PSI-MOS-RS485W2/FO 660 E - FO converters

2708313

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CRA-READY



FO converter with integrated optical diagnostics, alarm contact, for RS-485 2-wire bus systems (SUCONET K, Modbus ...) up to 500 kbps, NRZ coding, terminal device with one FO interface (FSMA), 660 nm, for polymer/PCF fiber cable

Product description

The PSI-MOS-RS485W2/FO... FO converters convert the electrical data signal into an optical one by protocol transparent means. The integrated optical diagnostics allow permanent monitoring of the FO paths during installation and also during operation. The floating switch contact is activated when the signal output on the fiber optic paths drops to a critical level. The PSI-MOS-RS485W2/FO... E termination devices convert an RS-485 interface to a fiber optic cable. They are ideal for point-to-point connections.

Your advantages

- Can be combined with the PSI copper repeater in a modular way using DIN rail connectors
- Supply voltage and data signals routed through the DIN rail connectors
- Connections can be plugged in via a COMBICON screw terminal block
- Automatic data rate detection or fixed data rate setting via DIP switches
- High-quality electrical isolation between all interfaces (RS-485 // fiber optic ports // power supply // DIN rail connector)
- Redundant power supply possible by means of optional system power supply unit
- Approved for use in zone 2
- Intrinsically safe fiber optic interface (Ex op is) for direct connection to devices in zone 1
- Integrated optical diagnostics for continuous monitoring of FO paths
- Floating switch contact for advance warning of critical FO paths
- Suitable for data rates up to 500 kbps
- Bit retiming for any cascading depth
- Shipbuilding approval in accordance with DNV GL





Commercial data

Item number	2708313
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN06
Product key	DNC212
GTIN	4017918974015
Weight per piece (including packing)	232.266 g
Weight per piece (excluding packing)	186.98 g
Customs tariff number	85176200
Country of origin	DE

Technical data

Notes

Note on application	Only for industrial use
Note on application	As things stand now, we are preparing the product so that, as of December 11, 2027, it will comply with the requirements of the EU Cyber Resilience Act (CRA) based on the information currently available regarding the CRA.

Utilization restriction

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

Product properties

Product type	Media converter
Product family	PSI-MOS
MTTF	967 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	428 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	176 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)
MTBF	358 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	73 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
Special properties	The product is being prepared for compliance with the Cyber Resilience Act (CRA)

Electrical properties

Electrical isolation	VCC // RS-485
Maximum power dissipation for nominal condition	2.4 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 (via pluggable COMBICON screw terminal block)
Nominal supply voltage	24 V DC
Typical current consumption	100 mA (24 V DC)
Max. current consumption	130 mA
	≤ 2 A (For operation in a joining station, via the DIN rail connector)

Output data

Switching

Output name	Relay output
Output description	Alarm output
Number of outputs	1

Maximum switching voltage	60 V DC (Resistive Load, General Load)
	30 V AC (Resistive load)
	42 V AC (peak, resistive load)
Limiting continuous current	0.46 A

Connection data

Supply

Connection method	COMBICON plug-in screw terminal block
Single conductor/terminal point, rigid	0.2 mm² ... 2.5 mm²
Single-wire/terminal point, flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section, flexible [AWG]	24 ... 14
Stripping length	7.00 mm
Tightening torque	0.56 Nm ... 0.79 Nm

Interfaces

Bit distortion, input	± 35 % (permitted)
Bit distortion, output	< 6.25 %
Bit delay	≤ 1 bit
Signal	Modbus
	S-BUS
	Suconet K
	J-BUS
	DATA HIGHWAY

Data: optical FO

No. of channels	1
Transmit capacity, minimum	-4.6 dBm (980/1000 µm)
	-16 dBm (200/230 µm)
Transmission length incl. 3 dB system reserve	100 m (F-P 980/1000 230 dB/km with quick mounting connector)
	800 m (F-K 200/230 10 dB/km with quick mounting connector)
Transmission protocol	Protocol-transparent to the RS-485 interface
Connection method	F-SMA
Wavelength	660 nm
Minimum receiver sensitivity	-30.2 dBm
Maximum receiver sensitivity	-3 dBm (980/1000 µm)
Transmission medium	Polymer fiber
	PCF fiber

