Cable

Hybrid cable

## Dust protection cap



Type	Qty.	Order No.
IE-PIC-HYB-S-0,5-300	300	1096180000
IE-PIC-HYB-S-0,75-300	300	1068950000
IE-PIC-HYB-S-0,2-300	300	1135150000

HTF HYB	1	1119580000
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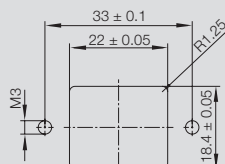
IE-C5DHAG-MW	1	1172250000
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IE-PP-V14P	10	1058280000
------------	----	------------

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

Flange PushPull V14 - hybrid

Standardised flange



Technical data

Category	
Degree of protection	
Housing main material	
Sheath diameter, min. / max.	
Plugging cycles	
Ambient temperature (operational), min. / max.	
Connection 1 / 2	
Connector standard	
Wire cross-section, flexible, min. / max.	
Wire cross-section, flexible, min. / max.	
Rated current	
Volume resistance	
<b>Note</b>	

Cat.5 (ISO/IEC 11801)	
IP 67	
Zinc diecast	
5 mm / 10 mm	
500	
-40 °C...+70 °C	
Hybrid (Q10) / Crimp	
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	
<b>Note</b>	

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>	
	0,33...0,5 mm <sup>2</sup>
	0,75 mm <sup>2</sup>
	0,08...0,2 mm <sup>2</sup>
<b>Crimping tool</b>	
	
<b>Cable</b>	Hybrid cable
<b>Dust protection cap</b>	
	
<b>Note</b>	

Type	Qty.	Order No.
IE-BIC-HYB-P-0,5-300	300	1096150000
IE-BIC-HYB-P-0,75-300	300	1068970000
IE-BIC-HYB-P-0,2-300	300	1135160000
HTF HYB	1	1119580000
IE-C5DHAG-MW	1	1172250000
IE-BP-V14P	10	1058310000

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

## IP67 plug-in connector

## Plug PushPull V14 - fibre-optic

## With kink prevention



## Without kink prevention



## Technical data

Degree of protection
Housing main material
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational), min. / max.
Connector standard
Insertion loss (attenuation)

## Note

IP 67
Zinc diecast
5 mm / 10 mm
750
-40 °C...+70 °C
IEC 61076-3-117 Var. 14

IP 67
Zinc diecast
5 mm / 10 mm
750
-40 °C...+70 °C
IEC 61076-3-117 Var. 14, IEC 61754-24
1.5 dB

## Ordering data - Sets

POF

## Note

Type	Qty.	Order No.
------	------	-----------

Type	Qty.	Order No.
IE-PS-V14M-2SC-POF	1	1191550000

## Ordering data - Empty housings

## Note

Type	Qty.	Order No.
IE-PH-V14M-FO-BP	10	1058110000

Only empty housings; order inserts separately

Type	Qty.	Order No.
IE-PH-V14M-FO	10	1058100000

## Accessories

## Inserts



Singlemode  
Multimode  
POF

Type	Qty.	Order No.
IE-PI-SCRJ-SM	10	1067390000
IE-PI-SCRJ-MM	10	1067380000
IE-PI-SCRJ-POF	10	1067410000

Type	Qty.	Order No.
IE-PI-SCRJ-SM	10	1067390000
IE-PI-SCRJ-MM	10	1067380000
IE-PI-SCRJ-POF	10	1067410000

## Colour coding



blue  
orange  
green  
grey  
white  
yellow

IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

## Dust protection cap



Plug housing protective cap

IE-PP-V01P	10	1965690000
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IE-PP-V01P	10	1965690000
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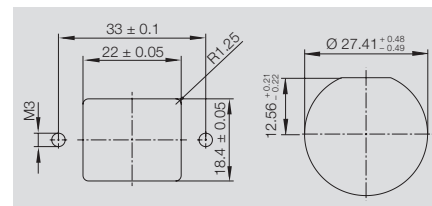
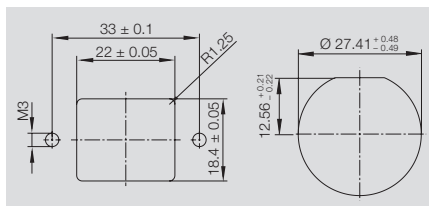
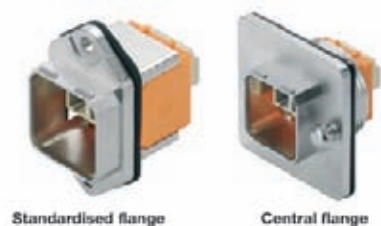
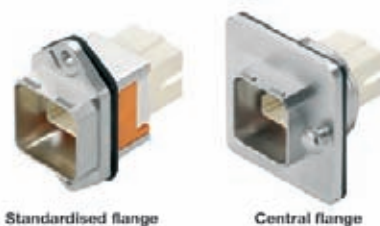
Plug inserts can also be ordered separately. Refer to Inserts.

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

Flange PushPull V14 - fibre-optic

SC-RJ

LC Duplex



Technical data

Degree of protection  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Insertion loss (attenuation)  
 Connector standard

IP 67  
 Zinc diecast  
 500  
 -40 °C...+70 °C  
 < 0.2 dB  
 IEC 61076-3-117 Var. 14, IEC 61754-24

IP 67  
 Zinc diecast  
 500  
 -40 °C...+70 °C  
 < 0.2 dB  
 IEC 61076-3-117 Var. 14, IEC 61754-20

Note

Ordering data - Sets

Central flange Singlemode  
 Standardised flange Singlemode  
 Central flange Multimode/POF  
 Standardised flange Multimode/POF

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

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

Note

Ordering data - Empty housings

Device flange

Type	Qty.	Order No.
IE-BHD-V14M	10	1047940000

Type	Qty.	Order No.
IE-BHD-V14M	10	1047940000

Note

Accessories

Dust protection cap



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

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

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

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

## IP67 plug-in connector

## Plug bayonet V1 metal - RJ45

## With kink prevention

## Without kink prevention



## Technical data

Degree of protection  
Housing main material  
Sheath diameter, min. / max.  
Plugging cycles  
Ambient temperature (operational), min. / max.  
Wire cross-section, flexible, min. / max.  
Wire cross-section, flexible, min. / max.  
Wire cross-section, solid, min. / max.  
Wire cross-section, solid, min. / max.  
Connector standard

## Note

IP 67  
Zinc diecast  
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. 1, IEC 60603-7-51

IP 67  
Zinc diecast  
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. 1, IEC 60603-7-51

## Ordering data - Sets

RJ45 tool-free, AWG 26-22, TIA-A/-B/-PROFINET  
RJ45 Crimp, AWG 27-24

## Note

Type	Qty.	Order No.
IE-PS-V01M-RJ45-FH-BP	10	1963130000
IE-PS-V01M-RJ45-TH-BP	10	1963150000

Type	Qty.	Order No.
IE-PS-V01M-RJ45-FH	10	1963120000
IE-PS-V01M-RJ45-TH	10	1963140000

## Ordering data - Empty housings

## Note

Type	Qty.	Order No.
IE-PH-V01M-BP	10	1962560000

Type	Qty.	Order No.
IE-PH-V01M	10	1962550000

## Accessories

## Colour coding



blue  
orange  
green  
grey  
white  
yellow

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

## Dust protection cap



Plug housing protective cap

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000

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

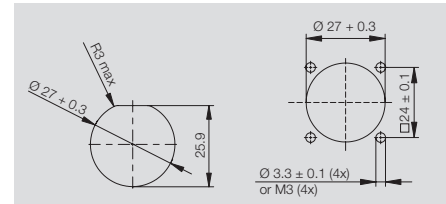
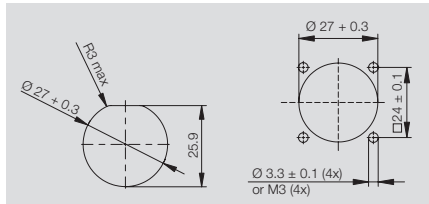
Plug inserts can also be ordered separately. Refer to Inserts.

Flange bayonet V1 metal - RJ45

Module

Coupling

TIA-A



Technical data

Degree of protection
Housing main material
Plugging cycles
Ambient temperature (operational), min. / max.
Connector standard
Wire cross-section, flexible, min. / max.
Wire cross-section, flexible, min. / max.
Wire cross-section, solid, min. / max.
Wire cross-section, solid, min. / max.
Note

IP 67
Zinc diecast
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
Note

IP 67
Zinc diecast
750
-40 °C...+70 °C
IEC 61076-3-106 Var. 1, IEC 60603-7-51
Note

Ordering data - Sets

Note
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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

Note
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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

Type	Qty.	Order No.
IE-BP-V01P	10	1965700000

Type	Qty.	Order No.
IE-BP-V01P	10	1965700000

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

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

## IP67 plug-in connector

Plug bayonet V1 metal -  
fibre-optic-SC

## With kink prevention



## Without kink prevention



## Technical data

Degree of protection
Housing main material
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational), min. / max.
Connector standard
Insertion loss (attenuation)
Return loss (attenuation)

## Note

IP 67
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

IP 67
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

## Ordering data - Sets

Singlemode
Multimode
POF

Type	Qty.	Order No.
IE-PS-V01M-2SC-SM-BP	10	1963310000
IE-PS-V01M-2SC-MM-BP	10	1963270000
IE-PS-V01M-2SC-POF-BP	10	1963290000

Type	Qty.	Order No.
IE-PS-V01M-2SC-SM	10	1963300000
IE-PS-V01M-2SC-MM	10	1963260000
IE-PS-V01M-2SC-POF	10	1963280000

## Note

## Ordering data - Empty housings

Type	Qty.	Order No.
IE-PH-V01M-BP	10	1962560000

Type	Qty.	Order No.
IE-PH-V01M	10	1962550000

## Note

## Accessories

## Colour coding

	blue
	orange
	green
	grey
	white
	yellow

## Tools

	POF tool set
	Fibre-optic tool case

## Dust protection cap

	Plug housing protective cap
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Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

TOOL SET IE-POF	1	1208930000
IE-CTC-SCST-GOF	1	1032030000

IE-PP-V01P	10	1965690000
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Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

TOOL SET IE-POF	1	1208930000
IE-CTC-SCST-GOF	1	1032030000

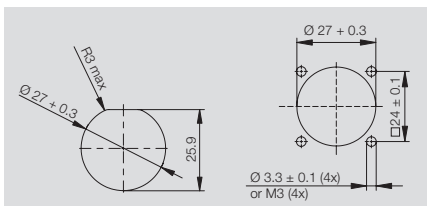
IE-PP-V01P	10	1965690000
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Plug inserts can also be ordered separately. Refer to Inserts.

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

Flange bayonet V1 metal - fibre-optic-SC

Standardised flange



Technical data

Degree of protection
Housing main material
Plugging cycles
Ambient temperature (operational), min. / max.
Connector standard
<b>Note</b>

IP 67
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

<b>Dust protection cap</b>
Flange-mounted housing, protective cap


Type	Qty.	Order No.
IE-BP-V01P	10	1965700000
<b>Note</b>		

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

## IP67 plug-in connector

Plug bayonet V1 metal -  
fibre-optic-LC

## With kink prevention



## Without kink prevention



## Technical data

Degree of protection
Housing main material
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational), min. / max.
Connector standard
Insertion loss (attenuation)
Return loss (attenuation)

## Note

IP 67
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; 1.5 dB POF
40 dB Singlemode; 30 dB multimode

IP 67
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; 1.5 dB POF
40 dB singlemode; 30 dB multimode

## Ordering data - Sets

Singlemode
Multimode

## Note

Type	Qty.	Order No.
IE-PS-V01M-2LC-SM-BP	10	1963250000
IE-PS-V01M-2LC-MM-BP	10	1963230000

Type	Qty.	Order No.
IE-PS-V01M-2LC-SM	10	1963240000
IE-PS-V01M-2LC-MM	10	1963220000

## Ordering data - Empty housings

## Note

Type	Qty.	Order No.
IE-PH-V01M-BP	10	1962560000

Type	Qty.	Order No.
IE-PH-V01M	10	1962550000

## Accessories

## Colour coding



blue
orange
green
grey
white
yellow

## Tools



Fibre-optic tool case

## Dust protection cap



Plug housing protective cap

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

Type	Qty.	Order No.
IE-CTC-SCST-GOF	1	1032030000

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

Type	Qty.	Order No.
IE-CTC-SCST-GOF	1	1032030000

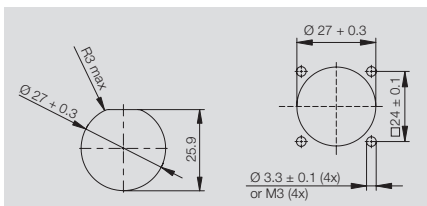
Type	Qty.	Order No.
IE-PP-V01P	10	1965690000

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

Degree of protection
Housing main material
Plugging cycles
Ambient temperature (operational), min. / max.
Connector standard
<b>Note</b>

IP 67
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

<b>Note</b>

Type	Qty.	Order No.
IE-BP-V01P	10	1965700000
<b>Note</b>		

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

## IP67 plug-in connector

## Plug bayonet V1 plastic - RJ45

## With kink prevention

## Without kink prevention



## Technical data

Degree of protection  
Housing main material  
Sheath diameter, min. / max.  
Plugging cycles  
Ambient temperature (operational), min. / max.  
Wire cross-section, flexible, min. / max.  
Wire cross-section, flexible, min. / max.  
Wire cross-section, solid, min. / max.  
Wire cross-section, solid, min. / max.  
Connector standard

## Note

IP 67  
PA UL 94 V0  
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

IP 67  
PA UL 94 V0  
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

## Ordering data - Sets

RJ45 tool-free, AWG 26-22, TIA-A/-B/-PROFINET  
RJ45 Crimp, AWG 27-24

## Note

Type	Qty.	Order No.
IE-PS-V01P-RJ45-FH-BP	10	1012570000
IE-PS-V01P-RJ45-TH-BP	10	1012560000

Type	Qty.	Order No.
IE-PS-V01P-RJ45-FH	10	1012490000
IE-PS-V01P-RJ45-TH	10	1012470000

## Ordering data - Empty housings

## Note

Type	Qty.	Order No.
IE-PH-V01P-BP	10	1012460000

Type	Qty.	Order No.
IE-PH-V01P	10	1012440000

## Accessories

## Colour coding



blue  
orange  
green  
grey  
white  
yellow

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

## Dust protection cap



Plug housing protective cap

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000

Type	Qty.	Order No.
IE-PP-V01P	10	1965690000

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

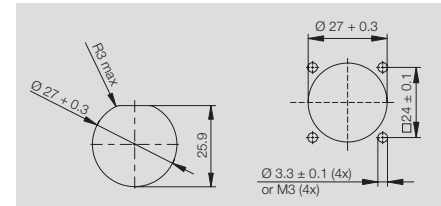
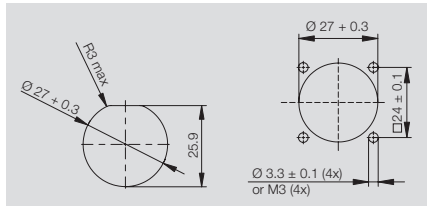
Plug inserts can also be ordered separately. Refer to Inserts.

Flange bayonet V1 plastic - RJ45

Module

Coupling

TIA-A



Technical data

Degree of protection  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Connector standard  
 Wire cross-section, flexible, min. / max.  
 Wire cross-section, flexible, min. / max.  
 Wire cross-section, solid, min. / max.  
 Wire cross-section, solid, min. / max.

IP 67  
 PA UL 94 V0  
 750  
 -40 °C...+70 °C  
 IEC 61076-3-106 Var. 1, IEC 60603-7-51  
 AWG 26 / AWG 22  
 0.48 mm<sup>2</sup> / 0.76 mm<sup>2</sup>  
 AWG 24 / AWG 22  
 0.4 mm / 0.64 mm

IP 67  
 PA UL 94 V0  
 750  
 -40 °C...+70 °C  
 IEC 61076-3-106 Var. 1, IEC 60603-7-51

Note

Ordering data - Sets

Type	Qty.	Order No.
IE-BS-V01P-RJ45-FJ-A	10	1012380000

Type	Qty.	Order No.
IE-BS-V01P-RJ45-C	10	1012370000

Note

Ordering data - Empty housings

Type	Qty.	Order No.
IE-BH-V01P	10	1016960000

Type	Qty.	Order No.
IE-BH-V01P	10	1016960000

Note

Accessories

Dust protection cap



Flange-mounted housing, protective cap

Type	Qty.	Order No.
IE-BP-V01P	10	1965700000

Type	Qty.	Order No.
IE-BP-V01P	10	1965700000

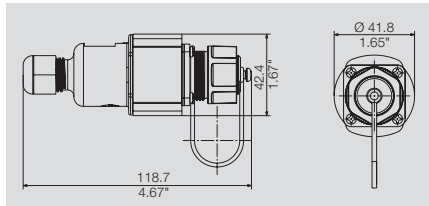
Plug inserts can also be ordered separately. Refer to Inserts.

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

**IP67 plug-in connector**

**Cable coupling bayonet V1 plastic - RJ45**

**Cable coupling**



**Technical data**

Degree of protection  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Connector standard

IP 67  
 PA UL 94 V0  
 750  
 -40 °C...+70 °C  
 IEC 61076-3-106 Var. 1

**Note**

**Ordering data**

**Variant 1** Cable coupling

Type	Qty.	Order No.
IE-CC-V01P	10	1061820000

**Note**

RJ45 modules can be ordered separately

**Accessories**

Flange insert	
	RJ45 EIA/TIA 568 A
	RJ45 EIA/TIA 568 B
	RJ45 PROFINET

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



## IP67 plug-in connector

## Plug PushPull V4 - RJ45

## With kink prevention



## Without kink prevention



## Technical data

Category
Degree of protection
Housing main material
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational), min. / max.
Wire cross-section, flexible, min. / max.
Wire cross-section, flexible, min. / max.
Wire cross-section, solid, min. / max.
Wire cross-section, solid, min. / max.
Connector standard

## Note

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP 67
PA UL 94 V0
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

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP 67
PA UL 94 V0
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

## Ordering data - Sets

RJ45 tool-free, AWG 26-22, TIA-A/-B/-PROFINET
RJ45 tool-free, AWG 26-22, TIA-B
RJ45 Crimp, AWG 27-24

## Note

Type	Qty.	Order No.
IE-PS-V04P-RJ45-FH-BP	10	1963170000
IE-PS-V04P-RJ45-TH-BP	10	1963190000

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

## Ordering data - Empty housings

Type	Qty.	Order No.
IE-PH-V04P-BP	10	1962530000

Type	Qty.	Order No.
IE-PH-V04P	10	1962520000

## Note

## Accessories

## Colour coding



blue
orange
green
grey
white
yellow

## Dust protection cap



Plug housing protective cap

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

Type	Qty.	Order No.
IE-PP-V04P	10	1963890000

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

Type	Qty.	Order No.
IE-PP-V04P	10	1963890000

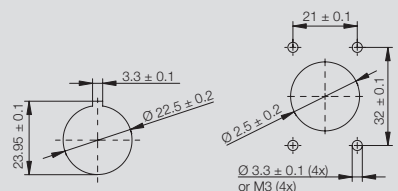
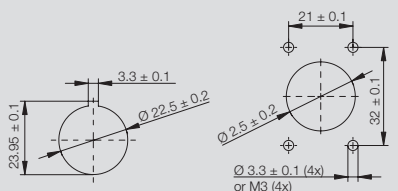
Plug inserts can also be ordered separately. Refer to Inserts.

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

Flange PushPull V4 - RJ45

Module

Coupling



Technical data

Degree of protection
Housing main material
Plugging cycles
Ambient temperature (operational), min. / max.
Connector standard
Wire cross-section, flexible, min. / max.
Wire cross-section, flexible, min. / max.
Wire cross-section, solid, min. / max.
Wire cross-section, solid, min. / max.
Note

IP 67
PA UL 94 V0
750
-40 °C...+70 °C
IEC 61076-3-106 Var. 4, IEC 60603-7-51
AWG 26 / AWG 22
0.48 mm / 0.76 mm
AWG 24 / AWG 22
0.4 mm / 0.64 mm
Note

IP 67
PA UL 94 V0
750
-40 °C...+70 °C
IEC 61076-3-106 Var. 4, IEC 60603-7-51
Note

Ordering data - Sets

RJ45 module TIA-B
RJ45 module TIA-A
Coupling
Note

Type	Qty.	Order No.
IE-BS-V04P-RJ45-FJ-B	10	1963730000
IE-BS-V04P-RJ45-FJ-A	10	1963500000
Note		

Type	Qty.	Order No.
IE-BS-V04P-RJ45-C	10	1963490000
Note		

Ordering data - Empty housings

Note
------

Type	Qty.	Order No.
IE-BH-V04P	10	1963520000
Note		

Type	Qty.	Order No.
IE-BH-V04P	10	1963520000
Note		

Accessories

Dust protection cap
Flange-mounted housing, protective cap

Note

Type	Qty.	Order No.
IE-BP-V04P	10	1963900000
Note		

Type	Qty.	Order No.
IE-BP-V04P	10	1963900000
Note		

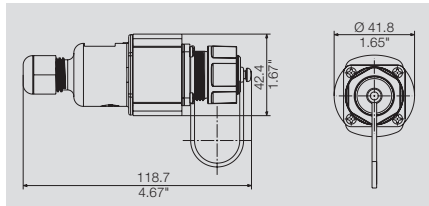
Plug inserts can also be ordered separately. Refer to Inserts.

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

**IP67 plug-in connector**

**Cable coupling PushPull V4 - RJ45**

**Cable coupling**



**Technical data**

Degree of protection  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Connector standard

IP 67  
 PA UL 94 V0  
 750  
 -40 °C...+70 °C  
 IEC 61076-3-106 Var. 4

**Note**

**Ordering data**

Cable coupling

Type	Qty.	Order No.
IE-CC-V04P	10	1045960000

**Note**

RJ45 modules can be ordered separately

**Accessories**

**Flange insert**



RJ45 EIA/TIA 568 A  
 RJ45 EIA/TIA 568 B  
 RJ45 PROFINET

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

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



## IP67 plug-in connector

## Plug PushPull V4 - fibre-optic-SC

## With kink prevention

## Without kink prevention



## Technical data

Degree of protection
Housing main material
Sheath diameter, min. / max.
Plugging cycles
Ambient temperature (operational), min. / max.
Connector standard
Insertion loss (attenuation)
Return loss (attenuation)

## Note

IP 67
PA UL 94 V0
5 mm / 10 mm
500
-40 °C...+70 °C
IEC 61076-3-106 Var. 4, IEC 61754-24
0.5 dB singlemode; 0.4 dB multimode; 1.5 dB POF
40 dB singlemode; 30 dB multimode

IP 67
PA UL 94 V0
5 mm / 10 mm
500
-40 °C...+70 °C
IEC 61076-3-106 Var. 4, IEC 61754-24
0.5 dB singlemode; 0.4 dB multimode; 1.5 dB POF
40 dB singlemode; 30 dB multimode

## Ordering data - Sets

Singlemode
Multimode
POF

Type	Qty.	Order No.
IE-PS-V04P-2SC-SM-BP	10	1963410000
IE-PS-V04P-2SC-MM-BP	10	1963370000
IE-PS-V04P-2SC-POF-BP	10	1963390000

Type	Qty.	Order No.
IE-PS-V04P-2SC-SM	10	1963400000
IE-PS-V04P-2SC-MM	10	1963360000
IE-PS-V04P-2SC-POF	10	1963380000

## Note

## Ordering data - Empty housings

Type	Qty.	Order No.
IE-PH-V04P-BP	10	1962530000

Type	Qty.	Order No.
IE-PH-V04P	10	1962520000

## Note

## Accessories

## Colour coding



blue
orange
green
grey
white
yellow

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

## Tools



POF tool set
Fibre-optic tool case

TOOL SET IE-POF	1	1208930000
IE-CTC-SCST-GOF	1	1032030000

TOOL SET IE-POF	1	1208930000
IE-CTC-SCST-GOF	1	1032030000

## Dust protection cap



Plug housing protective cap
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IE-PP-V04P	10	1963890000
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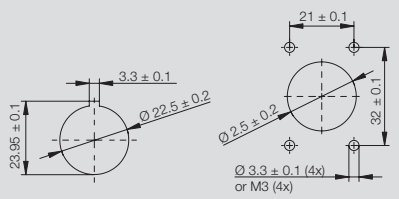
IE-PP-V04P	10	1963890000
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Plug inserts can also be ordered separately. Refer to Inserts.

