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Industrial Ethernet Switch - FL SWITCH 7005/FX-2FXSM-EIP - 2701420

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Managed Switch 7000 with five 10/100 Mbit/s RJ45 ports, two single mode 100 Mbit/s SC fiber-optic ports and one multi-mode 100 Mbit/s SC fiber-optic port for EtherNet/IP™

Product Description

The FL SWITCH 7005/FX-2FXSM-EIP is a managed Ethernet switch suitable for industrial applications with eight Fast Ethernet ports in RJ45 format. The switches communicate directly via the Common Industrial Protocol (CIP) in the EtherNet/IP™ network. Via CIP, the switch can be integrated into an EtherNet/IP™ control system from where it can be configured and diagnosed. Multicast functions which are important for EtherNet/IP™, such as IGMP snooping, multicast source detection, and auto query port, are also available.

The switch can also be used universally in other automation networks. For maximum network availability, the switches support the non-proprietary Device Level Ring (DLR) redundancy protocol for EtherNet/IP™ with switch-over times <3 ms. In addition, the switch supports Rapid Spanning Tree (RSTP) with fast ring detection (FRD) extension. Thanks to the extended temperature range of -40 °C to 70 °C and the robust metal housing, it can also be used in harsh industrial environments.

Product Features

- ☑ Web-based management, SNMP
- ☑ Slim design
- ☑ VLANs
- ☑ Common Industrial Protocol (CIP)
- ☑ Device Level Ring (DLR)
- ☑ -40°C ... +70°C ambient temperature
- ☑ RSTP

Key Commercial Data

Packing unit	1 pc
Weight per Piece (excluding packing)	1120.0 g
Custom tariff number	85176200
Country of origin	Germany

Technical data

Note

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Note

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

Dimensions

Width	60 mm
Height	130 mm
Depth	135.5 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)	86 kPa ... 108 kPa (1500 m above sea level)
Air pressure (storage/transport)	66 kPa ... 108 kPa (3500 m above sea level)
Noise immunity	EN 61000-6-2:2005

Interfaces

Interface 1	Ethernet (RJ45)
No. of ports	5 (RJ45 ports)
Connection method	RJ45
Note on connection method	Auto negotiation and autocrossing
Transmission physics	Copper
Transmission speed	10/100 MBit/s
Transmission length	100 m (per segment)
Signal LEDs	Data receive, link status
Interface 2	Ethernet FO
No. of ports	1 (SC multi-mode)
Connection method	SC
Transmission physics	multi-mode fiberglass
Transmission speed	100 MBit/s (full duplex)
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)
Wavelength	1300 nm
Signal LEDs	Data receive, link status
Interface 3	Ethernet FO

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Interfaces

No. of ports	2 (SC single mode)
Connection method	SC
Transmission physics	Single-mode fiberglass
Transmission speed	100 MBit/s (full duplex)
Transmission length	36000 m (fiberglass with F-G 9/125 0.36 dB/km)
	32000 m (fiberglass with F-G 9/125 0.4 dB/km)
	26000 m (fiberglass with F-G 9/125 0.5 dB/km)
Wavelength	1300 nm

Function

Basic functions	Store-and-forward switch, complies with IEEE 802.3
Management	Web-based management (HTTP)
	SNMP v1/v2
Diagnostic functions	Remanente Event-Table
	RMON History
	N:1-Portmirroring
	LLDP (Link Layer Discovery Protocol)
	SNMP-Traps
	ACD (Address Conflict Detection)
Filter functions	Quality of Service (8 priority classes)
	Port-Priorisierung
	VLAN (up to 32 VLANs)
	IGMP Snooping (512 groups)
	IGMP Query
	Auto-Query-Port
	Extended Multicast Filtering
	Static Multicast Filtering (32 groups)
	Link Aggregation (Up to 4 trunks)
MAC address table	16k
Redundancy	DLR (Device Level Ring)
	RSTP (Rapid Spanning Tree Protocol)
	FRD (Fast Ring Detection)
	Large Tree Support
PROFINET IO device function	Fast Startup
PROFINET IO conformance class	Conformance-Class A
EtherNet/IP™ supported protocols	Common Industrial Protocol
Time synchronization	PTP 1588 (Transparent clock on the DLR ports)
Additional functions	DHCP Option 82 (Relay Agent)

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Function

	Link aggregation (Up to 4 trunks)
	BootP
	DHCP-Client
	MAC-based Port Security
Status and diagnostic indicators	LEDs: US1, US2 (power supply), Fail (alarm contact), 2 LEDs per Ethernet port (Link and switchable Activity/Speed/Duplex) EtherNet/IP™ status LED: Net, Mod
Signal contact control voltage	24 V DC (typical)
Signal contact control current	1 A (maximum)

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 ... 58 V DC
Typical current consumption	520 mA (at U_S = 24 V DC)
Current consumption	520 mA

General

Mounting type	DIN rail
Type AX	Book type
Net weight	1000 g
Noise emission	EN 61000-6-4

Connection data

Connection method	Screw connection
Conductor cross section solid min.	0.2 mm²
Conductor cross section solid max.	2.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	2.5 mm²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	7 mm

Mechanical tests

Type of test	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6
Test result	Operation/Storage/Transport: 5g, 150 Hz, Criterion 3

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Conformity with EMC directives

Developed in acc. with standard	IEC 61000-6.2
Test standard	IEC 61000-4-2 (ESD)
Test result	Criterion B
Test standard	EN 61000-4-3 (electromagnetic fields)
Test result	Criterion A
Test standard	IEC 61000-4-4 (burst)
Test result	Criterion A
Test standard	IEC 61000-4-5 (surge)
Test result	Criterion A
Test standard	IEC 61000-4-6 (immunity to conducted interference)
Test result	Criterion A

Classifications

eCl@ss

eCl@ss 4.0	27250501
eCl@ss 4.1	27250501
eCl@ss 5.0	27250501
eCl@ss 5.1	27250501
eCl@ss 6.0	27250501
eCl@ss 7.0	27250501
eCl@ss 8.0	19170106

ETIM

ETIM 3.0	EC000734
ETIM 4.0	EC000734
ETIM 5.0	EC000734

UNSPSC

UNSPSC 6.01	43172015
UNSPSC 7.0901	43201404
UNSPSC 11	43172015
UNSPSC 12.01	43201410
UNSPSC 13.2	43201410

Approvals

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Approvals

Approvals

UL Listed / cUL Listed / UL Listed / cUL Listed / cULus Listed

Ex Approvals

UL Listed / cUL Listed / UL Listed / cUL Listed / cULus Listed

Approvals submitted

Approval details

UL Listed

cUL Listed

UL Listed

cUL Listed

cULus Listed