Data: RS-485 interface, 2-wire

Serial transmission speed	4.8/ 9.6/ 19.2/ 38.4/ 57.6/ 75/ 93.75/ 115.2/ 136/ 187.5/ 375/ 500 kbps
Connection method	Pluggable screw connection
Transmission length	≤ 1200 m (depending on the data rate, with shielded, twisted data cable)
	390 Ω (Can be connected)

Termination resistor	220 Ω
	390 Ω
Transmission medium	Copper
File format/coding	UART (11/10 bit switchable; NRZ), slip-tolerant
Data direction switching	Automatic control

Dimensions

Width	35 mm
Height	99 mm
Depth	105 mm

Material specifications

Color (Housing)	gray (RAL 7042)
Material (Housing)	PA 6.6-FR

Cable/line

FO cable

Fiber types	980/1000 µm
	200/230 µm
	Polymer fiber
	PCF fiber

Mechanical tests

Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	Operation: 5g, 10...150 Hz, 2.5 h, in XYZ direction
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	Operation: 15g, 11 ms period, half-sine shock pulse

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-20 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation)
	≤ 2000 m (Hazardous locations)
Permissible humidity (operation)	30 % ... 95 % (non-condensing)

Approvals

CE

Certificate	CE-compliant

IECEx

Identification	Ex ec [op is Gb] IIC T4 Gc
	[Ex op is Db] IIIC

Certificate	IECEx ULD 24.0009X

ATEX

Identification	Ⓔx II 3 (2) G Ex ec [op is Gb] IIC T4 Gc
	Ⓔx II (2) D [Ex op is Db] IIIC
Certificate	UL 24 ATEX 3197X
Note	Please follow the special installation instructions in the documentation!

UL, USA/Canada

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

Corrosive gas test

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

Shipbuilding

Identification	DNV GL

Shipbuilding 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
Noise immunity	EN 61000-6-2:2005

Noise emission

Standards/regulations	EN 55011

Electrostatic discharge

Standards/regulations	EN 61000-4-2

Electrostatic discharge

Contact discharge	± 6 kV
Discharge in air	± 8 kV
Comments	Criterion B

Electromagnetic HF field

Standards/regulations	EN 61000-4-3

Electromagnetic HF field

Field intensity	10 V/m
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4

Fast transients (burst)

Input	± 2 kV
Signal	± 2 kV
Comments	Criterion B

Surge current load (surge)

Standards/regulations	EN 61000-4-5

Surge current load (surge)

Input	± 0.5 kV
Signal	± 1 kV
Comments	Criterion B

Conducted interference

Standards/regulations	EN 61000-4-6

Conducted interference

Comments	Criterion A
Voltage	10 V

Emitted interference

Standards/regulations	EN 55011
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

