

Industrial Ethernet Switch - FL SWITCH 2512-2GC-2SFP - 1088856

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Managed Switch 2000, 12 RJ45 ports 10/100/1000 Mbps, 2 SFP ports 100/1000 Mbps, 2 Combo ports 10/100/1000 Mbps, degree of protection: IP20, PROFINET Conformance-Class B




Your advantages

- ✓ Suitable for PROFINET and EtherNet/IP™ networks
- ✓ Easy and fast startup and commissioning with the FL NETWORK MANAGER software
- ✓ 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 8 9 6 8 9
GTIN	4055626889689
Weight per Piece (excluding packing)	1,300.000 g
Custom tariff number	85176200
Country of origin	Germany

Technical data

Note

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Technical data

Note

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

Width	214 mm
Height	110 mm
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	12 (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
Interface	Ethernet (combo)
No. of ports	2 (Combo ports)
Number of interfaces	2
Connection method	SFP or RJ45 ports
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Depending on the SFP module
Transmission speed	10/100/1000 Mbps (full duplex)

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Interfaces

Transmission length	up to 80 km (Depending on the fiber/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)
	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)

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Function

	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)
Signal contact control voltage	typ. 24 V DC

Security functions

Port security	MAC-based, RADIUS (IEEE 802.1X)
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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 (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	490 mA (at U _S = 24 V DC and 25 °C ambient temperature)
Max. current consumption	820 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)
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

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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
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

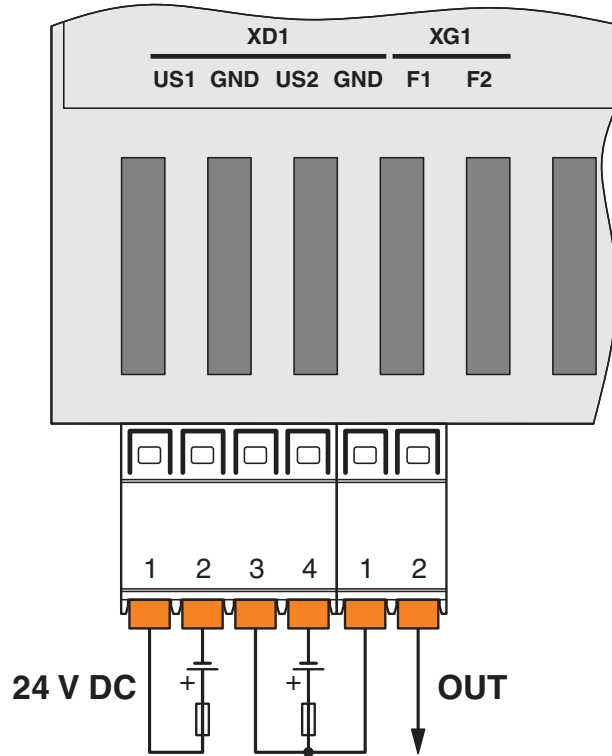
Environmental Product Compliance

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

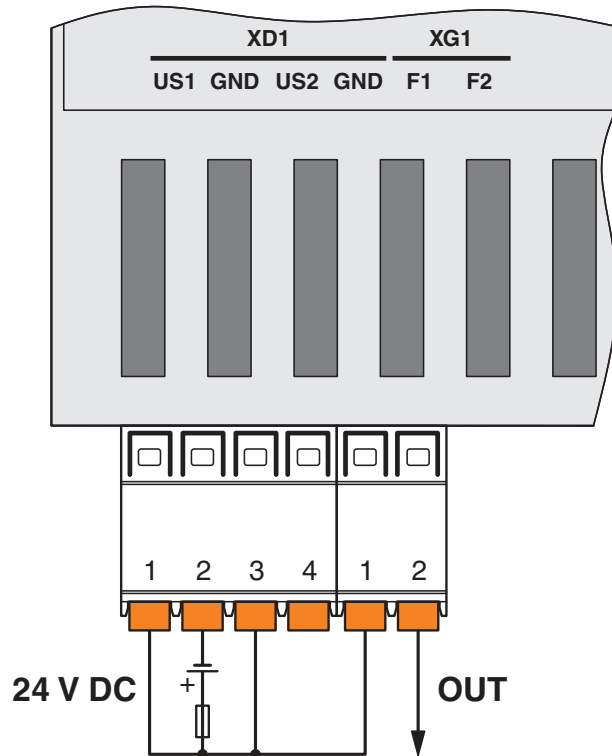
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Connection diagram



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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
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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 / 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
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.