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

Flange PushPull V4 - fibre-optic-SC

Standardised flange



Technical data

Degree of protection  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Connector standard

IP 67  
 PA UL 94 V0  
 500  
 -40 °C...+70 °C  
 IEC 61076-3-106 Var. 4, IEC 61754-4, IEC 61754-24

Note

Ordering data - Sets

Singlemode  
 Multimode/POF

Type	Qty.	Order No.
IE-BS-V04P-SCRJ2SC-SM-C	10	1963420000
IE-BS-V04P-SCRJ2SC-MM-C	10	1964470000

Note

Ordering data - Empty housings

Type	Qty.	Order No.
IE-BH-V04P	10	1963520000

Note

Accessories

Dust protection cap



Flange-mounted housing, protective cap

Type	Qty.	Order No.
IE-BP-V04P	10	1963900000

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

## IP67 plug-in connector

## Plug PushPull V4 - fibre-optic-LC

## With kink prevention

## Without kink prevention



## Technical data

Degree of protection  
Housing main material  
Sheath diameter, min. / max.  
Plugging cycles  
Ambient temperature (operational), min. / max.  
Connector standard  
Insertion loss (attenuation)  
Return loss (attenuation)

## Note

IP 67  
PA UL 94 V0  
5 mm / 10 mm  
500  
-40 °C...+70 °C  
IEC 61076-3-106 Var. 4, IEC 61754-20  
0.5 dB singlemode; 0.4 dB multimode; 1.5 dB POF  
40 dB singlemode; 30 dB multimode

IP 67  
PA UL 94 V0  
5 mm / 10 mm  
500  
-40 °C...+70 °C  
IEC 61076-3-106 Var. 4, IEC 61754-20  
0.5 dB singlemode; 0.4 dB multimode; 1.5 dB POF  
40 dB singlemode; 30 dB multimode

## Ordering data - Sets

Singlemode  
Multimode

Type	Qty.	Order No.
IE-PS-V04P-2LC-SM-BP	10	1963350000
IE-PS-V04P-2LC-MM-BP	10	1963330000

Type	Qty.	Order No.
IE-PS-V04P-2LC-SM	10	1963340000
IE-PS-V04P-2LC-MM	10	1963320000

## Note

## Ordering data - Empty housings

Type	Qty.	Order No.
IE-PH-V04P-BP	10	1962530000

Type	Qty.	Order No.
IE-PH-V04P	10	1962520000

## Note

## Accessories

## Colour coding



blue  
orange  
green  
grey  
white  
yellow

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

## Tools



Fibre-optic tool case

Type	Qty.	Order No.
IE-CTC-SCST-GOF	1	1032030000

Type	Qty.	Order No.
IE-CTC-SCST-GOF	1	1032030000

## Dust protection cap



Plug housing protective cap

Type	Qty.	Order No.
IE-PP-V04P	10	1963890000

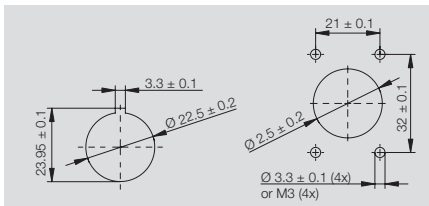
Type	Qty.	Order No.
IE-PP-V04P	10	1963890000

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

Degree of protection	IP 67
Housing main material	PA UL 94 V0
Plugging cycles	500
Ambient temperature (operational), min. / max.	-40 °C...+70 °C
Connector standard	IEC 61076-3-106 Var. 4, IEC 61754-20
<b>Note</b>	

Ordering data - Sets

	Singlemode	<b>Type</b>	<b>Qty.</b>
	Multimode	IE-BS-V04P-LCD-SM-C	10
		IE-BS-V04P-LCD-MM-C	10
		<b>Order No.</b>	<b>1963450000</b>
			<b>1964460000</b>
<b>Note</b>			

Ordering data - Empty housings

		<b>Type</b>	<b>Qty.</b>
		IE-BH-V04P	10
		<b>Order No.</b>	<b>1963520000</b>
<b>Note</b>			

Accessories

<b>Dust protection cap</b>			
	Flange-mounted housing, protective cap	<b>Type</b>	<b>Qty.</b>
		IE-BP-V04P	10
		<b>Order No.</b>	<b>1963900000</b>

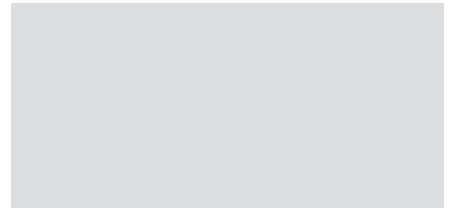
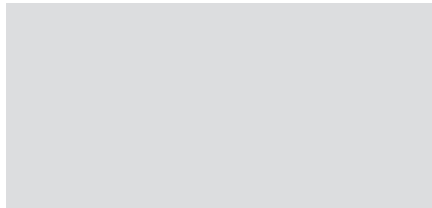
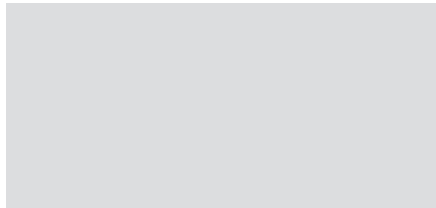
Plug inserts can also be ordered separately. Refer to Inserts.

**IP67 plug-in connector**

**Plug RockStar® V5 - RJ45**

**V5 - RJ45 plug, straight**

**V5-RJ45 plug, angled**



**Technical data**

Degree of protection  
 Housing main material  
 Sheath diameter, min. / max.  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Connector standard

IP 67  
 diecast aluminium  
 5 mm / 12 mm  
 750  
 -40 °C...+70 °C  
 IEC 61076-3-106 Var. 5, IEC 60603-7-51

IP 67  
 diecast aluminium  
 5 mm / 10 mm  
 750  
 -40 °C...+70 °C  
 IEC 61076-3-106 Var. 5, IEC 60603-7-51

**Note**

**Ordering data - Sets**

RJ45 tool-free, AWG 26-22, TIA-A/-B/-PROFINET  
 RJ45 tool-free, AWG 26-22, TIA-B  
 RJ45 Crimp, AWG 27-24

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

**Note**

**Ordering data - Empty housings**

Type	Qty.	Order No.
IE-PH-V05M	10	1962540000

Type	Qty.	Order No.
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**Note**

**Accessories**

**Dust protection cap**  
 Plug housing protective cap

Type	Qty.	Order No.
IE-PP-V05M	10	1968920000

Type	Qty.	Order No.
IE-PP-V05M	10	1968920000

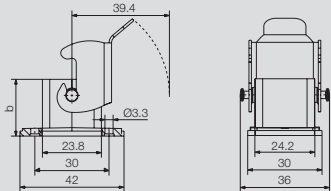
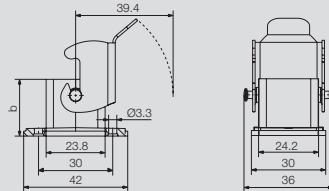
Plug inserts can also be ordered separately. Refer to Inserts.

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

Flange RockStar® V5 - RJ45

Module

Coupling



Technical data

Degree of protection  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Connector standard  
 Wire cross-section, flexible, min. / max.  
 Wire cross-section, flexible, min. / max.  
 Wire cross-section, solid, min. / max.  
 Wire cross-section, solid, min. / max.

IP 67  
 diecast aluminium  
 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

IP 67  
 diecast aluminium  
 750  
 -40 °C...+70 °C  
 IEC 61076-3-106 Var. 5, IEC 60603-7-51

Note

Ordering data - Sets

PROFINET module  
 TIA-A modul  
 Coupling

Type	Qty.	Order No.
IE-BS-V05M-RJ45-FJ-P	10	1963700000
IE-BS-V05M-RJ45-FJ-A	10	1963460000

Type	Qty.	Order No.
IE-BS-V05M-RJ45-C	10	1963510000

Note

Ordering data - Empty housings

Type	Qty.	Order No.
IE-BH-V05M	10	1963530000

Type	Qty.	Order No.
IE-BH-V05M	10	1963530000

Note

Accessories

Dust protection cap

Flange-mounted housing, protective cap

Type	Qty.	Order No.
IE-BP-V05M	10	1968930000

Type	Qty.	Order No.
IE-BP-V05M	10	1968930000

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

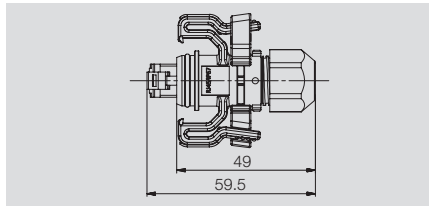
Plug inserts can also be ordered separately. Refer to Inserts.

## IP67 plug-in connector

### Plug SnapIn V6 - RJ45

- Cat.6
- IP 67

### Without kink prevention



### Technical data

Category	Cat.6 (ISO/IEC 11801)
Degree of protection	IP 67
Shielding	360° shield contact
Housing main material	PA 66, UL 94: V-0
Colour	light grey
Plugging cycles	750
Type of mounting	Floor-mounted, for exposed connections, Wall-mounted
Wiring	Colour-coded pin assignment to EIA/TIA T568 A.
Ambient temperature (operational), min. / max.	-40 °C...+70 °C
Connector standard	IEC 61076-3-106 Var. 6, IEC 60603-7-5
<b>Note</b>	

### Ordering data

Type	Qty.	Order No.
IE-P-IP67	1	8808380000
<b>Note</b>		

### Accessories

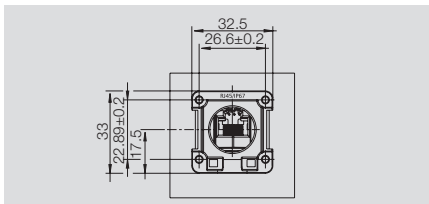
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See also the „Accessories“ chapter.

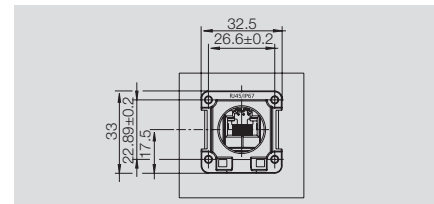
### Flange SnapIn V6 - RJ45

- Cat.6
- IP 67

### Module



### Coupling



### Technical data

Category  
 Degree of protection  
 Shielding  
 Housing main material  
 Colour  
 Plugging cycles  
 Type of mounting  
 Wiring  
  
 Ambient temperature (operational), min. / max.  
 Connector standard

Cat.6 (ISO/IEC 11801)  
 IP 67  
 360° shield contact  
 PA 66, UL 94: V-0  
 light grey  
 750  
 Cabinet, Distribution box  
 Colour-coded pin assignment to EIA/TIA T568 A.  
 -40 °C...+70 °C  
 IEC 61076-3-106 Var. 6, IEC 60603-7-5

Cat.6 (ISO/IEC 11801)  
 IP 67  
 360° shield contact  
 PA 66, UL 94: V-0  
 light grey  
 750  
 Cabinet, Distribution box  
  
 -40 °C...+70 °C  
 IEC 61076-3-106 Var. 6, IEC 60603-7-5

#### Note

### Ordering data

Straight  
 Angled, downwards  
 Angled, upwards

Type	Qty.	Order No.
IE-XM-RJ45/DC-IP67	1	8808440000

Type	Qty.	Order No.
IE-XM-RJ45/RJ45-IP67	1	8808450000
IE-XM-6D-RJ45/RJ45-IP67	1	8829450000
IE-XM-6U-RJ45/RJ45-IP67	1	8829440000

#### Note

### Accessories

**Flange insert**  
 RJ45 module A, straight

Type	Qty.	Order No.
IE-XRJ45/DC	1	8808330000

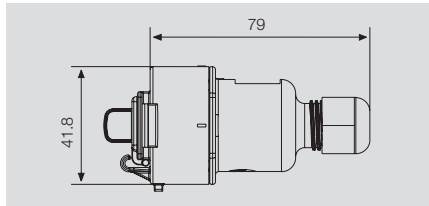
Type	Qty.	Order No.
IE-XRJ45/DC	1	8808330000

IP67 plug-in connector

Cable coupling SnapIn V6 - RJ45

- Cat.6
- IP 67

Cable coupling



Technical data

Category	Cat.6 (ISO/IEC 11801)
Degree of protection	IP 67
Shielding	360° shield contact
Housing main material	PA 66, UL 94: V-0
Colour	light grey
Plugging cycles	750
Type of mounting	Floor-mounted, for exposed connections, Wall-mounted
Wiring	Colour-coded pin assignment to EIA/TIA T568 A.
Ambient temperature (operational), min. / max.	-40 °C...+70 °C
Connector standard	IEC 61076-3-106 Var. 6, IEC 60603-7-5
<b>Note</b>	

Ordering data

Type	Qty.	Order No.
IE-C-IP67	1	8813090000

Cable coupling

**Note**

Accessories

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See also the „Accessories“ chapter.



## IP67 plug-in connector

### M12 plug

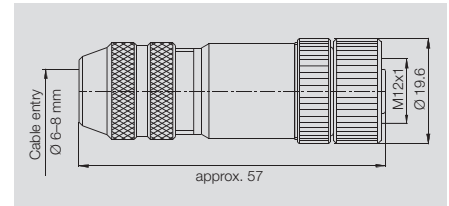
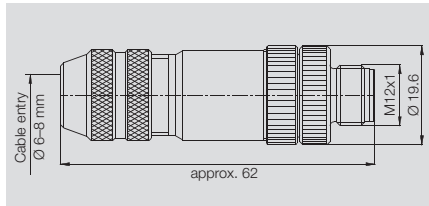
#### Male pin contact

straight



#### Female socket contact

straight



#### Technical data

Degree of protection  
Type of connection  
Housing main material  
Contact tube diameter  
Cable diameter, min.  
Cross-section for connected wire  
Ambient temperature (operational), min. / max.  
Connector standard

**Note**

IP 67  
Tension clamp connection  
CuZn  
M12  
6 mm / 8 mm  
0.25 - 0.5 mm<sup>2</sup>  
-25 °C...+85 °C  
IEC 61076-2-101

IP 67  
Tension clamp connection  
CuZn  
M12  
6 mm / 8 mm  
0.25 - 0.5 mm<sup>2</sup>  
-25 °C...+85 °C  
IEC 61076-2-101

#### Ordering data

**Tension-clamp connection**

Straight  
Angled

**Screw connection**

Straight

**Note**

Type	Qty.	Order No.
SAISM-4/8S-M12 4P D-ZF	1	1892120001
SAISW-4/8S-M12 4P D-ZF	1	1803930001

Type	Qty.	Order No.
SAIBM-4/8S-M12 4P D-ZF	1	1892130001
SAIBM-4/8S-M12-4P D-COD	1	1892130000

#### Accessories

**Adapter / coupling M12**

- Cat.5
- IP 67

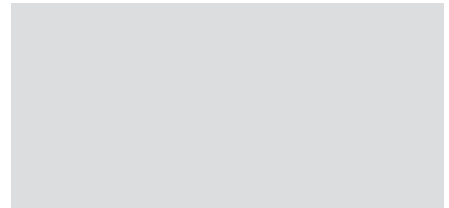
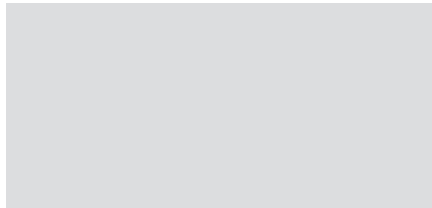
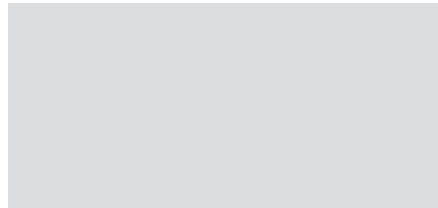
**Adapter M12-RJ45**

M12 D-coded on RJ45



**Coupling M12-M12**

M12 D-coded



**Technical data**

Category  
 Degree of protection  
 Housing main material  
 Shielding  
 Ambient temperature (operational), min. / max.  
 Connector standard

Cat.5 (ISO/IEC 11801)  
 IP 67  
 Polyamide, fully shielded metal housing  
 360° shield contact  
 -5 °C...+60 °C  
 IEC 60603-7-5, IEC 61076-2-101

Cat.5 (ISO/IEC 11801)  
 IP 67  
 Polyamide, fully shielded metal housing  
 360° shield contact  
 -5 °C...+60 °C  
 IEC 61076-2-101

Note

**Ordering data**

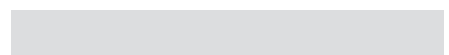
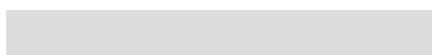
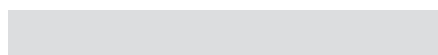
Adapter	
	Straight
	Angled

Type	Qty.	Order No.
IE-M12-ADAP S	1	8901620000
IE-M12-ADAP A	1	8901630000

Type	Qty.	Order No.
IE-M12-COUP	1	8901640000

Note

**Accessories**



## IP67 plug-in connector

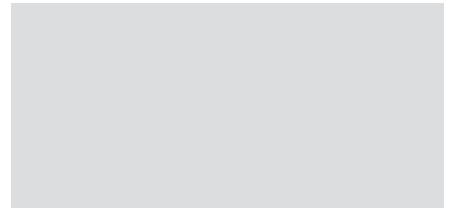
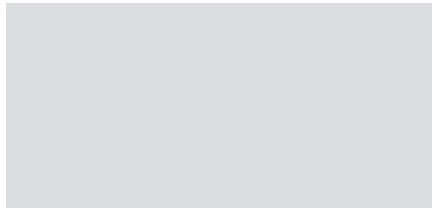
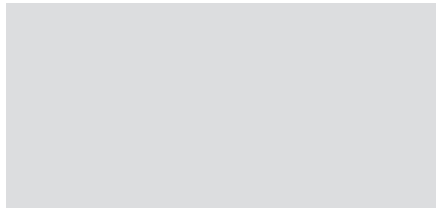
### M12 PCB connection element

- Cat.5
- For installation into the end device

### Standard assembly



### Additional fastening mechanism



### Technical data

Category
Degree of protection
Configuration
Housing main material
Shielding
Ambient temperature (operational), min. / max.
Connector standard
<b>Note</b>

Cat.5 (ISO/IEC 11801)
IP 65 according to DIN EN 60529
Reflow compatible
CuZn, Polyamide, nickel-plated
360° shield contact
-40 °C...+85 °C
IEC 61076-2-101
<b>Note</b>

Cat.5 (ISO/IEC 11801)
IP 65 according to DIN EN 60529
Reflow compatible
CuZn, Polyamide, nickel-plated
360° shield contact
-25 °C...+85 °C
IEC 61076-2-101
<b>Note</b>

### Ordering data

<b>Connection element</b>
<b>Note</b>

Type	Qty.	Order No.
IE-M12-PCBCE	60	8902810000
<b>Note</b>		

Type	Qty.	Order No.
IE-M12-PCBCE-PANEL	10	8902820000
<b>Note</b>		

### Accessories

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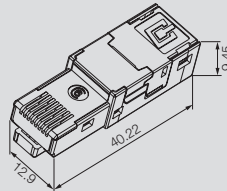
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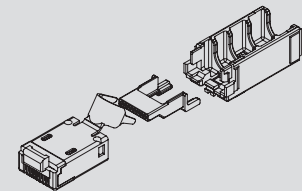
**Plug inserts RJ45**

- Cat.6<sub>A</sub>
- IP 20
- For Variant 1, 4, 5 and 14 housings

**tool-free**



**Crimp**



**Technical data**

Category
Degree of protection
Plugging cycles
Shielding
Housing main material
Contact material / Contact surface
Wire cross-section, flexible, min. / max.
Wire cross-section, flexible, min. / max.
Wire cross-section, solid, min. / max.
Wire cross-section, solid, min. / max.
Insulation cross-section, max.
Humidity
Ambient temperature (operational), min. / max.
Insulation resistance
Dielectric strength, contact / contact
Dielectric strength, contact / shield
Current-carrying capacity at 50 °C
PoE+
Speed
Connector standard
<b>Note</b>

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP 67 with housing
750
360° all-round enclosure
Zinc diecast
AWG 26 / AWG 22
0.48 mm / 0.76 mm
AWG 24 / AWG 24
0.4 mm / 0.64 mm
1.6 mm
-40 °C...+70 °C
500 MΩ
≥ 1000 V DC
≥ 1500 V DC
1 A
10 GBit
IEC 60603-7-51
<b>Note</b>

Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
IP 67 with housing
750
360° all-round enclosure
Brass, PC UL 94 V0
Phosphor bronze / 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
1.05 mm
0...93 % rel. humidity
-40 °C...+70 °C
500 MΩ
≥ 1000 V DC
≥ 1500 V DC
1 A
conforming to IEEE 802.3af
10 GBit
IEC 60603-7-51
<b>Note</b>

**Ordering data**

<b>tool-free</b>
TIA-A/B/PROFINET
TIA-A
TIA-B
PROFINET
<b>Crimp</b>
<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
IE-PI-RJ45-FH-P	10	1132030000
<b>Note</b>		

Type	Qty.	Order No.
IE-PI-RJ45-TH	10	1962720000
<b>Note</b>		

**Accessories**

<b>Tools</b>
Crimping tool
Optional pressing tool

Type	Qty.	Order No.
PWZ RJ45	1	1118040000
<b>Note</b>		

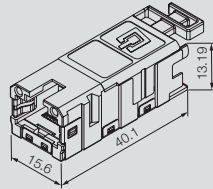
Type	Qty.	Order No.
TT 8 RS MP 8	1	9202800000
<b>Note</b>		

## IP67 plug-in connector

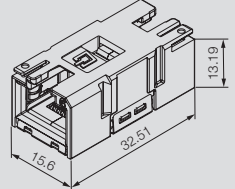
### Flange inserts RJ45

- Cat.6<sub>A</sub>
- IP 20
- For Variant 1, 4, 5 and 14 housings

### Module



### Coupling



### Technical data

Category  
 Degree of protection  
 Plugging cycles  
 Shielding  
 Housing main material  
 Wire cross-section, flexible, min. / max.  
 Wire cross-section, solid, min. / max.  
 Insulation cross-section, max.  
 Connector standard  
 Ambient temperature (operational), min. / max.

