

Industrial Ethernet Switch - FL SWITCH 2016 - 2702903

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Managed Switch 2000, 16 RJ45 ports 10/100 Mbps, degree of protection: IP20, PROFINET Conformance-Class A

Your advantages

- Suitable for PROFINET and EtherNet/IP™ networks
- Unmanaged Mode
- Easy and fast startup and commissioning with the FL NETWORK MANAGER software
- Configuration memory
- RSTP
- MRP client
- DHCP client, DHCP server (port-based)
- VLANs
- Web-based management, SNMP



Key Commercial Data

| | |
|--------------------------------------|---|
| Packing unit | 1 pc |
| GTIN |  4 055626 397207 |
| GTIN | 4055626397207 |
| Weight per Piece (excluding packing) | 385.000 g |
| Custom tariff number | 85176200 |
| Country of origin | Germany |
| Sales Key | DNN121 |

Technical data

Dimensions

| | |
|--------|--------|
| Width | 85 mm |
| Height | 130 mm |
| Depth | 115 mm |

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Technical data

Ambient conditions

| | |
|--|---|
| Degree of protection | IP20 |
| Ambient temperature (operation) | 0 °C ... 60 °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) | 86 kPa ... 108 kPa (1500 m above sea level) |
| Air pressure (storage/transport) | 86 kPa ... 108 kPa (1500 m above sea level) |
| Degree of pollution | 2 |

Interfaces

| | |
|-------------------------------|-----------------------------------|
| Interface | Ethernet (RJ45) |
| No. of ports | 16 (RJ45 ports) |
| Note on the connection method | Auto negotiation and autocrossing |
| Transmission physics | Copper |
| Transmission speed | 10/100 Mbps |
| Transmission length | 100 m (per segment) |
| 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) |
| | SysLog |
| | CRC-Surveillance |
| Filter functions | Quality of Service (8 priority classes) |
| | Class of Service |
| | DiffServ/DSCP |
| | Port-Priorisierung |
| | VLAN (up to 8 VLANs) |
| | IGMP Snooping/Querier (v1/v2) |
| | Auto-Query-Port |
| | Extended Multicast Filtering |
| Redundancy | MRP (Media Redundancy Protocol) |
| | RSTP (Rapid Spanning Tree Protocol) |

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Function

| | |
|----------------------------------|---|
| Additional functions | Transmission of MMS and GOOSE (IEC 61850-8-1) |
| MAC address table | 8k |
| IP parameterization | DHCP-Client |
| | DHCP server (port based) |
| | BootP |
| PROFINET conformance class | Conformance-Class A |
| Time synchronization | SNTP (Simple Network Time Protocol) |
| Status and diagnostic indicators | LEDs: US (power supply), 2 LEDs per Ethernet port (Link/Activity and Speed) |

Network expansion parameters

| | |
|---|--|
| Cascading depth | Network, linear, and star structure: any |
| Maximum conductor length (twisted pair) | 100 m |

Supply voltage

| | |
|-----------------------------|--|
| Supply voltage | 24 V DC (single) |
| Residual ripple | 3.6 V _{PP} (within the permitted voltage range) |
| Supply voltage range | 18 V DC ... 32 V DC |
| Typical current consumption | 315 mA (at U _S = 24 V DC and 25 °C ambient temperature) |
| Max. current consumption | 0.5 A (At U _S = 18 V DC and 60°C ambient temperature) |
| Current consumption | 315 mA |

General

| | |
|------------------|--|
| Mounting type | DIN rail |
| Type AX | Book type |
| Net weight | 385 g |
| Housing material | Polycarbonate fiber reinforced |
| Note | Support by phone or on-site (fee is charged) |
| MTTF | 365.63 Years (SN 29500 standard, temperature 25°C, operating cycle 21%) |
| | 218.22 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%) |
| | 46.17 Years (SN 29500 standard, temperature 55°C, operating cycle 100%) |

Connection data

| | |
|---------------------------------------|---------------------------|
| Connection method | Push-in spring connection |
| Conductor cross section solid min. | 0.25 mm ² |
| Conductor cross section solid max. | 1.5 mm ² |
| Conductor cross section flexible min. | 0.25 mm ² |
| Conductor cross section flexible max. | 1.5 mm ² |
| Conductor cross section AWG min. | 24 |
| Conductor cross section AWG max. | 16 |
| Stripping length | 9 mm |

