Connecting

Copper cables

Patch cables

In order to connect installation cables with switches, media converters or the like, our Class E/Cat.6 IE-6PC patch cables with light grey (RAL 7035) FRNC cladding, wired 1:1, are used in the distribution cabinet or switchboard. Even the connecting flex itself complies with S/FTP Cat.7 600 MHz 4x2xAWG 27/7, meaning outstanding transmission properties and high power reserves are available here too. The cable cladding is halogen-free and flame-retardant. The extruded RJ45 connection plug and connecting flex prevent kinks, providing robust strain relief. This means that the electrical contact points are no longer subjected to mechanical forces. The locking hook is injection-moulded to prevent the hook from being unintentionally dislodged during cable laying. The patch cables are available as standard in 6 lengths between 0.5 and 10 m, with the length in metres being marked on the anti-kink sleeve.

Name	IE-6PC05	IE-6PC10	IE-6PC20	IE-6PC30	IE-6PC50	IE-6PC100
Order no.	8808830000	8808840000	8808850000	8808860000	8808870000	8808880000
Construction	Cat.6 LSZH patch cable-0.5	Cat.6 LSZH patch cable-1.0	Cat.6 LSZH patch cable-2.0	Cat.6 LSZH patch cable-3.0	Cat.6 LSZH patch cable-5.0	Cat.6 LSZH patch cable-10.0
Length	0.5 m	1.0 m	2.0 m	3.0 m	5.0 m	10.0 m

In addition, we can help you to wire end appliances together by supplying cross-wired patch cables. To allow you to distinguish between cross-wired and 1:1 cables, the cross-wired patch cables have a yellow anti-kink sleeve.

Name	IE-6COPC05	IE-6COPC20
Order no.	8818620000	8818630000
Construction	Cat.6 LSZH crossover patch cable-0.5	Cat.6 LSZH crossover patch cable-2.0
Length	0.5 m	2.0 m

System cables

When it comes to industrial Ethernet wiring in the field, we can offer you Cat.7 and Cat.5 installation and connection cables using PVC or PUR in green (RAL 6018) as 100 m coils. The four pairs of wires support all standard Ethernet protocols including Gigabit Ethernet and beyond. The connection values of the AWG 26 to AWG 24 cables are designed for the RJ45 connection plug, enabling you to combine these cables with all plug and socket versions. The AWG 23/1 installation cable can be easily connected at both ends using the RJ45 connection socket.

Start							End				
Socket	Plug				Cable		Plug		Socket		
RJ45/IDC TS outlet	RJ45 IP67	RJ45 IP20					RJ45 IP20	RJ45 IP67	IDC/RJ45 IP67 connection socket	IDC/RJ45 IP67 cable coupling	RJ45/IDC TS-Outlet
X			Cat.7	S/FTP	Installation cable	4x2xAWG 23/1 PVC			X	X	X
X			Cat.7	S/FTP	Installation cable	4x2xAWG 23/1 PUR			X	X	X
X	X	X	Cat.7	S/FTP	Connection cable	4x2xAWG 26/7 PVC	X	X	X	X	X
X	X	X	Cat.7	S/FTP	Connection cable	4x2xAWG 26/7 PUR	X	X	X	X	X
X	X	X	Cat.5	SF/UTP	Installation cable	4x2xAWG 24/1 PVC	X	X	X	X	X
X	X	X	Cat.5	SF/UTP	Installation cable	4x2xAWG 24/1 PUR	X	X	X	X	X
X	X	X	Cat.5	SF/UTP	Connection cable	4x2xAWG 26/7 PVC	X	X	X	X	X
X	X	X	Cat.5	SF/UTP	Connection cable	4x2xAWG 26/7 PUR	X	X	X	X	X

Our cable range enables you to achieve the maximum transmission path of 100 m (90 m + 10 m) ideally: installation paths of approx. 70 m can be set up using AWG 26/7 cables, approx. 100 m using AWG 24/2 cables, and approx. 115 m using AWG 23/1 cables. However, we recommend observing the “90-metre rule” with reference to EN 50173-1 to allow you to make the most of the transmission performance of future systems.