**Note**

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
 IP 67 with housing  
 750  
 360° all-round enclosure  
 Zinc diecast  
 AWG 26 / AWG 22  
 AWG 24 / AWG 24  
 1.6 mm  
 IEC 60603-7-51  
 -40 °C...+70 °C

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
 IP 67 with housing  
 750  
 360° all-round enclosure  
 Zinc diecast  
 IEC 60603-7-51  
 -40 °C...+70 °C

### Ordering data

**No tools needed**

TIA-A  
 TIA-B  
 PROFINET  
 Coupling

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	10	1962840000

**Note**

### Accessories

**Tools**

Optional pressing tool

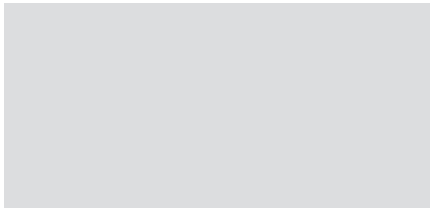
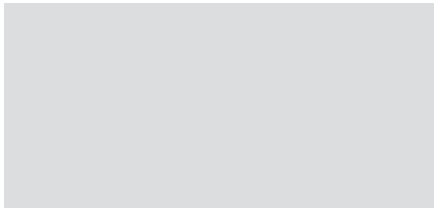
Type	Qty.	Order No.
PWZ RJ45	1	1118040000

Type	Qty.	Order No.
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### Hybrid plug inserts

- Cat.5
- IP 20
- For Variant 1, 4 and 14 housings

### Crimp



### Technical data

Category  
 Degree of protection  
 Plugging cycles  
 Shielding  
 Housing main material  
 Wire cross-section, flexible, min. / max.  
 Wire cross-section, flexible, min. / max.  
 Ambient temperature (operational), min. / max.  
 Volume resistance  
 Rated current

Cat.5 (ISO/IEC 11801)  
 IP 67 with housing  
 500  
 360° all-round enclosure  
 Nickel silver, PA 66  
 AWG 27 / AWG 20  
 0.08 mm<sup>2</sup> / 0.75 mm<sup>2</sup>  
 -40 °C...+70 °C  
 < 10 mΩ  
 3 A per contact

**Note**

### Ordering data

Type	Qty.	Order No.
IE-PI-HYB-10P	10	1068990000

**Note**

### Accessories

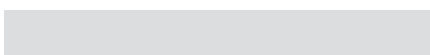
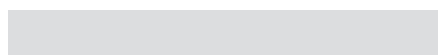
Crimp contacts	
	0,33...0,5 mm <sup>2</sup>
	0,75 mm <sup>2</sup>
	0,08...0,2 mm <sup>2</sup>

Type	Qty.	Order No.
IE-PIC-HYB-S-0,5-300	300	1096180000
IE-PIC-HYB-S-0,75-300	300	1068950000
IE-PIC-HYB-S-0,2-300	300	1135150000

**Crimping tool**



HTF HYB	1	1119580000
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## IP67 plug-in connector

### Hybrid flange inserts

- Cat.5
- IP 20
- For Variant 1, 4 and 14 housings

### Module



### Technical data

Category
Degree of protection
Plugging cycles
Shielding
Housing main material
Wire cross-section, flexible, min. / max.
Wire cross-section, flexible, min. / max.
Rated current
Volume resistance
Ambient temperature (operational), min. / max.

#### Note


Cat.5 (ISO/IEC 11801)
IP 67 with housing
500
360° all-round enclosure
Zinc diecast, Nickel silver, PA 66
AWG 27 / AWG 20
0,08 mm <sup>2</sup> / 0,75 mm <sup>2</sup>
3 A per contact
< 10 mΩ
-40 °C...+70 °C

### Ordering data

#### Note

Type	Qty.	Order No.
IE-BI-HYB-10P	10	1069010000

### Accessories

Crimp contacts	
	0,33...0,5 mm <sup>2</sup>
	0,75 mm <sup>2</sup>
	0,08...0,2 mm <sup>2</sup>

#### Crimping tool



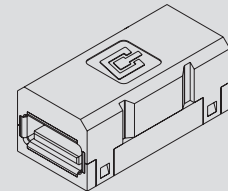
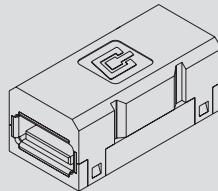
Type	Qty.	Order No.
IE-BIC-HYB-P-0,5-300	300	1096150000
IE-BIC-HYB-P-0,75-300	300	1068970000
IE-BIC-HYB-P-0,2-300	300	1135160000
HTF HYB	1	1119580000

**Flange inserts USB**

- IP 20
- For Variant 1, 4, 5 and 14 housings

**Coupling USB A/A**

**Coupling USB A/B**



**Technical data**

Degree of protection  
 Shielding  
 Ambient temperature (operational), min. / max.  
 Connection 1 / 2  
 Connector standard

IP 67 with housing  
 360° all-round enclosure  
 -40 °C...+70 °C  
 USB A / USB A  
 IEC 61076-3-107

IP 67 with housing  
 360° all-round enclosure  
 -40 °C...+70 °C  
 USB A / USB B  
 IEC 61076-3-107

**Note**

**Ordering data**

USB coupling

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

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

**Note**

**Accessories**

## IP67 plug-in connector

## Plug inserts SC

- IP 20
- For Variant 1, 4 and 14 housings

## Plug inserts SC



## Technical data

Degree of protection  
Housing main material  
Plugging cycles  
Ambient temperature (operational), min. / max.  
Connector standard

## Note

IP 67 with housing  
Zinc diecast  
1000  
-40 °C...+70 °C  
IEC 61754-24

## Ordering data

Singlemode  
Multimode  
POF

## Note

Type	Qty.	Order No.
IE-PI-SCRJ-SM	10	1067390000
IE-PI-SCRJ-MM	10	1067380000
IE-PI-SCRJ-POF	10	1067410000

## Accessories

## Tools



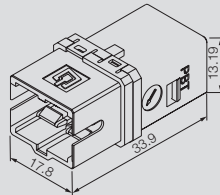
POF tool set  
Crimping pliers POF  
Fibre-optic tool case  
Crimping pliers GOF SC  
Crimping pliers GOF PROFINET

Type	Qty.	Order No.
TOOL SET IE-POF	1	1208930000
HTX-IE-POF	1	1208870000
IE-CTC-SCST-GOF	1	1032030000
IE-CT-SC-GOF	1	9205320000
IE-CT-SC-GOF-P	1	9205350000

### Flange inserts SC

- IP 20
- SC-RJ on 2 SC
- For Variant 1, 4 and 14 housings

### Flange inserts SC



### Technical data

Degree of protection  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational), min. / max.

IP 67 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	10	1964430000

**Note**

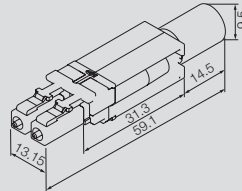
### Accessories

IP67 plug-in connector

Plug inserts LC

- IP 20
- For Variant 1, 4 and 14 housings

Plug inserts LC



Technical data

Degree of protection  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Connector standard

IP 67 with housing  
 PBT diecast zinc  
 1000  
 -40 °C...+70 °C  
 IEC 61754-20

Note

Ordering data

Plug insert	
	2 LC, Singlemode
	2 LC, Multimode

Type	Qty.	Order No.
IE-PI-2LC-SM	10	1962790000
IE-PI-2LC-MM	10	1962780000

Note

Other versions on request

Accessories

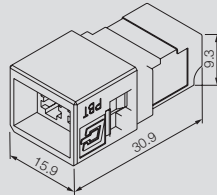
Tools	
	Crimping pliers GOF LC
	Fibre-optic tool case

Type	Qty.	Order No.
IE-CT-LC-GOF	1	9205330000
IE-CTC-SCST-GOF	1	1032030000

### Flange inserts LC

- IP 20
- For Variant 1, 4 and 14 housings

### Flange inserts LC



### Technical data

Degree of protection  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Connector standard

IP 67 with housing  
 PBT diecast zinc  
 1000  
 -40 °C...+70 °C  
 IEC 61754-20

**Note**

### Ordering data

Flange insert	
	LC duplex, Singlemode
	LC duplex, Multimode

Type	Qty.	Order No.
IE-BI-LCD-SM-C	10	1962880000
IE-BI-LCD-MM-C	10	1964420000

**Note**

Other versions on request

### Accessories

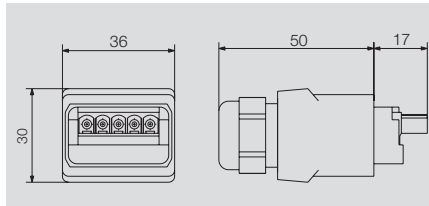
Tools	
	Crimping pliers GOF LC
	Fibre-optic tool case

Type	Qty.	Order No.
IE-CT-LC-GOF	1	9205330000
IE-CTC-SCST-GOF	1	1032030000

IP67 plug-in connector

Plug PushPull Power

Power plug



Technical data

General data

Degree of protection  
Connector standard

Material properties

Housing base material  
Sealing material  
Cable sealing material  
Contact material  
Flammability class UL 94  
Pollution severity level  
Plugging cycles

Electrical properties

Current-carrying capacity at 50 °C  
Rated voltage  
Ambient temperature (operational), min. / max.  
No. of poles  
Wire cross-section, flexible, min. / max.  
Sheath diameter, min. / max.  
Connection 2

Note

IP 67

According to PROFINET specification

Zinc diecast, nickel-plated

NBR

TPE

Copper alloy

V-2

2

≤ 100

16 A

24 V

-40 °C...+70 °C

5

0.75 mm<sup>2</sup> / 2.5 mm<sup>2</sup>

9 mm / 13 mm

Tension clamp

Ordering data - Sets

Type	Qty.	Order No.
IE-PS-VAPM-24V	10	1068910000

Note

Ordering data - Empty housings

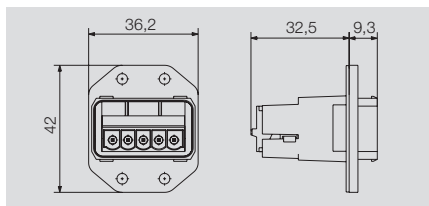
Type	Qty.	Order No.
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Note

Accessories

## Flange PushPull Power

## Flange Power



### Technical data

<b>General data</b>
Degree of protection
Connector standard
<b>Material properties</b>
Housing base material
Sealing material
Cable sealing material
Contact carrier material
Contact material
Flammability class UL 94
Pollution severity level
Plugging cycles
<b>Electrical properties</b>
Current-carrying capacity at 50 °C
Rated voltage
Ambient temperature (operational), min. / max.
No. of poles
Connection 1
Installation
<b>Note</b>

IP 67
According to PROFINET specification
Zinc diecast, nickel-plated
NBR
TPE
PA
Copper alloy
V-2
2
≤ 100
16 A
24 V
-40 °C...+70 °C
5
Tension clamp
4 screws

### Ordering data - Sets

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

Type	Qty.	Order No.
IE-BSS-VAPM-24V	10	1069030000

### Ordering data - Empty housings

Device flange
<b>Note</b>

Type	Qty.	Order No.
IE-BHD-VAPM	10	1068920000

### Accessories

<b>Dust protection cap</b>

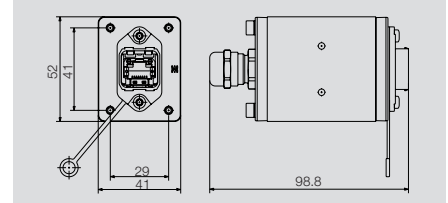
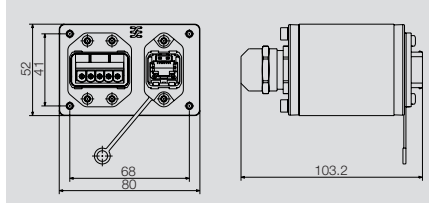
Type	Qty.	Order No.
IE-BP-VAPP	10	1068930000

IP65 connection components

FreeCon V14 - Junction box

Double junction box

Single junction box



Technical data

General data

Housing main material  
Degree of protection  
Ambient temperature (operational), min. / max.  
Connector standard

Technical specifications power connector

Housing base material  
Sealing material  
Contact material  
Contact carrier material  
Contact surface  
Plugging cycles

Electrical properties power connector

Current-carrying capacity at 50 °C  
Rated voltage  
No. of poles  
Sheath diameter, min. / max.  
Connection 2

Technical specifications RJ45

Housing base material  
Contact surface  
Sheath diameter, min. / max.

Electrical properties RJ45

Category  
Contact resistance  
Insulation resistance  
Dielectric strength, contact – contact, max.  
Dielectric strength, contact – contact, min.  
Current carrying capacity  
Wire cross-section, flexible, min. / max.  
Connection 1, RJ 45 module

Note

Aluminium profile, Cover: zinc diecast, painted  
IP 65  
-40 °C...+70 °C  
IEC 61076-3-117 Var. 14, IEC 60603-7-5

Zinc diecast, nickel-plated  
NBR  
Copper alloy  
PA  
Gold over nickel  
≥ 100

16 A @ 20 °C  
24 V  
5  
6 mm / 12 mm  
Tension clamp

Zinc diecast, nickel-plated  
Gold over nickel  
5 / 10 mm

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
≤ 20 mΩ  
> 500 MΩ  
≤ 1000 V DC  
≤ 1500 V DC  
1 A  
AWG 26 / AWG 22  
IDC

Aluminium profile, Cover: zinc diecast, painted  
IP 65  
-40 °C...+70 °C  
IEC 61076-3-117 Var. 14, IEC 60603-7-5

Zinc diecast, nickel-plated  
NBR  
Copper alloy  
PA  
Gold over nickel  
≥ 100

16 A @ 20 °C  
24 V  
5  
6 mm / 12 mm  
Tension clamp

Zinc diecast, nickel-plated  
Gold over nickel  
5 / 10 mm

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
≤ 20 mΩ  
> 500 MΩ  
≤ 1000 V DC  
≤ 1500 V DC  
1 A  
AWG 26 / AWG 22  
IDC

Ordering data

Type	Qty.	Order No.
IE-CD-V14MRJ/VAPM24V-FJ	1	1068830000

Type	Qty.	Order No.
IE-CD-V14MRJ-FJ	1	1068880000

Note

Accessories

Mounting foot

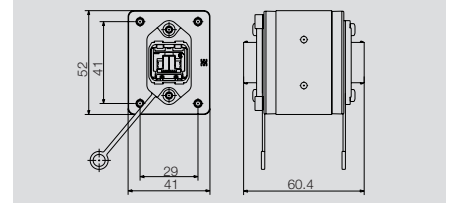
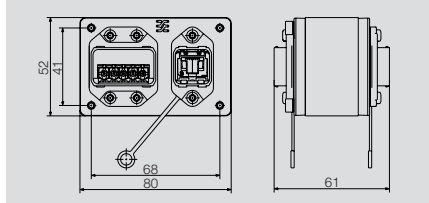
Type	Qty.	Order No.
IE-CD-MA	10	1099580000

Type	Qty.	Order No.
IE-CD-MA	10	1099580000

FreeCon V14 - Coupling

Double coupling

Single coupling



Technical data

General data

Housing main material  
Degree of protection  
Ambient temperature (operational), min. / max.  
Connector standard

Technical specifications power connector

Housing base material  
Sealing material  
Contact material  
Contact carrier material  
Contact surface  
Plugging cycles

Electrical properties power connector

Current-carrying capacity at 50 °C  
Rated voltage  
No. of poles  
Sheath diameter, min. / max.  
Connection 2

Technical specifications RJ45

Housing base material

Electrical properties RJ45 coupling

Category  
Contact resistance  
Insulation resistance  
Dielectric strength, contact – contact, min.  
Dielectric strength, contact – shielding, max.  
Current carrying capacity

Note

Aluminium profile, Cover: zinc diecast, painted  
IP 65  
-40 °C...+70 °C  
IEC 61076-3-117 Var. 14, IEC 60603-7-5

Zinc diecast, nickel-plated  
NBR  
Copper alloy  
PA  
Gold over nickel  
≥ 100

16 A @ 20 °C  
24 V  
5  
6 mm / 12 mm  
Tension clamp

Zinc diecast, PA 66

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
≤ 20 mΩ  
> 500 MΩ  
≥ 1000 V DC  
≥ 1500 V DC  
1 A

Aluminium profile, Cover: zinc diecast, painted  
IP 65  
-40 °C...+70 °C  
IEC 61076-3-117 Var. 14, IEC 60603-7-5

Zinc diecast, PA 66

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
≤ 20 mΩ  
> 500 MΩ  
≥ 1000 V DC  
≥ 1500 V DC  
1 A

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

Note

Accessories

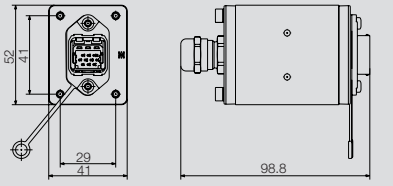
IP65 connection components

FreeCon V14 - Junction box

- in PUR

Single junction box

Hybrid



Technical data

General data

Housing main material  
Degree of protection  
Ambient temperature (operational), min. / max.

Technical specifications hybrid connector

Housing base material  
Sealing material  
Contact material  
Contact surface  
Plugging cycles

Electrical properties hybrid connector

Current-carrying capacity at 50 °C  
Rated voltage (DIN EN 61984)  
Contact resistance  
Pole count, Hybrid  
Wire cross-section, flexible, min. / max.  
Wire cross-section, flexible, min. / max.

Note

Aluminium profile, Cover: zinc diecast, painted  
IP 65  
-40 °C...+75 °C

Zinc diecast (flange), PA 66  
NBR  
Copper alloy  
Gold over nickel  
≤ 100

3 A  
24 V  
≤ 10 mΩ  
10  
AWG 27 / AWG 20  
0.08 mm<sup>2</sup> / 0.75 mm<sup>2</sup>

Ordering data

Type	Qty.	Order No.
IE-CD-V14MHYB-10P-FJ	1	1068850000

Note

Accessories

Mounting foot

Type	Qty.	Order No.
IE-CD-MA	10	1099580000

Crimp contacts



0,33...0,5 mm<sup>2</sup>  
0,75 mm<sup>2</sup>  
0,08...0,2 mm<sup>2</sup>

IE-BIC-HYB-P-0,5-300	300	1096150000
IE-BIC-HYB-P-0,75-300	300	1068970000
IE-BIC-HYB-P-0,2-300	300	1135160000

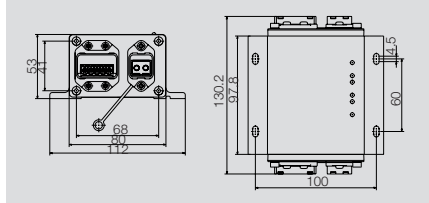
Crimping tool



HTF HYB	1	1119580000
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**FreeCon Active PROFINET FO**  
**Repeater with diagnostic functions**

**FreeCon Active**



**Technical data**

**General data**

Housing main material  
 Weight  
 Data interface  
 Power interface  
 Degree of protection  
 Ambient temperature (operational), min. / max.  
 Network standard

Aluminium profile, Cover: zinc diecast, painted  
 780 g  
 PROFINET PushPull SCRJ POF (V14)  
 PROFINET PushPull Power  
 IP 65  
 -20 °C...+55 °C  
 IEC 61158, IEC 61784

**Electrical data**

Operating voltage  
 Operational voltage range  
 Current consumption  
 Baud rate  
 Protocol  
 LED indication

24 V DC  
 18...30 V DC  
 200 mA typical  
 100 MB  
 PROFINET IRT  
 FO1: port active, FO2: port active, SF: general error, BF: bus error, US1: voltage 1 (electronics), US2: voltage 2

**Note**

**Ordering data**

Type	Qty.	Order No.
IE-CDR-V14MSCPOF/VAPM-C	1	1253240000

**Note**

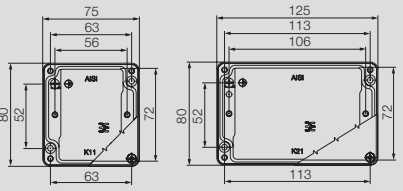
**Accessories**

## IP65 connection components

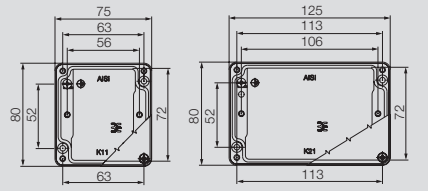
### V1 junction boxes - Metal

- IP 67
- For floor or wall mounting

### Double junction box



### Single junction box



### Technical data

Degree of protection  
Housing main material  
Colour  
Type of mounting  
Ambient temperature (operational), min. / max.  
Plugging cycles  
Connector standard

#### Note

IP 67  
Al - Si 12  
grey  
Floor-mounted, Wall-mounted  
-40 °C...+70 °C  
750  
IEC 61076-3-106 Var. 1

Delivered with protective caps.

IP 67  
Al - Si 12  
grey  
Floor-mounted, Wall-mounted  
-40 °C...+70 °C  
750  
IEC 61076-3-106 Var. 1

Delivered with protective caps.

### Ordering data

#### Variant 1

2 ports, straight  
2 ports, left  
2 ports, right  
1 port, straight

#### Note

Type	Qty.	Order No.
IE-OM-V01M-K21-2S	1	1966330000
IE-OM-V01M-K21-2L	1	1966320000
IE-OM-V01M-K21-2R	1	1966310000

RJ45 modules can be ordered separately

Type	Qty.	Order No.
IE-OM-V01M-K11-1S	1	1966300000

RJ45 modules can be ordered separately

### Accessories

#### Flange insert



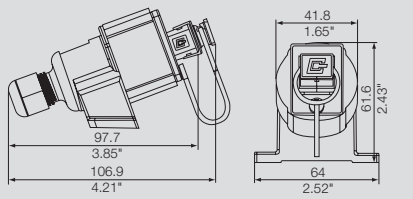
RJ45 EIA/TIA 568 A  
RJ45 EIA/TIA 568 B  
RJ45 PROFINET

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-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000

V1 junction boxes - Plastic

Single junction box



Technical data

Degree of protection  
 Housing main material  
 Plugging cycles  
 Ambient temperature (operational), min. / max.  
 Connector standard

IP 67  
 PA UL 94 V0  
 750  
 -40 °C...+70 °C  
 IEC 61076-3-106 Var. 1

Note

Ordering data

Variant 1 Junction box

Type	Qty.	Order No.
IE-OP-V01P-1S	10	1061830000

Note

RJ45 modules can be ordered separately

Accessories

Flange insert	
	RJ45 EIA/TIA 568 A
	RJ45 EIA/TIA 568 B
	RJ45 PROFINET

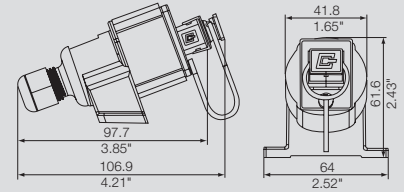
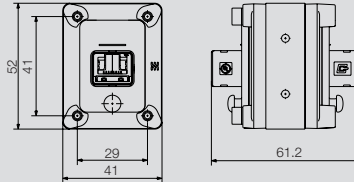
Type	Qty.	Order No.
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000

IP65 connection components

FreeCon V4 junction box

Single coupling

Single junction box



Technical data

General data

Plugging cycles  
 Housing main material  
 Flammability class UL 94  
 Connector standard  
 Degree of protection  
 Ambient temperature (operational), min. / max.

Electrical properties RJ45 coupling

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: zinc diecast, painted  
 IEC 61076-3-106 Var. 4, IEC 60603-7-5  
 IP 65  
 -40 °C...+70 °C

Cat.6<sub>A</sub> / Class E<sub>A</sub> (ISO/IEC 11801 2010)  
 ≤ 20 mΩ  
 > 500 MΩ  
 ≥ 1000 V DC  
 ≥ 1500 V DC  
 1 A

Zinc diecast, PA 66

750  
 PA  
 V-0  
 IEC 61076-3-106 Var. 4  
 IP 67  
 -40 °C...+70 °C

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

RJ45 modules can be ordered separately

Accessories

Flange insert



RJ45 EIA/TIA 568 A  
 RJ45 EIA/TIA 568 B  
 RJ45 PROFINET

Type	Qty.	Order No.

