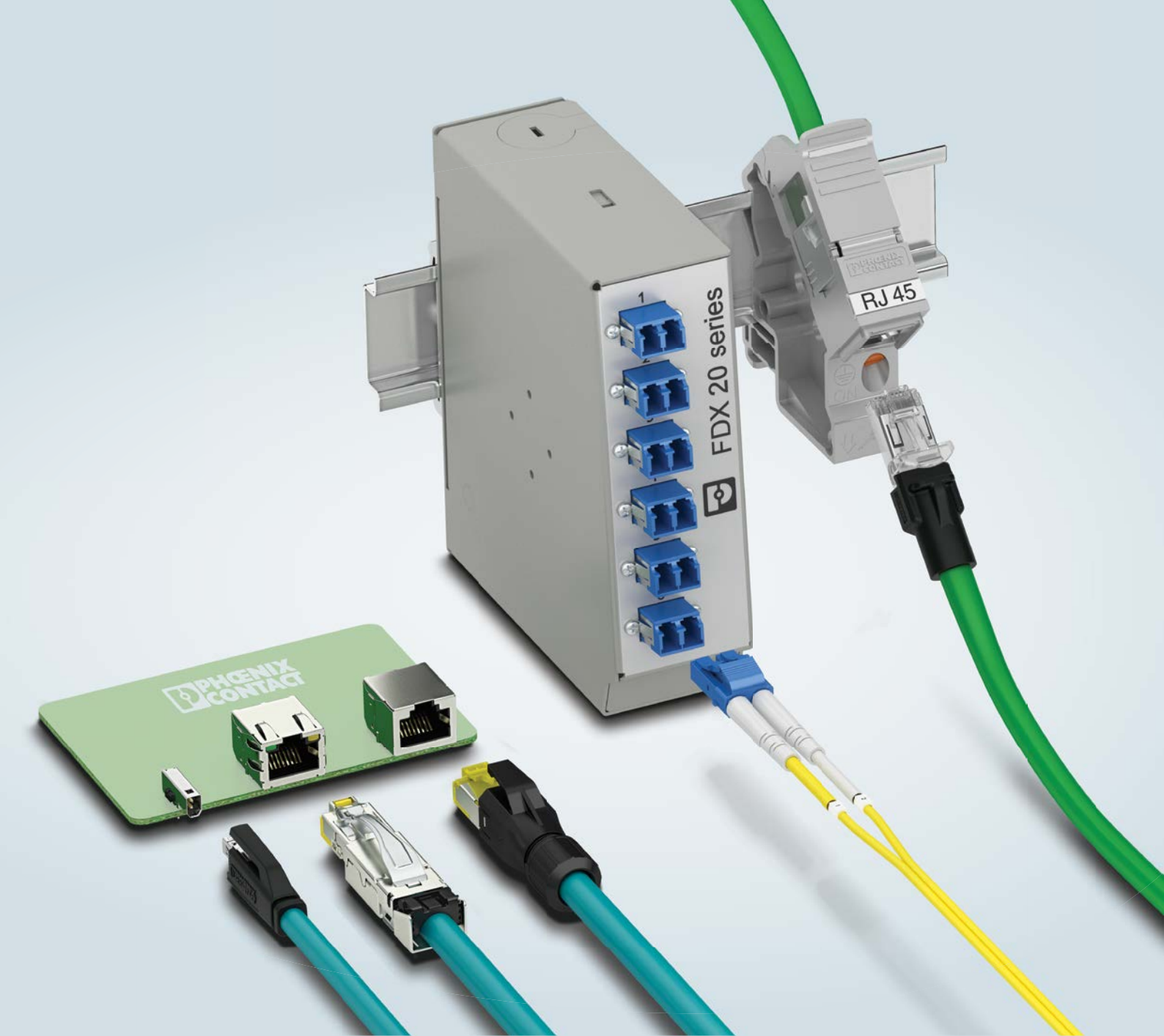


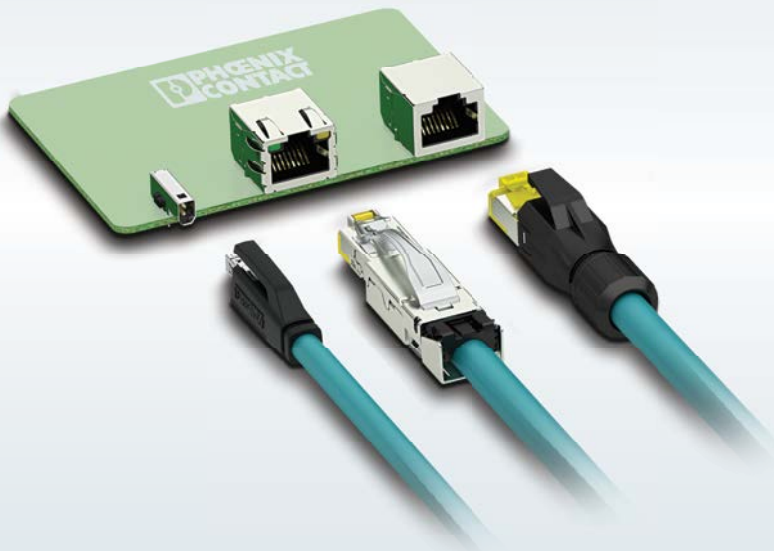


Data connectors

Product overview 2021

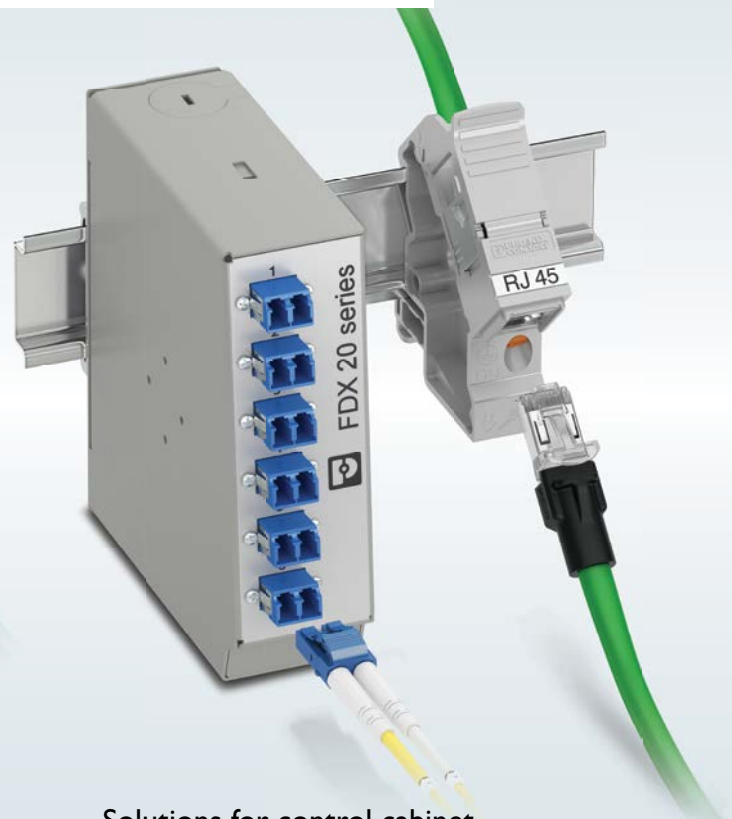
Reliable data connectors for copper and FO applications

Phoenix Contact provides reliable data connectors for a huge range of industrial and semi-industrial applications. Whether for copper or fiber optics, IP20 or IP69K protection class – our connection solutions satisfy the highest demands. Splice boxes, distributors, and adapters round out the comprehensive solution range.



Solutions for device connection

Phoenix Contact has the right device connector for your application. From SPE for printed circuit boards and M12 panel feed-throughs to D-SUB connectors, Phoenix Contact has a comprehensive portfolio of different pin connector patterns for a wide range of transmission properties.



Solutions for control cabinet cabling

Along with classic connectors, the product portfolio also includes creative solutions for your control cabinet application. Phoenix Contact DIN rail adapters and splice boxes combine high packing density with easy handling.



Solutions for field cabling

From IP20 degree of protection right through to IP67, Phoenix Contact enables assembly without the need for special tools and provides reliable components for every application. Whether for use directly on your machine, in buildings, or even outdoors, Phoenix Contact connection solutions are the perfect choice in any environment.

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Find out more with the web code

For detailed information, use the web codes provided in this brochure. Simply enter the # and the four-digit number in the search field on our website.

i Web code: #1234 (example)

Or use the direct link:
phoenixcontact.net/webcode/#1234

Unrivalled variety for copper and FO cabling

Create consistent solutions for reliable data transmission at speeds of up to 40 Gbps with our wide range of designs, codings, and pin assignments.

