

# PSI-MOS-RS485W2/FO 850 T - FO converters



2708326

<https://www.phoenixcontact.com/pc/products/2708326>

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FO converter with integrated optical diagnostics, alarm contact, for RS-485 2-wire bus systems (SUCONET K, Modbus ...) up to 500 kbps, NRZ coding, T-coupler with two FO interfaces (BFOC), 850 nm, for PCF/fiberglass cable (multimode)

## 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... T** T-couplers allow the interface to be converted for **two FO cables**. They can be used to create linear structures and redundant structures for increased system availability.

## 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	2708326
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	DNC212
Catalog page	Page 435 (C-6-2019)
GTIN	4017918974022
Weight per piece (including packing)	264.1 g
Weight per piece (excluding packing)	210.08 g

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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	652 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	286 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	118 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)
MTBF	159 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	24 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))

### Electrical properties

Electrical isolation	VCC // RS-485
Maximum power dissipation for nominal condition	2.88 W
Test voltage data interface/power supply	1.5 kV <sub>rms</sub> (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 (in acc. with UL)
Typical current consumption	120 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

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## Connection data

### Supply

Connection method	COMBICON plug-in screw terminal block
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	2
Transmit capacity, minimum	-4 dBm (200/230 μm)
	-17.6 dBm (50/125 μm)
	-14 dBm (62,5/125 μm)
Transmission length incl. 3 dB system reserve	2800 m (F-K 200/230 8 dB/km with quick mounting connector)
	4200 m (with F-G 50/125 2.5 dB/km)
	3300 m (with F-G 62,5/125 3.0 dB/km)
Transmission protocol	Protocol-transparent to the RS-485 interface
Connection method	B-FOC (ST®)
Wavelength	850 nm
Minimum receiver sensitivity	-32.5 dBm (50/125 μm)
	-32.5 dBm (62,5/125 μm)
	-32.1 dBm (200/230 μm)
Maximum receiver sensitivity	-3 dBm (200/230 μm)
Transmission medium	PCF fiber
	Multi-mode fiberglass

### 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)
Termination resistor	390 Ω (Can be connected)
	220 Ω
	390 Ω
Single conductor/terminal point, rigid	0.2 mm² ... 2.5 mm²

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Single-wire/terminal point, flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Max. AWG conductor cross section, flexible	14
Min. AWG conductor cross section, flexible	24
Single-wire/terminal point, rigid AWG max.	14
Single-wire/terminal point, rigid AWG min.	24
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	200/230 µm
	50/125 µm
	62.5/125 µm
	PCF fiber
	Fiberglass

## 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
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### ATEX

Identification	Ⓜ II 3 G Ex ec IIC T4 Gc
Certificate	UL 21 ATEX 2550X
Note	Please follow the special installation instructions in the

# PSI-MOS-RS485W2/FO 850 T - FO converters



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	documentation!
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## ATEX, FO interface

Identification	Ⓜ II (2) G [Ex op is Gb] IIC Ⓜ II (2) D [Ex op is Db] IIC
Certificate	PTB 06 ATEX 2042 U
Note	Please follow the special installation instructions in the documentation!

## IECEX

Identification	Ex ec IIC T4 Gc
Certificate	IECEX ULD 21.00013X

## 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
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## KC approval for South Korea

Certificate	MSIP-REI-PCK-2708326
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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

Noise immunity	EN 61000-6-2:2005
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011

## Electrostatic discharge

Standards/regulations	EN 61000-4-2
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## Electrostatic discharge

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

## Electromagnetic HF field

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

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	$\pm 2$ kV
Signal	$\pm 2$ kV
Comments	Criterion B

## Surge current load (surge)

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

Input	$\pm 0.5$ kV
Signal	$\pm 1$ kV
Comments	Criterion B

## Conducted interference

Standards/regulations	EN 61000-4-6
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## 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.