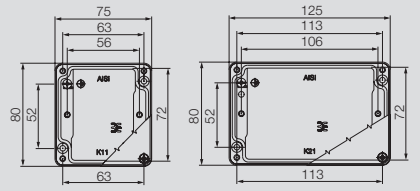
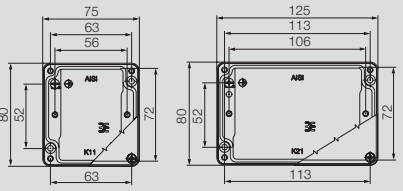
Type	Qty.	Order No.
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000

**V4 junction boxes**

- IP 67
- For floor or wall mounting

**Double junction box**

**Single junction box**



**Technical data**

Degree of protection  
 Housing main material  
 Colour  
 Type of mounting  
 Ambient temperature (operational), min. / max.  
 Plugging cycles  
 Connector standard

IP 67  
 Al - Si 12  
 grey  
 Floor-mounted, Wall-mounted  
 -40 °C...+70 °C  
 750  
 IEC 61076-3-106 Var. 4

IP 67  
 Al - Si 12  
 grey  
 Floor-mounted, Wall-mounted  
 -40 °C...+70 °C  
 750  
 IEC 61076-3-106 Var. 4

**Note**

**Ordering data**

Variant 4	
2 ports, straight	
2 ports, left	
2 ports, right	
1 port, straight	

Type	Qty.	Order No.
IE-OM-V04P-K21-2S	1	1966250000
IE-OM-V04P-K21-2L	1	1966240000
IE-OM-V04P-K21-2R	1	1966230000

Type	Qty.	Order No.
IE-OM-V04P-K11-1S	1	1966220000

**Note**

RJ45 modules can be ordered separately

RJ45 modules can be ordered separately

**Accessories**

Flange insert	
	RJ45 EIA/TIA 568 A
	RJ45 EIA/TIA 568 B
	RJ45 PROFINET

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

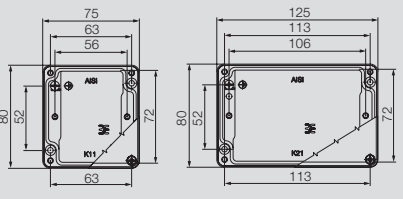
Type	Qty.	Order No.
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000

## IP65 connection components

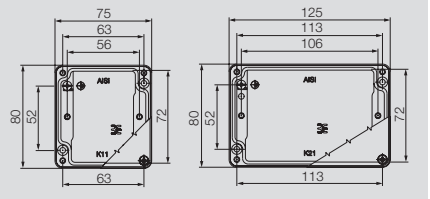
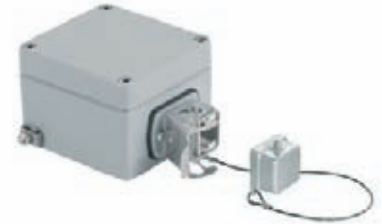
### V5 junction boxes

- IP 67
- For floor or wall mounting

### Double junction box



### Single junction box



### Technical data

Degree of protection  
Housing main material  
Colour  
Type of mounting  
Ambient temperature (operational), min. / max.  
Plugging cycles  
Connector standard

IP 67  
Al - Si 12  
grey  
Floor-mounted, Wall-mounted  
-40 °C...+70 °C  
750  
IEC 61076-3-106 Var. 5

IP 67  
Al - Si 12  
grey  
Floor-mounted, Wall-mounted  
-40 °C...+70 °C  
750  
IEC 61076-3-106 Var. 5

#### Note

### Ordering data

Variant 5	
2 ports, straight	
2 ports, left	
2 ports, right	
1 port, straight	

Type	Qty.	Order No.
IE-OM-V05M-K21-2S	1	1966290000
IE-OM-V05M-K21-2L	1	1966280000
IE-OM-V05M-K21-2R	1	1966270000

Type	Qty.	Order No.
IE-OM-V05M-K11-1S	1	1966260000

#### Note

RJ45 modules can be ordered separately

RJ45 modules can be ordered separately

### Accessories

Flange insert	
	RJ45 EIA/TIA 568 A
	RJ45 EIA/TIA 568 B
	RJ45 PROFINET

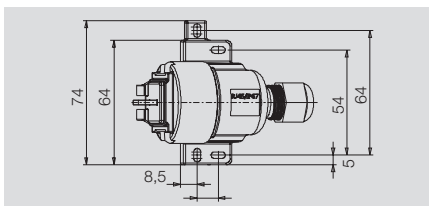
Type	Qty.	Order No.
IE-BI-RJ45-FJ-A	10	1962850000
IE-BI-RJ45-FJ-B	10	1963840000
IE-BI-RJ45-FJ-P	10	1963830000

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

**V6 junction box**

- Cat.6
- IP 67

**Single junction box**



**Technical data**

Degree of protection  
Housing main material  
Colour  
Type of mounting

IP 67  
PA 66, UL 94: V-0  
light grey  
Floor-mounted, for exposed connections, Wall-mounted

Configuration

Screw-on junction box  
incl. RJ45 module with  
IDC

Ambient temperature (operational), min. / max.  
Plugging cycles  
Connector standard

-40 °C+70 °C  
750  
IEC 61076-3-106 Var. 6

**Note**

**Ordering data**

Junction box

Type	Qty.	Order No.
IE-S-IP67	1	8808370000

**Note**

**Accessories**

**Tools**

Crimping tool



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



# Cables

<b>Cables</b>		
	Introduction	D.2
	Product configurator – Copper cables	D.3
	Overview – Copper cables	D.4
	Copper cabling solutions	
	Bulk stock - installation cable	D.6
	Bulk stock - connection cable	D.8
	Bulk stock - dragline cable	D.11
	Bulk stock - PROFINET cable	D.12
	Bulk stock - hybrid cable	D.14
	Assembled cables - patch cable	D.15
	Assembled cables - PROFINET cable	D.20
	Assembled cables - Ethernet/IP cable	D.23
	Assembled cables - rail cable	D.24
	Overview – Fibre-optic cables	D.28
	Product configurator – Fibre-optic cables	D.30
	Fibre-optic cabling solutions	
	Bulk stock - FO connection cable / dragline cable	D.31
	Assembled cables - FO patch cable	D.33
	Assembled cables - FO PROFINET cable	D.35
	Assembled cables - FO system cable	D.36
	Assembled cables - FO dragline cable	D.37

# Passive components

## Advanced Line



The Advanced Line 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 Advanced Line 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

## Cabinet Line



The new Cabinet Line range of patch cables from Weidmüller is available in a variety of colours for visually differentiating between various networks.

Additional advantage:

all Cabinet Line cables are fitted with Weidmüller TM marking sleeves for clearly labelling cables and ports. Cabinet Line is available in the colours grey, blue, red and violet in combination with LSZH sheathing material and transmission power Cat.6<sub>A</sub>. Furthermore, Cabinet Line 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

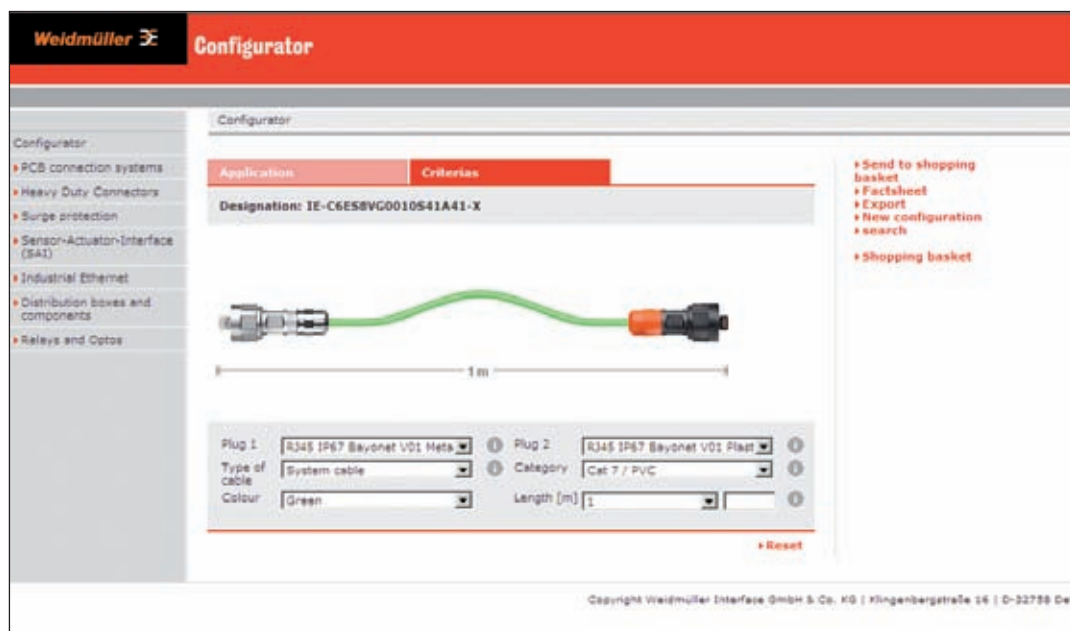
# Product configurator – Copper cables

The cable configurator in Weidmüller's online catalogue makes it possible for you to create fully-assembled cables adapted to your requirements and specifications.

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.

An RJ45 plug with IP20 protection is available. The following variants are also available with IP67 protection:

- Variant 1, metal
- Variant 4, plastic
- Variant 5, metal
- Variant 6, plastic
- M12 connector and additional housing variants to follow shortly



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
- Additional cable variants to follow shortly.

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 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.

# Overview of copper cables

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 installations 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 installations 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 in Cat.5 with PUR sheath and IP67 protection – can be used on railway vehicles for both interior and exterior installations.

- In Cat. 5
- Also for PROFINET
- With Radox sheath

Ordering data for copper cables

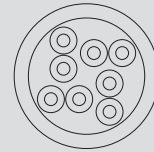
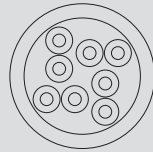
Type	Cat./Class	Colour	Plug-in connector		Length						
			left	right	100 m		Metre goods				
<b>Industrial installation cables</b>					100 m	Metre goods					
IE-5IC4x2xAWG24/1-PUR	Cat.5	-	-	-	8813160000	8944310000					
IE-5IC4x2xAWG24/1-PVC	Cat.5	-	-	-	8813150000	8953160000					
IE-7IC4x2xAWG23/1-PUR	Cat.7	-	-	-	8813140000	8955350000					
IE-7IC4x2xAWG23/1-PVC	Cat.7	-	-	-	8813130000	8955360000					
IE-C5AS4Vxx	Cat.5 PROFINET	-	-	-	8899000000	8955950000					
<b>Industrial connecting cables</b>					100 m	Metre goods					
IE-5CC4x2xAWG26/7-PUR	Cat.5	-	-	-	8813200000	8938880000					
IE-5CC4x2xAWG26/7-PVC	Cat.5	-	-	-	8813190000	8955490000					
IE-7CC4x2xAWG26/7-PUR	Cat.7	-	-	-	8813180000	8954300000					
IE-7CC4x2xAWG26/7-PVC	Cat.7	-	-	-	8813170000	8955480000					
IE-C5DS4Vxx	Cat.5 PROFINET	-	-	-	8898990000	8955560000					
IE-C5DHAGxx	Cat.5 PROFINET	-	-	-		1172250000					
<b>Industrial trailing cables</b>					Metre goods						
IE-5TC4x2xAWG26/7-PUR	Cat.5	-	-	-	8813210000						
IE-C5DD4Uxx	Cat.5 PROFINET	-	-	-	8899010000	8947670000					
<b>Industrial trailing cables</b>					1 m	2 m	5 m	10 m	15 m	20 m	
IE-C5ED8UGxxxxA46A46-X	Cat.5		RJ45-IP67	RJ45-IP67	8829710000	8829720000	8829730000	8829740000	8829750000	8829760000	
					1.5 m	3 m	5 m	10 m			
IE-C5AS4UGxxxxMCSMCS-X	Cat.5		M12	M12	8877610015	8877610030	8877610050	8877610100			
<b>Industrial patch cables</b>					0.5 m	1 m	2 m	3 m	5 m	10 m	
IE-C6FP8LDxxxxM40M40-D	Cat.6	grey	RJ45	RJ45	1165940005	1165940010	1165940020	1165940030	1165940050	1165940100	
IE-C6FP8LBxxxxM40M40-B	Cat.6	blue	RJ45	RJ45	1165900005	1165900010	1165900020	1165900030	1165900050	1165900100	
IE-C6FP8LRxxxxM40M40-R	Cat.6	red	RJ45	RJ45	1166030005	1166030010	1166030020	1166030030	1166030050	1166030100	
IE-C6FP8LMxxxxM40M40-M	Cat.6	magenta	RJ45	RJ45	1201270005	1201270010	1201270020	1201270030	1201270050	1201270100	
IE-C6FP8LYxxxxM40M40-Y	Cat.6	yellow	RJ45	RJ45	1251580005	1251580010	1251580020	1251580030	1251580050	1251580100	
IE-C6FP8LExxxxM40M40-E	Cat.6	black	RJ45	RJ45	1251610005	1251610010	1251610020	1251610030	1251610050	1251610100	
IE-C6FP8LGxxxxM40M40-G	Cat.6	green	RJ45	RJ45	1251590005	1251590010	1251590020	1251590030	1251590050	1251590100	
IE-C6FP8LDxxxxM40W40-D	Cat.6	grey	RJ45 spiralled 270°	RJ45	1233160005	1233160010	1233160020	1233160030	1233160050	1233160100	
IE-C6FP8LDxxxxM40V40-D	Cat.6	grey	RJ45 spiralled 90°	RJ45	1248280005	1248280010	1248280020	1248280030	1248280050	1248280100	
IE-C5ES8VGxxxxM40M40-G	Cat.5	green	RJ45	RJ45	1166020005	1166020010	1166020020	1166020030	1166020050	1166020100	
IE-C5ES8UGxxxxM40M40-G	Cat.5	green	RJ45	RJ45	1166000005	1166000010	1166000020	1166000030	1166000050	1166000100	
<b>Industrial system cables</b>					0.5 m	1 m	2 m	3 m	5 m	10 m	
IE-C5DD4UGxxxxA20A20-E	Cat.5	green	RJ45	RJ45		1173030010		1173030030	1173030050	1173030100	
IE-C5DD4UGxxxxA2EA2E-X	Cat.5	green	V14 RJ45	V14 RJ45		1119730010		1119730030	1119730050	1119730100	
IE-C5ES8UGxxxxB41B41-E	Cat.5	green	V01 RJ45	V01 RJ45		1066850000	1066860000		1066870000	1066880000	
IE-C5ES8UGxxxxP41P41-E	Cat.5	green	V01 RJ45	V01 RJ45		1106010000	1106020000		1106030000	1106040000	



**Metre goods**  
**Cat. 5 installation cable**

**PUR**

**PVC**



**Technical data**

Product type	Installation cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Cross-section	4*2*AWG 24/1 - 4*2*0.205 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PUR
Sheathing colour	green (RAL 6018)
Insulation cross-section	1 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-15 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	very good
Halogen	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1

Product type	Installation cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Cross-section	4*2*AWG 24/1 - 4*2*0.205 mm <sup>2</sup>
Sheath diameter, max.	6.3 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation cross-section	1 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-15 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	good
Halogen	acc. to IEC 60332-1
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	

Product type	Installation cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Cross-section	4*2*AWG 24/1 - 4*2*0.205 mm <sup>2</sup>
Sheath diameter, max.	6.3 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation cross-section	1 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-15 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	good
Halogen	acc. to IEC 60332-1
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	

**Note**

**Ordering data**

100 m  
Bulk stock starting at 110 m

Type	Qty.	Order No.
IE-5IC4x2xAWG24/1-PUR	1	8813160000
IE-C5CS8UG-MW	1	8944310000

Type	Qty.	Order No.
IE-5IC4x2xAWG24/1-PVC	1	8813150000
IE-C5CS8VG-MW	1	8953160000

**Note**

Order example, for bulk: 150 x „article number“ = 150 m on drum

Order example, for bulk: 150 x „article number“ = 150 m on drum

**Accessories**

**Sheathing stripper**

For UTP and STP data cables  
For coaxial and round data cables

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

**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

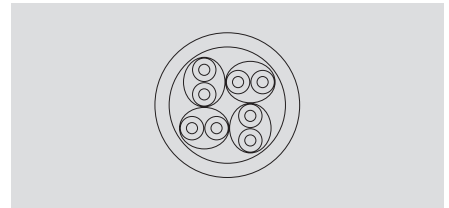
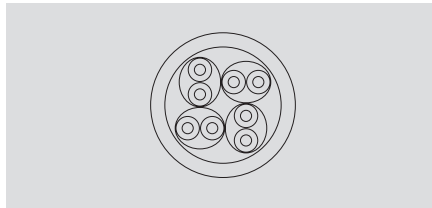
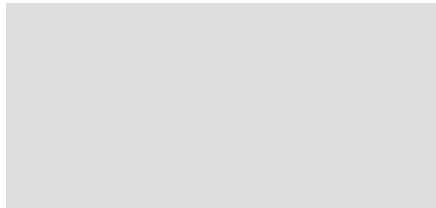
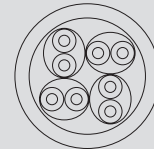
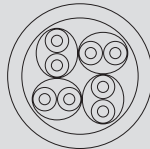
Type	Qty.	Order No.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

**Metre goods**  
**Cat. 7 installation cable**

**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 cross-section	1.4 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-15 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	very good
Halogen	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
<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 cross-section	1.4 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-15 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	good
Halogen	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
<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 cross-section	1.4 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-15 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	good
Halogen	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
<b>Note</b>	

**Ordering data**

100 m	
Bulk stock starting at 110 m	
<b>Note</b>	

Type	Qty.	Order No.
IE-7IC4x2xAWG23/1-PUR	1	8813140000
IE-C7BS8UG-MW	1	8955350000
Order example, for bulk: 150 x „article number“ = 150 m on drum		

Type	Qty.	Order No.
IE-7IC4x2xAWG23/1-PVC	1	8813130000
IE-C7BS8VG-MW	1	8955360000
Order example, for bulk: 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>	
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 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

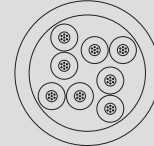
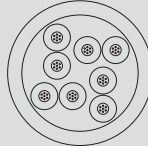


Metre goods

Cat. 5 connection cable

PUR

PVC



Technical data

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
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 cross-section	1 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-10 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	very good
Halogen	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
Note	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
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 cross-section	1 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
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	acc. to IEC 60332-1
Resistance to oils	
Note	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
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 cross-section	1 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
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	acc. to IEC 60332-1
Resistance to oils	
Note	

Ordering data

100 m
Bulk stock starting at 110 m
Note

Type	Qty.	Order No.
IE-5CC4x2xAWG26/7-PUR	1	8813200000
IE-C5ES8UG-MW	1	8938880000
Order example, for bulk: 150 x „article number“ = 150 m on drum		

Type	Qty.	Order No.
IE-5CC4x2xAWG26/7-PVC	1	8813190000
IE-C5ES8VG-MW	1	8955490000
Order example, for bulk: 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>
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

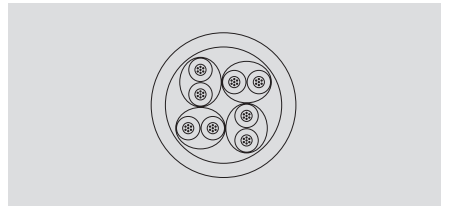
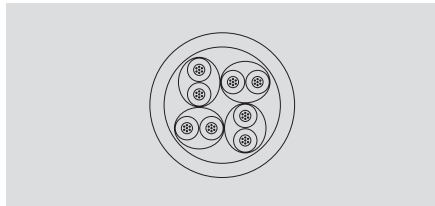
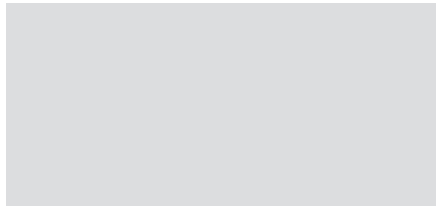
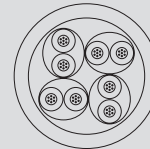
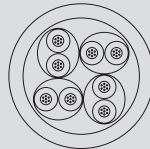
Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

**Metre goods**  
**Cat. 7 connection cable**

**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 cross-section	1.03 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-15 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	very good
Halogen	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
<b>Note</b>	

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 cross-section	0.98 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-15 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	good
Halogen	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
<b>Note</b>	

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 cross-section	0.98 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-15 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	good
Halogen	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
<b>Note</b>	

**Ordering data**

100 m
Bulk stock starting at 110 m
<b>Note</b>

Type	Qty.	Order No.
IE-7CC4x2xAWG26/7-PUR	1	8813180000
IE-C7ES8UG-MW	1	8954300000
Order example, for bulk: 150 x „article number“ = 150 m on drum		

Type	Qty.	Order No.
IE-C7ES8VG-MW	1	8813170000
IE-7CC4x2xAWG26/7-PVC	1	8955480000
Order example, for bulk: 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>
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 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

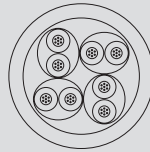
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AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001



Metre goods

Cat. 7 connection cable

LSZH



Technical data

Product type  
 Category  
 Shielding  
 Cross-section  
 Sheath diameter, max.  
 Material sheath  
 Sheathing colour  
 Insulation cross-section  
 Min. bending radius, repetitive  
 Min. bending radius, once only  
 Ambient temperature (operational)  
 Installation temperature  
 Halogen  
 Resistance to spread of flame  
 Resistance to oils

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  
 acc. to IEC 60332-1

Note

Ordering data

305 m / 1000 ft

Note

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

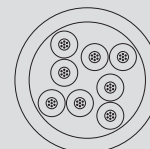
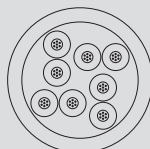
Type	Qty.	Order No.
IE-C7FS8LD-305M	1	1273090000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

**Metre goods**  
**Cat. 5 dragline cable**

**PUR, green**

**PUR, blue**



**Technical data**

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-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 cross-section	0.95 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	4 x conductor cross-section
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	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
<b>Note</b>	

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-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 cross-section	0.95 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	4 x conductor cross-section
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	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
<b>Note</b>	

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-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 cross-section	0.95 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	4 x conductor cross-section
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	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
<b>Note</b>	

**Ordering data**

	100 m
	Bulk stock starting at 110 m
<b>Note</b>	

Type	Qty.	Order No.
IE-5TC4x2xAWG26/7-PUR	1	8813210000
IE-C5ED8UG-MW	1	8936390000

Order example, for bulk: 150 x „article number“ = 150 m on drum

Type	Qty.	Order No.
IE-C5ED8UB-100M	1	8960670000
IE-C5ED8UB-MW	1	8949760000

Order example, for bulk: 150 x „article number“ = 150 m on drum

**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	Type	Qty.	Order No.
Insertion label, yellow, 12 mm	TM-I 12 NEUTRAL GE	320	1718411687
Insertion label, yellow, 18 mm	TM-I 18 NEUTRAL GE	320	1718431687
Transparent sleeves, 12-mm length	TM 4/12 HF/HB	500	1719840000
Transparent sleeves, 18-mm length	TM 4/18 HF/HB	500	1719850000
Wire and cable marker, ø 4,7 - 7,4 mm	VT SF 5/21 NEUTRAL WS V0	160	1689470001
Wire and cable marker, ø 5,8 - 7,8 mm	VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

Type	Qty.	Order No.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

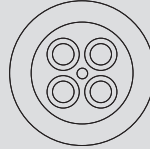
  

Type	Qty.	Order No.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

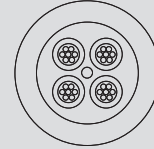
**Metre goods**  
**PROFINET cable**

- PVC

**Installation cable type A**



**Connection cable type B**



**Technical data**

Product type	Installation cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Cross-section	4*AWG 22/1 - 0.33 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation cross-section	1.5 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	3.5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+75 °C
Installation temperature	-20 °C...+60 °C
Storage temperature	-40 °C...+75 °C
Abrasion resistance	good
Resistance to spread of flame	acc. to IEC 60332-1 / UL 1685
<b>Note</b>	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation cross-section	1.5 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	3.5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+70 °C
Installation temperature	-20 °C...+60 °C
Storage temperature	-40 °C...+70 °C
Abrasion resistance	good
Resistance to spread of flame	acc. to IEC 60332-1 / UL 1685
<b>Note</b>	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation cross-section	1.5 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	3.5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+70 °C
Installation temperature	-20 °C...+60 °C
Storage temperature	-40 °C...+70 °C
Abrasion resistance	good
Resistance to spread of flame	acc. to IEC 60332-1 / UL 1685
<b>Note</b>	

