

Industrial Ethernet Switch - FL SWITCH 2514-2SFP PN - 1089154

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Managed Switch 2000, 14 RJ45 ports 10/100/1000 Mbps, 2 SFP ports 100/1000 Mbps, degree of protection: IP20, PROFINET Conformance-Class B, PROFINET mode preset, PROFINET status LEDs



Your advantages

- PROFINET mode preset
- Configuration memory
- RSTP
- DHCP client, DHCP server (pool-based and port-based), DHCP option 82
- VLANs
- MRP (client and manager)
- Web-based management, SNMP
- 40°C ... +70°C ambient temperature



Key Commercial Data

| | |
|----------------------|---|
| Packing unit | 1 pc |
| GTIN |  4 0 5 5 6 2 6 8 9 2 7 2 6 |
| GTIN | 4055626892726 |
| Custom tariff number | 85176200 |
| Country of origin | Germany |

Technical data

Note

| | |
|-------------------------|---|
| Utilization restriction | EMC: class A product, see manufacturer's declaration in the download area |
|-------------------------|---|

Dimensions

| | |
|--------|--------|
| Width | 214 mm |
| Height | 110 mm |

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Dimensions

| | |
|-------|-------|
| Depth | 69 mm |
|-------|-------|

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) |
| Air pressure (operation) | 79 kPa ... 108 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) |
| Degree of pollution | 2 |

Interfaces

| | |
|-------------------------------|--|
| Interface | Ethernet (RJ45) |
| No. of ports | 14 (RJ45 ports) |
| Note on the connection method | Auto negotiation and autocrossing |
| Transmission physics | Copper |
| Transmission speed | 10/100/1000 Mbps |
| Transmission length | 100 m (per segment) |
| Signal LEDs | Data receive, link status |
| Interface | SFP module |
| No. of ports | 2 (SFP ports) |
| Transmission physics | Depending on the SFP module |
| Transmission speed | 100/1000 Mbps (full duplex) |
| Transmission length | up to 80 km (depending on the SFP module used) |
| Signal LEDs | Data receive, link status |

Function

| | |
|----------------------|--|
| Basic functions | Store-and-forward switch, complies with IEEE 802.3 |
| Configuration memory | max. 8 GByte (SD card) |
| Management | Web-based management (HTTP/HTTPS) |
| | Role-based user management |
| | SNMPv1/v2/v3 |
| | Command-line interface (Telnet, SSH) |
| Diagnostic functions | RMON History |
| | LLDP (Link Layer Discovery Protocol) |
| | SNMP-Traps |
| | N:1-Portmirroring |
| | ACD (Address Conflict Detection) |

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Function

| | |
|----------------------------------|--|
| | SysLog |
| | CRC-Surveillance |
| 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 |
| Redundancy | MRP (Media Redundancy Protocol) |
| | RSTP (Rapid Spanning Tree Protocol) |
| | FRD (Fast Ring Detection) |
| | Large Tree Support |
| | LACP (Link Aggregation Control Protocol) |
| Additional functions | Jumbo frames (max. 9,600 bytes) |
| | Transmission of MMS and GOOSE (IEC 61850-8-1) |
| | Transmission of Modbus TCP |
| MAC address table | 8k |
| Latency | ≥ 1.9 µs (Store-and-Forward mode, 10/100/1000 Mbps, depending on the frame size) |
| IP parameterization | DHCP-Client |
| | DHCP Option 82 (Relay Agent) |
| | DHCP server (pool-based, port-based) |
| | BootP |
| | DCP (Discovery and Configuration Protocol) |
| PROFINET device function | PROFINET device |
| | Fast Startup |
| PROFINET conformance class | Conformance-Class B |
| Time synchronization | SNTP (Simple Network Time Protocol) |
| Status and diagnostic indicators | LEDs: US1, US2 (power supply), Fail (alarm contact), 2 LEDs per Ethernet port (link/activity and speed), PROFINET status LEDs (BF, SF) |
| Signal contact control voltage | typ. 24 V DC |

Security functions

| | |
|---------------|---------------------------------|
| Port security | MAC-based, RADIUS (IEEE 802.1X) |
|---------------|---------------------------------|

Network expansion parameters

| | |
|-----------------|--|
| Cascading depth | Network, linear, and star structure: any |
|-----------------|--|

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Network expansion parameters

| | |
|---|-------|
| Maximum conductor length (twisted pair) | 100 m |
|---|-------|

Supply voltage

| | |
|-----------------------------|--|
| Supply voltage | 24 V DC (redundant) |
| Residual ripple | 3.6 V _{PP} (within the permitted voltage range) |
| Supply voltage range | 19.2 V DC ... 32 V DC |
| Typical current consumption | 460 mA (at U _S = 24 V DC and 25 °C ambient temperature) |
| Max. current consumption | 680 mA (U _S = min, T _{amb} = max) |

