PHŒNIX CONTACT

FO converters - FL MC EF 660 SCRJ - 2702944

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (http://phoenixcontact.com/download)

FO converter, for converting 100Base-T to polymer and PCF fiber (660 nm), SC-RJ FO connection (PROFINET standard), can be mounted on a DIN rail, 24 V DC supply

Product Description

Optical transmission with FO technology provides superior immunity to interference at maximum transmission ranges without restricting the transmission bandwidth.

Your advantages

☑ Link fault pass through (LFPT) function for easy connection monitoring

☑ Very low delay times

☑ Mounting on a DIN rail

☑ Backplane bus contact, enabling alternative or redundant 24 V power supply

RoHS **PROFINET®** **Modbus**

Key Commercial Data

Packing unit	1 pc
GTIN	4 055626 431260
GTIN	4055626431260

Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area

Dimensions

Caption	Slim design
Width	22.5 mm
Height	99 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-40 °C ... 60 °C

PHŒNIX CONTACT

FO converters - FL MC EF 660 SCRJ - 2702944

Technical data

Ambient conditions

Ambient temperature (storage/transport)	-40 °C ... 70 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Altitude	≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation)
Degree of protection	IP20

General

Electrical isolation	VCC // Ethernet
Test voltage data interface/power supply	1500 V
	1.5 kV$_{rms}$ (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Net weight	172.7 g
Housing material	PA V0
Color	green
MTTF	929 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	461 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	204 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)

Power supply

Supply voltage range	18 V DC ... 32 V DC (via pluggable COMBICON screw terminal block)
	18 V DC ... 32 V DC (as an alternative or redundant, via backplane bus contact and system current supply)
Max. current consumption	100 mA (24 V DC)
Typical current consumption	≤ 85 mA (24 V DC)
Protective circuit	Reverse polarity protection
Connection method	Plug-in screw terminal block (COMBICON), redundancy possible

Interfaces

Interface 1	Ethernet interface, 100Base-T(X) in accordance with IEEE 802.3
No. of ports	1
Connection method	RJ45 jack, shielded
Transmission medium	Copper
Transmission length	100 m (shielded twisted pair)
Link through	Link fault pass through

Optical interface FO

Transmit capacity, minimum	min. -8 dBm ((980/1000 µm) static)
	min. -19 dBm ((200/230 µm) static)
Transmit capacity, maximum	max. -2 dBm ((980/1000 µm) static)
	max. -11 dBm ((200/230 µm) static)
Minimum receiver sensitivity	-23 dBm ((980/1000 µm) static)
	-26.8 dBm ((200/230 µm) static)

FO converters - FL MC EF 660 SCRJ - 2702944

Technical data

Optical interface FO

Wavelength	660 nm
Transmission length incl. 3 dB system reserve	50 m (Polymer fiber with F-P 980/1000 230 dB/km)
	100 m (PCF fiber with F-K 200/230 8 dB/km)
Transmission medium	Polymer fiber
	PCF fiber
Connection method	SC-RJ

Digital outputs

Output name	Relay output
Number of outputs	2
Contact type	N/O contact
Maximum switching voltage	60 V AC/DC
Max. switching current	1 A

Conformance/approvals

Designation	CE
Identification	CE-compliant
Designation	Corrosive gas test
Identification	ISA-S71.04-1985 G3 Harsh Group A

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Type of test	Free fall in acc. with IEC 60068-2-32
Test result	1 m
Type of test	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6
Test result	5g, 150 Hz, 1.5 h, in XYZ direction
Type of test	Shock in acc. with EN 60068-2-27/IEC 60068-2-27
Test result	15g, 11 ms period, half-sine shock pulse
Free from substances that could impair the application of coating	according to P-VW 3.10.7 57 65 0 VW-AUDI-Seat central standard
Standards/regulations	EN 61000-4-2
Contact discharge	± 6 kV (Test Level 3)
Indirect discharge	± 6 kV
Standards/regulations	EN 61000-4-3
Frequency range	80 MHz ... 3 GHz (Test Level 3)
Standards/regulations	EN 61000-4-4
Comments	Criterion B
Standards/regulations	EN 61000-4-5
Signal	± 1 kV (Shielded cable)
Standards/regulations	EN 61000-6-4
	EN 61000-4-6
Frequency range	0.15 MHz ... 80 MHz
Conducted noise emission	EN 61000-6-3 Class B, domain of use: residential and small commercial