Always the right connection



For compact device connection



For flexible on-site connection



For easy cabling

F-SMA



SC DUPLEX



LC DUPLEX



SC-RJ

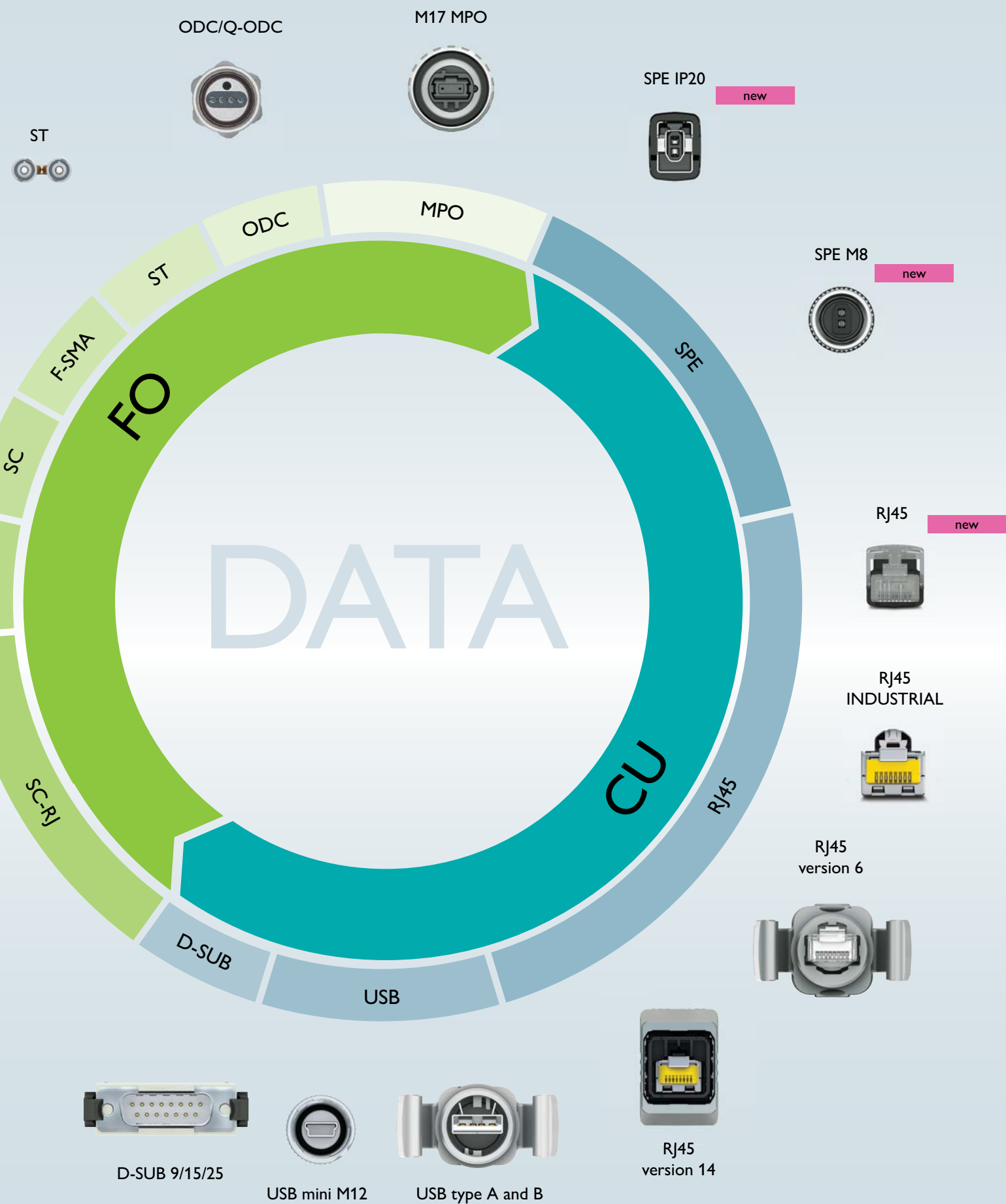


SC-RJ
version 6



SC-RJ
version 14





Copper-based data cabling for networks and fieldbuses

Complex automation processes call for high volumes of data at ever-increasing transmission speeds. Benefit now from high-performance connectors and cables designed for assembly on site. Whether future-proof high-speed cabling up to 10 Gbps or innovative hybrid cabling – we have the perfect solution for your automation network.

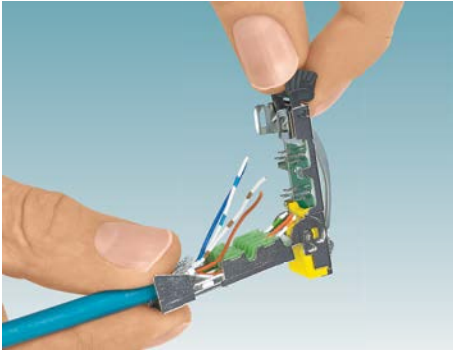


i Web code:
#0297

Main features

- Transmission speeds of up to 10 Gbps
- Solutions from IP20 through to IP69K
- Spring, pierce, and IDC connection
- 360° shielding concepts

Your advantages at a glance



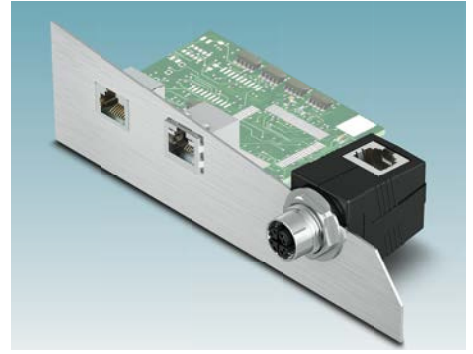
Fast assembly

without special tools – with IDC and pierce fast connection.



Wide range of connectors

from SPE and RJ45 through USB and D-SUB to M12.



Flexible device connection

with versatile housing feed-throughs for devices and control cabinets.



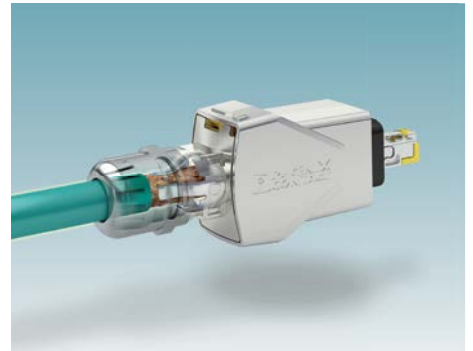
Reliable protection

against extreme temperatures, liquids, vibrations, and UV light.



Fast data transmission

with data rates of up to 10 Gbps and components in accordance with the CAT6_A standard.



Special shielding concepts

with 360° EMC shielding guarantee a high level of resistance to EMI and ESD.

Choose a flexible type of cabling

Whether for machine building and systems manufacturing, building automation or process automation – with copper-based data connectors from Phoenix Contact, you are opting for a flexible type of cabling that supports a wide range of bus systems:

- EtherNet/IP™, Ethernet, VARAN
- EtherCAT®, PROFINET, Sercos®
- INTERBUS, PROFIBUS, CANopen®
- DeviceNet™, CC-Link

FO-based data cabling for networks and fieldbuses

High transmission speed, low attenuation, resistance to electromagnetic interference: FO cables are a modern transmission medium for industrial systems and infrastructure applications. Whatever the fiber type or interface – you can choose the right connection technology from the extensive Phoenix Contact portfolio.



Web code:
#0298

Main features

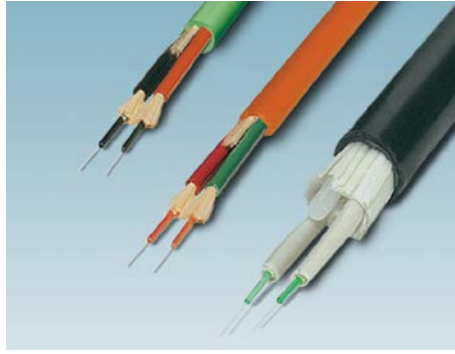
- Transmission speeds of up to 40 Gbps
- Solutions for IP20, IP65/IP67, and IP68
- For all common fiber types
- Maximum protection against the effects of EMI and ESD

Your advantages at a glance



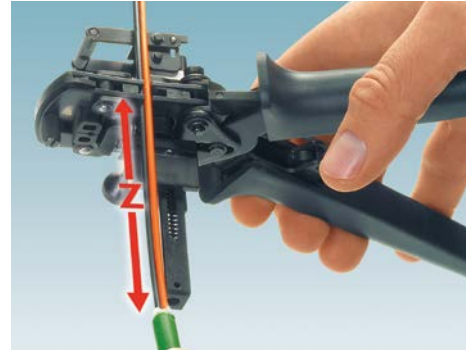
Wide choice of versions

from SC-RJ, LC, SC, F-SMA to ST, plus POF, PCF, and GOF fiber types.



Comprehensive range of cables

for all applications, networks, and standard interfaces.



Fast assembly

in the field using professional tools.



Reliable protection

against extreme temperatures, liquids, and UV light.



Large selection

of patch cable versions for all typical connection methods.



High packing density

and large splice tray in splice boxes for DIN rail and 19" mounting.

Choose the right fiber type for your application

- POF (Polymer Optical Fiber) for short transmission distances up to 75 m and data rates up to max. 100 Mbps
- PCF (Polymer-Clad Fiber) for medium transmission distances up to 500 m and data rates up to max. 1 Gbps
- GOF (Glass Optical Fiber) multimode for long transmission distances up to 550 m at 10 Gbps
- GOF singlemode for up to 50 km and data rates up to 40 Gbps

Solutions for industrial device connection

Special shielding concepts and torsion-resistant, optimally coordinated components are essential for the reliable operation of robots and conveying systems.

Use Phoenix Contact's reliable and consistent product range for error-free data transmission.



Product overview



RJ45 INDUSTRIAL jacks

The RJ45 INDUSTRIAL jacks for PCB mounting in combination with the RJ45 INDUSTRIAL connectors are the perfect connector system. The optimally coordinated components guarantee the highest transmission reliability in industrial applications. Optional LEDs and shield springs complete the portfolio perfectly.



RJ45 PCB jacks

The RJ45 PCB jacks are a cost-effective choice for reliable data transmission. With various connection options such as SMD and wave soldering, the single-port and multi-port jacks are suitable for a wide range of applications.



SPE IP20 jacks

IP20 PCB connectors for Single Pair Ethernet are ideal for efficient data transmission in factory and building automation. The application-specific, optimized cabling is therefore the basis for future-proof Ethernet communication from the sensor to the cloud.

i Web code: #2240



SPE M8 jack

Single Pair Ethernet (SPE) implements consistent Ethernet communication in the Industrial Internet of Things. Compact and robust M8 device connectors for SPE can be used for the space-saving and future-proof transmission of data and power from the OT level right through to the IT level.

i Web code: #2240



M8/M12 jack

Phoenix Contact offers a comprehensive range of one- and two-piece device connectors for PCB mounting in M8 and M12 designs. You can therefore choose from a wide range of connection solutions for wave, THR, and SMD soldering processes. The two-piece connectors allow you to realize all numbers of positions and codings for signal, data, and power supply in identical mechanical installation conditions.



D-SUB contact inserts

The D-SUB contact carrier product portfolio provides solutions for individual areas of application, from the standard contact insert and 44-pos. high-density contact inserts to hybrid contact inserts for signal and power transmission.

Solutions for industrial device connection

Complex automation processes demand communication in many areas. Benefit now from reliable PCB terminal blocks and PCB connectors that have been qualified based on various transmission standards, including ethernet-apl, PROFINET, Ethernet CAT5, and EtherCAT P, among others.



Ethernet



Product overview

ethernet-apl

Ethernet-APL technology enables communication through to the field level with 10 Mbps via two-wire Ethernet. The connection points are marked and color-coded for easy installation.

You will find further products, also for use in potentially explosive areas, on pages 28, 31, and 54, for example, and via the web code:

 Web code: #2390



SPTAF 1/ 3-5,0-IL
MC RDNGY BD
Order No. 1161098



MVSTBR 2,5/ 3-STF-
5,08 BUDDWH
Order No. 1161208

PROFINET

PROFINET features high transmission speeds of up to 100 Mbps through to the field level. Phoenix Contact PCB terminal blocks satisfy the requirements laid out in the "Guideline for PROFINET" and also, in part, increased safety requirements of the "Ex e" type of protection in accordance with IEC 60079-7.

You will find a product overview on pages 27, 32, and 36, for example, and via the web code:

 Web code: #1598



SPTAF 1/ 4-5,0-IL-
EXPROFINET 3
Order No. 1071100



SPT 2,5/ 4-H-EX
PROFINET 2
Order No. 1034522

Ethernet CAT5

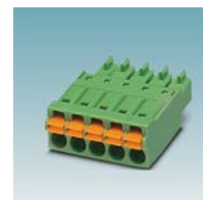
Ethernet is one of the most widely used data transmission technologies, and can transmit 100 Mbps / 1 Gbps in Category 5. Phoenix Contact provides products for CAT5 transmission that are in part equipped with empty positions to prevent crosstalk, ensuring reliable communication.

