

Redundancy module - FL RED 2001E PRP 2LC - 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

- ✓ Meets the requirements of IEC 61850-3 and IEEE 1613
- ✓ Standardized PRP redundancy function according to IEC 62439-3
- ✓ Easy startup without configuration
- ✓ Parallel redundancy without switch-over times for maximum availability
- ✓ No loss of packets in the event of network failure
- ✓ Low power consumption during operation
- ✓ -40°C ... +70°C ambient temperature
- ✓ Alarm contact



Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 867450
GTIN	4046356867450
Weight per Piece (excluding packing)	580.000 g
Custom tariff number	85176200
Country of origin	Germany

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Technical data

Dimensions

Width	40 mm
Height	100 mm
Depth	109 mm

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)

Interfaces

Interface	Ethernet (RJ45)
No. of ports	1 (RJ45 port)
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Copper
Transmission speed	10/100 Mbps
Transmission length	100 m (per segment)
Data flow control/protocols	IEC 61850-3, IEEE 1613
Interface	Ethernet FO
No. of ports	2 (LC multi-mode)
Transmission physics	multi-mode fiberglass
Transmission speed	100 Mbps (full duplex)
Transmission length	2 km (per segment)

Function

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

Supply voltage

Supply voltage	24 V DC (redundant)
	48 V DC (redundant)
Residual ripple	3.6 V _{PP} (within the permitted voltage range)
Supply voltage range	18 V DC ... 58 V DC
Typical current consumption	250 mA (at U _S = 24 V DC)

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Technical data

General

Mounting type	DIN rail
Type AX	Block design
Net weight	444 g

Connection data

Conductor cross section solid min.	0.2 mm²
Conductor cross section solid max.	1.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	1.5 mm²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 61000-6-4
Noise immunity	IEC 61850-3, IEEE 1613, EN 61000-6-2: 2005

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"

Classifications

eCl@ss

eCl@ss 10.0.1	19170404
eCl@ss 11.0	19170404
eCl@ss 4.0	24010500
eCl@ss 4.1	24010500
eCl@ss 5.0	19030100
eCl@ss 5.1	19030100
eCl@ss 6.0	19170100
eCl@ss 7.0	19170101
eCl@ss 9.0	19170101

ETIM

ETIM 4.0	EC001478
ETIM 6.0	EC000515

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Classifications

ETIM

ETIM 7.0	EC000734
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UNSPSC

UNSPSC 6.01	20142601
UNSPSC 7.0901	20142601
UNSPSC 11	20142601
UNSPSC 12.01	20142601
UNSPSC 13.2	43201404
UNSPSC 18.0	43201404
UNSPSC 19.0	43201404
UNSPSC 20.0	43201404
UNSPSC 21.0	43201404

Approvals

Approvals

Approvals

UL Listed / cUL Listed / cULus Listed

Ex Approvals

Approval details

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
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cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
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cULus Listed			
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Accessories

Accessories

Data cable preassembled

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



Patch cable, degree of protection: IP20, number of positions: 8, 10 Gbps, CAT6_A, cable outlet: straight, Ethernet

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

Patch cable - NBC-R4AC/1,0-93B/R4AC - 1408968



Patch cable, degree of protection: IP20, cable length: 1 m, number of positions: 4, 100 Mbps, CAT5, material: PA 6.6, PROFINET

Patch cable - NBC-R4AC/2,0-93B/R4AC - 1408969



Patch cable, degree of protection: IP20, cable length: 2 m, number of positions: 4, 100 Mbps, CAT5, material: PA 6.6, PROFINET

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Accessories

Patch cable - NBC-R4AC/5,0-93B/R4AC - 1408970



Patch cable, degree of protection: IP20, cable length: 5 m, number of positions: 4, 100 Mbps, CAT5, material: PA 6.6, PROFINET

FO patch cable - FOC-LC:PA-SC:PA-OM2:D01/1 - 1115607



Multi-mode OM2 duplex jumper, LC-SC, UPC polishing, length 1 m

FO patch cable - FOC-LC:PA-SC:PA-OM2:D01/2 - 1115605



Multi-mode OM2 duplex jumper, LC-SC, UPC polishing, length 2 m

FO patch cable - FOC-LC:PA-LC:PA-OM2:D01/1 - 1115633



Multi-mode OM2 duplex jumper, LC-LC, UPC polishing, length 1 m

FO patch cable - FOC-LC:PA-LC:PA-OM2:D01/2 - 1115634



Multi-mode OM2 duplex jumper, LC-LC, UPC polishing, length 2 m

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Accessories

Fiber optic cable - FOC-LC:PA-ST:PA-OM2:D01/1 - 1115588



Multi-mode OM2 duplex jumper, LC-ST, UPC polishing, length 1 m

Fiber optic cable - FOC-LC:PA-ST:PA-OM2:D01/2 - 1115587



Multi-mode OM2 duplex jumper, LC-ST, UPC polishing, length 2 m

FO patch cable - FOC-LC:PA-SC:PA-OM4:D01/1 - 1115601



Multi-mode OM4 duplex jumper, LC-SC, UPC polishing, length 1 m

FO patch cable - FOC-LC:PA-SC:PA-OM4:D01/2 - 1115600



Multi-mode OM4 duplex jumper, LC-SC, UPC polishing, length 2 m

FO patch cable - FOC-LC:PA-LC:PA-OM4:D01/1 - 1115625



Multi-mode OM4 duplex jumper, LC-LC, UPC polishing, length 1 m

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Accessories

FO patch cable - FOC-LC:PA-LC:PA-OM4:D01/2 - 1115624



Multi-mode OM4 duplex jumper, LC-LC, UPC polishing, length 2 m

FO patch cable - FOC-LC:PA-LC:PA-OS2:D01/1 - 1115636



Single-mode OS2 duplex jumper, LC-LC, UPC polishing, length 1 m

FO patch cable - FOC-LC:PA-LC:PA-OS2:D01/2 - 1115629



Single-mode OS2 duplex jumper, LC-LC, UPC polishing, length 2 m

FO patch cable - FOC-LC:PA-ST:PA-OS2:D01/1 - 1115596



Single-mode OS2 duplex jumper, LC-ST, UPC polishing, length 1 m

FO patch cable - FOC-LC:PA-ST:PA-OS2:D01/2 - 1115595



Single-mode OS2 duplex jumper, LC-ST, UPC polishing, length 2 m

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Accessories

FO patch cable - FOC-LC:PA-SC:PA-OS2:D01/1 - 1115618



Single-mode OS2 duplex jumper, LC-SC, UPC polishing, length 1 m

FO patch cable - FOC-LC:PA-SC:PA-OS2:D01/2 - 1115617



Single-mode OS2 duplex jumper, LC-SC, UPC polishing, length 2 m

End block

End clamp - E/NS 35 N - 0800886



End clamp, width: 9.5 mm, color: gray

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

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Accessories

Patch cable - FL CAT5 PATCH 2,0 - 2832289



Patch cable, CAT5, assembled, 2 m

Protective cap

Dust protection - FL RJ45 PROTECT CAP - 2832991



Dust protection caps for RJ45 socket

Safety locking

Port Guard Security Element - FL SEC PAC 4TX - 2832865



Layer1 security elements for four RJ45 network connections for use with patch boxes and panels