FO converters - FL MC EF 660 SCRJ - 2702944

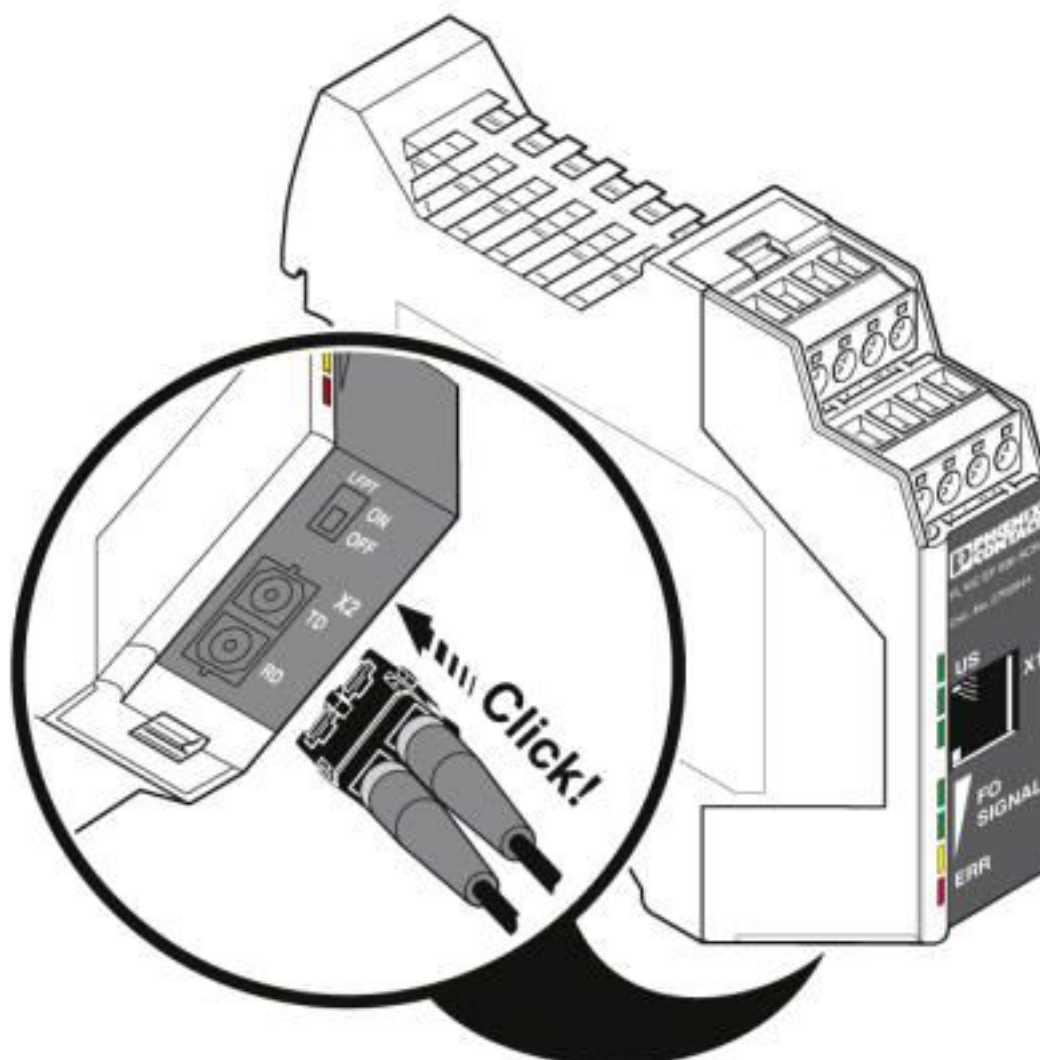## Technical data

Standards and Regulations

Designation	Air clearances and creepage distances