You will find these on pages 29, 30, and 49, for example, and via the web code:

 Web code: #2713



SPTA 1,5/ 4-3,81
Order No. 1751493



FMC 1,5/ 5-ST-3,5
Order No. 1952296

EtherCAT P

Along with Category 5, the DMCC 0,5 also features EtherCAT P qualification, which realizes voltage supply (24 V/3 A) via the data line (100 Mbps). Moreover, shielding and an optional latching function are also available.

You will find the qualified DMCC 0,5/ ST-SH series Phoenix Contact portfolio, created in accordance with the EtherCAT P standard, on page 43 and via the web code:

 Web code: #2332



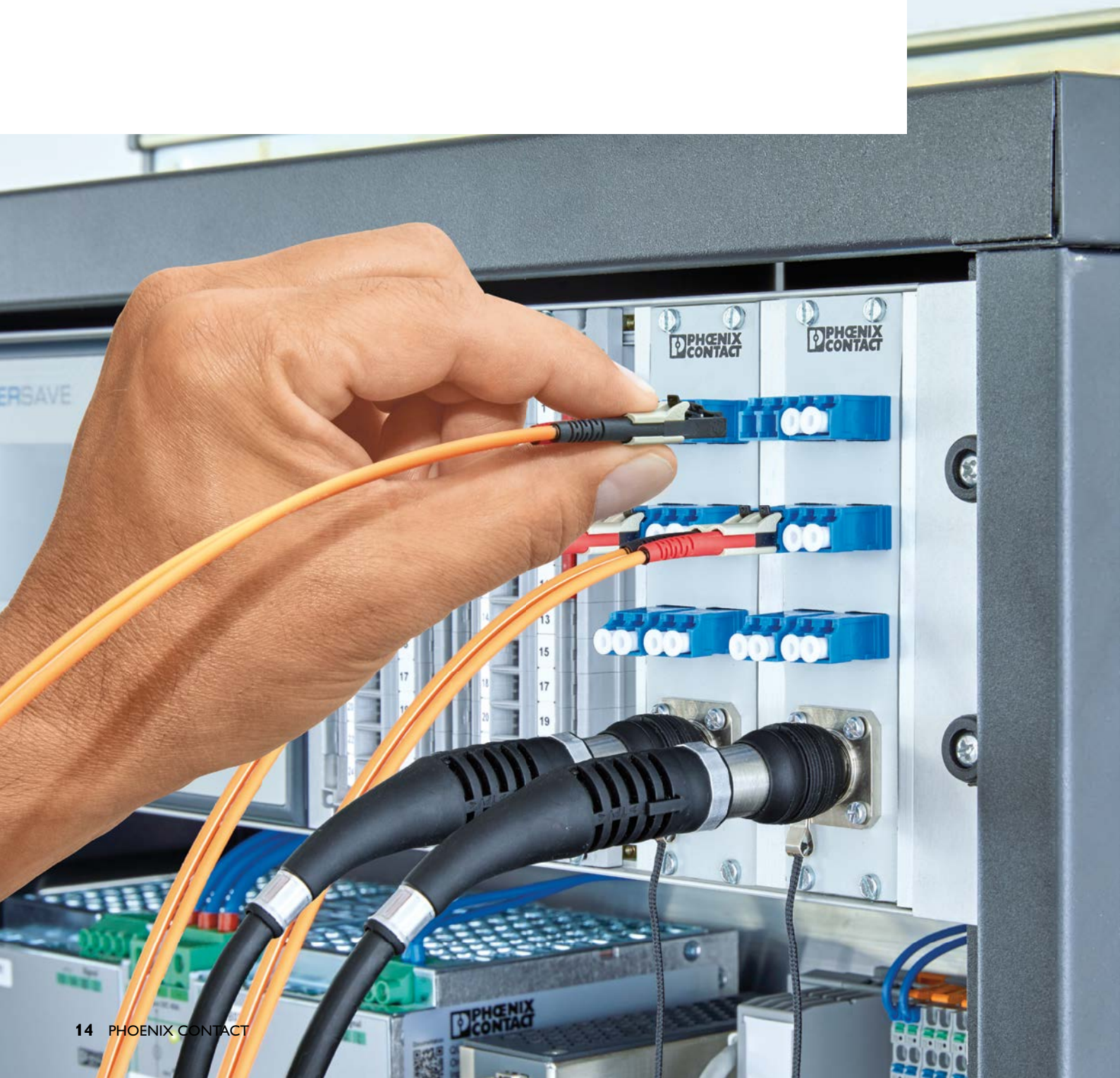
DMCC 0,5/ 2-ST-SH
7,0-2,54
Order No. 1128660



DMCC 0,5/2-ST-SHL
7,0-2,54
Order No. 1150807

Solutions for control cabinet cabling

Select the FO or copper components in cabling solutions for Ethernet and PROFINET applications that suit your data transmission system. The comprehensive product range for control cabinet applications provides the right solution for your requirements.



Product overview



Splice boxes

The FDX 20 series splice boxes ensure continuously reliable real-time data transmission. With their compact and uniform design, the splice boxes for both DIN rail and the 19" mounting provide plenty of interior space for the secure connection of fiber optics.



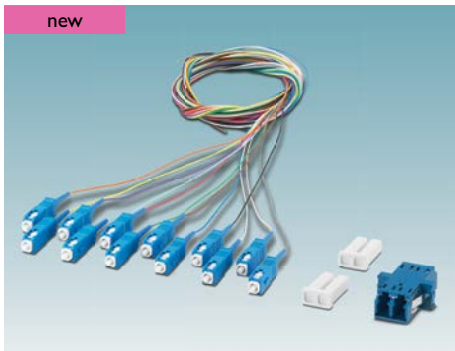
19" distributors

High packing density, greater flexibility: The 19" marshalling panels simplify FO cabling, and are therefore ideal for real-time data transmission. The modular design enables a variety of applications, e.g., in power distribution and process technology.



DIN rail adapters

The universal DIN rail adapters offer maximum flexibility in a confined space. The one-piece housing snaps quickly and easily onto the DIN rail. Module inserts with RJ45, SC simplex, LC duplex, and MTP connections are available for data transmission with copper and FO conductors.



FO couplings and pigtails

FO couplings and pigtails enable safe and reliable cabling inside the FDX20 splice boxes – both for DIN rail and 19" mounting. The comprehensive product portfolio enables a high degree of flexibility, whatever the application.



Copper cable connection and couplings

The cable connections and coupling modules for RJ45 ensure the secure connection of your cables and the reliable transmission of data via the interface. The versions for Freenet and Keystone can be integrated into existing panel-mount frames or integrated directly into the DIN rail adapter.

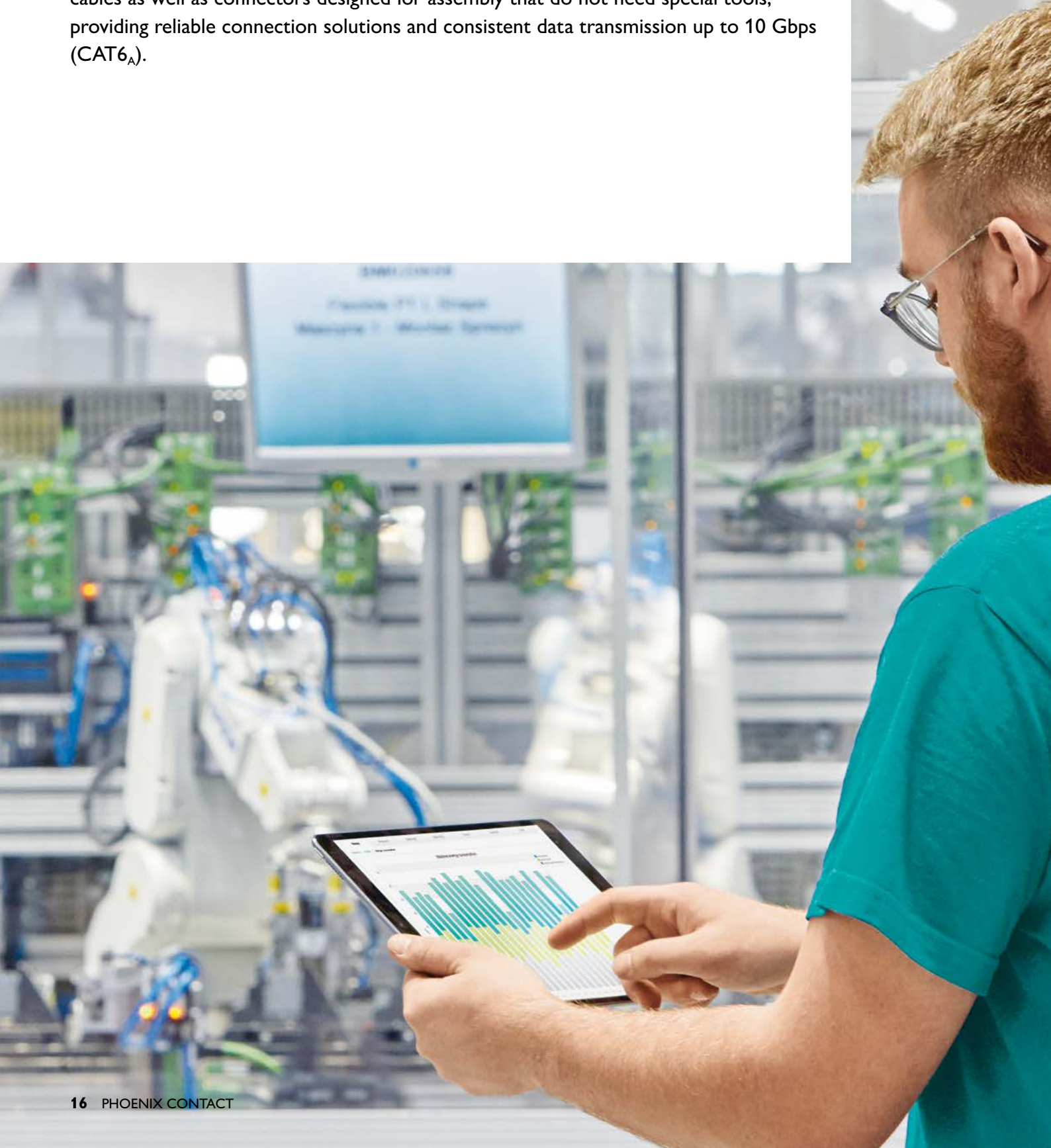


Bulkheads

The compact control cabinet feed-throughs provide a high degree of flexibility for through-panel applications with an interface change. They are available in various outlet directions and for various M12 codings.

