

# Industrial Ethernet Switch - FL SWITCH 2708 - 1106615

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Managed Switch 2000, 8 M12 ports 10/100/1000 Mbps, degree of protection: IP65/IP66/IP67, PROFINET Conformance-Class B

## Your advantages

- ✓ Robust IP67 housing
- ✓ Easy panel mounting

## Key Commercial Data

Packing unit	1 pc
GTIN	 4 063151 001674
GTIN	4063151001674
Weight per Piece (excluding packing)	1,420.000 g
Custom tariff number	85176200
Country of origin	Germany

## Technical data

### Dimensions

Width	60 mm
Height	226 mm
Depth	46 mm

### Ambient conditions

Degree of protection	IP65
	IP66
	IP67
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 %
Permissible humidity (storage/transport)	5 % ... 95 %

# Industrial Ethernet Switch - FL SWITCH 2708 - 1106615

## Technical data

### Ambient conditions

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)

### Interfaces

Interface	Ethernet
No. of ports	8 (M12 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

### 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 (LDAP, RADIUS)
	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

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## Technical data

### Function

	LACP (Link Aggregation Control Protocol)
	PROFINET S2 system redundancy
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	$\geq 1.9 \mu\text{s}$ (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, 2 LEDs per Ethernet port (Link/Activity and Speed)

### Security functions

Port security	MAC-based, RADIUS (IEEE 802.1X), MAC Authentication Bypass
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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 <sub>pp</sub> (within the permitted voltage range)
Supply voltage range	9 V DC ... 57 V DC
Typical current consumption	260 mA (at U <sub>S</sub> = 24 V DC and 25 °C ambient temperature)
Max. current consumption	0.77 A (U <sub>S</sub> = min, T <sub>amb</sub> = max)
Current consumption	260 mA

### General

Mounting type	Wall mounting
Type AX	Stand-alone
Net weight	1400 g
Housing material	Zinc die-cast

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## Technical data

### General

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	461.15 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	149.69 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	19.78 Years (SN 29500 standard, temperature 70°C, operating cycle 100%)

### Connection data

Connection method	M12 connector (A-coded)
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### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Interference emission	EN 61000-6-3 (conducted emissions) Class B
Conducted noise emission	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 61000-6-3
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)

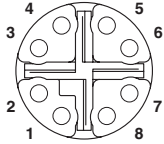
### Environmental Product Compliance

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

# Industrial Ethernet Switch - FL SWITCH 2708 - 1106615

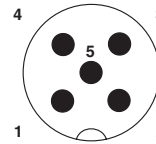
Schematic diagram



Assignment of the LAN female connector

- Pin 1 DB+
- Pin 2 DB-
- Pin 3 DA+
- Pin 4 DA-
- Pin 5 DC+
- Pin 6 DC-
- Pin 7 DD-
- Pin 8 DD+

Schematic diagram



Connection of the supply voltage

- PIN 1 Us1
- PIN 2 GND
- Pin 3 GND
- Pin 4 Us2
- Pin 5 functional ground

## 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

Approvals

EAC / cULus Listed

Ex Approvals

### Approval details

# Industrial Ethernet Switch - FL SWITCH 2708 - 1106615

## Approvals

EAC		RU D- DE.GB09.B.00312
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cULus Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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## Accessories

### Accessories

#### Circular connector (cable-side)

Data connector - SACC-PO12MSX-8CT-CL SH - 1021783



Data connector, Ethernet CAT6<sub>A</sub> (10 Gbps), PROFINET CAT6<sub>A</sub> (10 Gbps), 8-position, shielded, Plug straight M12 Push-Pull, Coding: X, Crimp connection, knurl material: PA 6.6, external cable diameter 6.5 mm ... 10 mm, without crimp contacts

Data connector - SACC-PO12MSD-4CT-CM SH PN - 1021830



Data connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Plug straight M12 Push-Pull, Coding: D, Crimp connection, knurl material: PA 6.6, external cable diameter 4.5 mm ... 7.5 mm, without crimp contacts

#### Data cable preassembled

Network cable - NBC-M12MRX/1,0-94F/M12MRX - 1080720



Network cable, Ethernet CAT6<sub>A</sub> (10 Gbps) CAT6<sub>A</sub> (10 Gbps), 8-position, PUR halogen-free, water blue RAL 5021, shielded (Advanced Shielding Technology), Plug angled M12 / IP67, coding: X, on Plug angled M12 / IP67, coding: X, cable length: 1 m

## Industrial Ethernet Switch - FL SWITCH 2708 - 1106615

### Accessories

Network cable - NBC-M12MRX/2,0-94F/M12MRX - 1080721



Network cable, Ethernet CAT6<sub>A</sub> (10 Gbps) CAT6<sub>A</sub> (10 Gbps), 8-position, PUR halogen-free, water blue RAL 5021, shielded (Advanced Shielding Technology), Plug angled M12 / IP67, coding: X, on Plug angled M12 / IP67, coding: X, cable length: 2 m

Network cable - NBC-M12MSX/ 1,0-94C/M12MSX - 1125028



Network cable, Ethernet CAT5 (1 Gbps) CAT5 (1 Gbps), 8-position, PUR, water blue RAL 5021, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: X, on Plug straight M12 / IP67, coding: X, cable length: 1 m

Network cable - NBC-M12MSX/1,0-94F/M12MRX - 1080724



Network cable, Ethernet CAT6<sub>A</sub> (10 Gbps) CAT6<sub>A</sub> (10 Gbps), 8-position, PUR halogen-free, water blue RAL 5021, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: X, on Plug angled M12 / IP67, coding: X, cable length: 1 m

Network cable - NBC-M12MSX/2,0-94F/M12MRX - 1080725



Network cable, Ethernet CAT6<sub>A</sub> (10 Gbps) CAT6<sub>A</sub> (10 Gbps), 8-position, PUR halogen-free, water blue RAL 5021, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: X, on Plug angled M12 / IP67, coding: X, cable length: 2 m

Network cable - NBC-M12MSX/5,0-94F/M12MRX - 1080726



Network cable, Ethernet CAT6<sub>A</sub> (10 Gbps) CAT6<sub>A</sub> (10 Gbps), 8-position, PUR halogen-free, water blue RAL 5021, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: X, on Plug angled M12 / IP67, coding: X, cable length: 5 m

### Drivers and interfaces

## Industrial Ethernet Switch - FL SWITCH 2708 - 1106615

### Accessories

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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### 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