Environmental Product Compliance

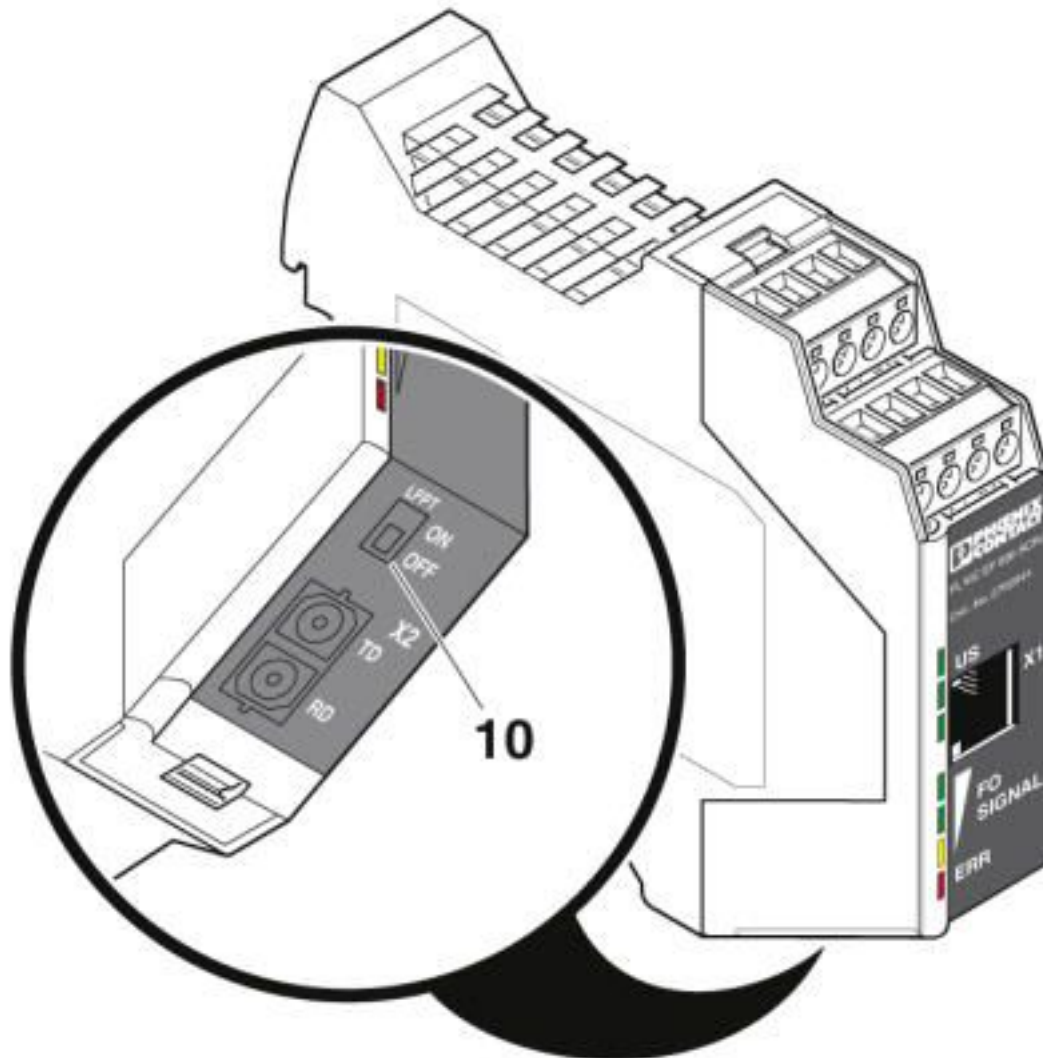| REACh SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