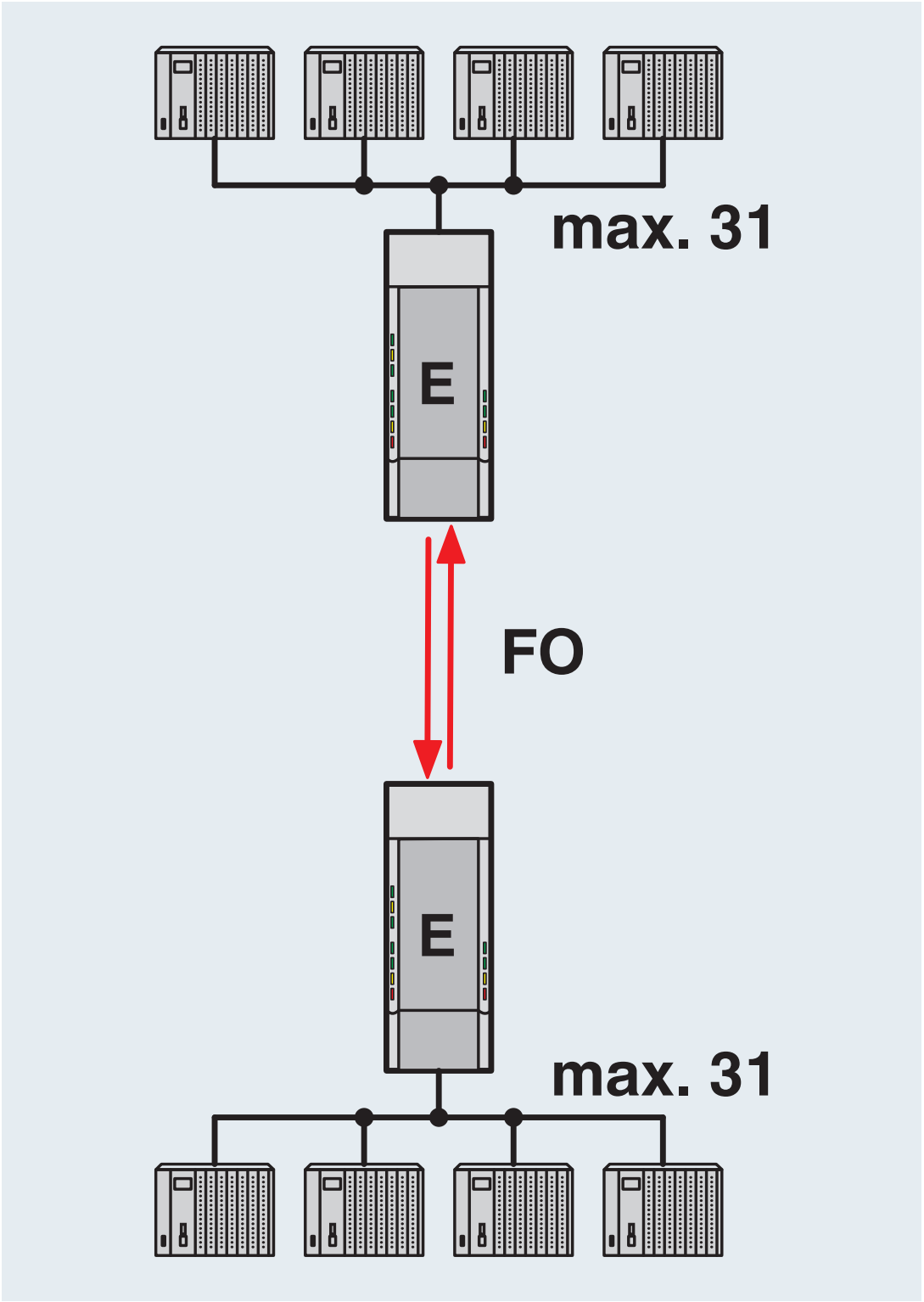
Free from substances that could impair the application of coating	VDMA 24364:2018-05