Solutions for industrial IP20 cabling

For the special requirements in industrial cabling, Phoenix Contact offers RJ45 patch cables as well as connectors designed for assembly that do not need special tools, providing reliable connection solutions and consistent data transmission up to 10 Gbps (CAT6_A).



Product overview



RJ45 INDUSTRIAL CAT6_A connectors

The RJ45 INDUSTRIAL connectors for data transmission speeds up to 10 Gbps are a future-oriented solution for your interface. Specifically developed for industrial use, the connectors guarantee that the connection will be optimally protected from vibrations. Furthermore, the one-piece design and assembly without the need for special tools enable easy handling.



RJ45 INDUSTRIAL CAT5 connectors

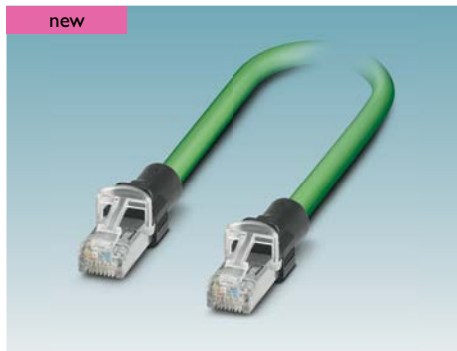
The proven RJ45 INDUSTRIAL connectors for data rates up to 1 Gbps. The safe shielding against external electrical influences and the robust design guarantee reliable transmission, especially in industrial environments. The intuitive assembly of the one-piece connector, which does away with the need for special tools, also saves valuable time during installation and prevents a variety of application-specific errors.



SPE IP20 patch cables

The new patch cables for Single Pair Ethernet conform to IEC 63171-2, and are therefore designed for use in IP20 environments. The innovative SPE connection system from Phoenix Contact reduces the amount of space required and the installation effort involved, and also enables the last level of manufacturing to be integrated into Industrial Ethernet.

i Web code: #2240



RJ45 INDUSTRIAL patch cables for PROFINET

Thanks to a large selection of cable types, the new, molded RJ45 INDUSTRIAL patch cables for PROFINET provide the ideal solution for a variety of applications. Along with cables for drag chain and robot applications, versions are also available for railway technology applications, among others.



Angled RJ45 INDUSTRIAL patch cables

Angled RJ45 INDUSTRIAL patch cables from Phoenix Contact are the ideal solution for special industrial applications that require a cable outlet in different directions. Five different outlet directions enable permanently reliable communication, even in applications where space is at a premium.



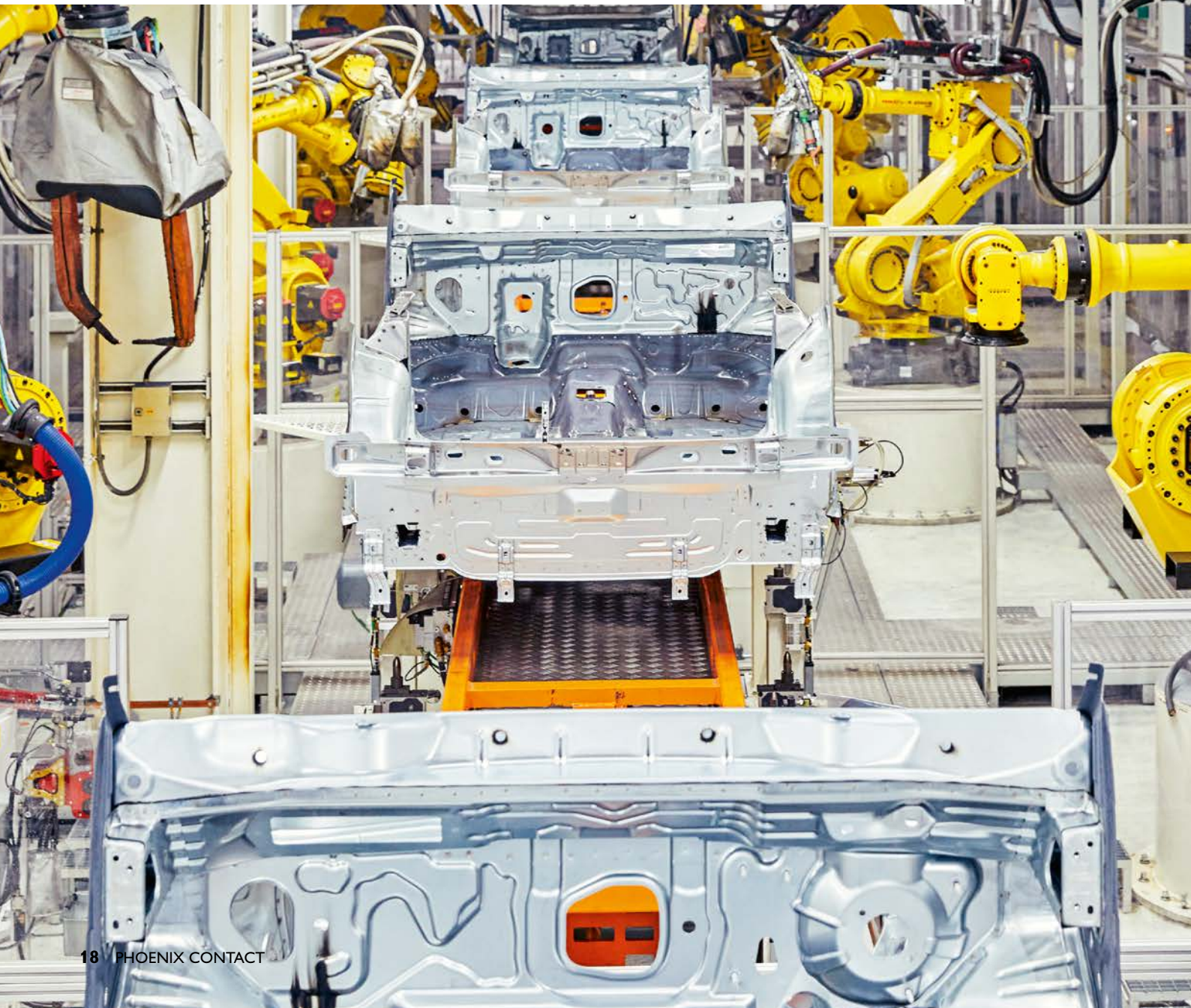
RJ45 INDUSTRIAL patch cables for Ethernet

Even high transmission speeds up to CAT6_A in industrial applications are no problem, thanks to the new robust RJ45 INDUSTRIAL patch cables. The molded connectors provide optimum protection for the connection, ensuring permanently reliable data transmission.

i Web code: #1975

Solutions for industrial IP6X cabling

Special shielding concepts and torsion-resistant components are essential for the reliable operation of robots and conveying systems. Use Phoenix Contact's reliable and consistent product range for error-free data transmission.



Product overview



Version 14 RJ45 connectors

Push-pull ADVANCE is the new connector for PROFINET and Ethernet cabling in the high IP65/IP67 protection class. With its 360° shielding and the optional mechanical locking mechanism, it provides maximum safety in field applications.



Version 14 FO connectors

With their robust design, IP65/IP67 protection class, and optional mechanical locking mechanism, the push-pull ADVANCE connectors provide maximum safety for FO cabling in the field.



SPE M8 patch cables

The new SPE M8 patch cables are the Ethernet interface for the industrial field cabling of the future. Established inductive sensors can be connected to the Ethernet protocol easily using the standardized connectors in accordance with IEC 63171-5. Thanks to Advanced Shielding Technology, the patch cables with male or female contacts provide optimum protection against external interference.

i Web code: #2240



Push-pull power

The push-pull ADVANCE connectors are suitable for power transmission up to 24 V and 16 A. The IP65/IP67 connectors have a one-piece zinc die-cast housing with large wiring space for outside cable diameters of 6.5 mm to 13 mm. The interlock prevents inadvertent removal.



Push-pull panel-mount frames

The push-pull ADVANCE panel-mount frames for data connectors are made from robust die-cast zinc and are ideal for industrial applications. The IP65/IP67 panel-mount frames are designed for the connection of RJ45 or SC-RJ connectors. They therefore support flexible solutions for data transmission.

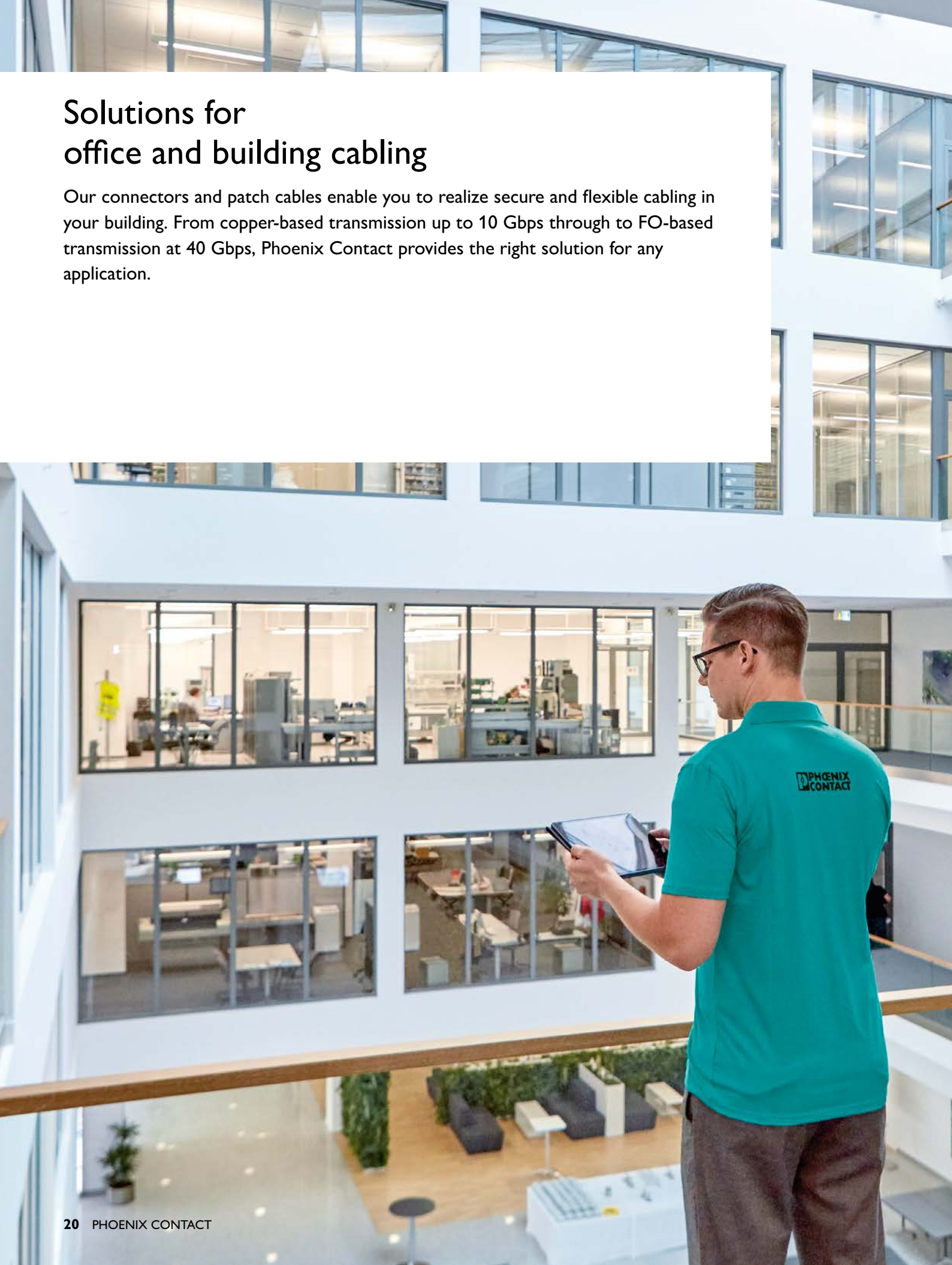


Push-pull outlets

Thanks to the flexible options for combining power and data interfaces, push-pull outlets are ideal for creating IP-protected interfaces from free cable ends.

