

FL SWITCH 2303-8SP1 - Industrial Ethernet Switch



1278397

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Managed Switch 2000, 3 RJ45 ports 10/100/1000 Mbps, PROFINET Conformance-Class B, Extended temperature range, Single Pair Ethernet ports with PoDL, Development process certified in accordance with IEC 62443-4-1, Compatible with IEC 62443-4-2

Product description

Development process certified in accordance with IEC 62443-4-1 Compatible with IEC 62443-4-2

Your advantages

- Space-saving Single Pair Ethernet ports (10BASE T1L) with PoDL Power Class 11
- Ambient temperature -40 °C ... 70 °C
- RSTP
- MRP (client and manager)
- VLANs
- DHCP client, DHCP server (pool-based and port-based), DHCP option 82
- Slim design
- Configuration memory
- Web-based management, SNMP
- Easy and fast startup and commissioning with the FL NETWORK MANAGER software
- Suitable for PROFINET and EtherNet/IP™ networks

Commercial data

Item number	1278397
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DNC
Product key	DNN128
GTIN	4063151475925
Weight per piece (including packing)	454 g
Weight per piece (excluding packing)	347 g
Customs tariff number	85176200
Country of origin	DE

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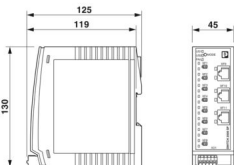


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Technical data

Dimensions

Dimensional drawing	
Width	45 mm
Height	130 mm
Depth	119 mm

Notes

General	Support by phone or on-site (fee is charged)
Note on application	
Note on application	Only for industrial use

Material specifications

Housing material	Polycarbonate fiber reinforced
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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	10/100/1000 Mbps
Transmission physics	Copper
Transmission length	100 m (per segment)
Signal LEDs	Data receive, link status
No. of channels	3 (RJ45 ports)

Ethernet (SPE)	
Connection method	SPE
Note on the connection method	10BASE T1L
	PoDL Power Class 11
Transmission speed	10 Mbps (full duplex)
Transmission physics	Copper
Transmission length	1000 m (per segment)
Signal LEDs	Data receive, link status
No. of channels	8 (SPE ports)

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Product properties

Product type	Switch
Product family	Managed Switch 2000
Type	Book type
MTTF	185.12 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	122.03 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	25.3 Years (SN 29500 standard, temperature 70°C, operating cycle 100%)
Special properties	Extended temperature range, Single Pair Ethernet ports with PoDL
	Development process certified in accordance with IEC 62443-4-1
	Compatible with IEC 62443-4-2
Signal delay	≥ 1.9 µs (Store-and-Forward mode, 10/100/1000 Mbps, depending on the frame size)

Insulation characteristics

Protection class	III (VDE 0106)
Degree of pollution	2

Switch functions

Diagnostic functions	RMON History
	LLDP (Link Layer Discovery Protocol)
	SNMP-Traps
	N:1-Portmirroring
	ACD (Address Conflict Detection)
	SysLog
	CRC-Surveillance
Basic functions	Store-and-forward switch, complies with IEEE 802.3
PROFINET conformance class	Conformance-Class B
PROFINET device function	PROFINET device
	Fast Startup
Filter functions	Quality of Service (8 priority classes)
	Class of Service
	DiffServ/DSCP
	Port-Priorisierung
	VLAN (up to 32 VLANs)
	IGMP Snooping/Querier (v1/v2)
	Auto-Query-Port
	Extended Multicast Filtering
IP parameterization	DHCP client
	DHCP Option 82 (Relay Agent)
	DHCP server (pool-based, port-based)
	BootP