Name	IE-7IC4x2xAWG23/1-PVC IE-7IC4x2xAWG23/1-PUR	IE-7CC4x2xAWG26/7-PVC IE-7CC4x2xAWG26/7-PUR	IE-5IC4x2xAWG24/1-PVC IE-5IC4x2xAWG24/1-PUR	IE-5CC4x2xAWG26/7-PVC IE-5CC4x2xAWG26/7-PUR
Order no.	8813130000 (PVC) 8813140000 (PUR)	8813170000 (PVC) 8813180000 (PUR)	8813150000 (PVC) 8813160000 (PUR)	8813190000 (PVC) 8813200000 (PUR)
Application	Fixed wiring	Occasional movement	Fixed wiring	Occasional movement
Cross-section	4x2xAWG 23/1, 4x2x0.255 mm²	4x2xAWG 26/7, 4x2x0.128 mm²	4x2xAWG 24/1, 4x2x0.205 mm²	4x2xAWG 26/7, 4x2x0.128 mm²
Copper Ø	0.58 mm	0.48 mm	0.50 mm	0.48 mm
Wire insulation Ø	1.40 mm	0.98 mm	1.00 mm	0.98 mm
Core/stranding	Each set of two wires twisted into pairs, each pair shielded, with laminated Al tape, 4 twisted pairs, tin-plated Cu braiding	Each set of two wires twisted into pairs, each pair shielded, with laminated Al tape, 4 twisted pairs, tin-plated Cu braiding	Each set of two wires twisted into pairs, 4 twisted pairs, with laminated Al tape, tin-plated Cu braiding	Each set of two wires twisted into pairs, 4 twisted pairs, with laminated Al tape, tin-plated Cu braiding
Shielding	S/FTP	S/FTP	SF/UTP	SF/UTP
Cladding color	Green (RAL 6018)	Green (RAL 6018)	Green (RAL 6018)	Green (RAL 6018)
Cladding -Ø	8.2 mm (PVC)* 8.2 mm (PUR)	6.1–6.7 mm (PVC) 6.1–6.7 mm (PUR)	6.3–6.7 mm (PVC) 6.3–6.7 mm (PUR)	5.8 mm (PVC) 6.0 mm (PUR)
Min. bending radius	Repeated 8xØ, once 4xØ (PVC) Repeated 8xØ, once 4xØ (PUR)	Repeated 10xØ, once 5xØ (PVC) Repeated 10xØ, once 5xØ (PUR)	Repeated 10xØ, once 5xØ (PVC) Repeated 10xØ, once 5xØ (PUR)	Repeated 8xØ, once 4xØ (PVC) Repeated 8xØ, once 4xØ (PUR)
Flame retardant	IEC 60332-1 (PVC and PUR)	IEC 60332-1 (PVC and PUR)	IEC 60332-1 (PVC and PUR)	IEC 60332-1 (PVC and PUR)
Halogen-free	No (PVC) IEC 60754-2 (PUR)	No (PVC) IEC 60754-2 (PUR)	No (PVC) IEC 60754-2 (PUR)	No (PVC) IEC 60754-2 (PUR)
Resistance to oil	Good (PVC) Good (PUR) acc. to. IEC 60811-2-1	Good (PVC) Good (PUR) acc. to. IEC 60811-2-1	Good (PVC) Good (PUR) acc. to. IEC 60811-2-1	Good (PVC) Good (PUR) acc. to. IEC 60811-2-1
Resistance to abrasion	Good (PVC) Very good (PUR)	Good (PVC) Very good (PUR)	Good (PVC) Very good (PUR)	Good (PVC) Very good (PUR)
Operating temperature	-25 °C to +75 °C (PVC) -40 °C to +75 °C (PUR)	-25 °C to +75 °C (PVC) -40 °C to +75 °C (PUR)	-25 °C to +75 °C (PVC) -40 °C to +75 °C (PUR)	-25 °C to +75 °C (PVC) -40 °C to +75 °C (PUR)
Norms	02YSCY 4x2x0.58/ 1.4-100 GN FR PIMF 02YSC11Y 4x2x0.58/ 1.4-100 GN FRNC PIMF	LI02YSCY 4x2x0.15/ 0.98 GN PIMF LI02YSC11Y 4x2x0.15/ 0.98 GN FRNC PIMF	02YS(ST)CY 4x2x0.5/ 1.0 VZN GN 02YS(ST)C11Y 4x2x0.5/ 1.0 VZN FRNC GN	LI2Y(ST)CY 4x2x0.15/ 0.98-100 GN FR LI2Y(ST)C11Y 4x2x0.15/ 0.98-100 FRNC GN
Packaged as	100 m coil	100 m coil	100 m coil	100 m coil

* provisional

Prefabricated cables

We offer prefabricated cables in the following standard versions. In addition, we would be happy to customize cables to suit your individual needs – just ask us!