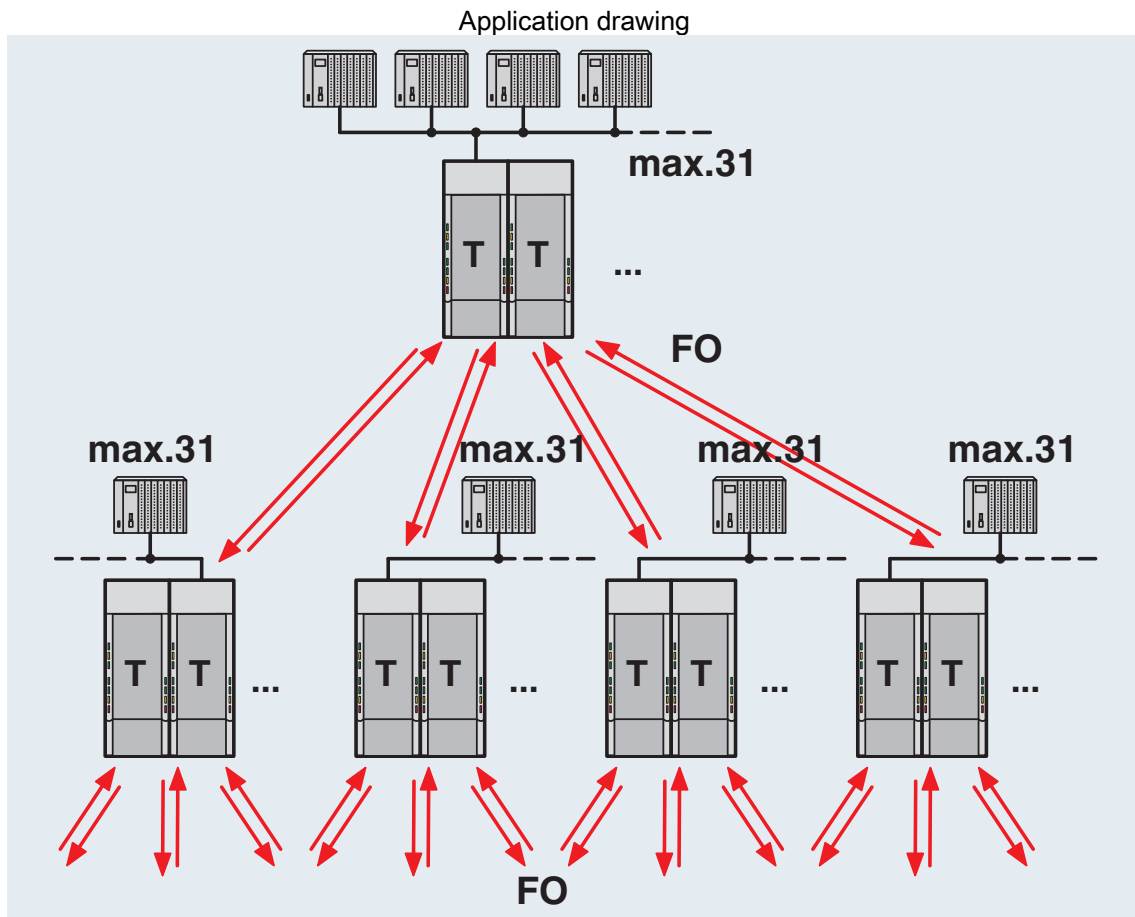
## Standards and regulations

Free from substances that could impair the application of coating	in accordance with VW-AUDI-Seat central standard P-VW 3.10.7 57 65 0
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## Mounting

Mounting type	DIN rail mounting
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Drawings