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	DCP (Discovery and Configuration Protocol)
MAC address table	8k
Management	Web-based management (HTTP/HTTPS)
	Role-based user management (LDAP, RADIUS)
	SNMPv1/v2/v3
	Command Line Interface (Telnet, SSH)
Redundancy	MRP (Media Redundancy Protocol)
	RSTP (Rapid Spanning Tree Protocol)
	FRD (Fast Ring Detection)
	Large Tree Support
	LACP (Link Aggregation Control Protocol)
	PROFINET S2 system redundancy
Status and diagnostic indicators	LEDs: US1, US2 (power supply), Fail (alarm contact), 2 LEDs per Ethernet port (Link/Activity and Speed)
Additional functions	Transmission of MMS and GOOSE (IEC 61850-8-1)
	Transmission of Modbus/TCP
Time synchronization	SNTP (Simple Network Time Protocol)

Security functions

Port security	MAC-based, RADIUS (IEEE 802.1X), MAC Authentication Bypass
Basic functions	Store-and-forward switch, complies with IEEE 802.3

Electrical properties

Power consumption	68 W ($V_{in} = \text{Max}$, $T_{amb} = \text{Max}$, $I_{PSE} = 8 \times I_{PoDLmax}$, 100% data traffic on all connected ports)
Local diagnostics	US1/2 Supply voltage US1, US2 Green LED
	FAIL Div. LED red
	LINK Link status Green LED
Maximum power dissipation for nominal condition	13 W ($V_{in} = \text{Max}$, $T_{amb} = \text{Max}$, $I_{PSE} = 8 \times I_{PoDLmax}$, 100% data traffic on all connected ports)
Test section	24 V supply, SPE, PoDL/functional ground 1000 V DC 1 min
	Ethernet interface/all other potentials 2.25 kV DC 1 min
Transmission medium	Copper

Supply

Supply voltage (DC)	24 V DC (Simultaneous PoDL supply according to IEEE 802.3cg)
Supply voltage range	20 V DC ... 32 V DC
Power supply connection	via COMBICON, max. conductor cross section 1.5 mm ²
Residual ripple	3.6 V _{PP} (within the permitted voltage range)
Max. current consumption	2.3 A ($U_S = \text{Min}$, $T_{amb} = \text{Max}$, SPE = 8x max. PoDL power, 100% data traffic on all connected ports)
Typical current consumption	1.03 A (at $U_S = \text{Nom}$, $T_{amb} = 25^\circ\text{C}$, SPE = 4x max. PoDL power, 100% data traffic at all connected ports)

Connection data

Connection method	Push-in spring connection
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Note on the connection method	Only use copper cables that are suitable for the permitted temperature range of -40°C ... 100°C (at T _{amb} = 70°C) as connecting cables for the power supply
Conductor cross section, rigid	0.25 mm² ... 1.5 mm²
Conductor cross section, flexible	0.25 mm² ... 1.5 mm²
Conductor cross section AWG	24 ... 16
Stripping length	9 mm

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	10 % ... 95 % (non-condensing)
Shock (operation)	30g (EN 60068-2-27)
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Air pressure (operation)	80 kPa ... 110 kPa up to 2000 m above mean sea level (Without derating)
Air pressure (storage/transport)	79 kPa ... 108 kPa up to 2000 m above mean sea level (Without derating)

Standards and regulations

Free from substances that could impair the application of coating	Yes
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EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conformance with EMC directives	EN 61000-6-2 EN 61000-4-2 (ESD) Criterion B
	EN 61000-6-2 EN 61000-4-3 (electromagnetic fields) Criterion A
	EN 61000-6-2 EN 61000-4-4 (EFT burst) Criterion B, I/O cables up to 2.2 kV
	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A
	EN 61000-6-4 EN 61000-6-4 (interference) Class A
	EN 61000-6-4 EN 61000-6-4 (conducted interference) Class A
Noise immunity	EN 61000-6-2
Noise emission	EN 61000-6-4

System properties

Functionality

Basic functions	Store-and-forward switch, complies with IEEE 802.3
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Signaling