Schematic diagram

Connect the SC-RJ plug
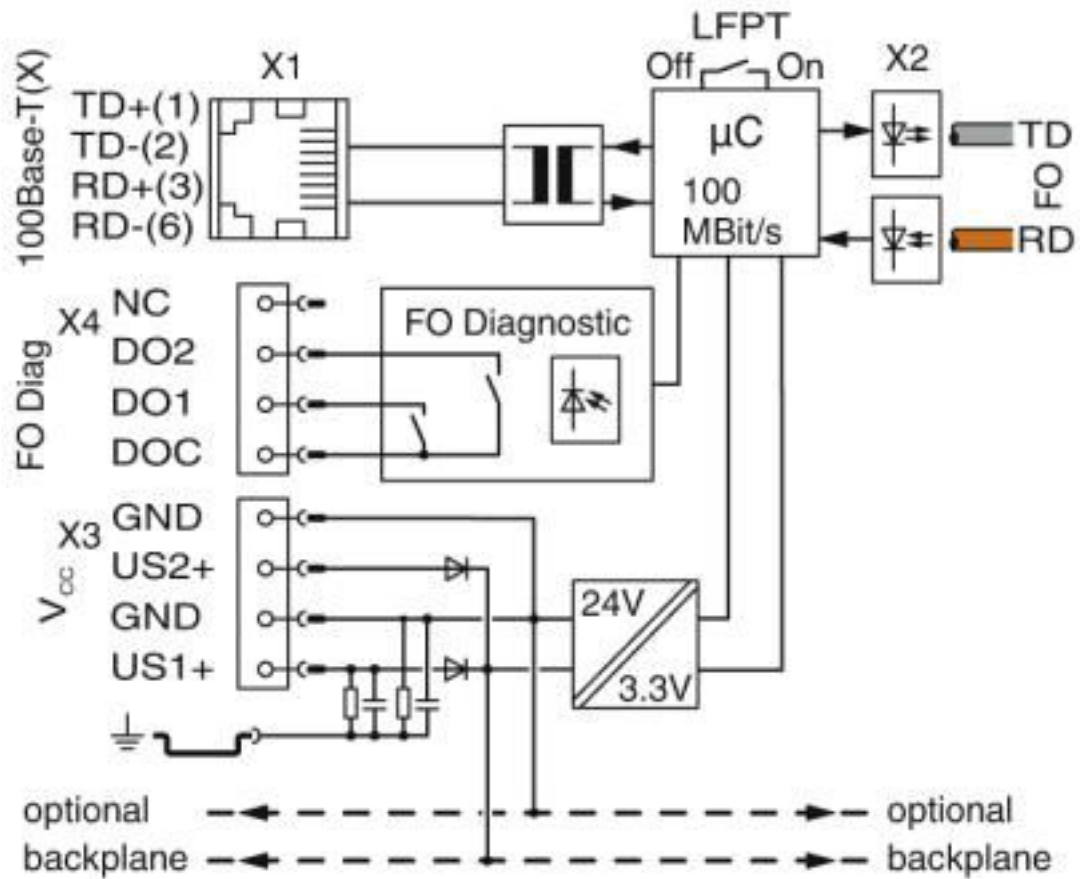
FO converters - FL MC EF 660 SCRJ - 2702944
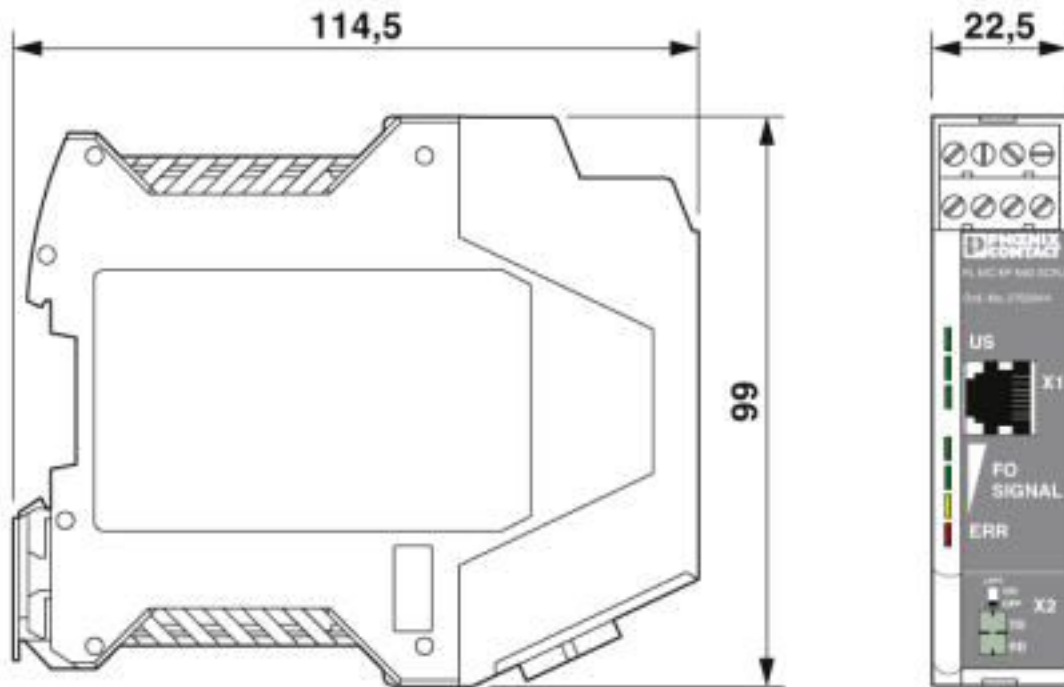
Schematic diagram

