

2902658

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FO converter (replacement device A), for full duplex transmission from 10/100Base-T(X) to individual simplex fiberglass with WDM (wavelength division multiplex) technology, SC simplex fiber optic connection (1310/1550 nm). Device set (type A and type B) required for operation.

Product Description

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

Your advantages

- Full duplex communication with only one fiber
- Transmission ranges up to 38 km
- Auto negotiation
- Auto MDI/MDI-X switch-over
- Link fault pass through (LFPT) and far end fault (FEF) functions for easy connection monitoring
- 10/100 Mbps
- Shipbuilding approval in accordance with DNV GL

Commercial Data

Item number	2902658
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	M2 - Netzwerktechnik
Product Key	DNC311
Catalog Page	Page 350 (C-6-2019)
GTIN	4046356669689
Weight per Piece (including packing)	184,8 g
Weight per Piece (excluding packing)	120 g
Customs tariff number	85176200
Country of origin	DE

Technical Data

Notes

Utilization restriction

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

CCCex note	Use in potentially explosive areas is not permitted in China.
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Product properties

Product type	Media converter
MTTF	1400 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	599 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	101 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)
MTBF	492 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	133 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
Signal delay	± 1.3 μs (Store and Forward mode, 10/100 Mbps, depending on the frame size)

Electrical properties

Electrical isolation	according to IEEE 802.3
Electrical isolation	VCC // FE // Ethernet
Maximum power dissipation for nominal condition	2.64 W
Test voltage data interface/power supply	1.5 kV _{rms} (50 Hz, 1 min.)

Supply

Supply voltage range	18 V DC ... 30 V DC (Screw connection)
	18 V DC ... 30 V DC (as an alternative or redundant, via backplane bus contact and system current supply)
Typical current consumption	< 110 mA (24 V DC)
Protective circuit	Reverse polarity protection
Connection method	Plug-in screw terminal block (COMBICON), redundancy possible

Connection data

Supply

Connection method	Plug-in screw terminal block (COMBICON), redundancy possible
Conductor cross section, flexible	0.20 mm ² ... 2.50 mm ²
Conductor cross section, rigid	0.20 mm ² ... 2.50 mm ²
Conductor cross section, flexible [AWG]	24 ... 14
Conductor cross section AWG	24 ... 14

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Tightening torque	0.56 Nm ... 0.79 Nm
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Interfaces

Signal	Ethernet
Basic functions	Store-and-forward media converter

Data: optical FO

Transmit capacity, minimum	≥ -14 dBm ((9/125 μm) dynamic in link mode (average))
Transmit capacity, maximum	≤ -8 dBm ((9/125 μm) dynamic in link mode (average))
Transmission length incl. 3 dB system reserve	38 km (With F-E 9/125 0.36 dB/km)
	34 km (With F-E 9/125 0.4 dB/km)
	28 km (With F-E 9/125 0.5 dB/km)
	21 km (with F-G 62,5/125 0,7 dB/km F 1000)
	5.5 km (with F-G 62.5/125 2.6 dB/km F 600)
	21 km (with F-G 50/125 0,7 dB/km F 1200)
	9 km (with F-G 50/125 1,6 dB/km F 800)
Connection method	SC simplex
Wavelength	1310 nm (Send)
	1550 nm (Receiving)
Minimum receiver sensitivity	-31 dBm (dynamic in link mode (average))
Maximum receiver sensitivity	-3 dBm (dynamic in link mode (average))
Transmission medium	Multi-mode fiberglass
	Single-mode fiberglass

Data: Ethernet interface, 10/100Base-T(X) in accordance with IEEE 802.3

Transmission speed	10/100 Mbps
Connection method	RJ45 jack, shielded
No. of channels	1
Transmission length	100 m (shielded twisted pair)
Transmission medium	Copper
Signal LEDs	Activity, link status, 10/100 Mbps
Auto-negotiation modes	Auto
Link through	Link fault pass through
MDI-/MDI-X switchover	Auto-MDI(X)