Solutions for office and building cabling

Our connectors and patch cables enable you to realize secure and flexible cabling in your building. From copper-based transmission up to 10 Gbps through to FO-based transmission at 40 Gbps, Phoenix Contact provides the right solution for any application.



Product overview



RJ45 QUICKON connectors

The RJ45 connectors with QUICKON fast-connection technology for assembly without the need for special tools guarantee quick and easy installation in the field. Phoenix Contact provides connectors for PROFINET cabling up to 1 Gbps and Ethernet cabling up to 10 Gbps, depending on the application.



RJ45 crimp connectors

The RJ45 connectors with crimp connection technology provide a secure cabling solution for data transmission from CAT5 to CAT6_A.



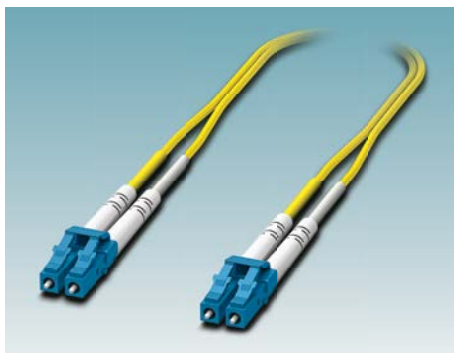
RJ45 office/building patch cables

The new RJ45 patch cables for building applications are ideal for data cabling within enclosed spaces. With materials and approvals specifically intended for these applications, the patch cables enable permanently reliable communication at up to 1 Gbps.



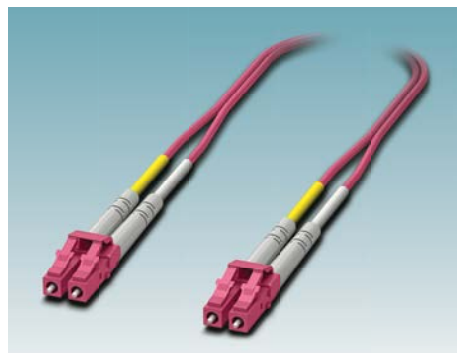
FO connectors

The new, innovative FO connectors feature high process reliability and are quick and easy to connect. Multimode and singlemode versions are available for quartz glass. Furthermore, these connectors can also be re-used.



FO singlemode patch cables

The FO singlemode patch cables from Phoenix Contact are high-quality cabling solutions and are ideal for high-speed cabling at data rates up to 40 Gbps covering distances of up to 40 km.



FO multimode patch cables

Thanks to their exceptional quality, the FO multimode patch cables provide the ideal conditions for reliable data transmission. Various connector combinations and cable lengths allow custom solutions to be created for any application.

Solutions for outdoor applications

High demands are placed on components used for outdoor data transmission, for example in fields such as telecommunications and renewable energy. Phoenix Contact provides special connectors for outdoor applications. These can withstand aggressive environmental conditions with extreme temperature variations, humidity, UV rays, and vibrations.



Product overview



Multi-fiber FO connectors

Industrial-grade multi-fiber data connectors are ideally suited for real-time data transmission in intelligent power grids. The robust interfaces feature high-quality fiber optics which ensure stable bandwidths over long transmission distances.



Version 6 FO connectors

The version 6 data connectors, developed in-house by Phoenix Contact, are a cost-effective option for IP-protected connectors. The practical latching wings ensure a reliable connection with the corresponding panel-mount frame, yet can be operated easily.



Version 6 RJ45 connectors

The version 6 data connectors from Phoenix Contact are a cost-effective option for IP-protected connectors. The portfolio of packaged RJ45 connectors includes versions with IDC and crimp connection for CAT5 and CAT6_A applications, as well as pre-assembled patch cables.



Version 6 panel-mount frames

The version 6 panel-mount frames are a convenient and simple option for creating a reliable IP-protected connection between version 6 data connectors and devices.



Version 6 panel-mount frames and inserts

The version 6 panel-mount frames can be extended to create the matching insert for your mating connector by adding the appropriate coupling modules for RJ45 and FO connections as well as the cable connection modules for copper connections.



D-SUB IP6X housings

The IP-protected plastic housings for D-SUB connectors ensure a reliable connection for your interface, even under harsh conditions. The optional protective caps provide reliable protection even when a connector is not plugged in.

Product application overview of data connectors

		Application	Solutions for industrial device connection	Solutions for the control cabinet	Solutions for industrial IP20 cabling	Solutions for industrial IP6X cabling	Solutions for office and building cabling	Solutions for outdoor applications
Copper								
SPE		Female	25					
		Patch cable			30	34		
RJ45		Female/coupling	24	29		32-33		44-45
		Male			30-31	32	38	44
		Patch cable			30-31	34-35	38-39	
M12		Female	25					
		Male				37		
D-SUB		Contact insert	26					
		Panel-mount frame/sleeve housing	27					
USB		Female						45
		Patch cable					39	

		Application	Solutions for industrial device connection	Solutions for the control cabinet	Solutions for industrial IP20 cabling	Solutions for industrial IP6X cabling	Solutions for office and building cabling	Solutions for outdoor applications
Copper								
Power		Female				36		
		Male				36		
FO								
POF, PCF, and GOF		Coupling		29		32-33	40	45
		Male				32	40	44
		Patch cable					41	42-43
Splice boxes		DIN rail		28				
		19"		28				
Copper/FO								
Distributors				29				

Solutions for industrial device connection

RJ45 INDUSTRIAL PCB jacks

 Web code: #2059				
	Wave/THR			
Alignment	90° horizontal		180° vertical	
Housing shield springs	Yes	No	Yes	No
Without LED	1099280	1091946	1099279	1091942
With LED	1099281	1091950	1099282	1091947

RJ45 single-port PCB jacks

 Web code: #2341						
	SMD			Wave		
Alignment	180° vertical	90° horizontal		180° vertical	90° horizontal	
Locking clip		Top	Bottom		Top	Bottom
Without LED	1149611	1149882	1149874	1149872	1149870	1149868
With LED		1149873		1149871	1149867	1149866

RJ45 multi-port PCB jacks

Web code: #2341				
	Soldering process			
	Wave			
	Alignment			
	90° horizontal			
RJ45 ports	2		4	
Locking clip	Top	Bottom	Top	Bottom
Without LED	1149858	1149855	1149851	1149849
With LED	1149854	1149852	1149848	1149616

	SPE IP20 jack		SPE M8 jack		
new i Web code: #2341					
Soldering process	Wave/THR		SMD	Wave/THR	
Type of contact	Male contact				
Alignment	180° vertical	90° horizontal	180° vertical		90° horizontal
Without LED	1163798	1163797	1215777	1163793	1163795
With LED		1215778			

M12 device connectors with PCB connection


Web code: #0222

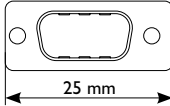
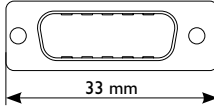
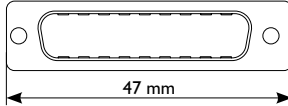


Network	Technology	Wave soldering		THR		SMD	
		Male	Female	Male	Female	Male	Female
Ethernet	CAT5, 4-pos.	1456514	1456527	1552214	1551451	1411956	1411950
	CAT, 8-pos.	1456530	1456543	1557578	1557549		
	CAT, 8-pos. hybrid		1407503		1405225		1411965
	CAT6 _A , 8-pos.		1424177		1402457		1411964
PROFINET	4-pos.	1456556	1456569	1552175	1542648		
Sercos	4-pos.	1457979	1457966				
EtherCAT	4-pos.	1456556	1456569				
PROFIBUS	5-pos.	1456475	1456488				
INTERBUS	5-pos.	1456572	1456585				
CANopen, EtherNet/IP	5-pos.	1456491	1456501				
CC-Link	4-pos.	1457856	1457869				
FOUNDATION Fieldbus	4-pos.	1457872	1457885				

M12 device connectors with assembled cable

i Web code: #0222							
Category/version	CAT5, 93E	CAT5, 93B		CAT5, 93K		CAT5, 94H	CAT6 _A , 94F
	Female	Male	Female	Male	Female	Female	Female
0.5		1427805	1437766	1410158	1419154	1407504	1424135
1		1437818	1437779	1419159	1419155	1407505	1424148
2	1405866	1437821	1437782	1428160	1419156	1407506	1424751
5		1437834	1437795	1437161	1419157	1407507	1424164