Switch for disabling LFPT

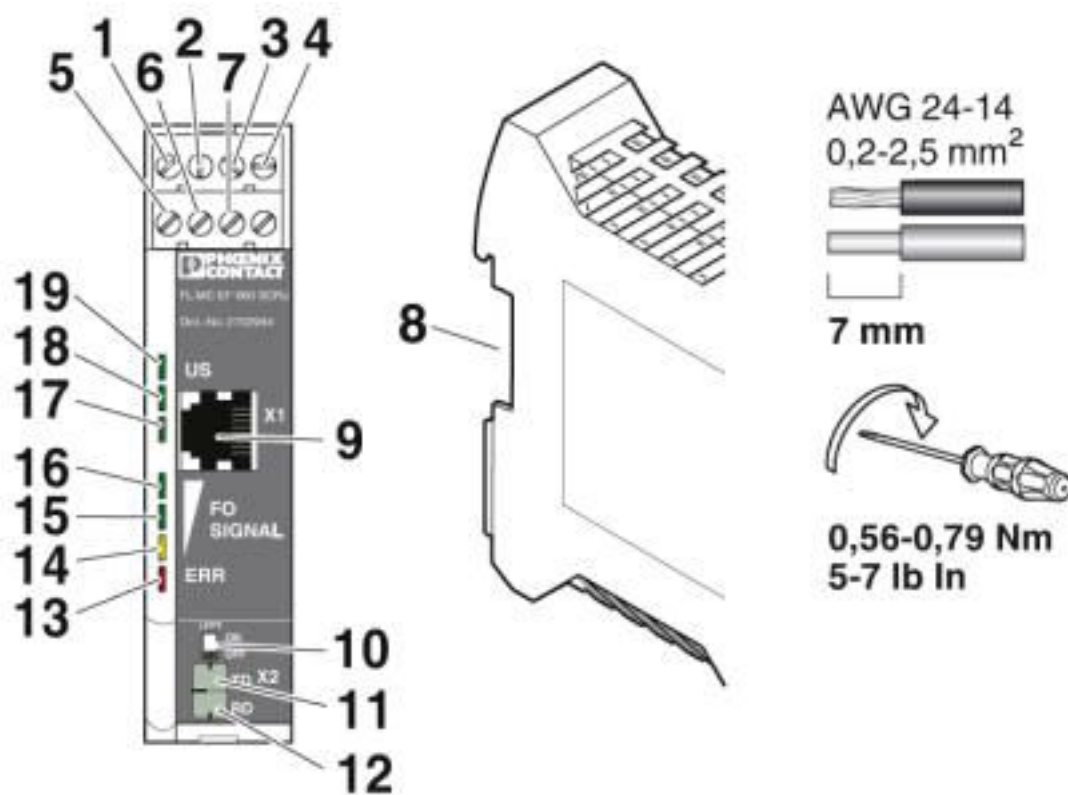# FO converters - FL MC EF 660 SCRJ - 2702944