Mounting

Mounting type	DIN rail mounting

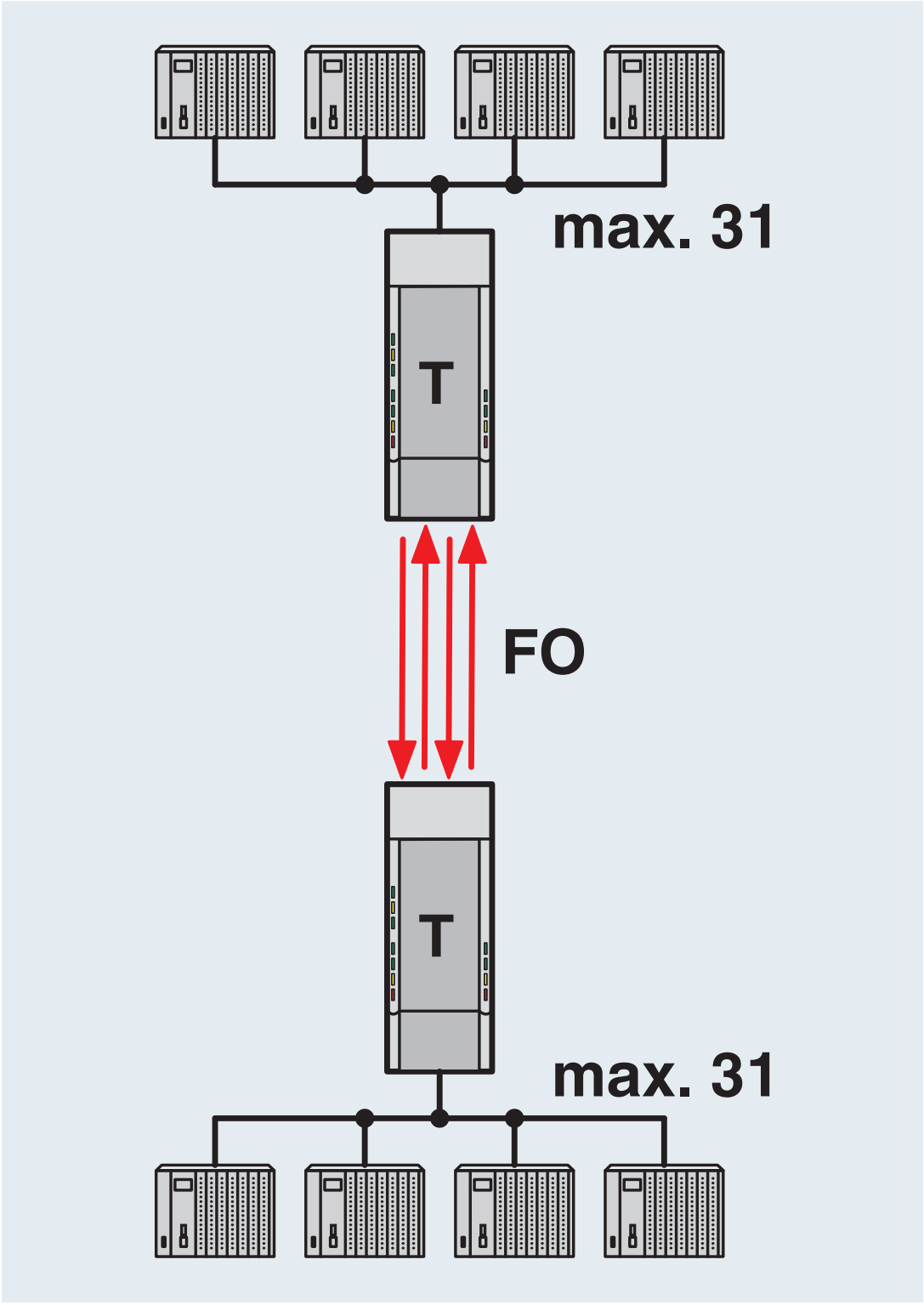
Drawings

Application drawing



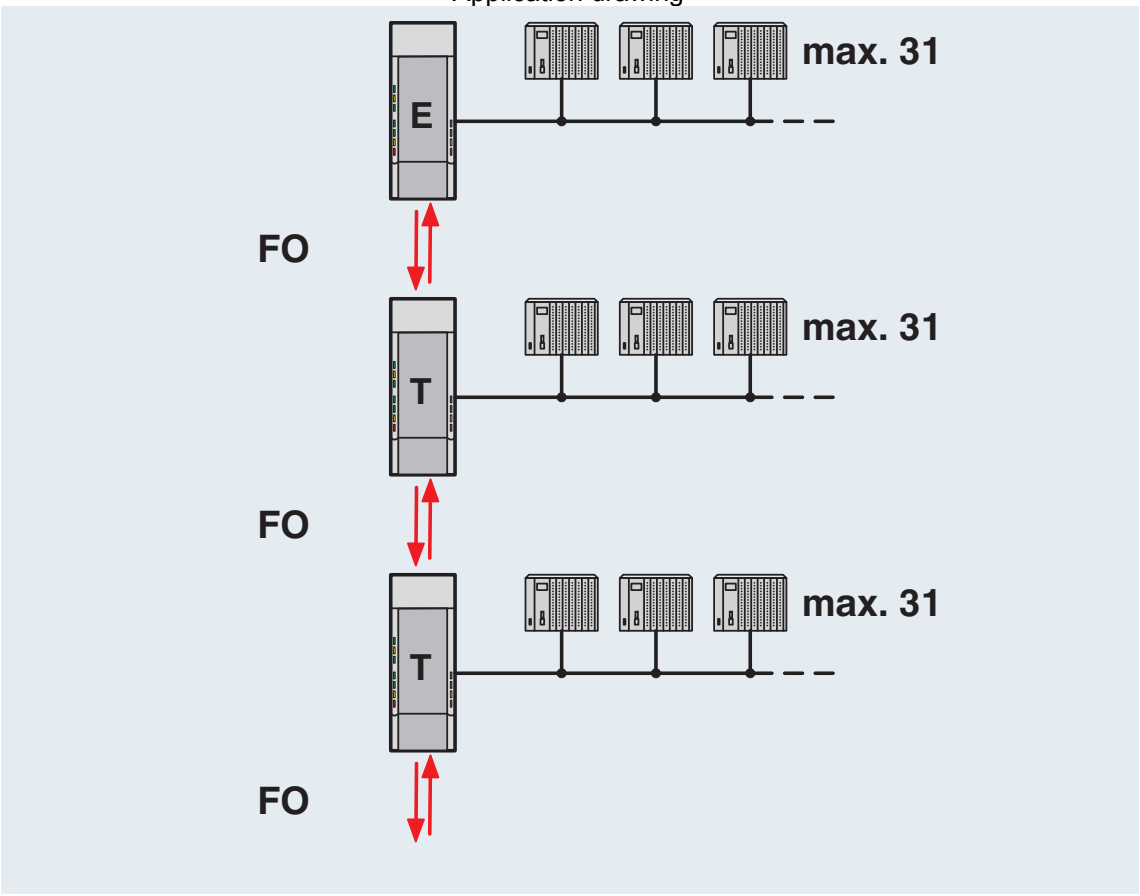
Point-to-point connection

Application drawing



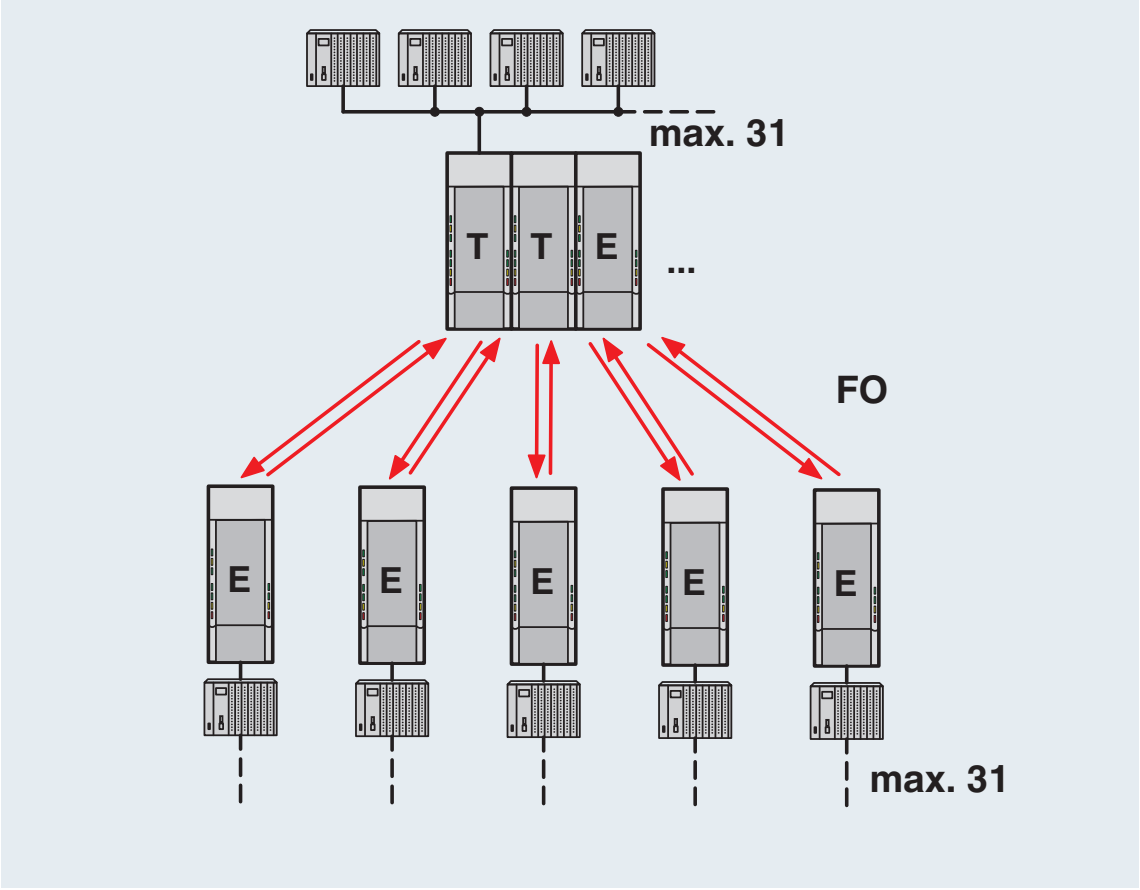
Redundant point-to-point connection