**Ordering data**

100 m
Bulk stock starting at 110 m
<b>Note</b>

Type	Qty.	Order No.
IE-C5AS4V1000	1	8899000000
IE-C5AS4VG-MW	1	8955950000
Order example, for bulk: 150 x „article number“ = 150 m on drum		

Type	Qty.	Order No.
IE-C5DS4V1000	1	8898990000
IE-C5DS4VG-MW	1	8955560000
Order example, for bulk: 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>	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

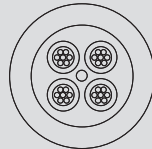
Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

## Metre goods PROFINET cable

- PUR

## Dragline cable type C



### Technical data

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
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 cross-section	1.5 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	5 x conductor cross-section
Bending cycles	3 Mio
Ambient temperature (operational)	-40 °C...+70 °C
Installation temperature	-20 °C...+60 °C
Storage temperature	-50 °C...+70 °C
Abrasion resistance	very good
Halogen	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1

#### Note

### Ordering data

Cat,5 PROFINET, PUR	Type	Qty.	Order No.
100 m	IE-C5DD4U1000	1	8899010000
Bulk stock starting at 110 m	IE-C5DD4UG-MW	1	8947670000

#### Note

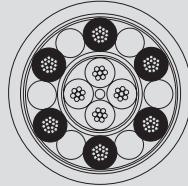
Order example, for bulk: 150 x „article number“ = 150 m on drum

### 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	Type	Qty.	Order No.
Insertion label, yellow, 12 mm	TM-I 12 NEUTRAL GE	320	1718411687
Insertion label, yellow, 18 mm	TM-I 18 NEUTRAL GE	320	1718431687
Transparent sleeves, 12-mm length	TM 4/12 HF/HB	500	1719840000
Transparent sleeves, 18-mm length	TM 4/18 HF/HB	500	1719850000
Wire and cable marker, ø 4,7 - 7,4 mm	VT SF 5/21 NEUTRAL WS V0	160	1689470001
Wire and cable marker, ø 5,8 - 7,8 mm	VT SF 6/21 NEUTRAL WS V0	160	1730560001

Metre goods  
hybrid cable

PVC



Technical data

Product type
Category
Shielding
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation cross-section / Insulation diameter 2
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

Connecting cables
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-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 x conductor cross-section
-40 °C...+70 °C
-20 °C...+60 °C
-40 °C...+70 °C
good
Yes
acc. to IEC 60332-1 / UL 1685
Limited

**Note**

Ordering data

--

Type	Qty.	Order No.
IE-CSDHAG-MW	1	1172250000

**Note**

Order example, for bulk: 150 x „article number“ = 150 m on drum

Accessories

Sheathing stripper
For UTP and STP data cables
For coaxial and round data cables

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

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.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

**Assembled cables**  
**Cat. 6 patch cable, straight,**  
**Cabinet Line**

**LSZH grey**



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 blue**



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 IP 20
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 cross-section	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	to IEC 60754-2
Resistance to spread of flame	to IEC 60332-1/ UL 1581 FT2
<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 IP 20
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 cross-section	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	to IEC 60754-2
Resistance to spread of flame	to IEC 60332-1/ UL 1581 FT2
<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 IP 20
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 cross-section	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	to IEC 60754-2
Resistance to spread of flame	to IEC 60332-1/ UL 1581 FT2
<b>Note</b>	

**Ordering data**

	Type	Qty.	Order No.
0,5 m	IE-C6FP8LD0005M40M40-D	1	1165940005
1 m	IE-C6FP8LD0010M40M40-D	1	1165940010
1,5 m	IE-C6FP8LD0015M40M40-D	1	1165940015
2 m	IE-C6FP8LD0020M40M40-D	1	1165940020
3 m	IE-C6FP8LD0030M40M40-D	1	1165940030
5 m	IE-C6FP8LD0050M40M40-D	1	1165940050
7,5 m	IE-C6FP8LD0075M40M40-D	1	1165940075
10 m	IE-C6FP8LD0100M40M40-D	1	1165940100
15 m	IE-C6FP8LD0150M40M40-D	1	1165940150
20 m	IE-C6FP8LD0200M40M40-D	1	1165940200
25 m	IE-C6FP8LD0250M40M40-D	1	1165940250
<b>Note</b>			

	Type	Qty.	Order No.
0,5 m	IE-C6FP8LB0005M40M40-B	1	1165900005
1 m	IE-C6FP8LB0010M40M40-B	1	1165900010
1,5 m	IE-C6FP8LB0015M40M40-B	1	1165900015
2 m	IE-C6FP8LB0020M40M40-B	1	1165900020
3 m	IE-C6FP8LB0030M40M40-B	1	1165900030
5 m	IE-C6FP8LB0050M40M40-B	1	1165900050
7,5 m	IE-C6FP8LB0075M40M40-B	1	1165900075
10 m	IE-C6FP8LB0100M40M40-B	1	1165900100
15 m	IE-C6FP8LB0150M40M40-B	1	1165900150
20 m	IE-C6FP8LB0200M40M40-B	1	1165900200
25 m	IE-C6FP8LB0250M40M40-B	1	1165900250
<b>Note</b>			

	Type	Qty.	Order No.
0,5 m	IE-C6FP8LB0005M40M40-B	1	1165900005
1 m	IE-C6FP8LB0010M40M40-B	1	1165900010
1,5 m	IE-C6FP8LB0015M40M40-B	1	1165900015
2 m	IE-C6FP8LB0020M40M40-B	1	1165900020
3 m	IE-C6FP8LB0030M40M40-B	1	1165900030
5 m	IE-C6FP8LB0050M40M40-B	1	1165900050
7,5 m	IE-C6FP8LB0075M40M40-B	1	1165900075
10 m	IE-C6FP8LB0100M40M40-B	1	1165900100
15 m	IE-C6FP8LB0150M40M40-B	1	1165900150
20 m	IE-C6FP8LB0200M40M40-B	1	1165900200
25 m	IE-C6FP8LB0250M40M40-B	1	1165900250
<b>Note</b>			

**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 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

**Assembled cables**  
**Cat. 6 patch cable, straight,**  
**Cabinet Line**

**LSZH black**



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 green**



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 IP 20
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 cross-section	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	to IEC 60754-2
Resistance to spread of flame	to IEC 60332-1/ UL 1581 FT2

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 IP 20
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 cross-section	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	to IEC 60754-2
Resistance to spread of flame	to IEC 60332-1/ UL 1581 FT2

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 IP 20
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 cross-section	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	to IEC 60754-2
Resistance to spread of flame	to IEC 60332-1/ UL 1581 FT2

**Note**

**Ordering data**

Length	Type	Qty.	Order No.
0,5 m	IE-C6FP8LE0005M40M40-E	1	1251610005
1 m	IE-C6FP8LE0010M40M40-E	1	1251610010
1,5 m	IE-C6FP8LE0015M40M40-E	1	1251610015
2 m	IE-C6FP8LE0020M40M40-E	1	1251610020
3 m	IE-C6FP8LE0030M40M40-E	1	1251610030
5 m	IE-C6FP8LE0050M40M40-E	1	1251610050
10 m	IE-C6FP8LE0100M40M40-E	1	1251610100
15 m	IE-C6FP8LE0150M40M40-E	1	1251610150
20 m	IE-C6FP8LE0200M40M40-E	1	1251610200
25 m	IE-C6FP8LE0250M40M40-E	1	1251610250

Type	Qty.	Order No.
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

Type	Qty.	Order No.
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

**Note**

**Accessories**

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

**Markers**

Type	Qty.	Order No.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

Type	Qty.	Order No.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

LSZH red



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 magenta



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 yellow



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	

Patch cable
Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
S/FTP
RJ45 IP20 / RJ45 IP 20
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
-20 °C...+60 °C
to IEC 60754-2
to IEC 60332-1/ UL 1581 FT2

Patch cable
Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
S/FTP
RJ45 IP20 / RJ45 IP 20
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
-20 °C...+60 °C
to IEC 60754-2
to IEC 60332-1/ UL 1581 FT2

Patch cable
Cat.6 <sub>A</sub> / Class E <sub>A</sub> (ISO/IEC 11801 2010)
S/FTP
RJ45 IP20 / RJ45 IP 20
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
-20 °C...+60 °C
to IEC 60754-2
to IEC 60332-1/ UL 1581 FT2

Type	Qty.	Order No.
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

Type	Qty.	Order No.
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

Type	Qty.	Order No.
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

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

**Assembled cables**  
**Cat. 6 Cabinet Line patch cable**  
**angled**

**LSZH grey 270°**



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	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 IP 20
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 cross-section	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	to IEC 60754-2
Resistance to spread of flame	to IEC 60332-1/ UL 1581 FT2

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 IP 20
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 cross-section	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	to IEC 60754-2
Resistance to spread of flame	to IEC 60332-1/ UL 1581 FT2

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 IP 20
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 cross-section	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	to IEC 60754-2
Resistance to spread of flame	to IEC 60332-1/ UL 1581 FT2

**Note**

**Ordering data**

0,5 m	IE-C6FP8LD0005M40W40-D	1	1233160005
1 m	IE-C6FP8LD0010M40W40-D	1	1233160010
1,2 m	IE-C6FP8LD0012M40W40-D	1	1233160012
1,5 m	IE-C6FP8LD0015M40W40-D	1	1233160015
2 m	IE-C6FP8LD0020M40W40-D	1	1233160020
3 m	IE-C6FP8LD0030M40W40-D	1	1233160030
5 m	IE-C6FP8LD0050M40W40-D	1	1233160050
10 m	IE-C6FP8LD0100M40W40-D	1	1233160100

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

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

**Note**

**Accessories**

<b>Sheathing stripper</b>	
	For UTP and STP data cables
	For coaxial and round data cables

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

**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.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

**Assembled cables**  
**Cat. 5 patch cable, straight,**  
**Cabinet Line**

**PVC green**

**PUR green**



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	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 (ISO/IEC 11801)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 crimp / RJ45 IP20 crimp
Cross-section	4*2*AWG 26/7 - 4*2*0.128 mm <sup>2</sup>
Sheath diameter, max.	6.4 mm
Material sheath	PVC
Sheathing colour	green (RAL 6018)
Insulation cross-section	0.98 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+75 °C
Abrasion resistance	good
Halogen	
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	
<b>Note</b>	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 crimp / RJ45 IP20 crimp
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 cross-section	0.98 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+75 °C
Abrasion resistance	very good
Halogen	No
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	EN 50305
<b>Note</b>	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801)
Shielding	S/FTP
Version connector left / Version connector right	RJ45 IP20 crimp / RJ45 IP20 crimp
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 cross-section	0.98 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+75 °C
Abrasion resistance	very good
Halogen	No
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	EN 50305
<b>Note</b>	

**Ordering data**

	Type	Qty.	Order No.
0,5 m	IE-C5ES8VG0005M40M40-G	1	1166020005
1 m	IE-C5ES8VG0010M40M40-G	1	1166020010
1,5 m	IE-C5ES8VG0015M40M40-G	1	1166020015
2 m	IE-C5ES8VG0020M40M40-G	1	1166020020
3 m	IE-C5ES8VG0030M40M40-G	1	1166020030
5 m	IE-C5ES8VG0050M40M40-G	1	1166020050
10 m	IE-C5ES8VG0100M40M40-G	1	1166020100
15 m	IE-C5ES8VG0150M40M40-G	1	1166020150
20 m	IE-C5ES8VG0200M40M40-G	1	1166020200
<b>Note</b>			

	Type	Qty.	Order No.
0,5 m	IE-C5ES8UG0005M40M40-G	1	1166000005
1 m	IE-C5ES8UG0010M40M40-G	1	1166000010
1,5 m	IE-C5ES8UG0015M40M40-G	1	1166000015
2 m	IE-C5ES8UG0020M40M40-G	1	1166000020
3 m	IE-C5ES8UG0030M40M40-G	1	1166000030
5 m	IE-C5ES8UG0050M40M40-G	1	1166000050
10 m	IE-C5ES8UG0100M40M40-G	1	1166000100
15 m	IE-C5ES8UG0150M40M40-G	1	1166000150
20 m	IE-C5ES8UG0200M40M40-G	1	1166000200
<b>Note</b>			

	Type	Qty.	Order No.
0,5 m	IE-C5ES8UG0005M40M40-G	1	1166000005
1 m	IE-C5ES8UG0010M40M40-G	1	1166000010
1,5 m	IE-C5ES8UG0015M40M40-G	1	1166000015
2 m	IE-C5ES8UG0020M40M40-G	1	1166000020
3 m	IE-C5ES8UG0030M40M40-G	1	1166000030
5 m	IE-C5ES8UG0050M40M40-G	1	1166000050
10 m	IE-C5ES8UG0100M40M40-G	1	1166000100
15 m	IE-C5ES8UG0150M40M40-G	1	1166000150
20 m	IE-C5ES8UG0200M40M40-G	1	1166000200
<b>Note</b>			

**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 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

**Assembled cables**  
**Cat. 5 patch cable, PROFINET**  
**dragline cable (type C)**

**V14 RJ45 IP67**



**RJ45 IP20**



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 568-B)
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 cross-section	1.5 mm
Min. bending radius, repetitive / Min. bending radius, once only	7.5 *diameter / 5 x conductor cross-section
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	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP 20
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PUR
Insulation cross-section	1.5 mm
Min. bending radius, repetitive / Min. bending radius, once only	7.5 *diameter / 5 x conductor cross-section
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	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP20 / RJ45 IP 20
Cross-section	4*AWG 22/7 - 0.36 mm <sup>2</sup>
Sheath diameter, max.	6.7 mm
Material sheath	PUR
Insulation cross-section	1.5 mm
Min. bending radius, repetitive / Min. bending radius, once only	7.5 *diameter / 5 x conductor cross-section
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	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1

**Note**

**Ordering data**

0,5 m	
1 m	
2 m	
3 m	
5 m	
10 m	
15 m	
20 m	

Type	Qty.	Order No.
IE-C5DD4UG0010A2EA2E-X	1	1119730010
IE-C5DD4UG0020A2EA2E-X	1	1119730020
IE-C5DD4UG0030A2EA2E-X	1	1119730030
IE-C5DD4UG0050A2EA2E-X	1	1119730050
IE-C5DD4UG0100A2EA2E-X	1	1119730100
IE-C5DD4UG0150A2EA2E-X	1	1119730150
IE-C5DD4UG0200A2EA2E-X	1	1119730200

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**

**Accessories**

Sheathing stripper	
	For UTP and STP data cables
	For coaxial and round data cables

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

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.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

**Assembled cables  
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	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Version connector left / Version connector right	M12 IP67 straight male / M12 IP67 straight male
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 cross-section	1.5 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	5 x conductor cross-section
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	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Version connector left / Version connector right	M12 IP67 straight male / M12 IP67 straight socket
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 cross-section	1.5 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	5 x conductor cross-section
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	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1

Product type	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Version connector left / Version connector right	M12 IP67 straight male / M12 IP67 straight socket
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 cross-section	1.5 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	5 x conductor cross-section
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	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1

**Note**

**Ordering data**

Type	Qty.	Order No.
0,5 m	1	1025950005
1,5 m	1	1025950015
3 m	1	1025950030
5 m	1	1025950050
10 m	1	1025950100

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

**Note**

**Accessories**

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

**Markers**

Insertion label, yellow, 12 mm	TM-I 12 NEUTRAL GE	320	1718411687
Insertion label, yellow, 18 mm	TM-I 18 NEUTRAL GE	320	1718431687
Transparent sleeves, 12-mm length	TM 4/12 HF/HB	500	1719840000
Transparent sleeves, 18-mm length	TM 4/18 HF/HB	500	1719850000
Wire and cable marker, ø 4,7 - 7,4 mm	VT SF 5/21 NEUTRAL WS V0	160	1689470001
Wire and cable marker, ø 5,8 - 7,8 mm	VT SF 6/21 NEUTRAL WS V0	160	1730560001

Insertion label, yellow, 12 mm	TM-I 12 NEUTRAL GE	320	1718411687
Insertion label, yellow, 18 mm	TM-I 18 NEUTRAL GE	320	1718431687
Transparent sleeves, 12-mm length	TM 4/12 HF/HB	500	1719840000
Transparent sleeves, 18-mm length	TM 4/18 HF/HB	500	1719850000
Wire and cable marker, ø 4,7 - 7,4 mm	VT SF 5/21 NEUTRAL WS V0	160	1689470001
Wire and cable marker, ø 5,8 - 7,8 mm	VT SF 6/21 NEUTRAL WS V0	160	1730560001

Insertion label, yellow, 12 mm	TM-I 12 NEUTRAL GE	320	1718411687
Insertion label, yellow, 18 mm	TM-I 18 NEUTRAL GE	320	1718431687
Transparent sleeves, 12-mm length	TM 4/12 HF/HB	500	1719840000
Transparent sleeves, 18-mm length	TM 4/18 HF/HB	500	1719850000
Wire and cable marker, ø 4,7 - 7,4 mm	VT SF 5/21 NEUTRAL WS V0	160	1689470001
Wire and cable marker, ø 5,8 - 7,8 mm	VT SF 6/21 NEUTRAL WS V0	160	1730560001

## Copper cabling solutions

Assembled cables  
dragline cable M12

- Cat.5
- PUR
- D-coded
- PROFINET type C

## M12 - open

plug / -



## M12 - RJ45

plug / plug



	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	Dragline cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Version connector left / Version connector right	M12 IP67 straight male / 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 cross-section	1.5 mm
Min. bending radius, repetitive	7.5 *diameter
Min. bending radius, once only	5 x conductor cross-section
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	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1

## Note

## Ordering data

1 m
1,5 m
3 m
5 m
10 m

Type	Qty.	Order No.
IE-C5DD4UG0015MCSXXX-X	1	1025940015
IE-C5DD4UG0030MCSXXX-X	1	1025940030
IE-C5DD4UG0050MCSXXX-X	1	1025940050
IE-C5DD4UG0100MCSXXX-X	1	1025940100

## Note

## 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 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
IE-C5DD4UG0010MCSA20-E	1	1044470010
IE-C5DD4UG0015MCSA20-E	1	1044470015
IE-C5DD4UG0030MCSA20-E	1	1044470030
IE-C5DD4UG0050MCSA20-E	1	1044470050
IE-C5DD4UG0100MCSA20-E	1	1044470100

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

**Assembled cables**  
**EtherNet/IP patch cable**

- In PUR

**V1 RJ45 IP67 - metal**



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	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 568-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 cross-section	1 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-10 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	very good
Halogen	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
<b>Note</b>	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP67 Baymo V01 plastic / RJ45 IP67 Baymo V01 plastic
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 cross-section	1 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-10 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	very good
Halogen	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
<b>Note</b>	

Product type	System cable
Category	Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
Shielding	SF/UTP
Version connector left / Version connector right	RJ45 IP67 Baymo V01 plastic / RJ45 IP67 Baymo V01 plastic
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 cross-section	1 mm
Min. bending radius, repetitive	10 x conductor cross-section
Min. bending radius, once only	5 x conductor cross-section
Ambient temperature (operational)	-40 °C...+80 °C
Installation temperature	-10 °C...+60 °C
Storage temperature	-40 °C...+80 °C
Abrasion resistance	very good
Halogen	to IEC 60754-2
Resistance to spread of flame	acc. to IEC 60332-1
Resistance to oils	acc. to IEC 60811-2-1
<b>Note</b>	

**Ordering data**

Type	Qty.	Order No.
1 m	1	1066850000
2 m	1	1066860000
5 m	1	1066870000
10 m	1	1066880000
<b>Note</b>		

Type	Qty.	Order No.
IE-C5ES8UG0010B41B41-E	1	1066850000
IE-C5ES8UG0020B41B41-E	1	1066860000
IE-C5ES8UG0050B41B41-E	1	1066870000
IE-C5ES8UG0100B41B41-E	1	1066880000
<b>Note</b>		

Type	Qty.	Order No.
IE-C5ES8UG0010P41P41-E	1	1106010000
IE-C5ES8UG0020P41P41-E	1	1106020000
IE-C5ES8UG0050P41P41-E	1	1106030000
IE-C5ES8UG0100P41P41-E	1	1106040000
<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
	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

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

<b>Type</b>	<b>Qty.</b>	<b>Order No.</b>
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

## Copper cabling solutions

## Assembled cables

## M12 Railway cabling

- Cat.5
- Radox
- D-coded

## 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 cross-section
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 568-B)
SF/UTP
M12 IP67 straight male / M12 IP67 straight male
2*2*AWG 22/7 - 2*2*0.36 mm <sup>2</sup>
7.55 mm
Radox GKW S
black
1.95 mm
6 x conductor cross-section
-40 °C...+90 °C
-25 °C...+90 °C
-40 °C...+90 °C
very good
to IEC 60754-2
acc. EN 50306-3
According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2

System cable
Cat.5 (ISO/IEC 11801) / Cat.5e (TIA 568-B)
SF/UTP
M12 IP67 straight male / M12 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 x conductor cross-section
-40 °C...+90 °C
-25 °C...+90 °C
-40 °C...+90 °C
very good
to IEC 60754-2
acc. EN 50306-3
According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2

## Note

## Ordering data

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

## Note

## Accessories

## Sheathing stripper

For UTP and STP data cables
For coaxial and round data cables

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

## 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

TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

**Assembled cables****M12 Railway cabling**

- 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 cross-section
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 568-B)
SF/UTP
M12 IP67 straight male / 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 x conductor cross-section
-40 °C...+90 °C
-25 °C...+90 °C
-40 °C...+90 °C
very good
to IEC 60754-2
acc. EN 50306-3
According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2

**Note****Ordering data**

1,5 m
3 m
5 m
10 m

Type	Qty.	Order No.
IE-C5DB4RE0015MCSXXX-X	1	1010840015
IE-C5DB4RE0030MCSXXX-X	1	1010840030
IE-C5DB4RE0050MCSXXX-X	1	1010840050
IE-C5DB4RE0100MCSXXX-X	1	1010840100

**Note****Accessories****Sheathing stripper**

For UTP and STP data cables
For coaxial and round data cables

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000

**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

TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

## Copper cabling solutions

## Assembled cables

## Railway cabling RW M12

- Cat.5
- Radox
- D-coded
- RW (reduced wire): suitable for RJ45 connectors

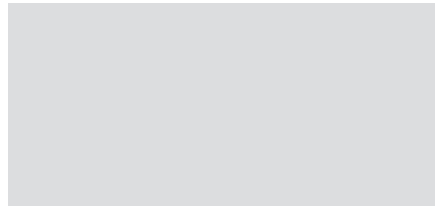
## M12 open

plug / -



## M12 - RJ45

plug / plug



	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
Category
Shielding
Version connector left / Version connector right
Cross-section
Sheath diameter, max.
Material sheath
Sheathing colour
Insulation cross-section
Min. bending radius, repetitive
Ambient temperature (operational)
Storage temperature
Abrasion resistance
Halogen
Resistance to oils
Fire safety for railway vehicles

System cable
Cat.5 (ISO/IEC 11801)
SF/UTP
M12 IP67 straight male / Open
2*2*AWG 22/7 - 2*2*0.36 mm <sup>2</sup>
7 mm
Radox GKW S
black
1.58 mm
6 x conductor cross-section
-40 °C...+90 °C
-40 °C...+90 °C
very good
to IEC 60754-2
acc. EN 50306-3
According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2

System cable
Cat.5 (ISO/IEC 11801)
SF/UTP
M12 IP67 straight male / 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 x conductor cross-section
-40 °C...+90 °C
-40 °C...+90 °C
very good
to IEC 60754-2
acc. EN 50306-3
According to DIN 5510-2 fire safety levels 1,2,3,4, According to BS 6853, According to EN50288-2-2

## Note

## Ordering data

4 m
5 m
10 m

Type	Qty.	Order No.
IE-C5DB4WE0050MCSXXX-E	1	1269740050
IE-C5DB4WE0100MCSXXX-E	1	1269740100

Type	Qty.	Order No.
IE-C5DB4WE0040MCSA20-E	1	1220310040

## Note

## 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 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
AM 12	1	9030060000
IE-CST	1	9204350000
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001



# Overview – Fibre-optic cables (FO)

Fibre-optic cables are your best choice for working in harsh industrial environments - 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

## D

### Raw cables

#### Industrial FO connecting cables



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 system cables



...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)

Type	Breakout/ Zipcord	Plug-in connector		Length							
		left	right	Metre goods	1 m	3 m	5 m	10 m	50 m	100 m	
<b>Industrial FO connecting cables</b>											
IE-FM5B2UE-MW	Breakout	-	-	894600000							
IE-FM6B2UE-MW	Breakout	-	-	895606000							
IE-FPOZ2EE-MW	Zipcord	-	-	124282000							
IE-FPOD2UE-MW	Breakout	-	-	117228000							
IE-FM5D2UExxxxMSD0SD0X	Breakout	SC Duplex	SC Duplex		8876430010	8876430030	8876430050	8876430100			
IE-FM6D2UExxxxMSD0SD0X	Breakout	SC Duplex	SC Duplex		8876440010	8876440030	8876440050	8876440100			
IE-FM5D2UExxxxMST0ST0X	Breakout	ST	ST		8876450010	8876450030	8876450050	8876450100	8876450500	8876451000	
IE-FM6D2UExxxxMST0ST0X	Breakout	ST	ST		8876460010	8876460030	8876460050	8876460100			
IE-FM5B2UExxxxMLD0LD0X	Breakout	LC Duplex	LC Duplex						8979020000	8979040000	8979030000
IE-FM6B2UExxxxMLD0LD0X	Breakout	LC Duplex	LC Duplex				1220930000	1276680000	8993220000		
<b>Industrial FO patch cables</b>				1 m	2 m	3 m	5 m	10 m			
IE-FM5Z2VOxxxxMSD0SD0X	Zipcord	SC Duplex	SC Duplex	8813300000	8813310000	8813320000	8876350050	8876350100			
IE-FM6Z2VOxxxxMSD0SD0X	Zipcord	SC Duplex	SC Duplex	8813330000	8813340000	8813350000	8876360050	8876360100			
IE-FM5Z2VOxxxxMST0ST0X	Zipcord	ST	ST	8813240000	8813250000	8813260000	8876370050	8876370100			
IE-FM6Z2VOxxxxMST0ST0X	Zipcord	ST	ST	8813270000	8813280000	8813290000	8876380050	8876380100			
IE-FPOZ2EExxxxMSJ0SJ0-X	Zipcord	SCRJ	SCRJ	1273430010		1273430030	1273430050	1273430100			
<b>Industrial FO adapter cables</b>				2 m							
IE-FM5Z2VOxxxxMST0SD0X	Zipcord	SC Duplex	ST	8813390000							
IE-FM6Z2VOxxxxMST0SD0X	Zipcord	SC Duplex	ST	8813400000							



# Product configurator – Fibre-optic cables

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.