Block diagram

FO converters - FL MC EF 660 SCRJ - 2702944
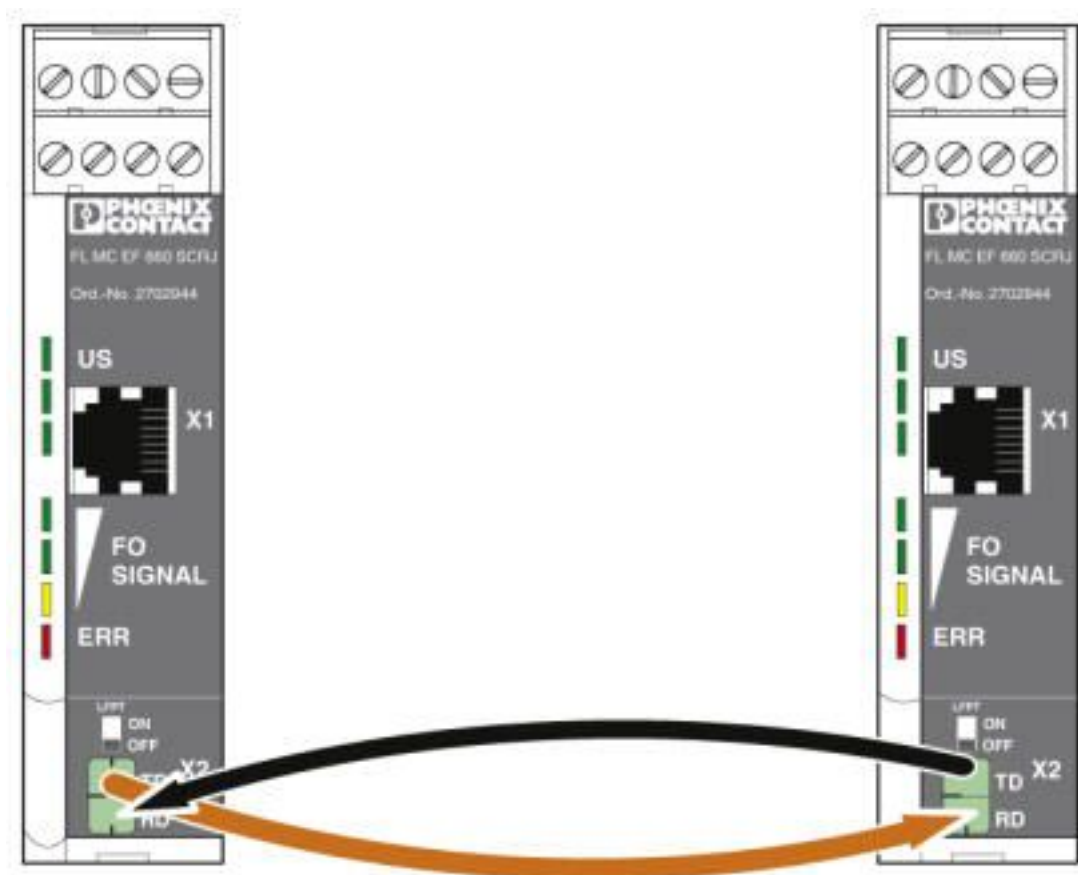
Dimensional drawing