Software

Functionality

Basic functions	Store-and-forward media converter
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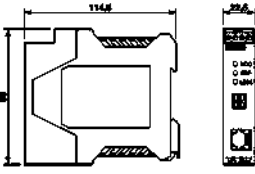
Dimensions

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Dimensional drawing	
Width	22.5 mm
Height	99 mm
Depth	114.5 mm

Material specifications

Material	PA 6.6-FR (Housing)
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Cable / line

FO cable

Fiber types	50/125 µm
	62.5/125 µm
	Fiberglass

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 65 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation)
	≤ 2000 m (in acc. with UL)
Permissible humidity (operation)	30 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	30 % ... 95 % (non-condensing)

Approval data

CE

Certificate	CE-compliant
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ATEX

Identification	<input type="checkbox"/> II 3 G Ex nA IIC T4 Gc X
Note	Please follow the special installation instructions in the documentation!

UL, USA / Canada

Identification	508 Listed
	Class I, Zone 2, AEx nA IIC T4
	Class I, Zone 2, Ex nA IIC T4 Gc X
	Class I, Div. 2, Groups A, B, C, D

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Corrosive gas test

Identification	ISA-S71.04-1985 G3 Harsh Group A
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Shipbuilding

Identification	DNV GL
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DNV GL data

Temperature	B
Humidity	A
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
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Electrostatic discharge

Standards/regulations	EN 61000-4-2
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Electrostatic discharge

Contact discharge	± 6 kV (Test Level 3)
Discharge in air	± 8 kV (Test Level 3)
Indirect discharge	± 6 kV
Comments	Criterion B

Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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Electromagnetic HF field

Frequency range	80 MHz ... 3 GHz (Test Level 3)
Field intensity	10 V/m
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4
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Fast transients (burst)

Input	± 2 kV (Test Level 3)
Signal	± 2 kV (Test Level 3)
Comments	Criterion B

Surge current load (surge)

Standards/regulations	EN 61000-4-5
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Surge current load (surge)

Input	± 0.5 kV (DC supply)
Signal	± 1 kV (Data line, asymmetrical)

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Comments	Criterion B
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Conducted interference

Standards/regulations	EN 61000-4-6
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Conducted interference

Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V

Emitted interference

Standards/regulations	EN 55032
Comments	Class A, industrial applications

Criteria

Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

Standards and regulations

Free from substances that could impair the application of coating	in accordance with VW-AUDI-Seat central standard P-VW 3.10.7 57 65 0
Electrical isolation	according to IEEE 802.3

Mounting

Mounting type	DIN rail mounting
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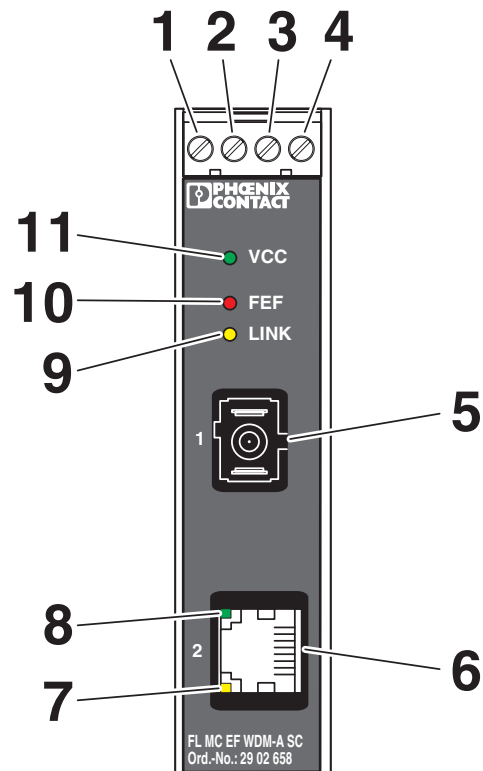
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Drawings