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.

A variety of plug types in the following protective classes are available:

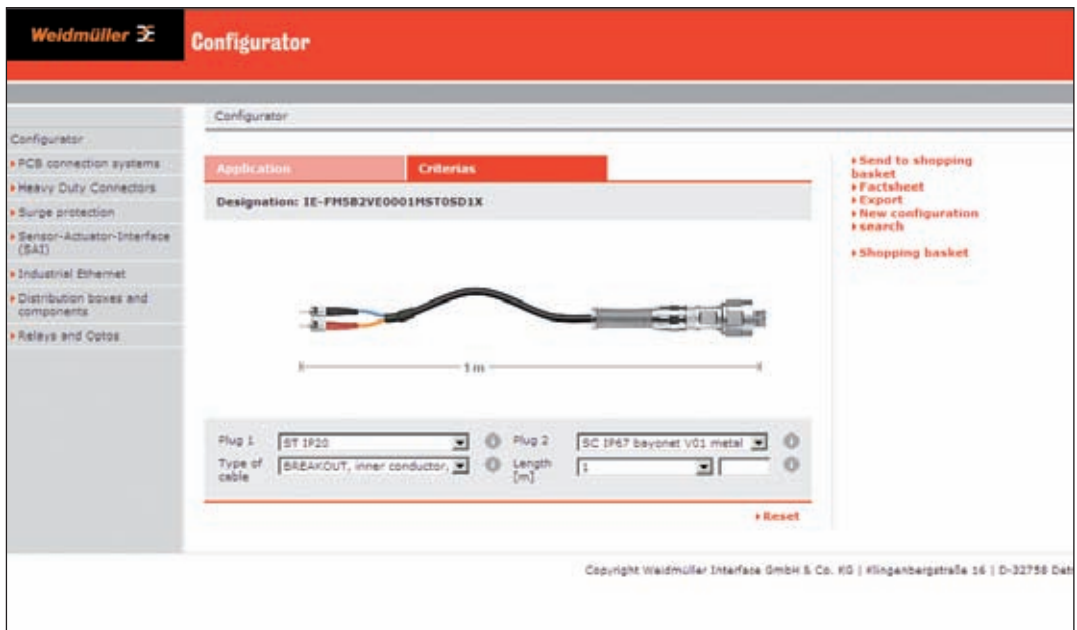
**D**

**IP 20**

- SCRJ
- ST
- LC Duplex
- SC duplex

**IP 67**

- Variant 1, metal with SC- or LC-Duplex plugs
- Variant 4, plastic with SC- or LC-Duplex plugs
- Additional housing variants to follow shortly.



When selecting the cable, the following types are available:

- Zipcord, interior wire 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, interior wire G50 µm/125 µm and G62.5 µm/125 µm with PUR sheath. The cable length can also be customised:

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

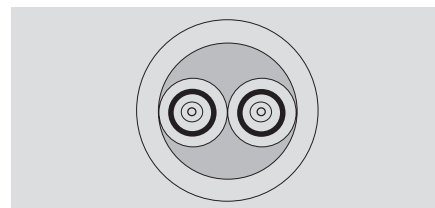
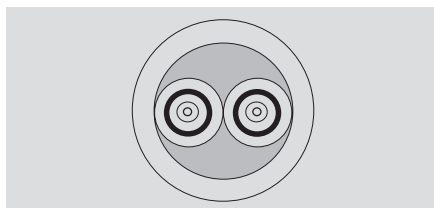
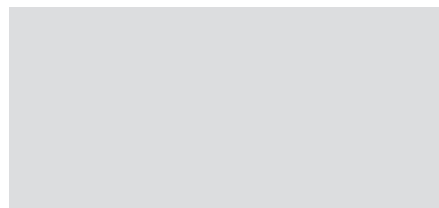
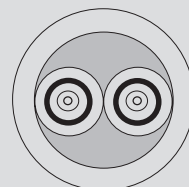
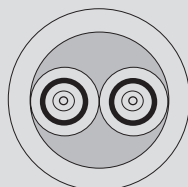
The cable configurator can also automatically create technical data sheets for all of your customised cable variants. All of your customised cable selections can be sent to Weidmüller using the „request list“. You will then quickly receive a price proposal for the cables from your local Weidmüller representative.

**Metre goods**

- Multimode fibre-optic
- Customisable

**Connecting cables**

**Dragline cable**



**Technical data**

Product type
Cable layout
Sheath diameter
Material sheath
Sheathing colour
Ambient temperature (operational)
Installation temperature
Storage temperature
<b>Note</b>

System cable
BREAKOUT
6 mm
PUR
black
-40 °C...+85 °C
-10 °C...+85 °C
-55 °C...+85 °C
<b>Note</b>

Dragline cable
BREAKOUT dragline cable G50/125
6 mm
PUR
black
-55 °C...+80 °C
-55 °C...+85 °C
-70 °C...+80 °C
<b>Note</b>

**Ordering data**

<b>Core 62,5 µm</b>
Bulk stock starting at 50 m
<b>Core 50 µm</b>
Bulk stock starting at 50 m
<b>Note</b>

Type	Qty.	Order No.
IE-FM6D2UE-MW	1	8956060000
IE-FM5D2UE-MW	1	8946000000

Order example, for bulk: 150 x „article number“ = 150 m on drum

Type	Qty.	Order No.
IE-FM6D2UE-MW	1	8956050000
IE-FM5D2UE-MW	1	8956070000

Order example, for bulk: 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
<b>Tools</b>
Crimping pliers GOF LC
Crimping pliers GOF SC
Fibre-optic tool case

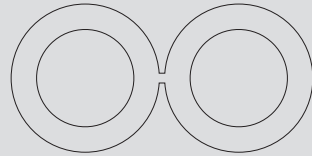
Type	Qty.	Order No.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001
IE-CT-LC-GOF	1	9205330000
IE-CT-SC-GOF	1	9205320000
IE-CTC-SCST-GOF	1	1032030000

Type	Qty.	Order No.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001
IE-CT-LC-GOF	1	9205330000
IE-CT-SC-GOF	1	9205320000
IE-CTC-SCST-GOF	1	1032030000

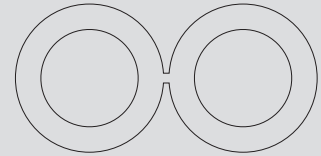
**Metre goods**

- Polymer optical fibre
- Customisable

**Zipcord**



**Breakout**



**Technical data**

Product type  
 Cable layout  
 Sheath diameter  
 Material sheath  
 Insulation  
 Sheathing colour  
 Ambient temperature (operational)  
 Installation temperature  
 Storage temperature  
 Halogen

**Note**

Connecting cables

2.2\*4,5 mm

PE

-55 °C...+85 °C

-5 °C...+85 °C

-55 °C...+85 °C

No

Dragline cable

7,5 mm

PUR

-40 °C...+85 °C

-30 °C...+60 °C

-40 °C...+85 °C

No

**Ordering data**

POF 980/1000 µm

Bulk stock starting at 50 m

**Note**

Type	Qty.	Order No.
IE-FPOZ2EE-MW	1	1242820000

Order example, for bulk: 150 x „article number“ = 150 m on drum

Type	Qty.	Order No.
IE-FPOD2UE-MW	1	1172280000

Order example, for bulk: 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 pliers POF  
 POF tool set

Type	Qty.	Order No.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

HTX-IE-POF	1	1208870000
TOOL SET IE-POF	1	1208930000

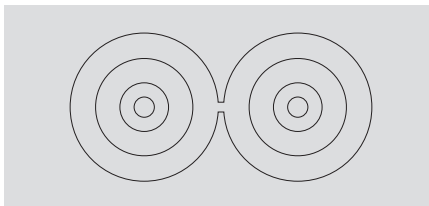
Type	Qty.	Order No.
TM-I 12 NEUTRAL GE	320	1718411687
TM-I 18 NEUTRAL GE	320	1718431687
TM 4/12 HF/HB	500	1719840000
TM 4/18 HF/HB	500	1719850000
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

HTX-IE-POF	1	1208870000
TOOL SET IE-POF	1	1208930000

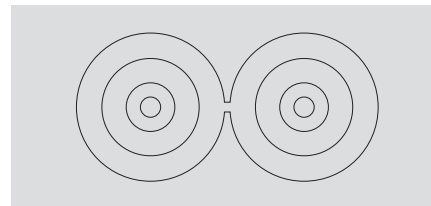
**Assembled cables**  
**Fibre-optic patch cable**

- Multimode fibre-optic

**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
<b>Note</b>

Patch cable
Zipcord
3*6 mm
PVC
orange
-5 °C...+75 °C
-5 °C...+50 °C
-25 °C...+75 °C
<b>Note</b>

Patch cable
Zipcord
3*6 mm
PVC
orange
-5 °C...+75 °C
-5 °C...+50 °C
-25 °C...+75 °C
<b>Note</b>

**Ordering data**

<b>Core 62,5 µm</b>	
1 m	
2 m	
3 m	
5 m	
10 m	
<b>Core 50 µm</b>	
1 m	
2 m	
3 m	
5 m	
10 m	
<b>Note</b>	

Type	Qty.	Order No.
IE-FM6Z2VO0001MSD0SD0X	1	8813330000
IE-FM6Z2VO0002MSD0SD0X	1	8813340000
IE-FM6Z2VO0003MSD0SD0X	1	8813350000
IE-FM6Z2VO0005MSD0SD0X	1	8876360050
IE-FM6Z2VO0010MSD0SD0X	1	8876360100
<b>Core 50 µm</b>		
IE-FM5Z2VO0001MSD0SD0X	1	8813300000
IE-FM5Z2VO0002MSD0SD0X	1	8813310000
IE-FM5Z2VO0003MSD0SD0X	1	8813320000
IE-FM5Z2VO0005MSD0SD0X	1	8876350050
IE-FM5Z2VO0010MSD0SD0X	1	8876350100
<b>Note</b>		

Type	Qty.	Order No.
IE-FM6Z2VO0001MST0ST0X	1	8813270000
IE-FM6Z2VO0002MST0ST0X	1	8813280000
IE-FM6Z2VO0003MST0ST0X	1	8813290000
IE-FM6Z2VO0005MST0ST0X	1	8876380050
IE-FM6Z2VO0010MST0ST0X	1	8876380100
<b>Core 50 µm</b>		
IE-FM5Z2VO0001MST0ST0X	1	8813240000
IE-FM5Z2VO0002MST0ST0X	1	8813250000
IE-FM5Z2VO0003MST0ST0X	1	8813260000
IE-FM5Z2VO0005MST0ST0X	1	8876370050
IE-FM5Z2VO0010MST0ST0X	1	8876370100
<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 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

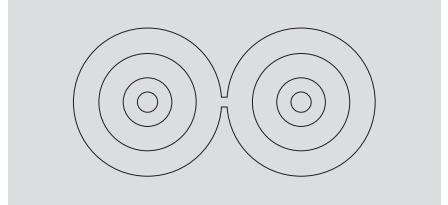
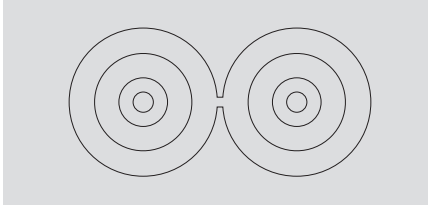
Type	Qty.	Order No.
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

**Assembled cables**  
**Fibre-optic patch cable**

- Multimode fibre-optic

**ST / SC-Duplex**

**LC-Duplex / LC-Duplex**



**D**

**Technical data**

Product type
Cable layout
Sheath diameter
Material sheath
Sheathing colour
Ambient temperature (operational)
Installation temperature
Storage temperature
<b>Note</b>

Patch cable
Zipcord
3*6 mm
PVC
orange
-5 °C...+75 °C
-5 °C...+50 °C
-25 °C...+75 °C
<b>Note</b>

Patch cable
Zipcord
3*6 mm
PVC
orange
-5 °C...+75 °C
-5 °C...+50 °C
-25 °C...+75 °C
<b>Note</b>

**Ordering data**

<b>Core 62,5 µm</b>	
	2 m
	100 m
<b>Core 50 µm</b>	
	1 m
	2 m
	5 m
	10 m
<b>Note</b>	

Type	Qty.	Order No.
IE-FM6Z2VO0002MST0SD0X	1	<b>8813400000</b>
IE-FM5Z2VO0002MST0SD0X	1	<b>8813390000</b>
<b>Note</b>		

Type	Qty.	Order No.
IE-FM6Z2VO0002MLD0LD0X	1	<b>1062450000</b>
IE-FM6Z2VO0100MLD0LD0X	1	<b>8992990000</b>
IE-FM5Z2VO0001MLD0LD0X	1	<b>1276880000</b>
IE-FM5Z2VO0002MLD0LD0X	1	<b>1062570000</b>
IE-FM5Z2VO0005MLD0LD0X	1	<b>1062550000</b>
IE-FM5Z2VO0010MLD0LD0X	1	<b>1062580000</b>
<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

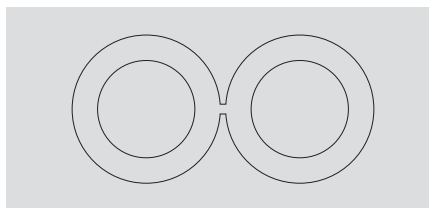
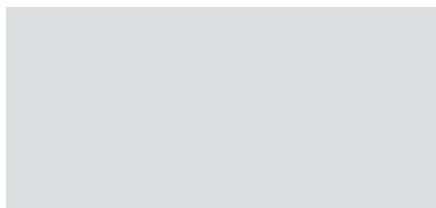
Type	Qty.	Order No.
VT SF 5/21 NEUTRAL WS V0	160	<b>1689470001</b>
VT SF 6/21 NEUTRAL WS V0	160	<b>1730560001</b>

Type	Qty.	Order No.
VT SF 5/21 NEUTRAL WS V0	160	<b>1689470001</b>
VT SF 6/21 NEUTRAL WS V0	160	<b>1730560001</b>

**Assembled cables**  
**Fibre-optic patch cable PROFINET**

- Polymer optical fibre

**SC-RJ / SC-RJ**



**Technical data**

Product type
Version connector left / Version connector right
Cable layout
Sheath diameter
Insulation
Sheathing colour
Ambient temperature (operational)
Attenuation
Bandwidth
Halogen
<b>Note</b>

Connecting cables
SCRJ IP 20 / SCRJ IP20
Zipcord
2.2*4.5 mm
PE
black
-20 °C...+80 °C
≤ 160 dB/km at 650 nm
≥ 10 MHz bei 650 nm
No
<b>Note</b>

**Ordering data**

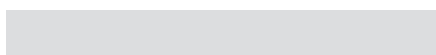
POF 980/1000 µm	
1 m	
3 m	
5 m	
10 m	
<b>Note</b>	

Type	Qty.	Order No.
IE-FPOZ2EE0001MSJOSJ0-X	1	1273430010
IE-FPOZ2EE0003MSJOSJ0-X	1	1273430030
IE-FPOZ2EE0005MSJOSJ0-X	1	1273430050
IE-FPOZ2EE0010MSJOSJ0-X	1	1273430100
<b>Note</b>		

**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 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001
<b>Note</b>		

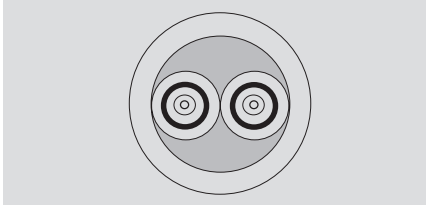


Fibre-optic cabling solutions

Assembled cables  
Fibre-optic system cable

- Multimode fibre-optic

LC-Duplex / LC-Duplex



D

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	
<b>Note</b>	

System cable	
LC-Duplex IP20 / LC-Duplex IP 20	
BREAKOUT	
6 mm	
PUR	
black	
-40 °C...+85 °C	
-10 °C...+85 °C	
-55 °C...+85 °C	

Ordering data

<b>Core 62,5 µm</b>	
	5 m
	10 m
<b>Core 50 µm</b>	
	10 m
	100 m
<b>Note</b>	

Type	Qty.	Order No.
IE-FM6D2UE0005MLD0LD0X	1	1220930000
IE-FM6D2UE0010MLD0LD0X	1	1276680000
IE-FM5D2UE0010MLD0LD0X	1	8979020000
IE-FM5D2UE0100MLD0LD0X	1	8979030000

Accessories

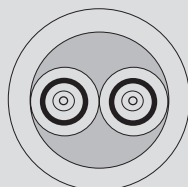
<b>Markers</b>	
Wire and cable marker, ø 4,7 - 7,4 mm	
Wire and cable marker, ø 5,8 - 7,8 mm	

Type	Qty.	Order No.
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

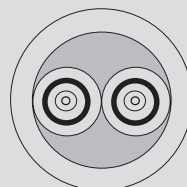
**Assembled cables**  
**Fibre-optic dragline cable**

- Multimode fibre-optic

**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
<b>Note</b>

Dragline cable
BREAKOUT dragline cable G62.5/125
6 mm
PUR
black
-55 °C...+80 °C
-55 °C...+85 °C
-70 °C...+80 °C

Dragline cable
BREAKOUT dragline cable G62.5/125
6 mm
PUR
black
-55 °C...+80 °C
-55 °C...+85 °C
-70 °C...+80 °C

**Ordering data**

Core 62,5 µm	
1 m	
3 m	
5 m	
10 m	
Core 50 µm	
1 m	
3 m	
5 m	
10 m	
<b>Note</b>	

Type	Qty.	Order No.
IE-FM6D2UE0001MSD0SD0X	1	8876440010
IE-FM6D2UE0003MSD0SD0X	1	8876440030
IE-FM6D2UE0005MSD0SD0X	1	8876440050
IE-FM6D2UE0010MSD0SD0X	1	8876440100
IE-FM5D2UE0001MSD0SD0X	1	8876430010
IE-FM5D2UE0003MSD0SD0X	1	8876430030
IE-FM5D2UE0005MSD0SD0X	1	8876430050
IE-FM5D2UE0010MSD0SD0X	1	8876430100

Type	Qty.	Order No.
IE-FM6D2UE0001MST0ST0X	1	8876460010
IE-FM6D2UE0003MST0ST0X	1	8876460030
IE-FM6D2UE0005MST0ST0X	1	8876460050
IE-FM6D2UE0010MST0ST0X	1	8876460100
IE-FM5D2UE0001MST0ST0X	1	8876450010
IE-FM5D2UE0003MST0ST0X	1	8876450030
IE-FM5D2UE0005MST0ST0X	1	8876450050
IE-FM5D2UE0010MST0ST0X	1	8876450100

**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 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001

Type	Qty.	Order No.
VT SF 5/21 NEUTRAL WS V0	160	1689470001
VT SF 6/21 NEUTRAL WS V0	160	1730560001



# Accessories

<b>Accessories</b>	Introduction	E.2
	Copper cabling tools	E.3
	Fibre-optic cabling tools	E.9
	General tools	E.15
	Cabtite cable entry system	E.17
	Protective caps / colour-coded rings	E.18
	Inkjet printer	E.19
	Markers for cables and <b>STEADYTEC</b> <sup>®</sup>	E.20
	Electronics	E.21

# Overview of accessories

Like with other products from Weidmüller, choosing a Weidmüller accessory means you can obtain everything from one source.

## Copper cabling tools



For assembling

- RJ45 crimp
- Hybrid insert

for stripping  
to test the wiring

## Fibre-optic cabling tools



For assembling

- SC-GOF
- ST-GOF

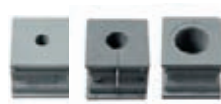
## General tools



... for pressing conductors into  
IDC terminals and pressing RJ45  
contacts

- Indentation tool
- Pressing tool

## Cabtite



System-based cable entry

- Cable entry strips
- Cable grommets

## Protective caps



to protect all IE-LINE connectors with  
**STEADYTEC®** technology

## Marker



... for identifying conductors, plugs  
and devices

- Line markers
- Housing and plug marker

Stripping tools

IE-CST

1- and 2- step stripping in one operation



AM12



Stripping tool for round (shielded) data cables of 2.5...8 mm ø

- Specially designed for Ethernet cables
- Strips sheathing and cuts shield in one operation
- Blue blade cartridge included in delivery

- Cutting of UTP and STP data cables and other flexible copper cables with a diameter of up to 4 mm<sup>2</sup> (~AWG11)
- Stripping of the outer insulations of UTP and STP data cables and other round cables with ø 0.5 ... 12.5 mm
- No damage to the shielding or conductor due to adjustable stripping blade
- Length gauge for repeated stripping lengths

Technical data

Max. cutting performance copper cable	
Cable model	
Conductor cross-section	AWG
Conductor diameter	mm
Adjustable depth of cut	mm
Cutting performance	
Non-shielded & shielded data cables	mm
Flexible copper cable	mm <sup>2</sup>
Tool data	
Length	mm
Weight	g

Information

Ordering data

Type	Qty.	Order No.
IE-CST	1	9204350000

Information

Accessories

Type	Qty.	Order No.
Spare cutter cassette	1	9032020000

Information

CST	
coaxial & round data cables	
2.5 ... 8	

Information

Type	Qty.	Order No.
IE-CST	1	9204350000

Type	Qty.	Order No.
Spare cutter cassette	1	9032020000

Information

AM12	
UTP and STP data cables	
AWG 20 ... AWG 11	
0.5 ... 12.5	
adjustable	
8	
4	
97	
36	

Information

Type	Qty.	Order No.
AM 12	1	9030060000

Type	Qty.	Order No.
AM 12	1	9030060000

Information

## Copper cabling tools

### 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>		

## Pressing tools

- Optional crimping tool for Ethernet connectors to facilitate the joining of the upper and lower parts of the plug.