Slim design

FO converters - FL MC EF 660 SCRJ - 2702944

Schematic diagram

Function elements

FO converters - FL MC EF 660 SCRJ - 2702944

Schematic diagram

Signal direction for the fiber connection

Classifications

eCl@ss

eCl@ss 10.0.1	19170132
eCl@ss 11.0	19170132
eCl@ss 7.0	19170114
eCl@ss 9.0	19170114

ETIM

ETIM 5.0	EC001467
ETIM 6.0	EC001467
ETIM 7.0	EC001467

Accessories

Accessories

Connector set

FO converters - FL MC EF 660 SCRJ - 2702944

Accessories

FO connectors - PSM-SET-SCRJ-DUP/2-HCS - 2313070

SC-RJ connector set for PCF fiber, for self-assembly, consisting of 2 duplex quick mounting connectors with bend protection, for a single wire diameter of 2.9 mm

---

Data cable by the meter

Network cable - FL CAT5 HEAVY - 2744814

CAT5-SF/UTP cable (J-02YS(ST)C HP 2 x 2 x 24 AWG), heavy-duty installation cable, 2 x 2 x 0.22 mm², solid conductor, shielded, outer sheath: 7.8 mm diameter, inner sheath: 5.75 mm ± 0.15 mm diameter

---

Installation cable - FL CAT5 FLEX - 2744830

By the meter, Installation cable, Ethernet CAT5 (100 Mbps), shielded, PUR halogen-free, water blue RAL 5021, 4-wire (2x2xAWG26/7; SF/UTP), color single wire: white/orange-orange, white/green-green, cable length: Free entry (1.0 ... 1000.0 m)

FO cable - PSM-LWL-KDHEAVY-980/1000 - 2744319

Polymer fiber cable, duplex 980 µm/1000 µm, medium-weight version for installation in stationary systems and machines, by the meter without male connector

---

FO cable - PSM-LWL-HCS-RUGGED-200/230 - 2799885

PCF cable, duplex 200 µm/230 µm, by the meter without male connector, for installation in stationary systems and machines

FO converters - FL MC EF 660 SCRJ - 2702944

Accessories

FO cable - PSM-LWL-RUGGED-980/1000 - 2744322

Polymer fiber cable, duplex 980µm/1000µm, heavy-weight version for installation in stationary systems and machines, by the meter without male connector

---

FO cable - PSM-LWL-RUGGED-FLEX-980/1000 - 2744335

Polymer fiber cable, duplex 980/1000 µm, heavy-weight, highly flexible version for flexible conduit applications, by the meter, without connector

---

FO cable - PSM-LWL-HCSO-200/230 - 2799445

PCF cable, duplex 200/230 µm, by the meter, without connector, for outdoor installation

---

FO cable - FL FOC PN-B-980/1000 - 2313397

PROFINET polymer fiber cable, duplex 980 µm/1000 µm, heavy-weight design, for installation in stationary systems and machines, by the meter, without male connector

---

FO cable - FL FOC PN-C-FLEX-980/1000 - 2313407

PROFINET polymer fiber cable, duplex, 980/1000 µm, heavy-weight highly flexible design, for flexible cable conduit applications, by the meter, without connector

---

Data cable preassembled

FO converters - FL MC EF 660 SCRJ - 2702944

Accessories

Patch cable - NBC-R4AC-R4AC-IE8A/.../... - 1411854

Patch cable, degree of protection: IP20, number of positions: 8, 10 Gbps, CAT6$_A$, cable outlet: straight

Patch cable - NBC-R4AC/10G-R4AC/10G-94F/2,0 - 1408360

Patch cable, CAT6$_A$, 4-pair, shielded, connection not crossed (line), assembled at both ends with RJ45/IP20 connectors, outer sheath material: PUR, length: 2.0 m

