

# FL RED 2001E PRP 2LC - Redundancy module



2701864

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Ethernet redundancy module for redundant networks with the redundancy protocol PRP.



## Product description

The compact redundancy modules (RED) enable flexible and economical design of high-availability Ethernet networks in the field of energy and automation. With robustness according to IEC 61850-3 and IEEE 1613, their wide temperature range from -40°C to +70°C, and extensive power supply range from 18 to 58 V DC, they cover all the requirements of industrial and energy technology applications. Parallel redundancy according to IEC 62439 enables high availability networks without switch-over time to be established.

## Your advantages

- Ambient temperature -40 °C ... 70 °C
- Easy startup without configuration
- Meets the requirements of IEC 61850-3 and IEEE 1613
- Low power consumption during operation
- No loss of packets in the event of a network failure
- Parallel redundancy without switch-over times for maximum availability

## Commercial data

Item number	2701864
Packing unit	1 pc
Minimum order quantity	1 pc
Note	Made to order (non-returnable)
Sales key	DN17
Product key	DNN143
GTIN	4046356867450
Weight per piece (including packing)	541 g
Weight per piece (excluding packing)	420 g
Customs tariff number	85176200
Country of origin	DE

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## Technical data

### Dimensions

Width	40 mm
Height	100 mm
Depth	109 mm

### Mounting

Mounting type	DIN rail mounting
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### Interfaces

#### Ethernet (RJ45)

Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission speed	10/100 Mbps
Transmission physics	Copper
Transmission length	100 m (per segment)
No. of channels	1 (RJ45 port)
Data flow control/protocols	IEC 61850-3, IEEE 1613

#### Ethernet FO

Connection method	LC
Transmission speed	100 Mbps (full duplex)
Transmission physics	multi-mode fiberglass
Transmission length	2 km (per segment)
No. of channels	2 (LC multi-mode)

### Product properties

Product type	Switch
Product family	Redundancy module
Type	Block design
Basic functions	Ethernet redundancy module for the Parallel Redundancy Protocol

#### Switch functions

Basic functions	Ethernet redundancy module for the Parallel Redundancy Protocol
Redundancy	PRP (Parallel Redundancy Protocol)
Status and diagnostic indicators	LEDs: U <sub>S1</sub> , U <sub>S2</sub> (redundant voltage supply), link and activity per port

#### Security functions

Basic functions	Ethernet redundancy module for the Parallel Redundancy Protocol
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### Electrical properties

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Local diagnostics	US1, US2 Supply voltage Green LED
	LNK/ACT Link status/data transmission Green LED
Maximum power dissipation for nominal condition	6 W
Transmission medium	Multi-mode fiberglass
	FO

## Supply

Supply voltage (DC)	24 V DC (redundant)
Supply voltage	48 V DC (redundant)
Supply voltage range	18 V DC ... 58 V DC
Residual ripple	3.6 V <sub>pp</sub> (within the permitted voltage range)
Typical current consumption	250 mA (at U <sub>S</sub> = 24 V DC)

## Supply: Module electronics

Connection method	Via COMBICON
Supply voltage	48 V DC
Supply voltage range	18 V DC ... 58 V DC

## Connection data

Conductor cross-section, rigid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section, flexible	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 16

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-45 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	10 % ... 95 % (non-condensing)
Air pressure (operation)	70 kPa ... 106 kPa (3000 m above sea level)
Air pressure (storage/transport)	70 kPa ... 106 kPa (3000 m above sea level)

## EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conformance with EMC directives	IEC 61000-6-2 IEC 61000-4-2 (ESD) Criterion A
	IEC 61000-6-2 IEC 61000-4-3 (immunity to radiated interference) Criterion A
	IEC 61000-6-2 IEC 61000-4-4 (burst) Criterion A
	IEC 61000-6-2 IEC 61000-4-5 (surge) Criterion A
	IEC 61000-6-2 IEC 61000-4-6 (immunity to conducted interference) Criterion A
	IEC 61000-6-2 IEC 61000-4-8 (immunity to magnetic fields) Criterion A
	EN 55022 (emitted interference) Criterion B
Noise immunity	IEC 61850-3, IEEE 1613, EN 61000-6-2: 2005

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## Noise emission

Standards/regulations	EN 61000-6-4
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## System properties

### Functionality

Basic functions	Ethernet redundancy module for the Parallel Redundancy Protocol
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## Signaling

Status display	LEDs: U <sub>S1</sub> , U <sub>S2</sub> (redundant voltage supply), link and activity per port
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## Classifications

### ETIM

ETIM 8.0	EC000734
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### UNSPSC

UNSPSC 21.0	43201400
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(a)-I, 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)
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