### PWZ RJ45



## Technical data

Tool data		PWZ RJ45	
Weight	g		367

Note	

## Ordering data

Version	Type	Qty.	Order No.
	PWZ RJ45	1	1118040000

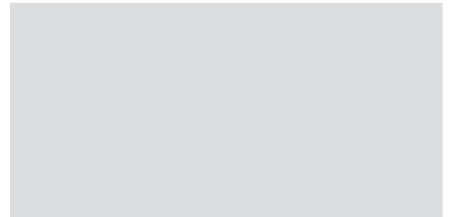
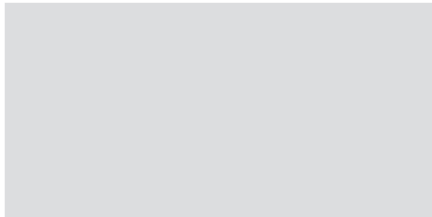
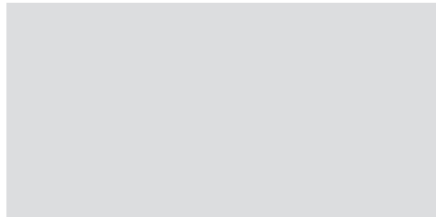
Note	

Copper cabling tools

Cable tester

LAN USB

IE-CT



Technical data

Functionality

Device for testing  
 Ethernet cables for:  
 line interruption  
 core interruption  
 short-circuits  
 examination of the twist

Device for testing  
 Ethernet cables for:  
 interference voltage  
 line interruption  
 core interruption  
 short-circuits  
 crossed wires  
 examination of the twist

Error display play  
 External voltage  
 Testable cable length  
 Supply tery  
 Connection for core  
 Weight basic device  
 Dimensions basic device  
 Remote box weight  
 Remote box dimensions  
 Weight testbox  
 Dimensions testbox

LED display  
 max. 1000 m  
 9V battery (Art. Nr.- 9004810000)  
 RJ 45; USB TypA; USB TypB  
 174 g  
 65 x 135 x 27 mm  
 30 g  
 65 x 28 x 27 mm

7-segment display  
 80 V AC / DC  
 max. 1000 m  
 9 V battery  
 RJ45  
 185 g  
 70 x 140 x 36 mm  
 31 g  
 30 x 68 x 23 mm

Ordering data

Type	Qty.	Order No.
LAN USB TESTER	1	9205400000

Type	Qty.	Order No.
IE-CT	1	8808420000

Note

Battery, accessories and bag included in delivery

9 V battery included

**Cutting tools**

- Cutting formation 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

**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	
Solid (max. conductor cross-section)	mm <sup>2</sup> /-
Stranded (max. conductor cross-section)	mm <sup>2</sup> /-
Flexible (max. conductor cross-section)	mm <sup>2</sup> /-
Flexible, stranded (max. conductor diameter)	mm
Max. cutting performance, aluminium cable	
Stranded (max. conductor cross-section)	mm <sup>2</sup> /-
Stranded (max. conductor diameter)	mm
solid	mm <sup>2</sup>
Data / telephone / control cable	
Max. outer diameter	mm
Tool data	
Length / Width / Height	mm
Weight	g
Note	

KT8	
16 / 6	
16 / 6	
16 / 6	
8	
16 / 6	
8	
16	
8	
165 / 65 / 25	
180	
Tool closed	

**Ordering data**

Version
Note

Type	Qty.	Order No.
KT 8	1	9002650000
Note		

## Copper cabling tools

**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 15

**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 15

**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
--------	-------



### Crimping tools

For stripping, crimping and cutting of POF fibres and cables Tools for working with POF fibres in compliance with IEC 60793-2 A4A fibre (1000 µm/980 µm POF).

### Tool-Set IE-POF



**• Contents:**

Assortment kit PSC 80, shears for Aramid fibres, Kevlar scissors, multi-tool HTX-IE-POF, stripping tool multi-stripax® IE-POF

- Multi tool for POF fibres
- For working with duplex POF fibres
- Stripping tools for working with POF fibres and POF cables
- The new blade set for POF cables makes it easy to strip off the outer sheathing on POF fibres
- Cable shears are specially for Aramid fibres
- Only for cutting Aramid fibres (for strain relief on fibre-optic cables)

### Technical data

<b>Tool data</b>
Width / Length / Height
Weight
<b>Note</b>

<b>Tool-Set IE-POF</b>
41 / 338 / 79 mm
1800 g

### Ordering data

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

Type	Qty.	Order No.
Tool-Set IE-POF	1	1208930000

### Accessories

<b>Note</b>

Type	Qty.	Order No.

## Fibre-optic cabling tools

### Crimping tools

- Ratchet mechanism 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 working with Duplex POF fibres
- For stripping Duplex POF fibres
- The plug is crimped and the POF fibres are separated in a single step.
- Cut surfaces do not need to be polished after the cut
- Locator for precise positioning of the SC-RJ plugs
- Ergonomic grip
- High repeat accuracy

The IP67 plug is ready in only three steps:

- 1) Strip the POF fibres
- 2) Crimp and separate
- 3) Crimp the strain relief

### Scissor Kevlar



- Cable shears are specially for Aramid fibres
- Only for cutting Aramid fibres (for strain relief on fibre-optic cables)
- Not suitable for other materials
- Special cutting shape
- Smoothed cut
- With serrated cutting edge
- Riveted joint
- Ergonomic, impact resistant plastic grip

### Technical data

Tool data
Length
Weight
Note

HTX-IE-POF
220 mm
450 g

Kevlar scissors
147 mm
100 g

### Ordering data

Version
Note

Type	Qty.	Order No.
HTX-IE-POF	1	1208870000

Type	Qty.	Order No.
Scissor Kevlar	1	1208910000

### Accessories

Type
Note

Type	Qty.	Order No.

Type	Qty.	Order No.

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.

### Multi-stripax POF



- Excellent stripping quality for industrial applications
- Specially shaped blades enable stripping of special types of insulation and conductor configurations
- Stripping results reproduced accurately time and time again
- No damage to the conductor
- A long-lasting, reliable tool thanks to its robust design
- Integral cutting function



#### Technical data

Cable model	
Length / Width / Height	
Weight	
Note	

Duplex stripping tool for quick processing of POF fibres and cables according to IEC 60793-2 A4A fibre (1000µm/980µm POF)		
250 / 85 / 40 mm		
250 g		
Note		

#### Ordering data

Version	
Note	

Type	Qty.	Order No.
multi-stripax® POF	1	1208880000
Note		

#### Accessories

Note	
------	--

Type	Qty.	Order No.
AIE multi-stripax® POF	1	1212770000
Note		

n



**Assembly case for fibre-optic connectors**

Our fibre-optic assembly case is an indispensable set for helping you to assemble fibre-optic cables on-site.

**Contents:**

- Crimping pliers for ST and SC plugs
- Kevlar shears
- Stripping tool for cable sheath and primary coating
- Stripping tool for secondary coating
- Fluorescent light with pluggable adapter
- Polishing and cleaning fluid
- Cleaning cloths
- Cleaning rod
- Polishing base support for pre-polishing and surface finishing
- Polishing foils
- Sapphire stylus
- Microscope, 100X magnification

**Ordering data**

Type	Qty.	Order No.
IE-CTC-SCST-GOF	1	1032030000

**Accessories**

Type	Qty.	Order No.
Accessory set for LC plugs IE-CTC-AS-LC-GOF	1	1033350000
Accessory set for SC-POF plugs IE-CTC-AS-SC-POF	1	1033360000

**Crimping tools for other contacts**

- Ratchet for precise crimping.
- Release option in the event of incorrect operation

**IE-CT-LC-GOF**

**Crimping tools for IP 67 plugs**



- For fibre-optic 0.9 mm LC and IP 67 connectors

**IE-CT-SC-GOF**

**Crimping tools for IP 67 plugs**



- For fibre-optic 0.9 mm, PROFINET, Mobil cable SC/ST and IP 67 connectors



**Technical data**

Tool data
Length
Weight
Note

IE-CT-LC-GOF
250
730
Note

IE-CT-SC-GOF
250
730
Note

**Ordering data**

Version
Note

Type	Qty.	Order No.
IE-CT-LC-GOF	1	9205330000
Note		

Type	Qty.	Order No.
IE-CT-SC-GOF	1	9205320000
Note		

**Accessories**

Type
Note

Type	Qty.	Order No.
Note		

Type	Qty.	Order No.
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	
Cable type	POF conductor with an inner conductor of 1 mm Ø
Conductor diameter	...1
Stripping length, max.	7.5
Length	135
Weight	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		

### Insertion 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



- 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>	

<b>PUNCH DOWN TOOL PDT</b>		
		160 / 37 / 29
		142
<b>Note</b>		

### Ordering data

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

Type	Qty.	Order No.
PUNCH DOWN TOOL PDT	1	9013970000
<b>Note</b>		
(without blade)		

### Accessories

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

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>Note</b>		

### IE-FISP-V4



Fastening tool for the hexagon cap nut from **STEADYTEC®** V4 flange and FrontCom® Micro.

## General tools

## Hydraulic hole punch

## IE-KO-HAT



- Pressure-relief valve protects against overload
- Cylinder head angled 90°
- Angled head, 360° turnable
- Ergonomic handle springs back by itself
- Waste pieces no longer become jammed thanks to the three-way splitting
- Hydraulic punch made from high-strength aluminium (approx. 40 % weight savings)

## Technical data

Maximum steel-sheet punching performance	
Round holes up to	Ø 85 mm
Round holes up to	Ø 64 mm
Square holes up to	68 x 68 mm
Rectangular holes up to	36 x 112 mm
Maximum stainless-steel-sheet punching performance	
Round holes up to	Ø 64 mm
Tool data	
Length / width / height	mm
Weight	kg
Punching force	kN
Max. operating pressure	bar
Including accessories (contents)	

IE-KO-HAT	
2.0 mm F = 370 N/mm <sup>2</sup>	
3.0 mm F = 370 N/mm <sup>2</sup>	
2.0 mm F = 370 N/mm <sup>2</sup>	
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	
1 hydraulic screw Ø 19 mm	
1 hydraulic screw Ø 19 x 9.5 mm	
1 HSS pre-drill Ø 10 mm	
1 spacer nut set (3-part)	
1 bridge	

## Information

## Ordering data

Version
Information

Type	Qty.	Order No.
IE-KO-HAT	1	1966810000
Information		

## Custom stamp for Industrial Ethernet connections



Type	Description	Dimensions	Qty.	Order No.
IE-KOK-V1	Custom shape for Bajonet 01 metal	Ø 27 mm x single-sided 25.9 mm	1	1966780000
IE-KOK-V4	Custom shape for Push Pull V04 plastic	Ø 23.2 mm x double-sided 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



#### Technical data

Material, grey	free from elastomers, halogens and silicone
Material, black	elastomers with very high chemical resistance
Temperature range	-20 °C ... 80 °C
UL 94 flammability rating	V0

#### Ordering data

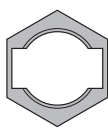
Type	Clamping range [mm]	Qty.	Order No. grey	Order No. black
HDC KT 5	5-6	10	1826480000	1827810000
HDC KT 6	6-7	10	1826490000	1827830000
HDC KT 7	7-8	10	1826500000	1827840000
HDC KT 8	8-9	10	1826510000	1827850000
<b>Blanking plugs, small</b>				
HDC BTK		10	1828170000	1828200000

### KVT 32

#### KVT 32 and locknut for D-Sub 9



KVT 32



Locknut for D-Sub 9  
KGM-SUB-D9

#### Technical data

Material	Polyamide, free from halogens and silicone
Class of protection	IP54, when the correct cable grommet is selected
Temperature range	-5 °C ... 70 °C
UL 94 flammability rating	V0

#### Ordering data

Type	Thread	For grommet small large	Qty.	Order No. white	Order No. black
HDC KVT 32	M 32 x 1.5	1 -	10	1826670000	1828270000
<b>Locknut for D-Sub 9</b>					
KGM-SUB-D9	M 32 x 1.5		10	1828250000	1828300000

**Note:** Please refer to catalogue 5 for the complete range.

### 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	Polyamide, halogenfree, siliconfree
Colour	black
Temperature range	-20 °C ... 80 °C
Ingress protection class	IP 54, when correct cable grommet is used
UL 94 flammability rating	V0

#### Ordering data

Type	No. of grommet positions small large	Qty.	Order No. black
HDC KEL 16/8	8 -	10	1825910000
HDC KEL 16/4	4 -	10	1825900000
<b>Blanking plugs, small</b>			
HDC KEL 16 SNAP		10	1827770000

## Protective caps / colour-coded rings

### Staubschutzstecker zum Schutz un belegter Ports

- RJ45
- **STEADYTEC**® Varianten

### IE-DPC

Dust Cap RJ45



- Dust cap RJ45 with finger grip

### IE Line with **STEADYTEC**®



- Protective caps for all **STEADYTEC**® variants

### Ordering data

Type	Qty.	Order No.
IE-DPC	100	8813490000

Note

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

Note

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

Note

### colour-coded rings

For variant 1, 4 and 14 plugs

### IE-CR



### Ordering data

Type	Qty.	Order No.
blue	10	1963020000
orange	10	1963010000
green	10	1963040000
grey	10	1963000000
white	10	1962990000
yellow	10	1963030000

Note

Type	Qty.	Order No.
IE-CR-IP67-WS20-BU	10	1963020000
IE-CR-IP67-WS20-OG	10	1963010000
IE-CR-IP67-WS20-GN	10	1963040000
IE-CR-IP67-WS20-GY	10	1963000000
IE-CR-IP67-WS20-WH	10	1962990000
IE-CR-IP67-WS20-YE	10	1963030000

Note

## PrintJet PRO

The **PrintJet PRO** inkjet printer prints markers for electric connectivity. These markers can be used for clear equipment identification on devices, cables and connectors. The labelling makes servicing, maintenance and troubleshooting much easier. Water-based ink is used for the black or spot colour printing. The print is crystal clear and resistant to environmental influences.

The **PrintJet PRO** prints plastic markers in **MultiCard** format. In combination with the user-friendly **M-Print® PRO** software and the attached loader, the printer becomes an essential part of the production. The inkjet process being used, the subsequent fusing, as well as the printer cartridge and ink have all been specially adapted by Weidmüller for industrial use. The printer has excellent long-term use capabilities, thanks to its integrated loader.

- Top-quality, resistant printing
- Spot colour print
- Perfect for constant use
- Integrated loader for 20 MultiCards
- Ideal for large quantities
- The display shows all relevant information
- Flexible connection options, from LAN ports to USB ports



### Technical data

PrintJet PRO	
Type	PrintJet PRO
Application	Prints MultiCard markers
Technology	Inkjet process
Print quality	600 / 1.200 dpi
Printer drivers	Windows® 2000/XP/VISTA/7
Print software	M-Print® PRO
System requirements	Windows® 2000/XP/VISTA/7
Feed	Integrated loader
Fusing	Thermal fusing
Interface	USB, LAN
Power supply	AC 230 V or AC 115 V
Location	Office conditions
Ambient temperature	20° to 35 °C
Dimensions (L x W x H)	1060 x 500 x 310 mm
Weight	33 kg
Cartridge system	Ink cartridge, CMYK (up to 1.000.000 characters, Arial font size 6)
Scope of supply	PrintJet PRO, power cable, printer drivers, manuals (CD), Ink tank starter set colour, USB cable, M-Print® PRO software

### Ordering data

### PrintJet PRO

Type	Order No.
PrintJet PRO 115V	1024050000
PrintJet PRO 230V	1001180001
Accessories	
PJ PRO TNTK INK SET COL	Ink tank starter set, colour 1027110000
PJ PRO TNTK INK K	● Ink tank Black 1027040000
PJ PRO TNTK INK C	● Ink tank Cyan 1027050000
PJ PRO TNTK INK M	● Ink tank Magenta 1027060000
PJ PRO TNTK INK Y	● Ink tank Yellow 1027070000
PJ PRO TNAW	waste pad 1024140000
Ink tank PrintJet II	1858920000
Clean Unit PrintJet II	1858950000
Ink tank PrintJet	1797460000
Clean Unit PrintJet	4062150000

Markers for cables and **STEADYTEC®**

## 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 BLANK WS V0	160	<b>1689470001</b>
VT SF 6/21 BLANK WS V0	160	<b>1730560001</b>

Note: Can be printed with PrintJet PRO.

Markers for IE-Line **STEADYTEC®**MultiCard ESG 9/11 K for IE-Line **STEADYTEC®**

- 9 x 11 mms
- White

## Ordering data

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

Note: Can be printed with PrintJet PRO.

## TM-I for pre-assembled M12 cables



MultiCard markers for labelling transparent M12 TM-I sleeves

- Tag length: 18 mm
- Tag length: 4 mm

## Ordering data

Type	Qty.	Order No.
TM-I 18 BLANK WS	320	<b>1718431044</b>
TM-I 18 NEUTRAL GE	320	<b>1718431687</b>

Note

## Accessories

Type	Qty.	Order No.
TM 4/12 HF/HB	500	<b>1719840000</b>
TM 4/18 HF/HB	500	<b>1719850000</b>

Note: Can be printed with PrintJet PRO.

LM MT DIN A5 for IE-Line **STEADYTEC®**

Cable labels made from polyester:

- With a special coating for laser printers
- Abrasion-resistant
- 168 labels/sheet
- 1 shipping unit = 10 sheets
- In six colours

## Ordering data

Type	Qty.	Order No.
white LM MT DIN A5 9/11 WS	10	<b>1964070000</b>
grey LM MT DIN A5 9/11 GR	10	<b>1964080000</b>
orange LM MT DIN A5 9/11 OR	10	<b>1964090000</b>
blue LM MT DIN A5 9/11 BL	10	<b>1964100000</b>
yellow LM MT DIN A5 9/11 GE	10	<b>1964110000</b>
green LM MT DIN A5 9/11 GN	10	<b>1964120000</b>

Note

## Accessories

Type	Qty.	Order No.
Marking pen STI-Stift SW	10	<b>0508401694</b>

Note: self-adhesive, for labelling or printing

# Electronics



## Analogue Signal Conditioning

Order number: 1203510000

- Product overview analogue signal conditioning
- Intrinsically safe signal converter
- Signal converters and monitoring components
- Trip amplifier for monitoring AC/DC circuits
- Signal converters and monitoring components in 6 mm width
- Process monitoring
- Process-value display and counters
- Interface converter, AD/DA converter
- Analogue signal processing accessories
- Fieldbus distributor



## Power Supplies

Order number: 1282390000

- Switch-mode power supplies
- Unregulated power supplies
- UPS control unit
- Fuse protection for 24 V DC circuits
- IP 65 switched-mode power supply / electrical-cabinet socket outlet



## Relays and Optos

Order number: 1282330000

- Relay modules and opto modules in 6 mm width
- Industrial relay modules and opto modules
- Power electronics
- Timer
- JACKPAC® (IP67) / functional components



## Surge protection

Order number: 1271290000

- The basics of surge protection
- Surge protection News 2010/2011
- Surge protection for low-voltage supplies
- Surge protection for instrumentation and control equipment
- Surge protection for data interfaces
- Surge protection for photovoltaic systems
- Things worth knowing about surge protection



## Interface units and PLC solutions

Order number: 1252080000

- Interface units
- Card holders
- PLC interfaces – H-, R- and S-system
- Byte precabing solution



# Technical appendix

<b>Technical appendix</b>	Online services	W.2
	Cable configurator	W.5
	Service and certificates	W.6
	Glossary	W.8

# Network infrastructure micro-site

Visit our network infrastructure micro-site at <http://networkcomponents.weidmueller.com>

- Videos on applications for network components
- Downloading current product brochures
- The Weidmüller screen saver
- Audio podcasts
- Current schedules
- Direct contact form

The micro-site is updated continuously and is available in German, English and Spanish. We look forward to your mouse click!

## 3D factory workshop

Our factory workshop is found at our micro-site. Click on the various sections of the assembly line to learn more about the application fields for our products. The 3D factory workshop is an interactive experience, with 3-D product animations, drawings and films.



**1 Materials handling**



- IE-line connector line, in IP67 with **STEADYTEC®** technology

**5 Sub-distribution board**



- Sturdy junction boxes in die-cast aluminium housing, for implementing Ethernet in the harshest IP67 industrial environments.

**2 Switchgear cabinet in the facility / Power distribution**



- FrontCom® Micro IP 65 service interface
- Managed switches with fast ring redundancy and multiple connection options (copper and fibre-optic)

**6 Cable conduit**



- Cabling of machine workshops, with installation or connection conductors using copper or fibre-optic cable

**3 Human Machine Interface**



- Rugged unmanaged switches with Fast Ethernet and Gigabit Ethernet ports

**7 Robotics switchgear cabinet**



- Reliable connection for your installation cable with mounting-rail outlets
- RJ45 Gigabit connector

**4 Robots**



- Sturdy connection with the M12 connection system

**8 Forklift**



- Industrial Wireless access point / Client / Bridge to connect mobile devices into Ethernet networks.