Patch cable - NBC-R4AC/10G-R4AC/10G-94F/3,0 - 1408365

Patch cable, CAT6$_A$, 4-pair, shielded, connection not crossed (line), assembled at both ends with RJ45/IP20 connectors, outer sheath material: PUR, length: 3.0 m

Data plug

Assembly tool - FL CRIMPTOOL - 2744869

Crimping pliers, for assembling the RJ45 plugs FL PLUG RJ45..., for assembly on site

FO connectors - PSM-SET-SCRJ-DUP/2-POF - 2708656

SC-RJ connector set for polymer fiber, for self assembly, consisting of 2 duplex quick mounting connectors with bending protection

FO converters - FL MC EF 660 SCRJ - 2702944

Accessories

Assembly tool - PSM-HCS-KONFTOOL/SC-RJ - 2708876

HCS assembly kit for SC-RJ quick mounting connectors, including stripping blade, stripping pliers, aramide yarn scissors, fiber stripper, microscope, fiber cleaving tool for standard HCS and HCS GI fibers, two SC-RJ connectors for standard HCS fiber, and documentation

Assembly tool - PSM-POF-KONFTOOL - 2744131

Polymer fiber DIY case, consisting of: Stripping knife, stripping pliers, polishing wheels for F-SMA and SC-RJ quick mounting connectors, polishing pad and emery paper

RJ45 connector - VS-08-RJ45-5-Q/IP20 - 1656725

RJ45 connector, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: PA, connection method: IDC fast connection, connection cross section: AWG 26- 23, cable outlet: straight, color: traffic grey A RAL 7042

RJ45 connector - VS-08-RJ45-5-Q/IP20 BK - 1658008

RJ45 connector, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: PA, connection method: IDC fast connection, connection cross section: AWG 26- 23, cable outlet: straight, color: black

RJ45 connector - VS-08-RJ45-10G/Q - 1419001

RJ45 connector, IP20, CAT6$_A$, 8-pos., with QUICKON fast connection technology, for 26 ... 24 AWG 1-wire and 7-wire conductors, color: black

DIN rail connector

FO converters - FL MC EF 660 SCRJ - 2702944

Accessories

DIN rail bus connectors - ME 22,5 TBUS 1,5/ 5-ST-3,81 GN - 2707437

DIN rail connector, color: green, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, Number of positions per row: 5, pitch: 3.81 mm, mounting: DIN rail mounting, Locking: without, type of packaging: packed in cardboard, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts

Patch cable

Patch cable - FL CAT5 PATCH 0,5 - 2832263

Patch cable, CAT5, assembled, 0.5 m

Patch cable - FL CAT5 PATCH 1,0 - 2832276

Patch cable, CAT5, assembled, 1 m

Patch cable - FL CAT5 PATCH 2,0 - 2832289

Patch cable, CAT5, assembled, 2 m

Plug

RJ45 connector - FL PLUG RJ45 GR/2 - 2744856

RJ45 connector, shielded, with bend protection sleeve, 2 pieces, gray for straight cables, for assembly on site. For connections that are not crossed, it is recommended that you use the connector set with gray bend protection sleeve.

FO converters - FL MC EF 660 SCRJ - 2702944

Accessories

RJ45 connector - FL PLUG RJ45 GN/2 - 2744571

RJ45 connector, shielded, with bend protection sleeve, 2 pieces, green for crossed cables, for assembly on site. For connections that are crossed, it is recommended that the connector set with green bend protection sleeves is used.

Power supply

Power supply unit - MINI-SYS-PS-100-240AC/24DC/1.5 - 2866983

Primary-switched MINI POWER supply for DIN rail mounting, input: 1-phase, output: 24 V DC/1.5 A

FO accessories - VS-SCRJ-POF-POLISH - 1656673

Refilling set for VS-SC-RJ-POF-KONFTOOL-POLISH, consisting of two polishing discs and a polisher