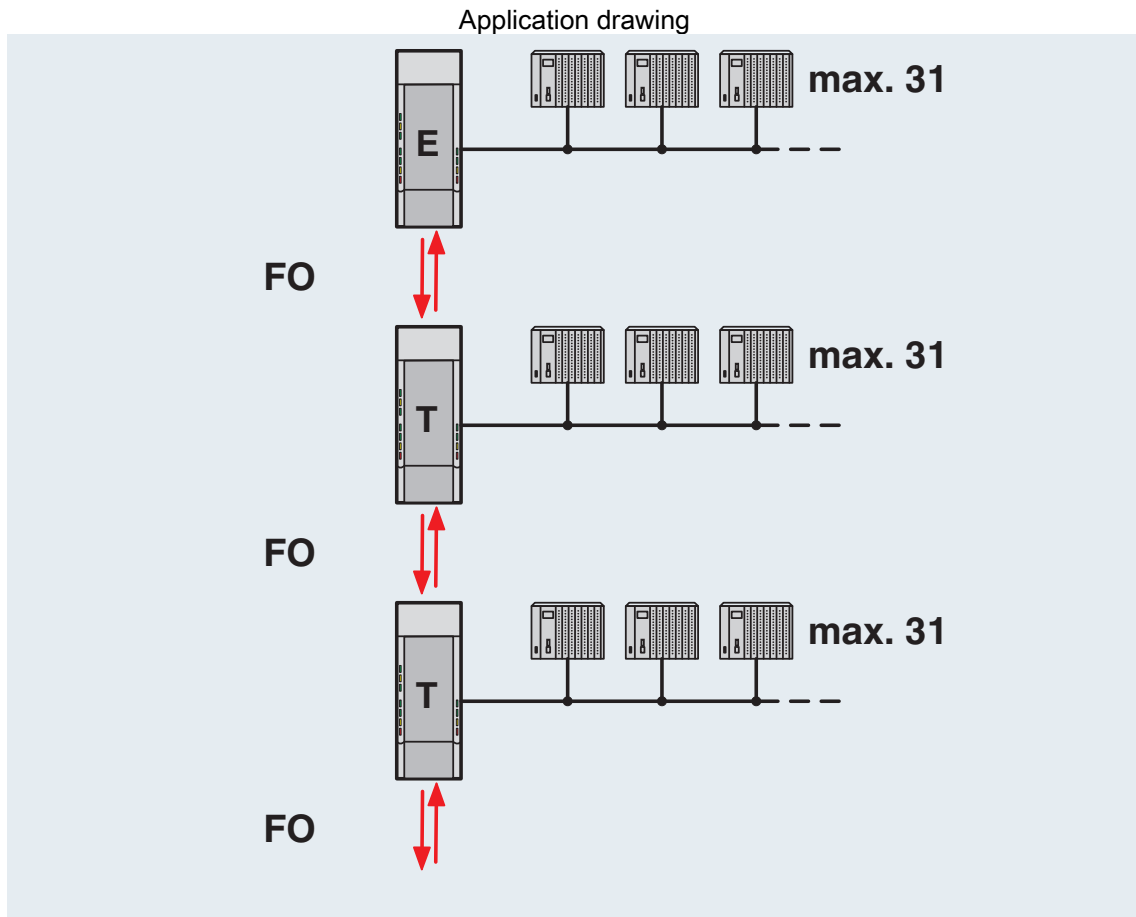
Tree structure