Status display	LEDs: US1, US2 (power supply), Fail (alarm contact), 2 LEDs per Ethernet port (Link/Activity and Speed)
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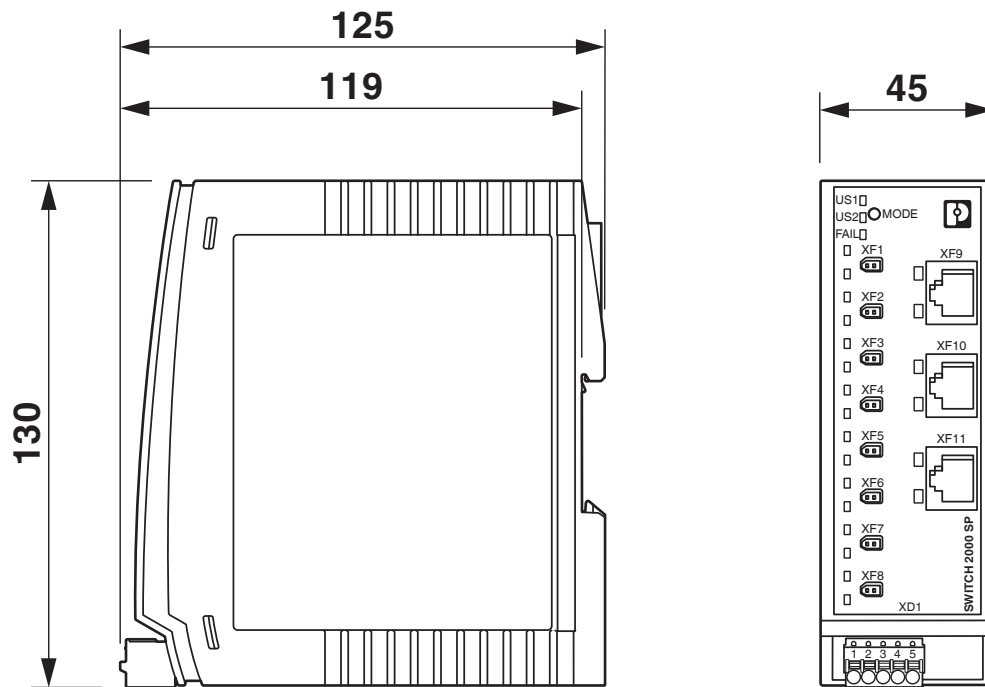


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Drawings

Dimensional drawing



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Approvals

 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/in/products/1278397>



cULus Listed

Approval ID: E238705

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Classifications

ECLASS

ECLASS-11.0	19170401
ECLASS-12.0	19170401
ECLASS-13.0	19170401

ETIM

ETIM 9.0	EC000734
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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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Accessories

VS-08-RJ45-5-Q/IP20 - RJ45 connector

1656725

<https://www.phoenixcontact.com/in/products/1656725>



RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5, material: Plastic, connection method: Insulation displacement connection, connection cross section: AWG 26- 23, cable outlet: straight, color: traffic grey A RAL 7042, Ethernet

SD FLASH 2GB - Program/configuration memory

2988162

<https://www.phoenixcontact.com/in/products/2988162>



Program and configuration memory, for extending the internal flash memory, pluggable, 2 GB.

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FL DIN RA - DIN rail adapter

2891053

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The FL DIN RA is installed in a standard, 19-inch rack (EIA-310-D, IEC 60297-3-100) to allow DIN rail mounted equipment to be rack mounted.

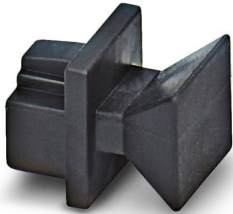


FL RJ45 PROTECT CAP - Dust protection

2832991

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Dust protection caps for RJ45 socket



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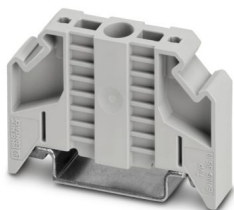
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E/NS 35 N - End bracket

0800886

<https://www.phoenixcontact.com/in/products/0800886>

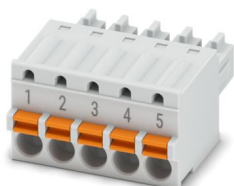
End clamp, width: 9.5 mm, color: gray



FK-MCP 1,5/ 5-ST-3,81GY35BD1-5 - PCB connector

1015782

<https://www.phoenixcontact.com/in/products/1015782>



PCB connector, nominal cross section: 1.5 mm², color: light gray, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Sn, contact connection type: Socket, number of potentials: 5, number of rows: 1, number of positions: 5, number of connections: 5, product range: FK-MCP 1,5/...-ST, pitch: 3.81 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting method: without, type of packaging: packed in cardboard