General

| | |
|---------------------|--|
| Mounting type | DIN rail |
| Type AX | Block design |
| Net weight | 1035 g |
| Housing material | Stainless steel 1.4301 |
| Material base plate | Die-cast aluminum, corrosion-resistant |
| Note | Support by phone or on-site (fee is charged) |
| Special properties | PROFINET mode preset, PROFINET status LEDs |
| Latency | ≥ 1.9 μs (Store-and-Forward mode, 10/100/1000 Mbps, depending on the frame size) |
| MTTF | 238.46 Years (SN 29500 standard, temperature 25°C, operating cycle 21%) |
| | 137.07 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%) |
| | 21.04 Years (SN 29500 standard, temperature 70°C, operating cycle 100%) |

Connection data

| | |
|---------------------------------------|---------------------------|
| Connection method | Push-in spring connection |
| Conductor cross section solid min. | 0.2 mm ² |
| Conductor cross section solid max. | 1.5 mm ² |
| Conductor cross section flexible min. | 0.2 mm ² |
| Conductor cross section flexible max. | 2.5 mm ² |
| Conductor cross section AWG min. | 24 |
| Conductor cross section AWG max. | 16 |
| Stripping length | 10 mm |

Standards and Regulations

| | |
|-------------------------------|--|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
| Interference emission | EN 61000-6-2 EN 61000-6-4 (interference) Class A |
| Conducted noise emission | EN 61000-6-2 EN 61000-6-4 (conducted interference) Class A |
| Immunity to surge | EN 61000-6-2 EN 61000-4-5 (surge) Criterion A |

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Standards and Regulations

| | |
|---|--|
| Immunity to burst | EN 61000-6-2 EN 61000-4-4 (EFT burst) Criterion A |
| Immunity to EF | EN 61000-6-2 EN 61000-4-3 (electromagnetic fields) Criterion A |
| Immunity to ESD | EN 61000-6-2 EN 61000-4-2 (ESD) Criterion B |
| Immunity to conducted interference | EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A |
| Type of test | Free fall in accordance with EN 61131-2 |
| Noise emission | EN 61000-6-4 |
| Noise immunity | EN 61000-6-2 |
| Vibration (storage/transport) | 5g, 150 Hz, in acc. with IEC 60068-2-6 |
| Free from substances that could impair the application of coating | Yes |
| Vibration (operation) | in acc. with IEC 60068-2-6: 5g, 150 Hz |
| Shock (operation) | 30g (EN 60068-2-27) |
| UL, USA | UL 61010-1, Ed. 3 |
| UL, Canada | CSA C22.2 NO. 61010-1-12, Ed. 3 |
| Noxious gas test | ISA S71.04.2013 G3 Harsh Group A |

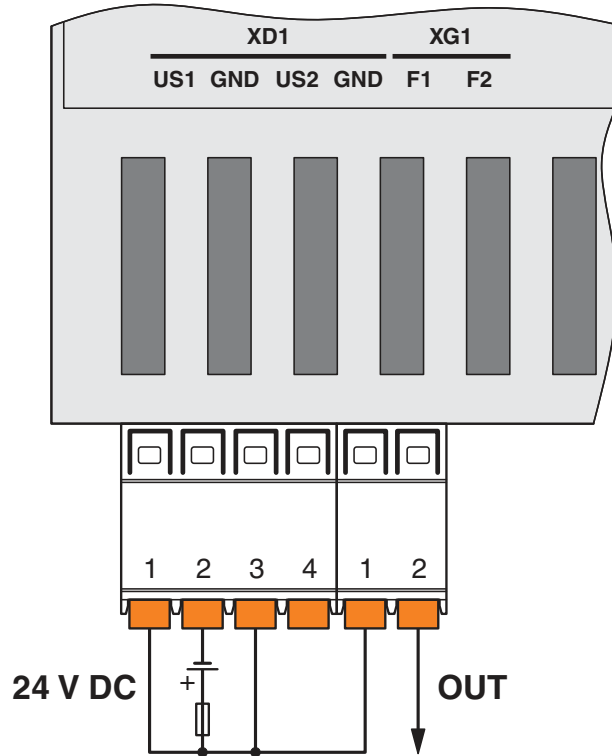
Environmental Product Compliance

| | |
|------------|---|
| 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" |

Drawings

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Connection diagram



Classifications

eCl@ss

| | |
|---------------|----------|
| eCl@ss 10.0.1 | 19170401 |
| eCl@ss 11.0 | 19170401 |
| eCl@ss 9.0 | 19170106 |