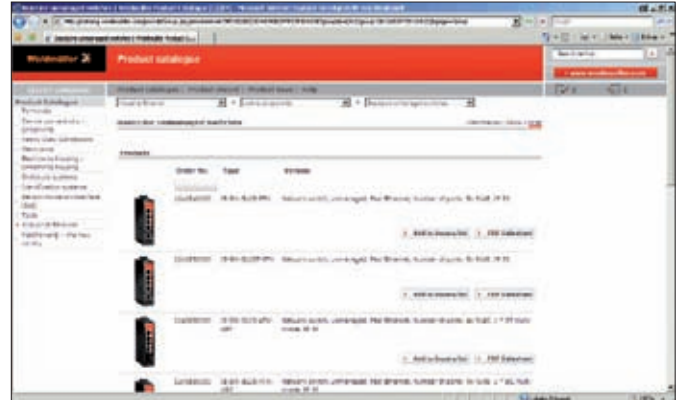
# Online product catalogue

If you have questions about the specifications and details of our products, perhaps even outside normal business hours,

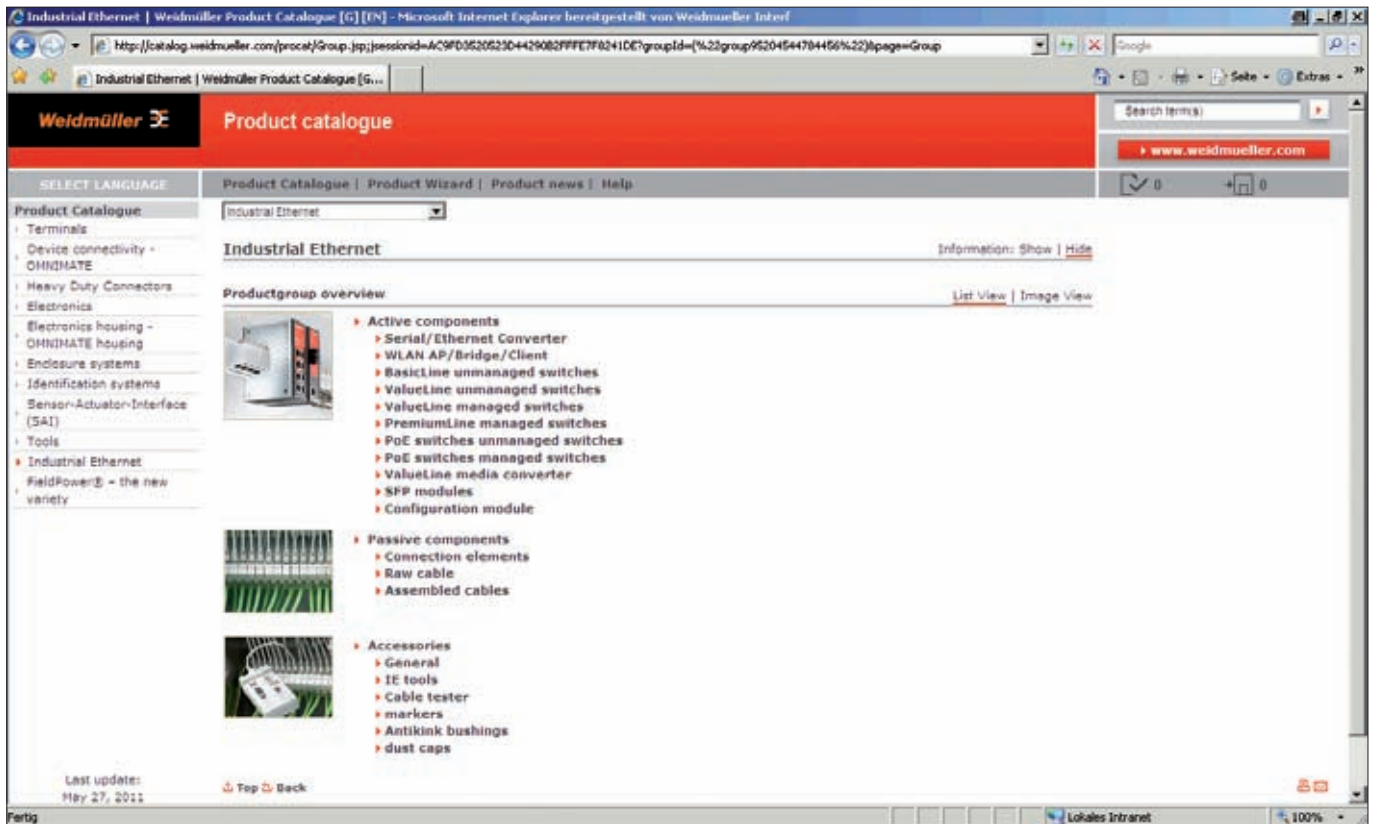
then our online catalogue at <http://catalog.weidmueller.com>

– open 24 hours a day, 365 days a year – is the perfect source of information. Besides product features and part numbers, it contains extensive additional information on all product groups. For further information, offers and your personal contact, simply consult the Weidmüller website at

[www.weidmueller.com](http://www.weidmueller.com)



With one-click selection for the product data sheet of your choice.



# Cable configurator

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

Make your selection from the list of available cables (material for cable sheathing, category, colour, ...). Then choose the connector for the right and left cable end. 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 here.

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

- Bring up 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 for a request for quote or 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.

# Best service

## Practical Guidelines for Industrial Ethernet

Are you an electrical engineer, installer or contractor in search of assistance, tricks and checklists for working on Industrial Ethernets? Our practical guidelines provide detailed descriptions for the installation and implementation of industrial networks.

- You'll find helpful tips and recommendations for selecting the proper components and for documenting your network
- Real-world 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.



**Industrial Ethernet Handbook**

- Design and planning
- Installation
- Commissioning

**Weidmüller**

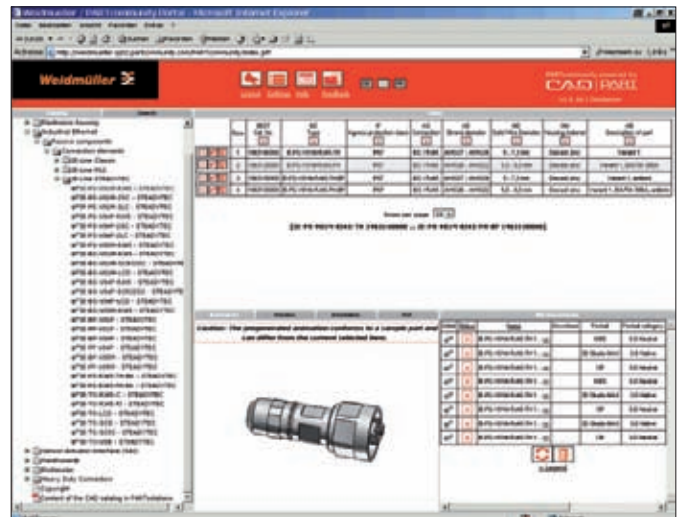
## 3-D data

Do you require 3-D models of your components so you can design them into your application? And precisely in your own CAD format?

The parts are located in our Online Catalogue with a direct link to the Partserver ([www.partserver.com](http://www.partserver.com)). You can then input your product, CAD format and e-mail address, and you will quickly receive an e-mail with your 3-D model as an attachment.



You can also login at the web site <http://Weidmüller.sp02.partcommunity.com/> to view and download 3-D files.



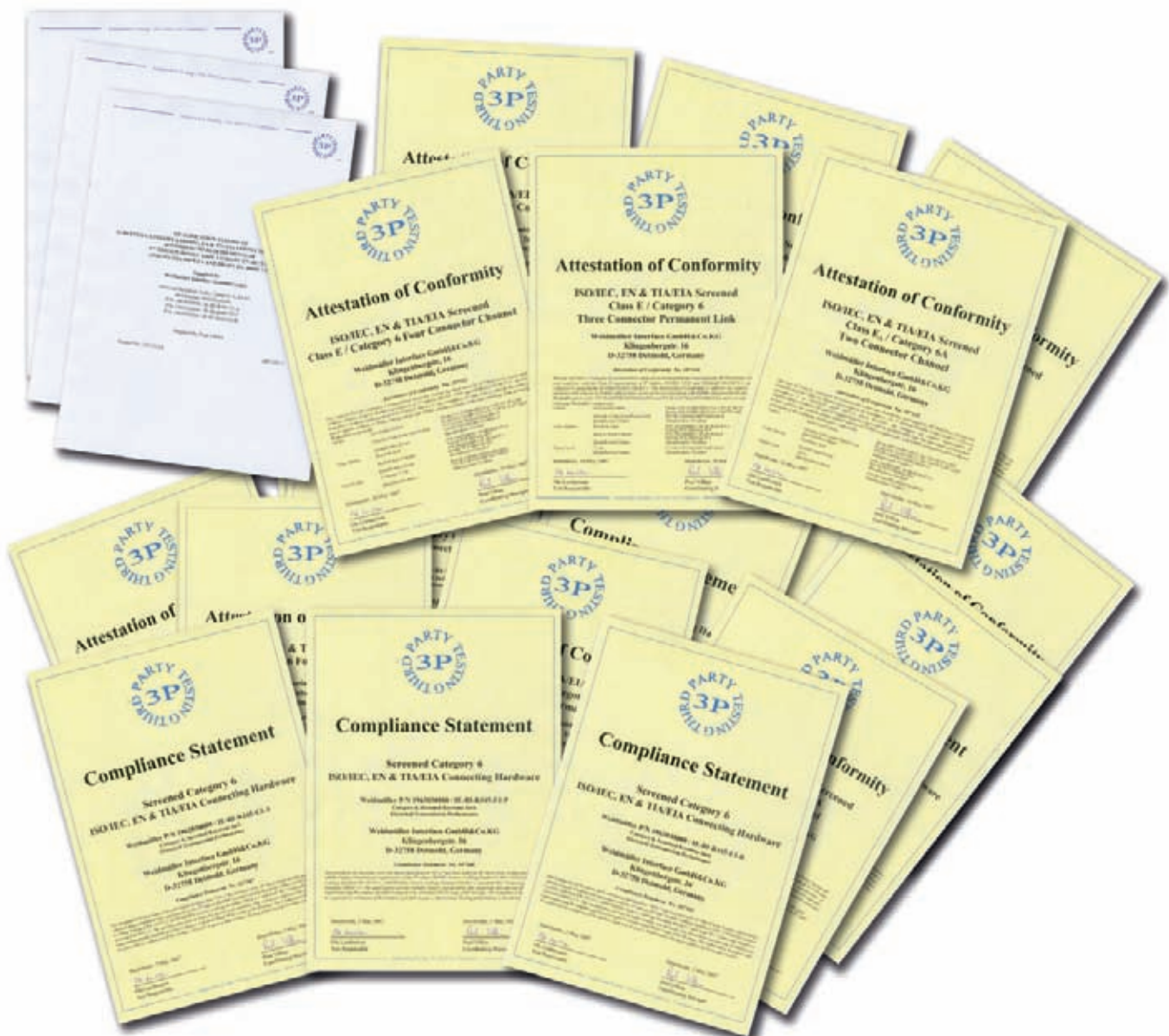
## ... and what more can Weidmüller do for you?

### Certificates

Do you want to prove to your customer that you have installed only the best 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. The 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.

By means of these proven certificates, we can assure you of our high quality and performance expectations. 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

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.

## 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. This working group focuses on discussing 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 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.

**Category 5**

Signifies compliance to features specified in EIA/TIA-568-5. 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.

**Category 5e**

The cat. 5e-cable is an extended version of cat. 5 for use in 1000-Base-T networks or for long-distance 100-Base-T network connections (350 m, compared with 100 m for cat. 5). It must fulfil the EIA/TIA 568A-5 specification.

**Category 6**

A Cat.6 twisted-pair cable is sufficient for Gigabit Ethernet, with a 250-MHz performance. This is an extension of the CAT5e 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 are 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, also 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 and the 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.

## Glossary

### 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 the Ethernet with 100 Mbps over 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.

### 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 of course 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 the Ethernet operating at a data transmission rate of 1000 Mbps.

### Hub

A hub is 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 probable 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 is a helpful extra but does not guarantee that the link functions perfectly.

**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 class of protection IP 67.

**MAC Adress**

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 to one another and the structure and maintain 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 for example by using fibre-optic routes, on the other hand 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.

**Multicast**

Multicast is a type of transmission from a single point to several subscribers at the same time (group).

**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 the cable 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.

**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.

**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 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 dialup-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 and 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 arrives at the receiver in 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 using 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 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.

**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 skew angle coupler are used instead of 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 the transmission section between two neighbouring data stations is meant. 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.

**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 µs. At 100 Mbps the frequency is 10 ns, so therefore the slot time for the same packet length is 51.2 µs. 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 cables 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.

**Webserver**

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 webserver what type of files it supplies. Each time a web site 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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# Addresses worldwide

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P.O. Box 8591  
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Fax +971 6 5572724  
wme.info@weidmueller.com
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CPI SA  
Bauness 2660  
1431 Buenos Aires  
Phone +54 11 45238008  
Fax + 54 11 45220546  
info@cpi.com.ar  
www.cpi.com.ar
- AT Austria**  
Weidmüller GmbH.  
Industriezentrum Nö Süd  
Straße 2, Objekt M2  
2355 Wiener Neudorf  
Phone +43 2236 6708-0  
Fax +43 2236 6708-199  
office.at@weidmueller.com
- AU Australia**  
Weidmüller Pty. Ltd.  
P.O.Box 6944  
Huntingwood Drive 43  
Huntingwood,  
NSW, 2148  
Phone +61 2 9671-9999  
Fax +61 2 9671-9911  
info@weidmuller.com.au  
www.weidmuller.com.au
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Caspian Plaza, 5-th Floor  
44 J. Jabbarly Str., Baku  
Phone +99412 499 15 15  
Fax +99412 499 14 93  
sales@west-i.com
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BH ES ELEKTROSISTEM d.o.o.  
Bul. Vojvode S.  
Stepanovica kod br. 272  
78000 BiH - Banja Luka  
Phone +387 51 420-340  
Fax +387 51 420-341  
elsist@inecco.net  
www.elektrosistem.ba
- BE Belgium**  
Weidmüller Benelux B.V.  
Mechelsesteenweg 519 bus 6 en 7  
1930 Nossegem  
Phone +32 2 752 4070  
Fax +32 2 751 3606  
info@weidmueller.be  
www.weidmueller.be
- BG Bulgaria**  
Weid-Bul EOOD  
1756 Sofia  
13, bul. "Kliment Ohridski"  
Phone +359 2 9632560  
Fax +359 2 9631098  
sofia@weidbul.com  
www.weidbul.com
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Khayber Trading Company  
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Phone +973 720747  
Fax +973 720331  
khayber@batelco.com.bh
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Weidmüller Conexel do Brasil  
Rua Garcia Lorca, 176  
09695-900, Sao Paulo SP  
Phone +55 11 43669600  
Fax +55 11 43621677  
vendas@conexel.com.br  
www.conexel.com.br
- BY Belarus**  
TECHNIKON Ltd.  
Oktjabrskaya Str. 16/5  
Apt. 704, Minsk 220801  
Phone +375 17 2275830  
Fax +375 17 2275830  
technikon@belsonet.net
- CA Canada**  
W Interconnections CANADA Ltd.  
10 Spy Court, Markham,  
Ontario L3 R5 H6  
Phone +1 905 475-1507  
Fax +1 905 475-2798  
info1@weidmuller.ca  
www.weidmuller.ca
- CH Switzerland**  
Weidmüller Schweiz AG  
Rundbuckstraße 2  
8212 Neuhausen am Rheinfall  
Phone +41 52 6740707  
Fax +41 52 6740708  
info@weidmueller.ch  
www.weidmueller.ch
- CL Chile**  
Felipe Bahamondes S.A./ATS AGRO  
Maria Luisa Santander 0475  
Casilla 3425  
Santiago  
Phone +56 2 341-1271  
Fax +56 2 341-1275  
felipe@atsintech.com
- CN China**  
Weidmüller Interface International  
Trading (Shanghai) Co., Ltd.  
25F, BM Intercontinental Business  
Center,  
100 Yutong Road, Shanghai 200070  
P.R. China  
Phone +86 21 22195008  
Fax +86 21 22195009  
www.cnweidmuller.com
- CO Colombia**  
Automatización Avanzada S. A.  
Carrera 97 No.24c, 23 B4  
4 Bogotá D. C.  
Phone +57 1 5478510  
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comercial@  
automatizacionavanzada.com  
www.automatizacionavanzada.com
- CR Costa Rica**  
ELVATRON S.A.  
la Uruca 400 Norte  
Banco Costa Rica  
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Phone +506 2 961060  
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dirk.haase@elvatron.com  
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- CZ Czech Republic**  
Weidmüller s. r. o.  
Lomnického 5/1705  
14000 Praha 4  
Phone +420 2 44001400  
Fax +420 2 44001499  
office@weidmueller.cz  
www.weidmueller.cz
- DE Germany**  
Weidmüller GmbH & Co. KG  
P.O. Box 3054  
32720 Detmold  
Ohmstraße 9  
32758 Detmold  
Phone +49 5231 1428-0  
Fax +49 5231 1428-116  
weidmueller@weidmueller.de  
www.weidmueller.de
- DK Denmark**  
Wexoe A/S  
Lejrvej 31  
3500 Vaerloese  
Phone +45 45465800  
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y Mañosa, Quito  
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Elsystec@uio.satnet.net
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11317 Tallinn  
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www.juha-elektro.fi
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Fax +30 2410 283463189  
valizos@electrorama.com.gr
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14452 Metamorfosis Attika  
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Fax +30 210 2823233  
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Fax +852 26876735  
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Fax +36 1 3827701  
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www.ateka.co.il
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Plot # 32, 3rd Floor, North Court  
Lane North Avenue, Opp Jogger's Park  
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411006 Pune  
Phone +91 9049800960  
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tafco@safineh.net
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Samey Automation Center  
Lyngas 13, 210 Garoabaer,  
Phone +354 510 5200  
Fax +354 510 5201  
samey@samey.is
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Weidmüller Korea Co., Ltd.  
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Nonhyun-dong, Kangnam-Gu  
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info@weidmuller.co.kr
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Al Rai Industrial Area,  
Plot 28-30, St. 31  
P.O.Box: 25593  
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Please contact Weidmüller  
Benelux B.V. in the Netherlands
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SIA "ABI4"  
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abi\_4@tvnet.lv
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44, str. Sarmizegetusa 37/3  
Off 414, b-dul Decebal, 3,  
Chisinau, MD 2001  
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Fax +373 22 507134  
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Please contact  
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ELEKTRO – SMK doool  
UL. III Makedonska brigada b.b.  
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St. Jean Road, Quatre Bornes  
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No. 43, Jalan PJS 11/22,  
Bandar Sunway, 46150 Petaling Jaya  
Selangor Darul Ehsan  
Phone +60 3 5633 7363  
Fax +60 3-5633 6562  
paul@cptech.com.my  
www.cptech.com.my
- NL Netherlands**  
Weidmüller Benelux B.V.  
Franciscusweg 221  
1216 SE Hilversum  
Postbus 1505  
1200 BM Hilversum  
Phone +31 35 6261261  
Fax +31 35 6232044  
info@weidmuller.nl
- NO Norway**  
Siv. Ing. J. F. Knudtzen A/S  
Billingstadsletta 97  
P.O. Box 160  
1378 Nesbru  
Phone +47 66 983350  
Fax +47 66 980955  
firmapost@jfkudtzen.no  
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Cuthbert S. Steward Limited  
27 Te Puni Street  
POB 38496  
Petone, Wellington  
Phone +64 4 5686156  
Fax +64 4 5686056  
info@weidmueller.de
- OM Oman**  
DAN INTERNATIONAL LLC.  
PO.BOX 2901  
111 Seeb  
Phone +968 503 677  
Fax +968 503 755  
yedu@danintl.com
- PE Peru**  
IMGEPRO DEL PERU S.A.C.  
Jr. Arequipa 3410, Lima 31, Peru  
Phone / Fax +51 1 569-7678  
dbernardo@imgepro.com.pe  
www.imgepro.pe
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W-15 La Fuerza Compound  
2241 Don Chino Roces Avenue  
Makati City 1231  
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Fax +63 2 813 8596  
sales\_encsys@pltdtdsl.net
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Apartment No. 33 C III  
Chenab Block,  
Allama Iqbal Town  
Lahore, Pakistan  
Phone +92 42 5419948  
+92 42 7845160  
Fax +92 42 5422895  
nadeem@kanapak.com  
www.kanapak.com
- PL Poland**  
Weidmüller Sp. z o.o.  
Ul. Golezdzinowska 10  
03-302 Warszawa  
Phone +48 22 5100940  
Fax +48 22 5100941  
biuro@weidmuller.com.pl  
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Weidmüller Sistemas de  
Interface S. A.  
Estrada Outeiro Polima, R. Augusto  
Dias da Silva, Lote B, Esc. 2  
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Fax +351 21 4455871  
www.weidmueller.pt
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Doha Motors Trading Co.  
(Technical Division)  
Post Box No. 145  
Airport Road  
Doha - Qatar  
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dmttech@qatar.net.qa
- RO Romania**  
Rominterface Impex SRL  
Str. Gh. Dem Teodorescu 30 A  
30916 Bucuresti - sector 3  
Phone +40 21 3220230  
Fax +40 21 3228857  
office@rominterface.ro
- RS Serbia**  
ES-YU Elektrosistem  
Pariske komune 41  
11070 Novi Beograd, Serbia  
Phone +381 11 3018660  
Fax +381 11 2693608  
esyu@eunet.rs  
www.elektrosistem.co.rs
- RU Russia**  
Weidmüller Interface GmbH & Co. KG  
Representative Office  
Varshavskoye highway, 25A, bld. 6  
117105 Moscow  
Phone +7 4 95 771-6940  
Fax +7 4 95 771-6941  
info@weidmueller.ru  
www.weidmueller.ru
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Al Abdulkarim Holding Co.  
P.O. Box. 4  
Dammam 31411  
Phone +9668337110  
Fax +9668338242  
salehsk@akh.com.sa  
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Al Khobar 31952  
Phone +966 3 882 9546227  
Fax +966 3 882 9547  
Safdar.malik@sesco-ge.com
- SE Sweden**  
Weidmüller AB  
Axel Daniéssons väg 271  
P.O. box 31025  
200 49 Malmö  
Phone +46 (0) 7 71 43 00 44  
Fax +46 (0) 40 37 48 60  
info@weidmuller.se  
www.weidmuller.se
- SG Singapore**  
Weidmüller Pte. Ltd.  
70 Bendemeer Road  
#04-03 Luzerne  
Singapore 339940  
Phone +65 6841 5311  
Fax +65 6841 5377  
info@weidmuller.com.sg  
www.weidmuller.com.sg
- SI Slovenia**  
ELEKTROŠPOJI d.o.o.  
Stegne 25, 1000 Ljubljana  
Phone +386 15113810  
Fax +386 15111604  
info@elektrospoji.si  
www.elektrospoji.si
- SK Slovakia**  
ELEKTRIS s.r.o.  
Elektrárėnská 1  
83104 Bratislava  
Phone +421 2 49200113  
Fax +421 2 49200119  
bratislava@elektris.sk
- TH Thailand**  
Pisanu Engineering Co., Ltd  
800/43-45 Soi Trakulsuk  
Asoke-dindaeng Road,  
Dindaeng, Bangkok 10400  
Phone +66 2 245 9113  
Fax +66 2 6429220  
jayasankar@pisanu.co.th  
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Please contact  
Weidmüller E.U.R.L. in France
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Weidmüller Elektronik Ticaret Ltd.  
Sirketi  
Kavacik Mah. Orhan Veli Kanik  
Caddesi 9/1  
34810 Beykoz – İstanbul  
Phone +90 216 5371070 (Pbx)  
Fax +90 216 5371077  
info@weidmuller.com.tr  
www.weidmuller.com.tr
- TW Taiwan**  
Fittatek Co., Ltd.  
12F No. 195 Fu-Kuo Road,  
Tso Ying Dist, Kaohsiung  
Phone +886 7 556 0858  
Fax +886 7 556 3279  
stanley@fittatek.com.tw  
www.fittatek.com.tw
- Taiwan**  
Eucan Enterprise Ltd.  
No. 145 He Ping 2nd Rd  
Kaohsiung  
Phone +886 7 715 6610  
Fax +886 7 715 8748  
mark@eucan.com.tw  
www.eucan.com.tw
- UA Ukraine**  
TEKO INTERFACE ooo  
ul. Lewanewskogo 6  
03058 Kiev  
Phone +38 044 401 09 90  
Fax +38 044 401 08 64  
weidmueller@tekointerface.com  
www.tekointerface.com.ua
- US United States**  
W-Interconnections Inc.  
821 Southlake Boulevard,  
Virginia - Richmond 23236  
Phone +1 804 7942877  
Fax +1 804 3792593  
info@weidmuller.com  
www.weidmuller.com
- UY Uruguay**  
REWU Uruguay S.A  
Av. Bolivia 2001 Esq Rocafuerte  
Carrasco Montevideo 11300  
Phone / Fax +598 260 48439  
clorda@rewouruguay.com.uy
- UZ Uzbekistan**  
OOO "Elektro Potential"  
Gani Mavijanovna str., 2B  
100084 Tashkent  
Phone +998 98-3003821  
Fax +998 71-1249286  
mzi1958@yandex.ru
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Quinta Sagrado Corazon de Jesus -  
3ra Transversal - Los Dos Caminos,  
Caracas 1070 - A  
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aumi@aumi.com.vn
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78 Hoa Cuc Street Ward 7,  
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Phone +84 8517 1717  
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44/28 Tan Hai Street,  
Ward 13, Tan Binh District,  
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Phone +84 8812 6593  
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- ZA South Africa**  
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P.O. Box 193, 1609 Johannesburg  
5 Bundo Road, Sebenza  
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- DE Other countries**  
Weidmüller Interface GmbH & Co. KG  
Postfach 3030  
32720 Detmold  
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