Solutions for industrial device connection

		Housing size 1		Housing size 2		Housing size 3	
 Web code: #0340							
D-SUB contact inserts							
		Connection technology	Thread/drill hole	Contacts	Housing size	Male	Female
Signal		Screw connection	3 mm drill hole	9 x signal	1	1688379	1688395
				15 x signal	2	1688078	1688094
				25 x signal	3	1689789	1689776
		Solder connection with solder cup	3 mm drill hole	9 x signal	1	1688793	1688803
				15 x signal	2	1688874	1688887
				25 x signal	3	1689899	1689909
		PCB connection with straight solder pins	3 mm drill hole	9 x signal	1	1418717	1418726
				15 x signal	2	1418718	1418728
				25 x signal	3	1418725	1418729
		PCB connection with angled solder pins	M3 thread	9 x signal	1	1688382	1688405
				15 x signal	2	1688081	1688120
				25 x signal	3	1689873	1689886
		Crimp connection	3 mm drill hole	9 x signal	1	1688858	1688861
				15 x signal	2	1688939	1688942
				25 x signal	3	1689954	1689967
		Crimp connection for high-density contacts	3 mm drill hole	15 x signal	1	1655137	1655124
				26 x signal	2	1655195	1655182
				44 x signal	3	1655250	1655247
	IDC connection for flat-ribbon cables	4-40 UNC thread	9 x signal	1	1418739	1418742	
			15 x signal	2	1418740	1418744	
			25 x signal	3	1418741	1418745	
	Male/male female/female	4-40 UNC thread	9 x signal	1	1652651	1688722	
			15 x signal	2	1652677	1652664	
			25 x signal	3	1652693	1652680	
Hybrid		Solder connection with solder cup	3 mm drill hole	1 x power / 4 x signal	1	1689006	1689019
				2 x power / 5 x signal	2	1688227	1688230
				3 x power / 10 x signal	3	1689996	1690008
				4 x power / 5 x signal	3	1655386	1655373
				1 x power / 10 x signal	2	1418755	1418759
				2 x power / 15 x signal	3	1418757	1418760
				1 x power / 20 x signal	3	1418758	1418761
		PCB connection with straight solder pins	4-40 UNC thread	1 x power / 4 x signal	1	1418762	1418766
				2 x power / 5 x signal	2	1418763	1418767
				1 x power / 10 x signal	2	1418771	1418775
				2 x power / 15 x signal	3	1418773	1418776
				1 x power / 20 x signal	3	1418774	1418777
				3 x power / 10 x signal	3	1418764	1418768
				4 x power / 5 x signal	3	1418765	1418770
		PCB connection with angled solder pins	4-40 UNC thread	1 x power / 4 x signal	1	1655315	1655302
				2 x power / 5 x signal	2	1655360	1655344
				3 x power / 10 x signal	3	1655425	1655412
				4 x power / 5 x signal	3	1655409	1655399
	PCB connection with angled solder pins	4-40 UNC thread	1 x power / 10 x signal	2	1418778	1418781	
			2 x power / 15 x signal	3	1418779	1418782	
			1 x power / 20 x signal	3	1418780	1418783	
Power		PCB connection for angled combination contacts with solder pin	4-40 UNC thread	2 x power	1	1655292	1655289
				3 x power	2	1655331	1655328
				5 x power	3	1655441	1655438
		Solder connection for straight combination contacts with solder cup	3 mm drill hole	2 x power	1	1688418	1688421
				3 x power	2	1688201	1688214
				5 x power	3	1689970	1689983

Panel-mount frames/sleeve housings for D-SUB contact inserts

 Web code: #0340										 	
		IP20 full metal				IP20 metal-plated				IP67 plastic	
Contacts	Housing size	Straight		Angled		Straight		Angled		Panel-mount frame	Sleeve housing
		Screw locking	Snap-in locking	Screw locking	Snap-in locking	Screw locking	Snap-in locking	Screw locking	Snap-in locking		
9 x signal	1	1419722	1419746	1419723	1419754	1419705	1419729	1419706	-	1688366	1688353
15 x signal	2	1419724	1419756	1419725	1419757	1419710	1419731	1419718	1419732	1688036	1688052
25 x signal	3	1419727	1419758	1419728	1419759	1419719	1419736	1419721	1419741	1689750	1689792

Power contacts for hybrid and power contact inserts

 Web code: #0676								
Connection	Solder cup			PCB mounting		Solder pin		
Connection cross-section	AWG 14 - 12							
Rated current	20 A (at +20°C)		40 A (at +20°C)		40 A (at +20°C)		20 A (at +20°C)	
Type of contact	Male	Female	Male	Female	Male	Female	Male	Female
Order No.	1688243	1688256	1688269	1688272	1655467	1655454	1426073	1426074

Signal contacts for contact inserts with crimp connection

 Web code: #0676							
Contact		Standard				High density	
Conn. cross-section		AWG 28 - 26		AWG 24 - 20		AWG 28 - 20	
Type of contact		Male	Female	Male	Female	Male	Female
Order No.		1418784	1418787	1418786	1418788	1418789	1418790

Solutions for the control cabinet

FO splice boxes, FDX 20 series, IP20

i Web code: #0336



DIN rail mounting

	6 x LC duplex	12 x LC duplex	6 x SC duplex	6 x ST duplex	6 x LSH duplex
Without pigtails	1019710	1019705	1019686	1019681	
OM1 (G62.5/125 µm)				1019684	
OM2 (G50/125 µm)	1019713	1019709	1019700	1019683	
OM4 (G50/125 µm)	1019712	1019708	1019698		
OS2 (PC) (E9/125 µm)	1019711	1019707	1019692	1019682	
OS2 (APC) (E9/125 µm)	1083665				1019680

FO splice boxes, FDX 20 series, 19" mounting

i Web code: #0336



	12 x LC duplex	24 x LC duplex	12 x SC duplex	24 x SC duplex	12 x ST duplex	24 x ST duplex
OM1 (G62.5/125 µm)					1145399	1145389
OM2 (G50/125 µm)	1145416	1145375	1145408	1145407	1145398	1145397
OM4 (G50/125 µm)	1145415	1145413	1145406	1145403		
OS2 (PC) (E9/125 µm)	1145411	1145409	1143631	1145400	1145395	1145392

DIN rail adapters/marshalling panels

i Web code: #1643			
	Type	DIN rail adapter	Marshalling panel
	Gray, set item	1100077	
	Gray, unassembled	1041740	1422978
	Black, unassembled		1422979

RJ45 modules for the DIN rail adapter

i Web code: #1643		
Inserts	RJ45 coupling module	RJ45 cable connection with IDC connection
CAT6 _A	1041760	1417274

FO coupling modules for the DIN rail adapter

i Web code: #1643	
Inserts	FO coupling module
LC duplex, singlemode APC	1041780
SC simplex, singlemode APC	1041800
MTP type A	1041820
MTP type B	1041840

M12-RJ45 bulkheads

 Web code: #0339					
	Ethernet			PROFINET	
	CAT5	CAT6 _A		CAT5	
	180° version	1414396	1404549		1414398
	90° version	1414393	1404548		1414397

Solutions for industrial IP20 cabling

RJ45 INDUSTRIAL connectors

i Web code: #0330



Connection technology			
Protocol	PROFINET		
Connection area	AWG 23 ... 22		
Category	CAT5		
Cable outlet	Straight	Top	Bottom
Order No.	1421126	1421127	1421128

RJ45 INDUSTRIAL patch cables

i Web code: #1975



Protocol	PROFINET			
Transmission	100 Mbps			
Web code	#0326			
Head 1 cable outlet	Straight	Straight	Straight	Top
Head 2 cable outlet	-	Straight	Top	Top
Cable	93B	93B	93B	93B
	93C	93C	93C	93C
	93M	93M	93M	93M
	93R	93R	93R	93R
	93K	93K	93K	93K
Item	1247661	1247656	1247660	1247630

Selection of cables

Protocol	PROFINET			
Transmission	100 Mbps			
Cable designation	93B	93C	93M	93R
Application	Flexible installation	Drag chain	Flexible installation	Robot/torsion
Sheath material	PVC	PUR	PUR	PUR
Cable structure	1 x 4 x AWG 22/7	1 x 4 x AWG 22/7	1 x 4 x AWG 22/7	1 x 4 x AWG 22/19
Shielding	SF	SF	SF	SF

SPE IP20 patch cables

new

i Web code: #2240



Transmission	1 Gbps (up to 600 MHz)	1.0 m	1183807
Sheath material	PVC	2.0 m	1183808
Cable structure	1 x 2 x AWG 22	3.0 m	1183810
Shielding	SFTP	5.0 m	1183811

				
IDC insulation displacement connectors				
	Ethernet			
	AWG 26 ... 24			
CAT6 _A	CAT5			CAT6 _A
Straight	Straight	Top	Bottom	Straight
1149847	1421607	1421876	1421877	1149846

					
	EtherCAT	Ethernet			
	100 Mbps	100 Mbps		1 Gbps	10 Gbps
			#0327		#0328
Top	Straight	Bottom	Bottom	Straight	Straight
-	Bottom	Bottom	-	-	Straight
93B	93B	93B	93B		
93C	93C	93C	93C		
93M	93M	93M	93M		
93R	93R	93R	93R	94C	94C
93K	93K	93K	93K	94F	94F
1247634	1247629	1247649	1247658	1247647	1247639

Configurable cable and cable length

	EtherCAT	Ethernet		
	100 Mbps	100 Mbps	1 Gbps	10 Gbps
937	93K	93E	94C	94F
Railway	Flexible installation	Flexible installation	Drag chain	Flexible installation
P-EX	PVC	PUR	PUR	PUR
1 x 4 x AWG 22/7	1 x 4 x AWG 22/7	2 x 2 x AWG 26/7	2 x 4 x AWG 26/7	2 x 4 x AWG 26/7
SF	SF	SF/UTP	S/UTP	S/FTP

Solutions for industrial IP6X cabling

Version 14 RJ45 connectors

 Web code: #0325													
	Connection technology							IDC insulation displacement connector	Crimp				
	Cable outlet		Straight		Bottom		Top	Straight					
	Connection		AWG 26 ... AWG 24	AWG 23 ... AWG 22	AWG 26 ... AWG 24	AWG 23 ... AWG 22	AWG 26 ... AWG 24	AWG 23 ... AWG 22	AWG 26 ... AWG 24				
CAT5	1422661		1422664		1422662		1422665		1422663		1422667		
CAT6 _A	1149841		1149843										1422108

Version 14 FO connectors

i Web code: #0334			
	Fiber type		
	Material		
	Cable outlet		
Order No.			