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Technical data

Standards and Regulations

| | |
|---|---|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
| Interference emission | EN 61000-6-2 EN 61000-6-3 (noise emission) Class B |
| Conducted noise emission | EN 61000-6-2 EN 61000-6-3 (conducted emissions) Class B |
| Immunity to surge | EN 61000-6-2 EN 61000-4-5 (surge) Criterion B |
| 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) | 2g, criterion 1 according to IEC 60068-2-6 |
| Free from substances that could impair the application of coating | Yes |
| Vibration (operation) | 2g, according to IEC 60068-2-6 |
| Shock (operation) | 30g (EN 60068-2-27) |
| UL, USA | UL 61010-1, Ed.3 / UL 61010-2-201, Ed.1 |
| UL, Canada | CSA C22.2 NO.61010-2-201:14, Ed.1 / CSA C22.2 NO.61010-1-12, Ed.3 |

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 | 19170401 |
| eCl@ss 11.0 | 19170401 |
| eCl@ss 4.0 | 27250501 |
| eCl@ss 4.1 | 27250501 |
| eCl@ss 5.0 | 19030100 |
| eCl@ss 5.1 | 19030100 |
| eCl@ss 6.0 | 19170100 |
| eCl@ss 7.0 | 19170106 |
| eCl@ss 8.0 | 19170106 |
| eCl@ss 9.0 | 19170106 |

ETIM

| | |
|----------|----------|
| ETIM 3.0 | EC000734 |
| ETIM 4.0 | EC000734 |

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Classifications

ETIM

| | |
|----------|----------|
| ETIM 5.0 | EC000734 |
| ETIM 6.0 | EC000734 |
| ETIM 7.0 | EC000734 |

UNSPSC

| | |
|---------------|----------|
| UNSPSC 6.01 | 43172015 |
| UNSPSC 7.0901 | 43201404 |
| UNSPSC 11 | 43172015 |
| UNSPSC 12.01 | 43201410 |
| UNSPSC 13.2 | 43201410 |
| UNSPSC 18.0 | 43222612 |
| UNSPSC 19.0 | 43222612 |
| UNSPSC 20.0 | 43222612 |
| UNSPSC 21.0 | 43222612 |

Approvals


Approvals


Approvals

UL Listed / cUL Listed / EAC / cULus Listed

Ex Approvals

Approval details

| | | | |
|-----------|---|---|---------------|
| 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 |
|------------|---|---|---------------|

| | | |
|-----|---|-------------------------|
| EAC |  | RU*- DE.*.B.00741/19 |
|-----|---|-------------------------|

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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

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, Ethernet (100 Mbps), PROFINET (100 Mbps), EtherCAT[®] (100 Mbps), shielded, star quad, AWG 22 flexible (7-wire), green, RJ45 connector/IP20, straight, to RJ45 connector/IP20, straight, length: 1 m

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Accessories

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



Patch cable, Ethernet (100 Mbps), PROFINET (100 Mbps), EtherCAT® (100 Mbps), shielded, star quad, AWG 22 flexible (7-wire), green, RJ45 connector/IP20, straight, to RJ45 connector/IP20, straight, length: 1 m

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



Patch cable, Ethernet (100 Mbps), PROFINET (100 Mbps), EtherCAT® (100 Mbps), shielded, star quad, AWG 22 flexible (7-wire), green, RJ45 connector/IP20, straight, to RJ45 connector/IP20, straight, length: 1 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

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

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Accessories

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

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

PCB plug

Printed-circuit board connector - FK-MCP 1,5/ 5-ST-3,81GY35BD1-5 - 1015782



PCB connector, nominal cross section: 1.5 mm², color: light gray, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Female connector, Number of potentials: 5, Number of rows: 1, Number of positions per row: 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 °, Stecksystem: MINI COMBICON, Locking: without, type of packaging: packed in cardboard

PCB connector - MCVW 1,5/ 5-ST-3,81GY7035BD2US - 1034103



PCB connector, nominal cross section: 1.5 mm², color: light gray, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Female connector, Number of potentials: 5, Number of rows: 1, Number of positions per row: 5, number of connections: 5, product range: MCVW 1,5/...-ST, pitch: 3.81 mm, connection method: Screw connection with tension sleeve, conductor/PCB connection direction: -90 °, Stecksystem: MINI COMBICON, Locking: without, type of packaging: packed in cardboard

Protective cap

Dust protection - FL RJ45 PROTECT CAP - 2832991



Dust protection caps for RJ45 socket