Industrial Ethernet Switch - FL SWITCH 2214-2FX - 2702905

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Managed Switch 2000, 14 RJ45 ports 10/100 Mbps, 2 SC multi-mode 100 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 055626 397184
GTIN	4055626397184
Weight per Piece (excluding packing)	640.000 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
	Use in potentially explosive areas is not permitted in China.

Dimensions

Width	85 mm
Height	130 mm
Depth	115 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 Mbps
Transmission length	100 m (per segment)
Signal LEDs	Data receive, link status
Interface	Ethernet FO
No. of ports	2 (SC multi-mode)
Transmission physics	multi-mode fiberglass
Transmission speed	100 Mbps (full duplex)
Transmit capacity, minimum	-19 dBm
Transmit capacity, maximum	-14 dBm
Minimum receiver sensitivity	-32 dBm
Maximum receiver sensitivity	-14 dBm
Transmission length	11000 m (fiberglass with F-G 62.5/125 0.7 dB/km F1000)
	6400 m (fiberglass with F-G 50/125 0.7 dB/km F1200)
	3000 m (fiberglass with F-G 62.5/125 2.6 dB/km F600)
	2800 m (fiberglass with F-G 50/125 1.6 dB/km F800)

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Interfaces

Wavelength	1300 nm
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	Transmission of MMS and GOOSE (IEC 61850-8-1)
MAC address table	8k
Latency	≥ 6.5 µs (Store and Forward mode, 10/100 Mbps, depending on the frame size)
IP parameterization	DHCP-Client
	DHCP Option 82 (Relay Agent)
	DHCP server (pool-based, port-based)
	BootP

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Function

	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)

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	12 V DC ... 57 V DC
Typical current consumption	375 mA (at U_S = 24 V DC and 25 °C ambient temperature)
Max. current consumption	1.8 A (U_S = Min, T_{amb} = Max, DO_I = Max)
Current consumption	375 mA

General

Mounting type	DIN rail
Type AX	Book type
Net weight	485 g
Housing material	Polycarbonate fiber reinforced
Note	Support by phone or on-site (fee is charged)
Latency	≥ 6.5 µs (Store and Forward mode, 10/100 Mbps, depending on the frame size)
MTTF	264.71 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	135.79 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	18.92 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 mm²

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Connection data

Conductor cross section solid max.	1.5 mm²
Conductor cross section flexible min.	0.25 mm²
Conductor cross section flexible max.	1.5 mm²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	9 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
Shipbuilding approval	Tested in accordance with IEC 60945 and IACS E10
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)
ATEX	# II 3 G Ex ec IIC T4 Gc
IECEx	Ex ec IIC T4 Gc
UL, USA	UL 60079-0, Ed.6 / UL 60079-7, Ed.5
UL, USA/Canada	Class I, Div. 2, Groups A, B, C, D T4 Class I, Zone 2, IIC T4
UL, Canada	CSA C22.2 NO.60079-0, Ed.3 / CSA C22.2 NO.60079-7:16
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”

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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 9.0	19170106

ETIM

ETIM 3.0	EC000734
ETIM 4.0	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 / DNV GL / LR / RINA / ABS / NK / BV / BSH / cULus Listed

Ex Approvals

IECEx / UL Listed / cUL Listed / ATEX / cULus Listed

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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
DNV GL	https://approvalfinder.dnvgl.com/	TAA00000YV
LR	http://www.lr.org/en	LR2160176TA
RINA	http://www.rina.org/en	ELE130419XG
ABS	http://www.eagle.org/eagleExternalPortalWEB/	21-2066186-PDA
NK	http://www.classnk.or.jp/hp/en/	TA19464M
BV	http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials	48146/A1 BV
BSH		1045

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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

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

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

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FO patch cable - FOC-SC:PA-SC:PA-OM2:D01/1 - 1115536

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

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Accessories

FO patch cable - FOC-SC:PA-SC:PA-OM2:D01/2 - 1115535

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

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FO patch cable - FOC-ST:PA-SC:PA-OM2:D01/1 - 1115574

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

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FO patch cable - FOC-ST:PA-SC:PA-OM2:D01/2 - 1115573

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

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

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

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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-SC:PA-SC:PA-OM4:D01/1 - 1115424

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

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FO patch cable - FOC-SC:PA-SC:PA-OM4:D01/2 - 1115423

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

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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

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End block

End clamp - E/NS 35 N - 0800886

End clamp, width: 9.5 mm, color: gray

Mounting rail adapter

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Accessories

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

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 °, plug-in system: MINI COMBICON, Locking: without, mounting: without, type of packaging: packed in cardboard

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PCB connector - MCVW 1,5/ 5-ST-3,81GY7035BD2DO - 1034096

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, screw head form: L Slotted, conductor/PCB connection direction: -90 °, plug-in system: MINI COMBICON, Locking: without, mounting: without, type of packaging: packed in cardboard

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Accessories

Protective cap

Dust protection - FL RJ45 PROTECT CAP - 2832991

Dust protection caps for RJ45 socket

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