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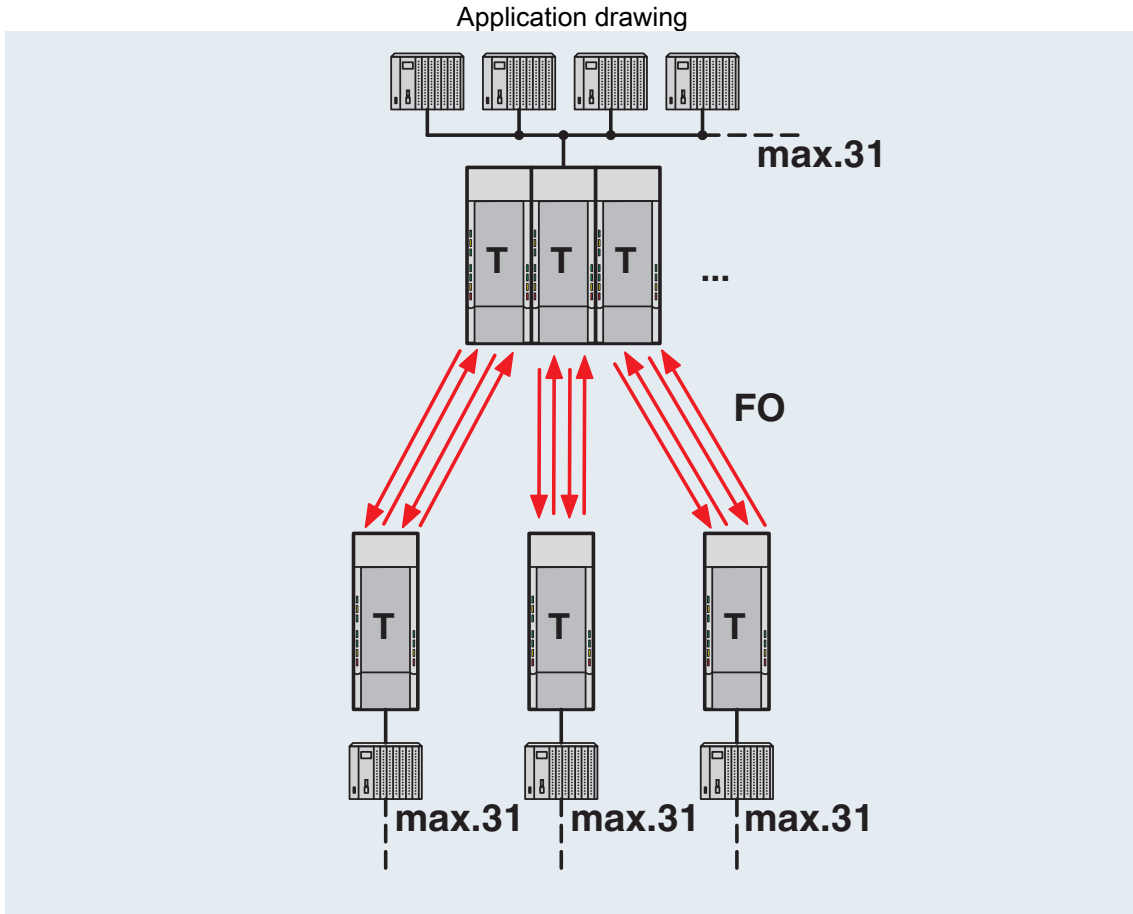
Line structure