Version 14 panel-mount frames and inserts

 Web code: #0325					
	Panel cutout				
	Rectangular		Circular		
	For PCB modules		For AVAGO transceivers		For Freenet modules
Order No.	1413963		1413981		1405222
Panel-mount frame, assembled	CAT6 _A cable connection	CAT6 _A coupler module	SC-RJ coupler	SC-RJ coupler	
Order No.	1413961	1413962	1413964	1405235	

RJ45 modules and couplings

 Web code: #0325				
Type	RJ45 cable module for V14 panel-mount frames	RJ45 coupler module for V14 panel-mount frames	RJ45 V14 coupling	SC-RJ V14 coupling
CAT5	1652936	1419022	1405183	
CAT6 _A	1418984	1086111		
FO				1405206

Version 14 multi-ports

 Web code: #0325					
Connection	Power	RJ45	SC-RJ	Power/RJ45	Power/SC-RJ
Connection	AWG 18 ... AWG 13	AWG 26 ... AWG 22		AWG 18 ... AWG 13 AWG 26 ... AWG 22	AWG 18 ... AWG 13
Cable module	1403681	1403678	1404319	1403682	1404321
Coupling	1403684	1403685		1406395	

Terminal outlets

 Web code: #0325					
Connection	Power/RJ45	RJ45/RJ45	SC-RJ/SC-RJ	M12 D-coded/ M12 D-coded	M12 A-coded/ M12 A-coded
Order No.	1404333	1404281	1404320	1404294	1404304

Solutions for industrial IP6X cabling

SPE M8 patch cables							
new  Web code: #2240							
Transmission		1 Gbps (up to 600 MHz)					
Sheath material		PUR					
Cable structure		1 x 2 x AWG 22					
Shielding		SFTP					
Head 1		External thread male contact		External thread male contact		Internal thread female contact	
Head 2		External thread male contact		Internal thread female contact		Internal thread female contact	
2.0 m		1217526		1217524		1217530	

 Web code: #0326 Up to 100 Mbps, IP65/IP67, variable cable length								
		Free cable end	RJ45 connector, straight, IP20	RJ45 connector, angled	RJ45 connector, version 14, metal	RJ45 connector, version 14, plastic	M12 male, straight	M12 male, angled
	RJ45 connector, version 14, metal	1411859	1411863	—	1411866	—	1408636	1408610
	RJ45 connector, version 14, plastic	1411860	1411864	—	—	1411867	1408635	1408609
	M12 male, straight	1408640	1408639	1408638	1408636	1408635	1408634	1408608
	M12 male, angled	1408633	1408632	1408631	1408628	1408626	1408625	1408624
	M12 female, straight	1408623	1408622	1408621	1408619	1408618	1408617	1408616
	M12 female, angled	1408615	1408613	1408612	1408610	1408609	1408608	1408607
	M12 flush-type female connector, rear mounting, limited cable length	1 m 1437779	0.5 m 1404367	—	—	—	—	—
		2 m 1437782	1 m 1404368	—	—	—	—	—
		5 m 1437795	5 m 1404369	—	—	—	—	—

 Web code: #0327 Up to 1 Gbps, IP65/IP67, variable cable length								
	Free cable end	RJ45 connector, IP20	RJ45 connector, version 6, IP20	RJ45 connector, version 14, metal	RJ45 connector, version 14, plastic	M12 male, straight	M12 male, angled	
IP65/IP67 cables, variable cable length								
	RJ45 connector, version 6	1411839	1411843	1411846	—	—	1408679	1408671
	RJ45 connector, version 14, metal	1411840	1411844	—	1411847	—	1408678	1408670
	RJ45 connector, version 14, plastic	1411841	1411845	—	—	1411848	1408677	1408668
	M12 male, straight	1408682	1408681	1408679	1408678	1408677	1408676	1408667
	M12 male, angled	1408675	1408674	1408671	1408670	1408668	1408667	1408666
	M12 flush-type female connector, rear mounting, cable length limited to 5 m	1407877	1412082	1412231	1412503	1412590	—	—

 Web code: #0328 Up to 10 Gbps, IP65/IP67, variable cable length							
		Free cable end	RJ45 connector, IP20	RJ45 connector, version 6, plastic	RJ45 connector, version 14, metal	RJ45 connector, version 14, plastic	M12 male, straight
	RJ45 connector, version 6	1415639	1414321	1414322	—	—	—
	RJ45 connector, version 14, metal	1415637	1411855	—	1414323	—	—
	RJ45 connector, version 14, plastic	1415638	1411856	—	—	1414324	—
	M12 male, straight	1408648	1408647	—	1408646	1408645	1408644
	M12 flush-type female connector, rear mounting, limited cable length	1 m 1424148	—	—	—	—	—
		2 m 1424151	—	—	—	—	—
		5 m 1424164	—	—	—	—	—

Solutions for industrial IP6X cabling

Version 14 power connectors

i Web code: #0341					
	AWG 18 ... AWG 13				
	Fixed		Variable		
	Outside cable diameter	6.5 mm ... 9 mm	9 mm ... 13 mm	6.5 mm ... 9 mm	9 mm ... 13 mm
	Order No.	1421785	1421783	1425515	1425514

Assembled version 14 panel-mount frames

 Web code: #0321					
	Rectangular			Circular	
	AWG 18 ... AWG 13				
	Fixed coding	Variable coding	Unassembled, silver	Fixed	Variable
	1608249	1408235	1608087	1405248	1409036

Push-pull power contact inserts

i Web code: #0321		
	90° horizontal	180° vertical
	Order No.	1657915

Version 14 power distributors

 Web code: #0341			
	Cable	5 x 2.5 mm ² / 0.2 m cable	
	Type	Y distributor	H distributor
	Connection	2 x push-pull / 1 x push-pull	2 x push-pull / 2 x push-pull
	Order No.	1404799	1405387

M12 connectors

i Web code: #0338



Push-in connection

IDC connection

Piercecon connection

Screw connection

Straight

Angled

Straight

Angled

Straight

Angled

Straight

Angled

Networks

Ethernet	CAT5, 4-pos.	Male			1411066	1553624			1521261	
		Female			1411069	1553637				
	CAT5, 8-pos.	Male			1421679	1553653				
		Female			1421680	1553666				
	CAT6_A, 8-pos.	Male			1411043		1417430	1417443		
		Female			1414586					
PROFINET	Male	1424682	1424684	1411068	1554539				1521261	
	Female	1424686	1424685	1411071	1554542					
VARAN	Male			1429130	1429156					
	Female			1429143	1429169					
Fieldbuses										
INTERBUS	Male	1424674	1424675						1507764	1430417
	Female	1424676	1424677						1507777	1430420
PROFIBUS	Male	1424678	1424679	1413931					1507764	1430417
	Female	1424680	1424681	1413932					1507777	1430420
CANopen, DeviceNet	Male	1424670	1424671	1422759					1508352	
	Female	1424672	1424673	1422760					1508365	
CC-Link	Male	1424699								
	Female	1424700								

Solutions for office and building cabling

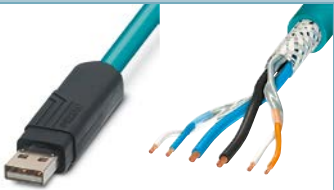
RJ45 connectors

 Web code: #0330	     					
	Ethernet			PROFINET	Ethernet	
	IDC insulation displacement connectors					Crimp
	AWG 26 ... AWG 24	AWG 26 ... AWG 23		AWG 22	AWG 27 ... AWG 24	
	CAT5	1656725	1658008	1658435	1414382	1414400
CAT6 _A	1419001				1414395	1414402

RJ45 office patch cables

 Web code: #0331	   			
	CAT5		CAT6	CAT6 _A
Shielding	U/UTP	SF/UTP	S/FTP	S/FTP
Length	0.3 m	2832250	2891181	1413158
	0.5 m	1413086	2891288	1413159
	1 m	1410595	2891385	1413160
	2 m	1410596	2891589	1413161
	3 m	1413019	2891686	1413162
	5 m	1410694	2891783	1413163
	10 m	1412973	2891877	1413164
	15 m	1412971	2891372	1413165
	20 m	1412974	2891576	1413166

Assembled USB cables, type A

				
i Web code: #0335				
Degree of protection		IP20		IP67
Other end		Free cable end	USB connector, type B	M12 mini USB, SPEEDCON
Length	1 m	1655771	1654853	1420168
	2 m	1655784	1653935	1420171
	4 m			1420184
	5 m	1655797	1653948	

Accessories for office patch cables

Accessories for female connectors

					
Color coding	Security element	Color coding	Safe clip	Security frame	Dust protection cap
For easy visual color coding	Self-locking, protection against unintentional release, lockable	For easy visual color coding of the security elements	Self-locking, protection against unintentional release	For SFN switches and patch fields, including key	For RJ45 jacks
Black2891194	Lockable element2891424	Black2891136	2891246	Green2891615	2832991
Blue2891291	Key2891521	Blue2891233		Red2891712	
Brown2891495		Orange2891330		White2891819	
Yellow2891592		Yellow2891437		Lock2891220	
Gray2891699		Turquoise2891534		Key2891327	
Green2891796		Green2891631			
Red2891893		Red2891738			
Violet2891990		Violet2891835			

Solutions for office and building cabling

FO connectors – PCF

 Web code: #0332							
Type	SC-RJ	SC-RJ	ST	SC	SC-RJ	ST	F-SMA
Cable diameter	ø (2.2 mm)				ø (2.9 mm)		
Connector	1411304	1404087	2313782	2313779	1654866	2708481	2799487
Tool set	1411051	2708876	2708465	2708876	2708876	2708465	2799526

FO connectors – GOF

 Web code: #0332		
Type	LC duplex	SC duplex
MM	1089521	1089518
SM PC	1089520	1089517
SM APC	1089519	1089516
Tool set	1089515	

FO connectors – POF

 Web code: #0332				
Description	Connectors		Tools	
Type	SC-RJ	F-SMA	SC-RJ	F-SMA
Order No.	1654879	2799720	1658820	2744131

FO couplings – GOF, PCF, and POF

							
Description	LC duplex	SC duplex	ST duplex	ST duplex, SC duplex	ST simplex	F-SMA	SC-RJ
Multimode	1207355	1208081	x	x	x	x	x
Multimode, metal	1208069	1208083	1208094	1208096	1208099	2799416	1652978
OM3	1208070	1208084	x	x	x	x	x
OM4	1208072	1208085	x	x	x	x	x
OS2 PC polishing	1208073	1208086	x	x	x	x	x
OS2 APC polishing	1208077	1208088	x	x	x	x	x
Singlemode	x	x	1208095	1208098	1208100	x	1652978

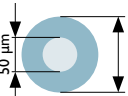
FO pigtails

new 							
Description	LC	SC	ST	Description	LC	SC	ST
OM1	1250833	1208107	1208117	OM4	1208104	1208112	x
OM2	1208101	1208109	1208118	OS2 PC	1208105	1208113	1208119
OM3	1208103	1208111	x	OS2 APC	1208106	1208114	x

FO patch cables (1 m)*

 Web code: #0333 								
Description	OM1			OM2			OM3	
Type	LC	SC	ST	LC	SC	ST	LC	SC
LC	1146497	1146498	1146499	1115633	1115607	1115588	1185473	1185480
SC	1146498	1146504	-	1115607	1115536	1115574	1185480	1185485
ST	1146499	-	1146501	1115588	1115574	1115560	-	-
 Web code: #0333 								
Description	OS2 PC			OS2 APC		OM4		
Type	LC	SC	ST	LC	SC	LC	SC	
LC	1115636	1115618	1115596	1115630	1115613	1115625	1115601	
SC	1115618	1115550	1115582	1115613	1115544	1115601	1115424	
ST	1115596	1115582	1115565	-	-	-	-	