Schematic diagram



Front view

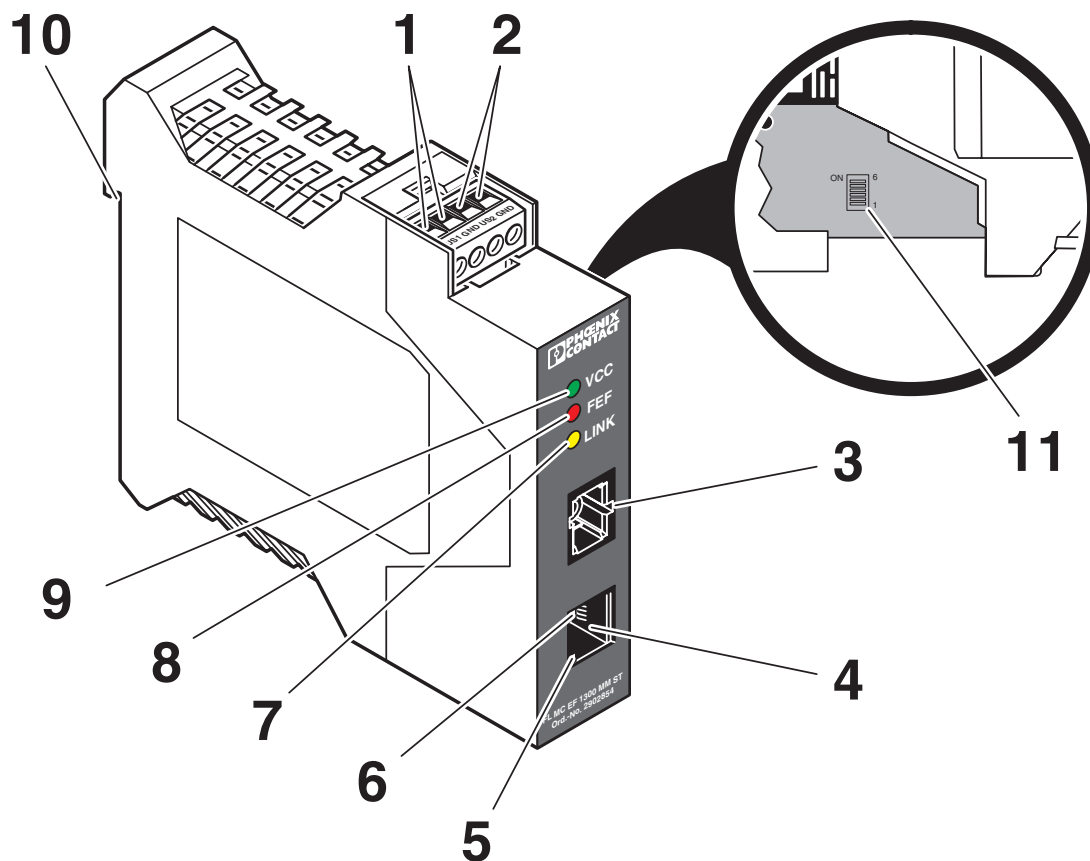
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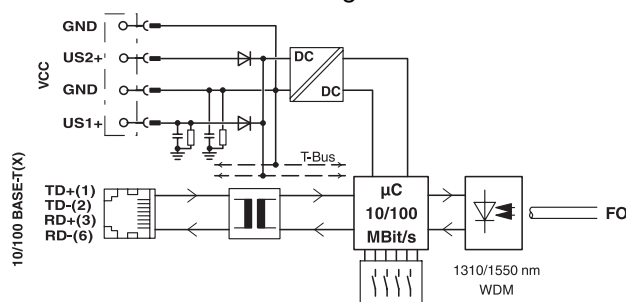
<https://www.phoenixcontact.com/de/produkte/2902658>