# PSI-MOS-RS485W2/FO 850 T - FO converters

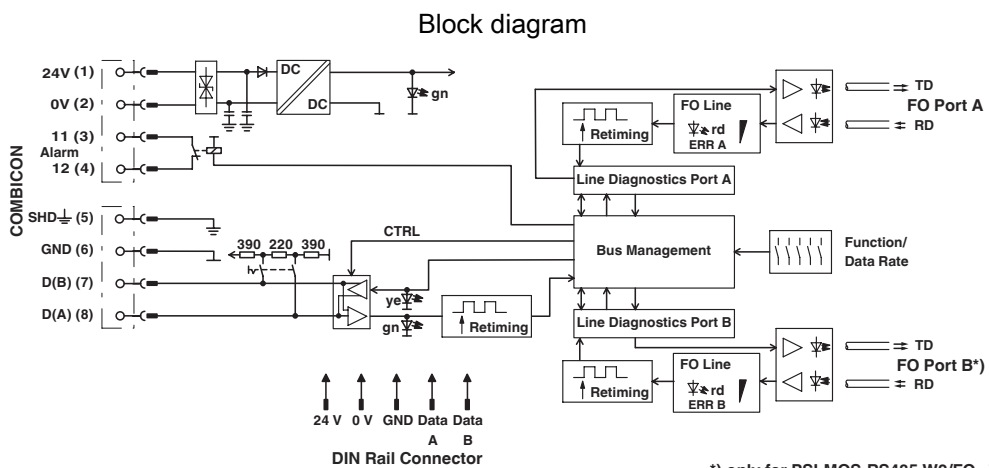


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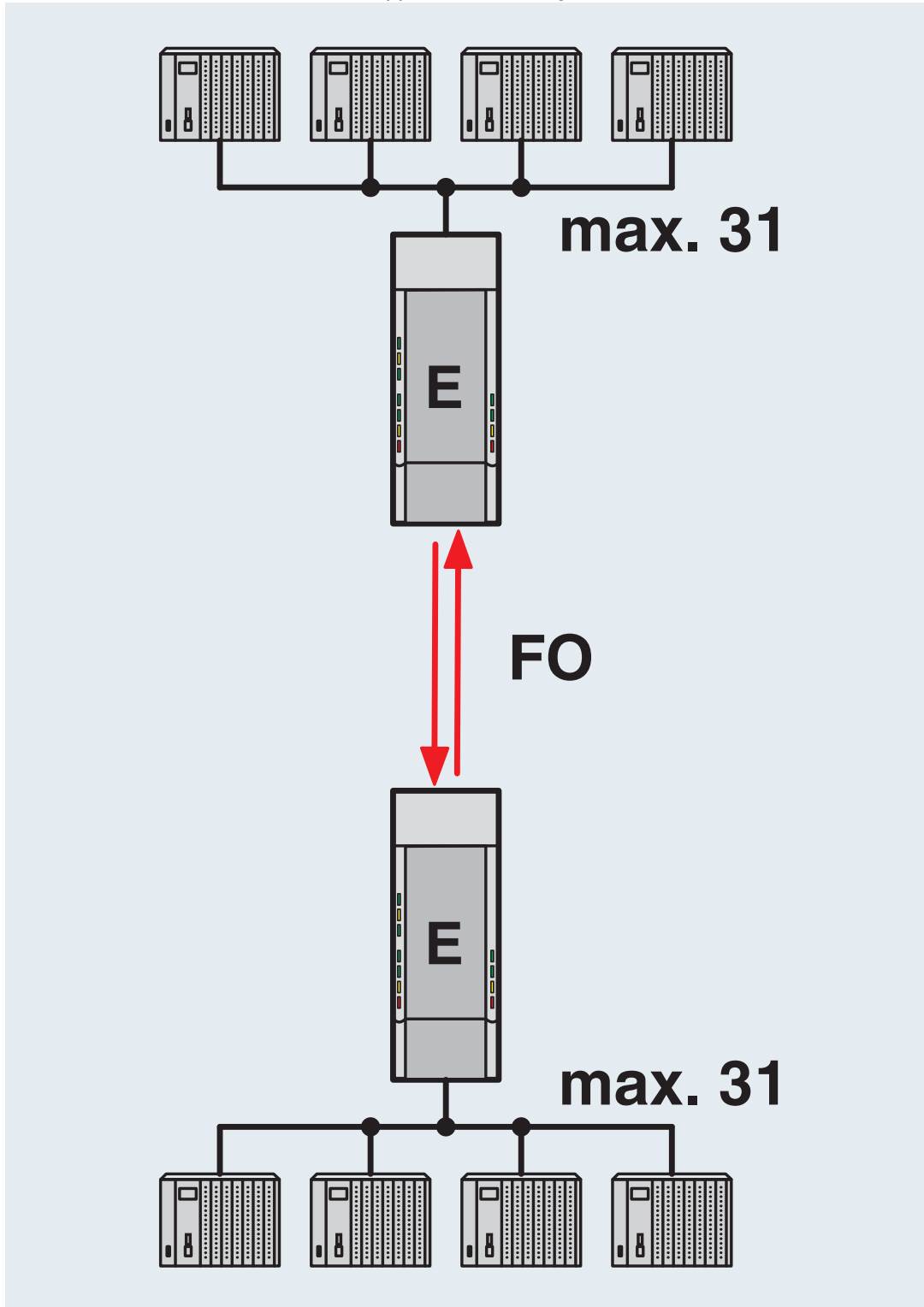