Application drawing



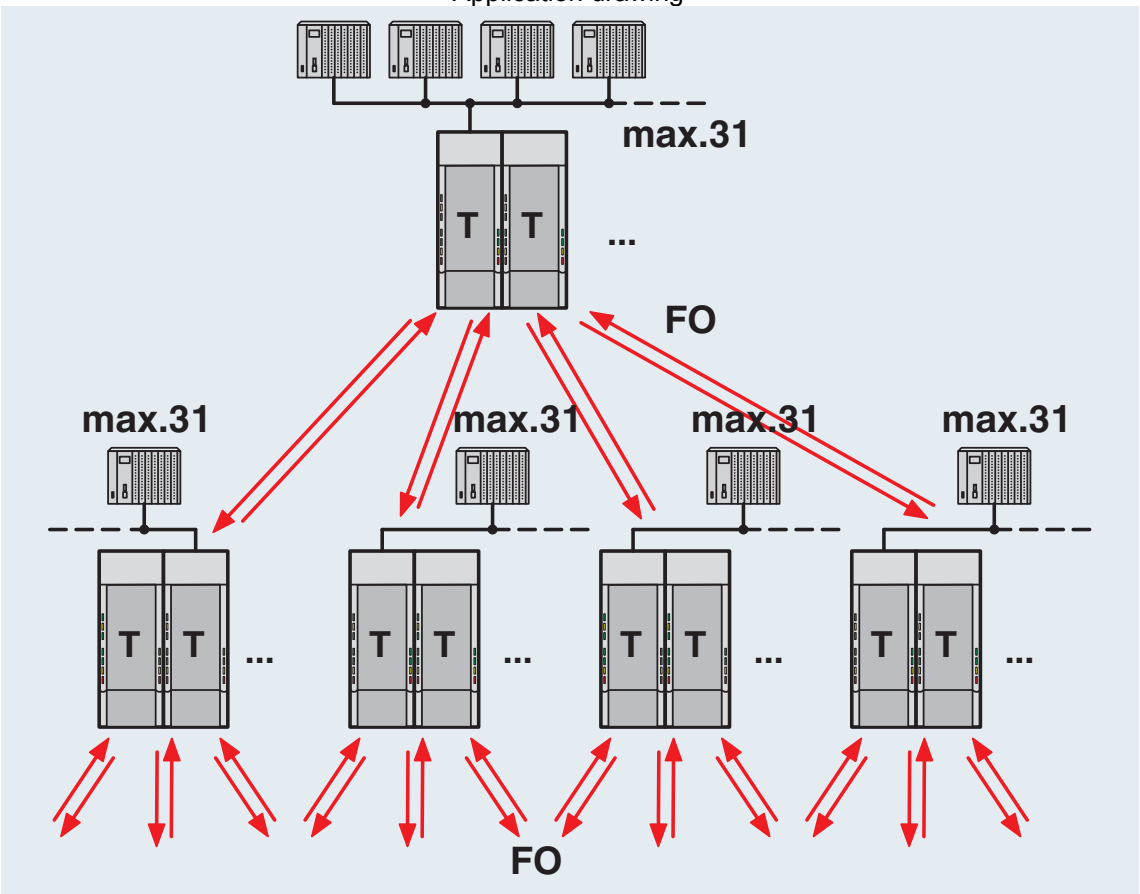
Line structure

Application drawing



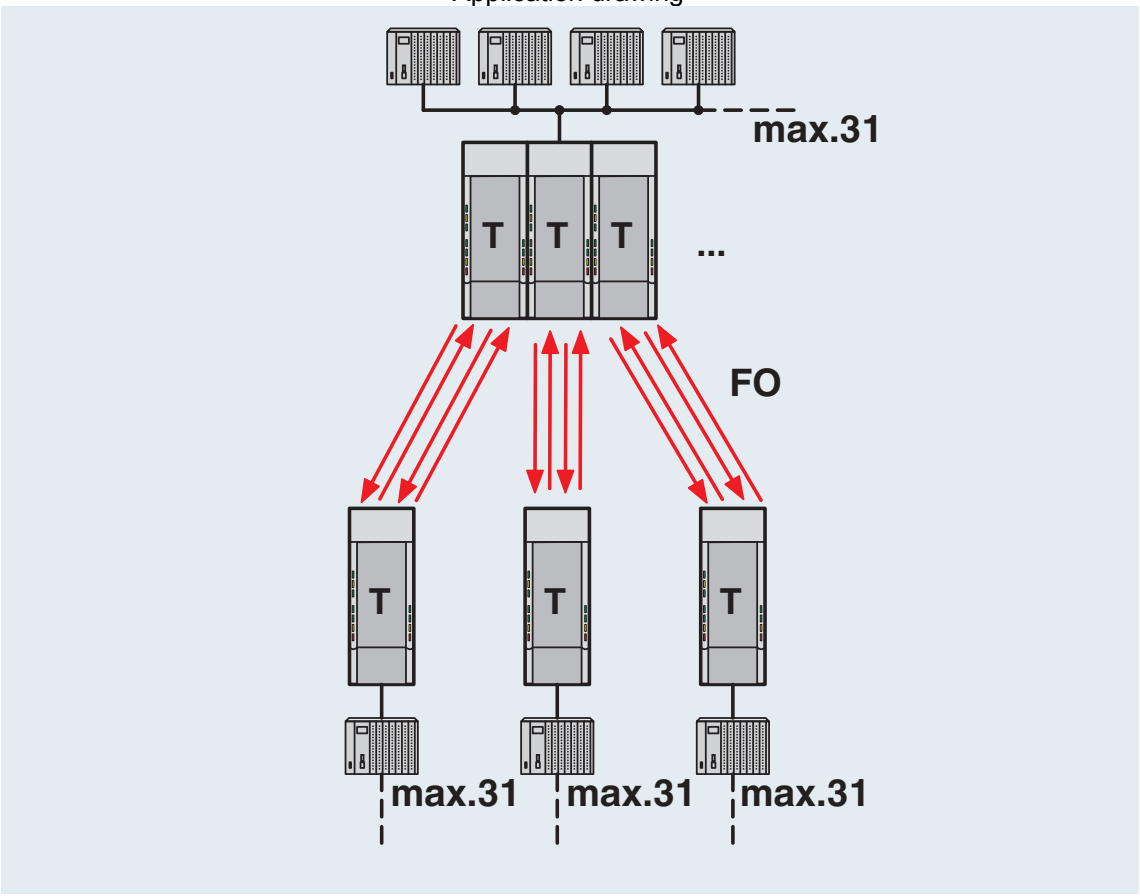
Star structure

Application drawing



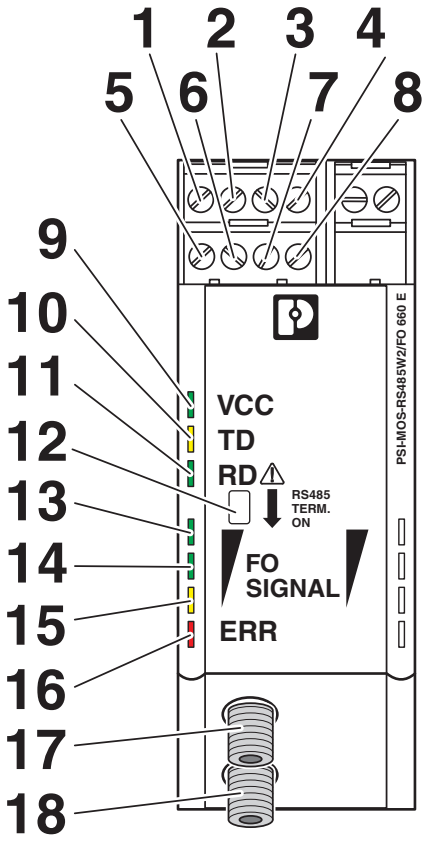
Tree structure

Application drawing