Schematic diagram



Function elements

Block diagram



Basic circuit diagram

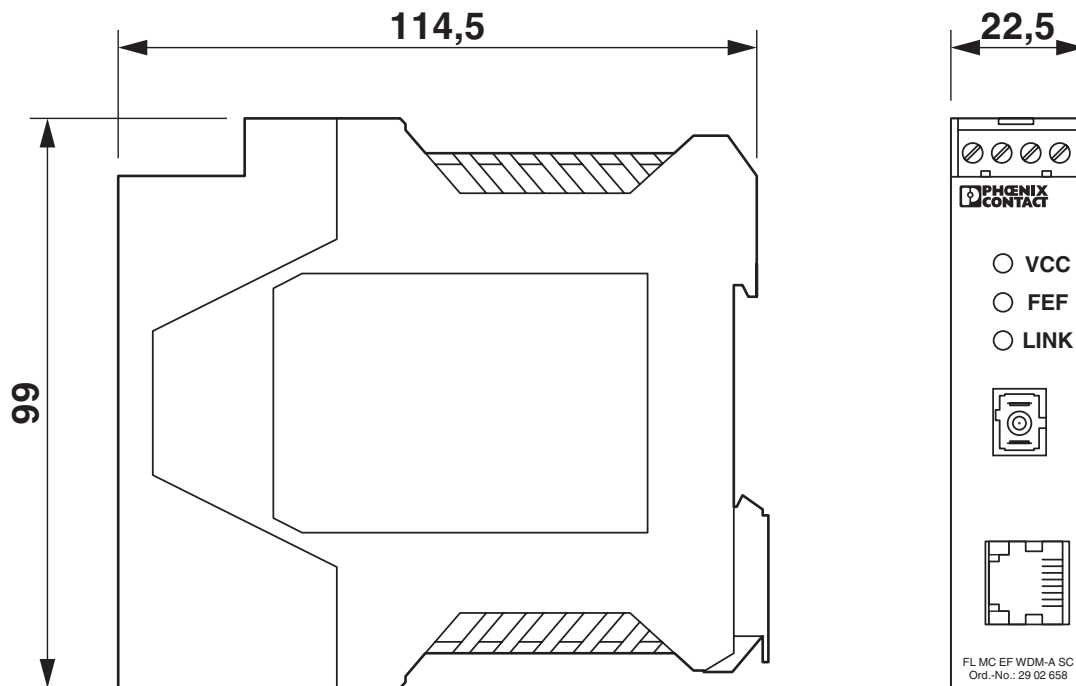
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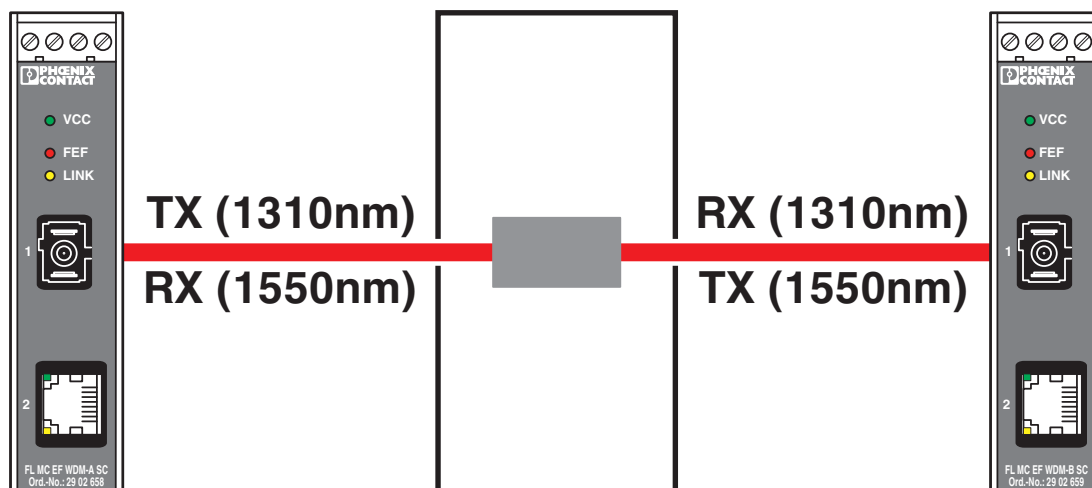
<https://www.phoenixcontact.com/de/produkte/2902658>