Name	Order no.	Construction	Length
IE-6CC26/7-20U P20-P20	8815050000	Cat.7 S/FTP connection cable 4x2xAWG 26/7 PUR RJ45/IP20 on RJ45/IP20	2.0 m
IE-6CC26/7-20U P20-P67	8815060000	Cat.7 S/FTP connection cable 4x2xAWG 26/7 PUR RJ45/IP20 on RJ45/IP67	2.0 m
IE-6CC26/7-20U P67-P67	8815070000	Cat.7 S/FTP connection cable 4x2xAWG 26/7 PUR RJ45/IP67 on RJ45/IP67	2.0 m
IE-6CC26/7-50U P20-P20	8815080000	Cat.7-S/FTPconnection cable 4x2xAWG 26/7 PUR RJ45/IP20 on RJ45/IP20	5.0 m
IE-6CC26/7-50U P20-P67	8815090000	Cat.7-S/FTPconnection cable 4x2xAWG 26/7 PUR RJ45/IP20 on RJ45/IP67	5.0 m
IE-6CC26/7-50U P67-P67	8815100000	Cat.7-S/FTPconnection cable 4x2xAWG 26/7 PUR RJ45/IP67 on RJ45/IP67	5.0 m
IE-6CC26/7-100U P20-P20	8815110000	Cat.7-S/FTPconnection cable 4x2xAWG 26/7 PUR RJ45/IP20 on RJ45/IP20	10.0 m
IE-6CC26/7-100U P20-P67	8815120000	Cat.7-S/FTPconnection cable 4x2xAWG 26/7 PUR RJ45/IP20 on RJ45/IP67	10.0 m
IE-6CC26/7-100U P67-P67	8815130000	Cat.7-S/FTPconnection cable 4x2xAWG 26/7 PUR RJ45/IP67 on RJ45/IP67	10.0 m

RJ45 connection plug with anti-kink sleeve for cable assembly

The IE-P RJ45 connection plug is used for patch cables in the switchboard, for factory-produced prefabricated cables and for in-the-field assembly. Its universal suitability establishes secure IP20 and IP67 connections, not only within a segment but throughout the entire star topology. It offers added flexibility, primarily due to the option of connecting strands and solid wires from AWG 27 to AWG 24, its 360° shield and simple mounting thanks to a pre-sorting insert in conjunction with our time-saving tool which crimps the wires and shield in one go. The strain relief incorporated into the connection plug is exerted on the cable cladding, preventing the wires from being squashed. RJ45 connection plugs with appropriate anti-kink sleeves are available in black (RAL 9011) for in-the-field assembly to suit the cladding diameter to be accommodated.

Name	IE-P	IE-P63	IE-P70
Order no.	8813100000	8813110000	8813120000
Anti-kink protection/notch lever	No	Yes	Yes
Connection values			
• Cladding Ø	5.5–7.1 mm	5.5–6.2 mm	6.2–7.1 mm
• Strand Ø, flexible	0.46–0.61 mm	0.46–0.61 mm	0.46–0.61 mm
• Strand Ø, flexible	AWG 27/7 to AWG 24/7	AWG 27/7 to AWG 24/7	AWG 27/7 to AWG 24/7
• Solid wire Ø	0.36–0.51 mm	0.36–0.51 mm	0.36–0.51 mm
• Solid wire Ø	AWG 27/1 to AWG 24/1	AWG 27/1 to AWG 24/1	AWG 27/1 to AWG 24/1
• Wire insulation Ø	0.85–1.02 mm	0.85–1.02 mm	0.85–1.02 mm
Norm			
• Plug acc. to IEC 60603-7-5	Yes, checked to 250 MHz	Yes, checked to 250 MHz	Yes, checked to 250 MHz
Material			
• Anti-kink sleeve material		PA6 polyamide, UL94-V0	PA6 polyamide, UL94-V0
• Insulation material	PC polycarbonate, UL94-V0	PC polycarbonate, UL94-V0	PC polycarbonate, UL94-V0
• Contact material	Phosphor bronze	Phosphor bronze	Phosphor bronze
• Contact surface	Au 0.8 µm	Au 0.8 µm	Au 0.8 µm
• Shield material	0.5 mm brass, 2 µm nickel	0.5 mm brass, 2 µm nickel	0.5 mm brass, 2 µm nickel
• Plug shield	360°; fully enclosed	360°; fully enclosed	360°; fully enclosed
Mechanical properties			
• Lifespan/plugging cycles	Min. 750	Min. 750	Min. 750
• Cable stripping force	Min. 89 N	Min. 89 N	Min. 89 N
• Insertion force	Max. 20 N	Max. 20 N	Max. 20 N
Temperature range	-40 °C to +80 °C	-40 °C to +80 °C	-40 °C to +80 °C
Electrical properties			
• Contact resistance	Max. 20 mΩ	Max. 20 mΩ	Max. 20 mΩ
• Insulation resistance	Min. 500 MΩ	Min. 500 MΩ	Min. 500 MΩ
Voltage strength			
• Contact – Contact	Min. 1,000 V DC	Min. 1,000 V DC	Min. 1,000 V DC
• Contact – Shield	Min. 1,500 V DC	Min. 1,500 V DC	Min. 1,500 V DC
• Operating current at 50 °C	1 A	1 A	1 A