ETIM

| | |
|----------|----------|
| ETIM 7.0 | EC000734 |
|----------|----------|

UNSPSC

| | |
|-------------|----------|
| UNSPSC 18.0 | 43222612 |
| UNSPSC 19.0 | 43222612 |
| UNSPSC 20.0 | 43222612 |
| UNSPSC 21.0 | 43222612 |

Approvals

Approvals

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Approvals

Approvals

BSH / UL Listed / cUL Listed / PROFINET / BV / ABS / LR / DNV GL / RINA / cULus Listed

Ex Approvals

Approval details

| | | | |
|------------|---|---|----------------|
| BSH | | | 1045 |
| UL Listed |  | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 238705 |
| cUL Listed |  | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 238705 |
| PROFINET | | | Z12639 |
| BV |  | http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials | 48146/A1 BV |
| ABS | | http://www.eagle.org/eagleExternalPortalWEB/ | 21-2066186-PDA |
| LR |  | http://www.lr.org/en | LR2160176TA |
| DNV GL |  | https://approvalfinder.dnvgl.com/ | TAA00000YV |
| RINA |  | http://www.rina.org/en | ELE162721XG |

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Approvals

cULus Listed



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

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Accessories

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

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

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Accessories

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



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

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

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Accessories

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



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

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

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Accessories

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



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

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

Drivers and interfaces

Software - FL SNMP OPC SERVER V3 - 2701139



SNMP-OPC server, German and English, for monitoring and configuration of SNMP-capable equipment in HMI and SCADA systems

End block

End clamp - E/NS 35 N - 0800886



End clamp, width: 9.5 mm, color: gray

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Accessories

Mounting rail adapter

DIN rail adapter - FL DIN RA - 2891053



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.

Network management software

Software - FL NETWORK MANAGER BASIC - 2702889



FL Network Manager, SNMP-based configuration and firmware update software, for easy startup of Managed Switches

Parameterization memory

Memory - SD FLASH 512MB - 2988146



Program and configuration memory, plug-in, 512 Mbyte.

Program / configuration memory - SD FLASH 2GB - 2988162



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

Patch cable

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Accessories

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

Patch cable - FL CAT5 PATCH 2,0 - 2832289



Patch cable, CAT5, assembled, 2 m

PCB plug

PCB connector - FKCN 2,5/ 2-ST GY7035 BD:1-2 - 1082048

PCB connector, color: green, contact surface: Tin, Number of positions per row: 2, product range: FKCN 2,5/...-ST, pitch: 5 mm, type of packaging: packed in cardboard

PCB connector - FKCN 2,5/ 4-ST GY7035 BD:1-4 - 1082059

PCB connector, color: light gray, contact surface: Tin, Number of positions per row: 4, product range: FKCN 2,5/...-ST, pitch: 5 mm, type of packaging: packed in cardboard

Protective cap

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Accessories

Dust protection - FL RJ45 PROTECT CAP - 2832991



Dust protection caps for RJ45 socket

SFP module

Media module - FL SFP FX - 2891081



The small form-factor plug-in module provides a fiber optic interface with a data transmission speed of 100 Mbps with a wavelength of 1310 nm (long).

Media module - FL SFP FX SM - 2891082



The small form-factor plug-in module provides a fiber optic interface with a data transmission speed of 100 Mbps with a wavelength of 1310 nm (long).

Media module - FL SFP SX - 2891754



Gigabit SFP module for transmission up to 1 km with a wavelength of 850 nm.

Media module - FL SFP SX2 - 2702397



Gigabit SFP module for transmission up to 2 km with a wavelength of 1310 nm.

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Accessories

Media module - FL SFP LX10-B - 1025401



Gigabit SFP module for transmission up to 10 km with a wavelength of 1310 nm.

Media module - FL SFP LX - 2891767



Gigabit SFP module for transmission up to 30 km with a wavelength of 1310 nm.

Media module - FL SFP LX40 - 1113081



Gigabit SFP module for transmission up to 40 km with a wavelength of 1310 nm.

Media module - FL SFP LH - 2989912



Gigabit SFP module for transmission up to 80 km with a wavelength of 1,550 nm.

Media module - FL SFP WDM10-SET - 2702442



Gigabit SFP WDM set for transmission up to a maximum of 10 km on a single fiber with a wavelength of 1310/1550 nm.

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Accessories

Media module - FL SFP FE WDM20-SET - 2702439



Fast Ethernet SFP WDM set for transmission up to a maximum of 20 km on a single fiber with a wavelength of 1310/1550 nm.

Media module - FL SFP GT - 2989420



Gigabit SFP module for transmission up to 100 m.