Dimensional drawing



Slim design

Application drawing



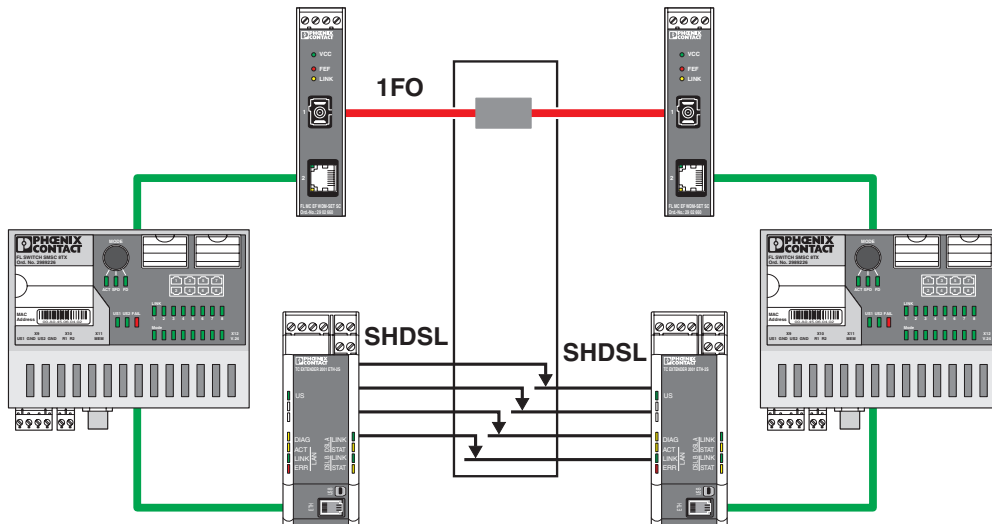
Slip ring communication

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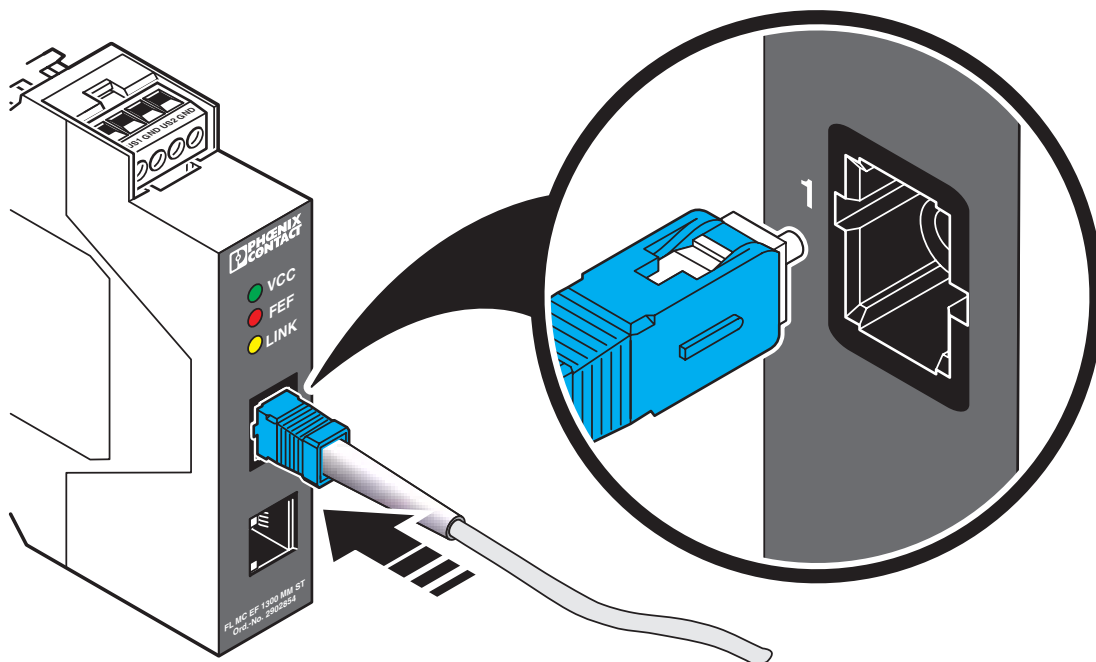
<https://www.phoenixcontact.com/de/produkte/2902658>