Redundant structure



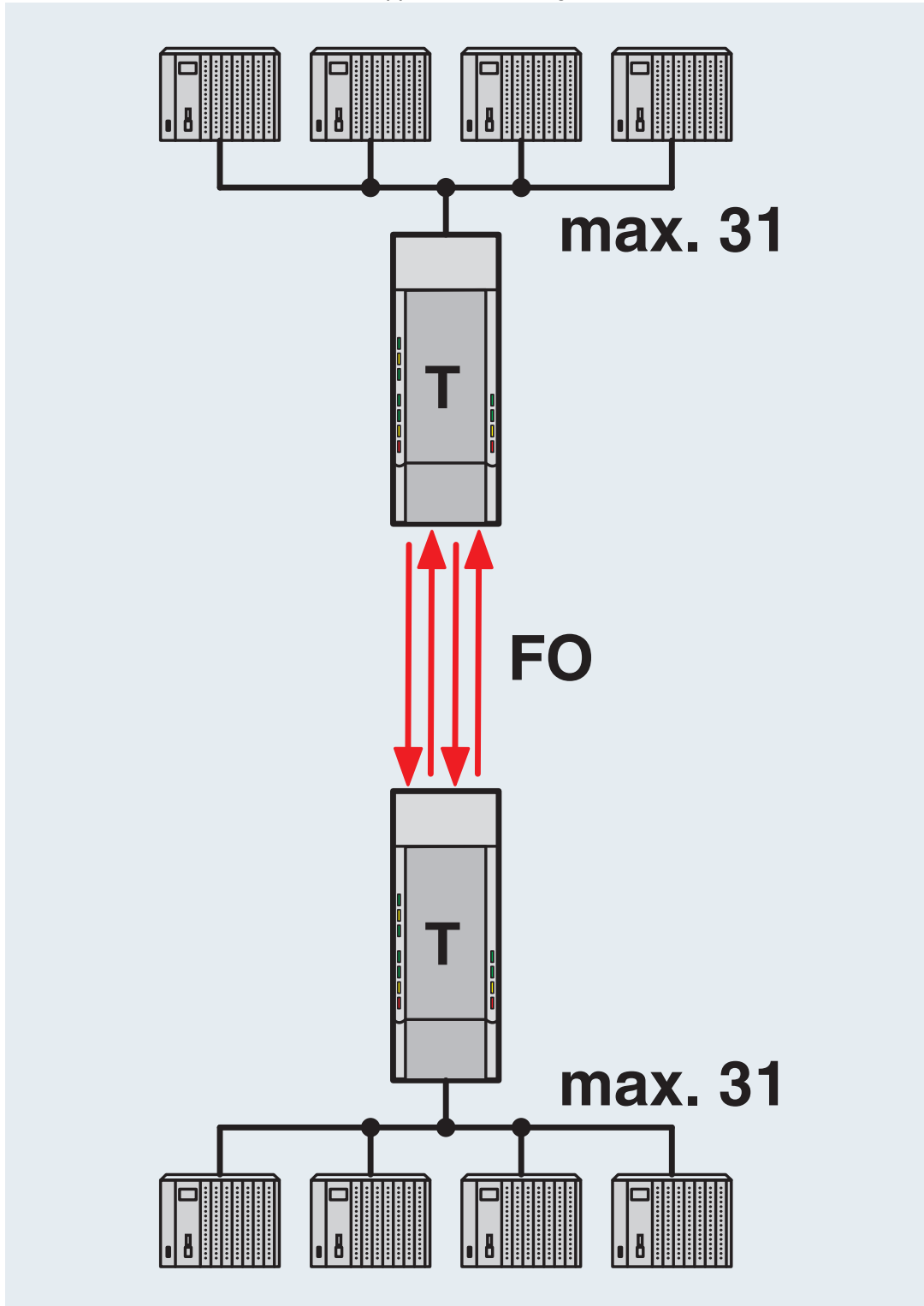
\*) only with PSI-MOS.../FO...T

Application drawing



Point-to-point connection

Application drawing



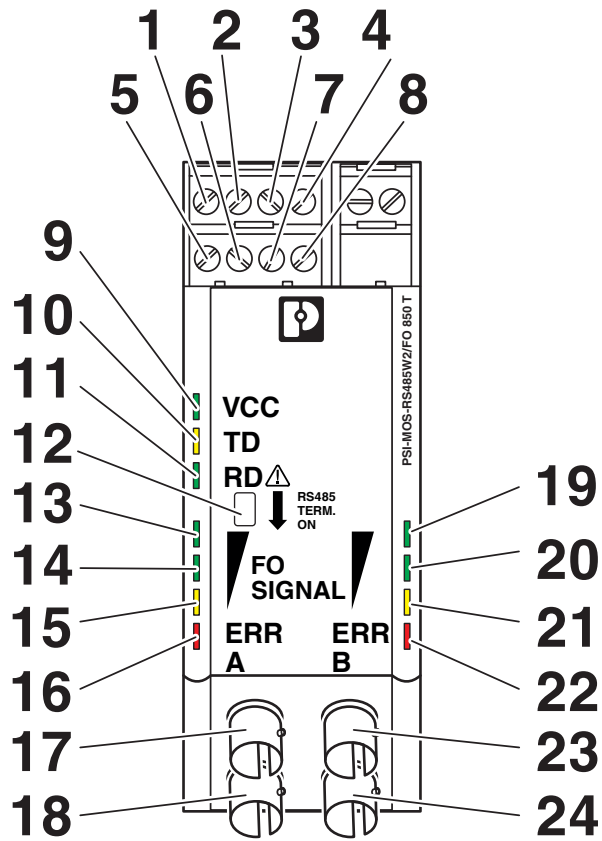