* Other lengths available: 0.5 / 1 / 2 / 3 / 5 / 10 m

	Zip cord fiber classes	Sheath color	Fiber category	Typical range	Typical wavelength	Fiber structure
Multimode		Orange	OM1	1000Base-SX: min. 350 m 1000Base-LX: min. 550 m	850 nm 1,300 nm	
		Orange	OM2	1000Base-SX: min. 525 m 1000Base-LX: min. 1,000 m	850 nm 1,300 nm	
		Aqua	OM3	1000Base-SX: min. 1,000 m 1000Base-LX: min. 550 m 10GBase-SX: min. 300 m	850 nm 1,300 nm	
		Heather violet	OM4	1000Base-SX: min. 1,040 m 1000Base-LX: min. 600 m 10GBase-SX: min. 550 m	850 nm 1,300 nm	
Singlemode		Yellow	OS2	10GBase-LR: min. 10 km 10GBase-ER: min. 40 km	1,310 nm 1,550 nm	

Solutions for outdoor applications

FO multi-fiber patch cables (plug)							
 Web code: #1623							
		ODC 4-pos.	Q-ODC 12-pos.	Q-ODC 24-pos.	M17 4-pos.	M17 12-pos.	M17 24-pos.
Length	5 m					1018494	
	10 m	1415228	1415353	1007606	1087168	1018526	1087149
	15 m	1419720	1415229	1007608			
	20 m	1415347	1415354	1007629	1087167	1019181	1087150
	25 m	1419733	1419692	1007609	1183913	1184007	1183986
	30 m	1419734	1419693	1007632	1087166	1018528	1087152
	35 m	1419735	1419694	1007612	1183914	1184008	1183987
	40 m	1415348	1415355	1007803	1087165	1018529	1087153
	45 m	1419737	1419695	1007621	1183915	1183993	1183988
	50 m	1419738	1419696	1007602	1087164	1018530	1087154
	55 m	1419740	1419707		1183958	1184009	1183989
	60 m	1415349	1415230	1007626	1087163	1018554	1087148
	65 m	1419743	1419708			1184011	1183991
	70 m	1419744	1419709	1007635	1087162	1018556	1087155
	75 m	1419745	1419711			1184012	1183992
	80 m	1415350	1415356	1007627	1087161	1018557	1087156
	85 m	1419747	1419712				
	90 m	1419748	1419714	1007636	1087160	1018559	1087127
	95 m	1419749	1419715				
	100 m	1415352	1415357	1007809	1087158	1018560	1087125
	105 m	1421802	1421800				
	110 m	1419750	1419716		1087157	1126995	1087128
	115 m	1421823	1421806				
	120 m	1419751	1419717	1007638	1087146	1127010	1087130
	125 m	1421824	1421807				
	130 m	1421825	1421808		1087145	1127004	1087132
	135 m	1421826	1421809				
	140 m	1421827	1421810	1007808	1087144	1127003	1087123
	145 m	1421828	1421811				
	150 m	1421829	1421812		1087430	1127002	1087133
	155 m	1421830	1421813				
	160 m	1421831	1421814	1007640	1087143	1127001	1087134
	165 m	1421832	1421815				
	170 m	1421833	1421816		1087142	1127000	1087122
	175 m	1421834	1421817				
	180 m	1421835	1421818	1007807	1087141	1150514	1087120
	185 m	1421836	1421819				
	190 m	1421837	1421820		1087139	1150515	1087117
	195 m	1421838	1421821				
	200 m	1421839	1421822	1007641	1087138	1018562	1087116

FO multi-fiber socket cables, ODC and Q-ODC

i Web code: #0337



		ODC 4-pos.		Q-ODC 12-pos.		Q-ODC 24-pos.
		2 x LC duplex	4 x ST	6 x LC duplex	12 x ST	12 x LC duplex
Length	0.6 m	1419753		1419752		1007804
	1 m	1415231		1415232		
	2 m	1419656	1419620	1419643	1419644	1007805

FO multi-fiber socket cables, M17

i Web code: #1623



		M17 4-pos.		M17 12-pos.	M17 24-pos.
		2 x LC duplex	4 x ST	6 x LC duplex	12 x LC duplex
Length	0.6 m	1087118	1126996	1018563	1087113
	1 m	1087115	1087108	1018564	1087111
	2 m	1087114	1087107	1018567	1087110

FO multi-fiber connection boxes and modules

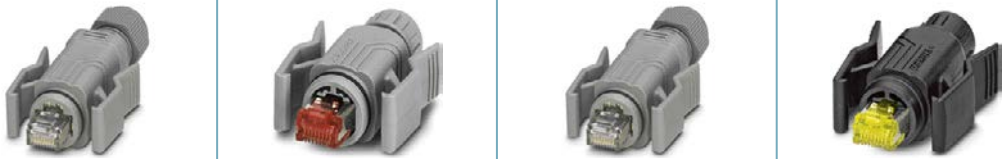
i Web code: #1626



		ODC 4-pos.	Q-ODC 12-pos.	Q-ODC 24-pos.	M17 4-pos.	M17 12-pos.	M17 24-pos.
Rack unit	1U, 2 sockets	1076851	1419973	1081340	1087121	1018570	1087112
	1U, 1 socket	1076661	1419974	1081342	1087135	1018568	1087109
	3U, 1 socket		1419978			1018571	
19" mounting frame, 3U		1419976					
Central plate, 3U		1419977					

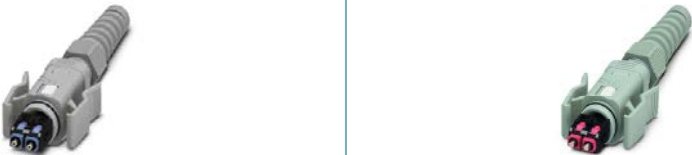
Solutions for outdoor applications

Version 6 RJ45 connectors

 Web code: #0329				
	IDC	Crimp	IDC	Crimp
Outside cable diameter	5 mm ... 8.5 mm			
Connection area	AWG 26 ... AWG 23	AWG 27 ... AWG 24	AWG 26 ... AWG 23	AWG 27 ... AWG 24
Color	Gray		Black	
CAT5	1656990	1414383*	1658493	1414408*
CAT6 _A		1414406*		1414410*

* Tool 1653265 required

Version 6 FO connectors

 Web code: #0329		
	FO	
Connection	FO	
Fiber type	POF	PCF
Order No.	1657009	1657012

Version 6 couplings and terminal outlets

 Web code: #0329				
	Coupling		Terminal outlet	
	1 x RJ45/RJ45	SC-RJ SC-RJ	2 x RJ45	
	Gray	1689268	1410050	
	Black	1658684		1404278

Version 6 panel-mount frames

Web code: #0329					
	Circular		Rectangular		
	Gray	Black	Gray	Black	
	For Keystone modules	1689844	1658053	1689080	1658642
	For Freenet modules	1653744	1658668		
For PCB modules			1689446	1658655	

RJ45 jack insert

 Web code: #0329				
	Cable module	Coupler		PCB module
	Freenet	Keystone	Freenet	
	CAT5	1652936	1689064	1653087
	CAT6 _A	1418984	1086108	1086111
	POF/GOF/PCF		1652978	

Version 6 USB device connectors

 Web code: #0335						
	Panel-mount frame, assembled		Panel-mount frame, unassembled	Freenet modules		Solder connection
	USB A / USB B	USB B / USB A	Freenet	USB A	USB B	M12 / mini USB
	1411904	1411905	1653744	1653854	1653867	1440711

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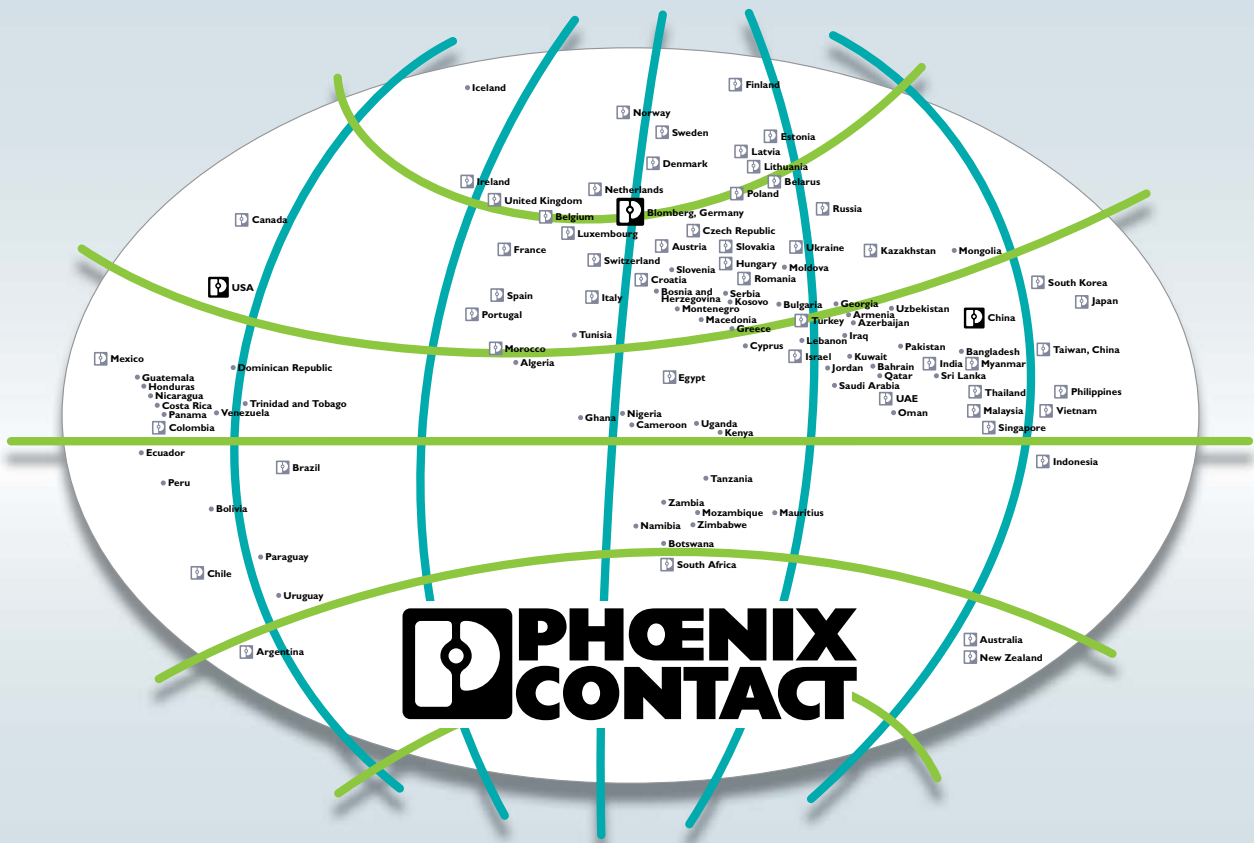
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