Application drawing



Redundant slip ring communication

Schematic diagram



Connect SC simplex plug

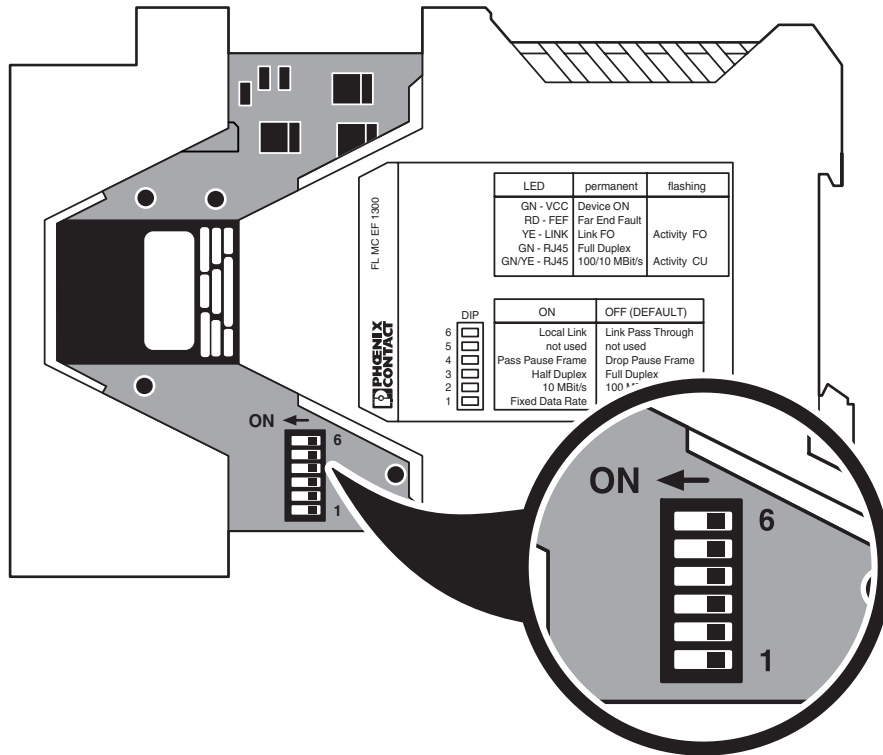
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Schematic diagram





DIP switches


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Approvals

 DNV GL Approval ID: TAA00001KR				
	Nominal Voltage U_N	Nominal Current I_N	Cross Section AWG	Cross Section mm^2
			-	-

 ATEX Approval ID: PxCIF11ATEX2902658X				
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 cUL Listed Approval ID: FILE E 199827				
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 UL Listed Approval ID: FILE E 199827				
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cULus Listed				
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Classifications

ECLASS

ECLASS-9.0	19170114
ECLASS-10.0.1	19170132
ECLASS-11.0	19170411

ETIM

ETIM 8.0	EC001467
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UNSPSC

UNSPSC 21.0	43201500
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Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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