Redundant point-to-point connection

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Schematic diagram



Front view

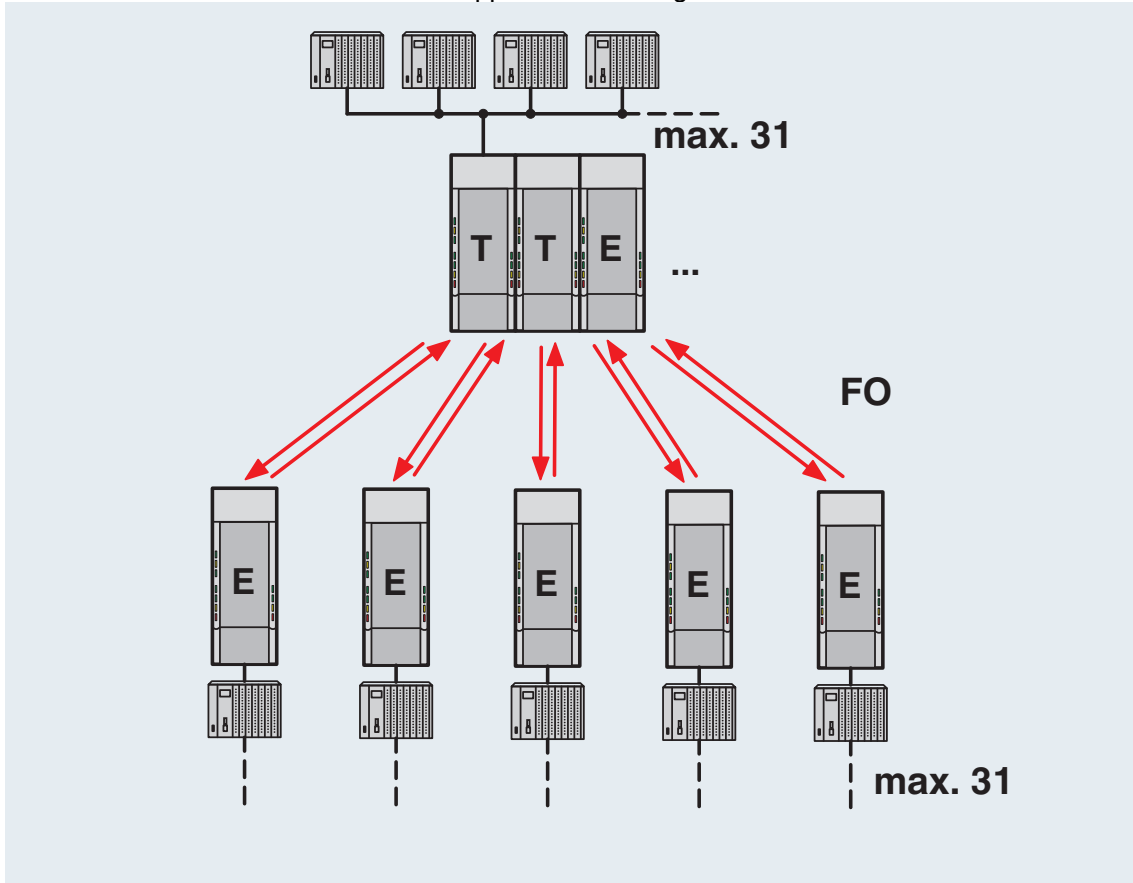
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Application drawing