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FL CAT5 PATCH 0,5 - Patch cable

2832263

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Patch cable, CAT5, assembled, 0.5 m

FL CAT5 PATCH 1,0 - Patch cable

2832276

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Patch cable, CAT5, assembled, 1 m

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FL CAT5 PATCH 2,0 - Patch cable

2832289

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Patch cable, CAT5, assembled, 2 m

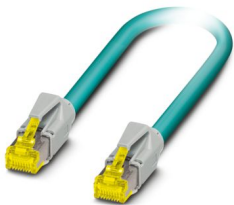


NBC-R4AC-R4AC-IE8A/.../... - Patch cable

1411854

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



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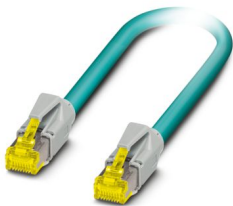
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NBC-R4AC/10G-R4AC/10G-94F/2,0 - Patch cable

1408360

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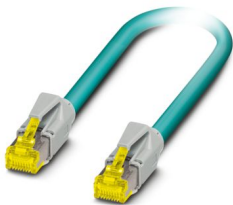


Patch cable, CAT6_A, 4-pair, shielded, connection not crossed (line), assembled at both ends with RJ45/IP20 connectors, outer sheath material: PUR, length: 2.0 m

NBC-R4AC/10G-R4AC/10G-94F/3,0 - Patch cable

1408365

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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

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

1408968

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

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

1408969

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

1408970

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

SPE-T1-CCP-SF/1,0/AWG22/CCP-SF - Patch cable

1183807

<https://www.phoenixcontact.com/in/products/1183807>



Patch cable, design: IEC 63171-2, degree of protection: IP20, cable length: 1 m, number of positions: 2, 1 Gbps, CAT B, material: TPU, connection method: Crimp connection, connection cross section: AWG 22- 22, cable outlet: straight, Single Pair Ethernet

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SPE-T1-CCP-SF/5,0/AWG22/CCP-SF - Patch cable

1183811

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Patch cable, design: IEC 63171-2, degree of protection: IP20, cable length: 5 m, number of positions: 2, 1 Gbps, CAT B, material: TPU, connection method: Crimp connection, connection cross section: AWG 22- 22, cable outlet: straight, Single Pair Ethernet

SPE-T1-CCP-SF/2,0/AWG22/CCP-SF - Patch cable

1183808

<https://www.phoenixcontact.com/in/products/1183808>



Patch cable, design: IEC 63171-2, degree of protection: IP20, cable length: 2 m, number of positions: 2, 1 Gbps, CAT B, material: TPU, connection method: Crimp connection, connection cross section: AWG 22- 22, cable outlet: straight, Single Pair Ethernet

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SPE-T1-CCP-SF/3,0/AWG22/CCP-SF - Patch cable

1183810

<https://www.phoenixcontact.com/in/products/1183810>



Patch cable, design: IEC 63171-2, degree of protection: IP20, cable length: 3 m, number of positions: 2, 1 Gbps, CAT B, material: TPU, connection method: Crimp connection, connection cross section: AWG 22- 22, cable outlet: straight, Single Pair Ethernet

FL NETWORK MANAGER BASIC - Network management software

2702889

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SNMP-based software for easy commissioning and monitoring of network components such as switches, routers, and WLAN access points

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SPE-T1-CIM-SF - Connector

1343953

<https://www.phoenixcontact.com/in/products/1343953>



Connector, design: IEC 63171-2, degree of protection: IP20, number of positions: 2, 1 Gbps, material: Metal, connection method: IDC fast connection, connection cross section: AWG 26- 22, cable outlet: straight, Single Pair Ethernet

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