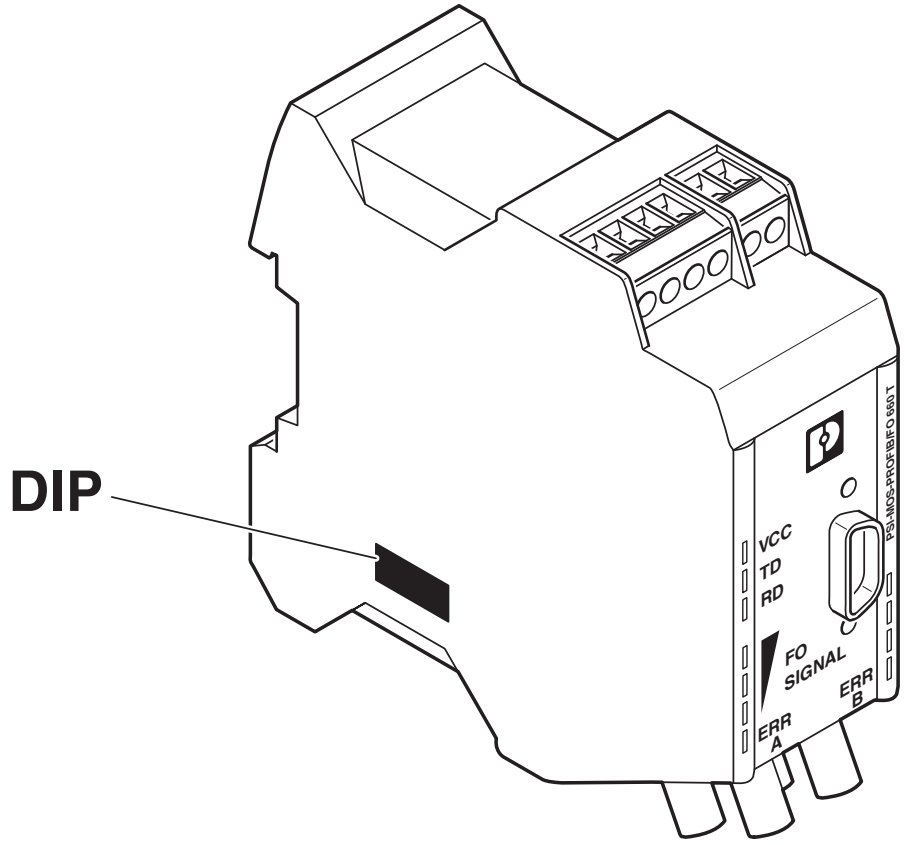
Redundant structure

Schematic diagram



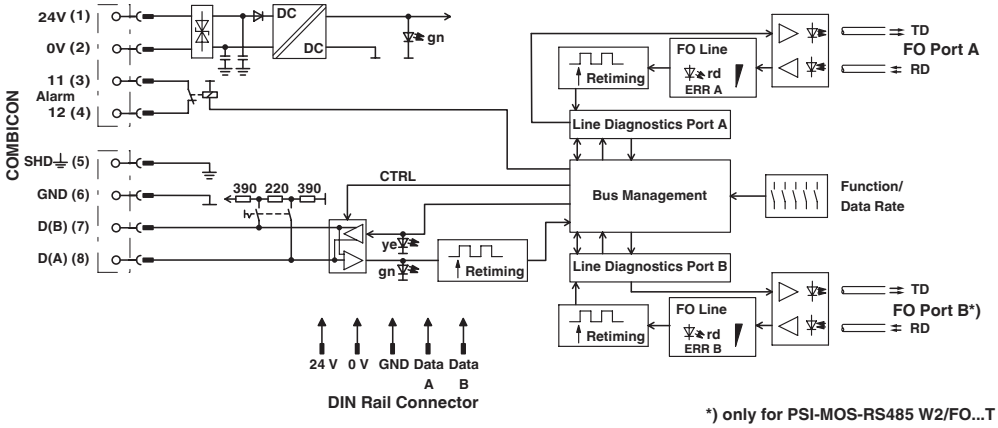
Front view

Schematic diagram



Position of DIP switches

Block diagram



*) only with PSI-MOS.../FO...T

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2708313

cULus Listed
Approval ID: E238705

cULus Recognized
Approval ID: E238705

DNV GL
Approval ID: TAA00001KR_7

IECEx
Approval ID: IECEx ULD 24.0009X

ATEX
Approval ID: UL 24 ATEX 3197X

cULus Listed
Approval ID: E199827

Classifications

ECLASS

ECLASS-13.0	19170411
ECLASS-15.0	19170411

ETIM

ETIM 10.0	EC001467

UNSPSC

UNSPSC 21.0	43201500

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
	6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol(CAS: 119-47-1)
SCIP	b1d7039d-4212-4e92-b342-22e7c7e83d23

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