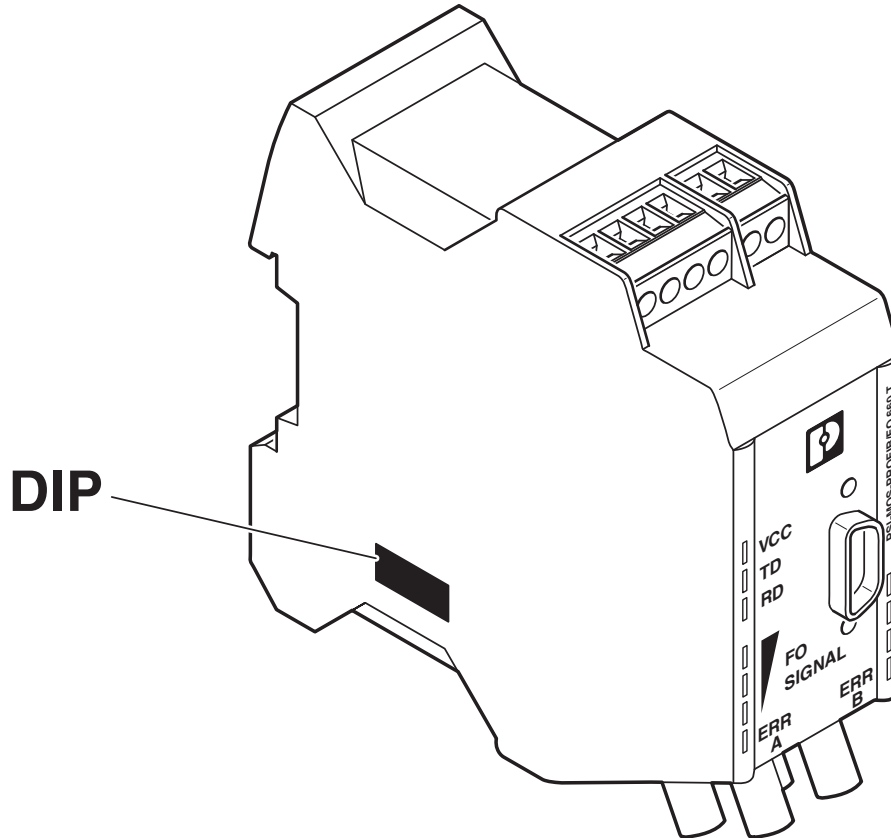
Star structure

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Schematic diagram



Position of DIP switches

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/pc/products/2708326>



**EAC**

Approval ID: TR TS\_D\_01871-19



**DNV GL**

Approval ID: TAA00001KR



**KC**

Approval ID: MSIP-REI-PCK-2708326

**UAE-RoHS**

Approval ID: 23-02-63194



**cULus Listed**

Approval ID: E238705



**ATEX**

Approval ID: PTB 06 ATEX 2042U



**ATEX**

Approval ID: PxCIF06ATEX2708261X



**cUL Listed**

Approval ID: FILE E 199827



**UL Listed**

Approval ID: FILE E 199827



**IECEX**

Approval ID: IECEX ULD 21.0013X



**ATEX**

Approval ID: UL 21 ATEX 2550X



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**cULus Listed**

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## Classifications

### ECLASS

ECLASS-11.0	19170411
ECLASS-12.0	19170411
ECLASS-13.0	19170411

### ETIM

ETIM 9.0	EC001467
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### UNSPSC

UNSPSC 21.0	43201500
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## Environmental product compliance

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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PHOENIX CONTACT GmbH & Co. KG  
Flachsmarktstraße 8  
D-32825 Blomberg  
+49 (0) 5235-3 00  
[info@phoenixcontact.com](mailto:info@phoenixcontact.com)