

# Industrial Ethernet Switch - FL SWITCH GHS 4G/12 - 2700271

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Ethernet Gigabit Modular Switch with four 1000 Mbps combo ports and four 10/100 Mbps RJ45 slots, can be extended by an extension station to up to 24 ports



## Product Description

The Gigabit Modular Switch is a high-performance managed switch, which covers the port requirements of industrial applications in a modular and flexible way. It also supports all popular Gigabit and Fast Ethernet transmission standards, IT standard protocols, and the PROFINET and EtherNet/IP™ automation protocols. For use in the production backbone or automation cell, the FL SWITCH GHS 4G/12 has four integrated Gigabit ports which can either be used via SFP modules or twisted pair connections. In addition to the four integrated 100 Mbps TX ports, up to 16 more 100 Mbps ports can be used via interface modules.

## Your advantages

- ✔ Connection of connection media that can be assembled in the field, such as POF, HCS, and GI HCS
- ✔ Quick and easy local configuration options with the new operator/display interface
- ✔ Security in the automation network according to IEEE 802.1X
- ✔ Optional Layer 3 functions (static routing) can be activated
- ✔ Connection of Gigabit fiberglass via FL SFP plug-in modules



## Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4046356517706

## Technical data

### Note

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

Width	287 mm
Height	122 mm
Depth	113 mm

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## Technical data

### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-20 °C ... 55 °C (non-condensing)
Ambient temperature (storage/transport)	-20 °C ... 70 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	10 % ... 95 % (non-condensing)
Air pressure (operation)	80 kPa ... 108 kPa (2000 m above sea level)
Air pressure (storage/transport)	66 kPa ... 108 kPa (3500 m above sea level)

### SFP interface

Interface	Ethernet (combo)
No. of ports	4 (SFP ports or RJ45 ports)
Transmission speed	1000 Mbps (full duplex)
Transmission physics	FO
	Copper

### Copper interface

Interface	Ethernet
No. of ports	4 (RJ45 ports)
Transmission speed	10/100 Mbps
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Copper

### Interface expansion

Interface	Ethernet
No. of ports	2 (Per interface module)
Connection method	via interface module
Note on the connection method	Max. 4 interface modules (without extension)
Transmission speed	10/100 Mbps (full duplex)
Transmission physics	multi-mode fiberglass
	Single-mode fiberglass
	POF-SCRJ
	GI-HCS fibers
	Copper
	PoE

### Function

Basic functions	Store-and-forward switch complies with IEEE 802.3, 8 priority classes according to IEEE 802.1p, smart mode, port mirroring, multicast filtering, IGMP snooping, VLANs, Media Redundancy Protocol (MRP according to IEC 62439), Rapid Spanning Tree (RSTP), Fast Ring Detection (FRD), Large Tree Support, IEEE 802.1X security, port security, SNMPv3, HTTPS, PROFINET device, GMRP, GVRP, STNP, 2 digital inputs
Management	Web-based management (HTTP)

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## Technical data

### Function

	SNMPv1/v2/v3
Diagnostic functions	RMON History
	N:1-Portmirroring
	LLDP (Link Layer Discovery Protocol)
	SNMP-Traps
Filter functions	Quality of Service (8 priority classes)
	Port-Priorisierung
	VLAN (up to 223 VLANs)
Redundancy	MRP (Media Redundancy Protocol)
	RSTP (Rapid Spanning Tree Protocol)
	FRD (Fast Ring Detection)
	Large Tree Support
	STP (Spanning Tree Protocol)
	MSTP (Multiple Spanning Tree Protocol)
Additional functions	DHCP Option 82 (Relay Agent)
	Link aggregation (up to 8 trunks)
	BootP
	DHCP-Client
	MAC-based Port Security
	Jumbo frames
Supported browsers	Internet Explorer 5.5 or higher
PROFINET device function	PROFINET device
	PROFINergy
	Fast Startup
PROFINET specification	Version 1.1
PROFINET conformance class	Conformance-Class B
Status and diagnostic indicators	LEDs: US1, US2 (power supply), Fail (alarm contact), 2 LEDs per Ethernet port (Link and switchable Activity/Speed/Duplex), DI1, DI2 (Digital Input), UI (supply voltage for ext. sensor), and large operator display (display of IP address and other parameters)
Signal contact control voltage	24 V (typical)
Signal contact control current	190 mA (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 <sub>PP</sub> (within the permitted voltage range)
Supply voltage range	18.5 V DC ... 30.2 V DC
Typical current consumption	800 mA (up to 2.5 A, depends on the configuration)
Max. current consumption	2.5 A

# Industrial Ethernet Switch - FL SWITCH GHS 4G/12 - 2700271

## Technical data

### General

Mounting type	DIN rail
Type AX	Stand-alone
Net weight	2700 g
Material base plate	Die-cast aluminum, corrosion-resistant

### Connection data

Connection method	Screw connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	7 mm

### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Type of test	Shock in acc. with EN 60068-2-27/IEC 60068-2-27
Test result	Operation: 25g, 11 ms duration, semi-sinusoidal shock impulse
Type of test	Shock in acc. with EN 60068-2-27/IEC 60068-2-27
Test result	Storage/Transport: 50g, 11 ms duration, semi-sinusoidal shock impulse
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
Type of test	Free fall in acc. with IEC 60068-2-32
Test result	1 m
Noise emission	EN 61000-6-3/-4
Noise immunity	EN 61000-6-2:2005
Vibration (storage/transport)	5g, 150 Hz, in acc. with IEC 60068-2-6
Free from substances that could impair the application of coating	In acc. with VW specification
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz

### 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 4.0	24010500
eCl@ss 4.1	24010500

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## Classifications

### eCl@ss

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
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	43222612
UNSPSC 18.0	43222612
UNSPSC 19.0	43222612
UNSPSC 20.0	43222612
UNSPSC 21.0	43222612

## Approvals

### Approvals

#### Approvals

UL Listed / cUL Listed / PROFenergy / PROFINET / EAC / cULus Listed

#### Ex Approvals

### Approval details

UL 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 140324
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## Approvals

cUL 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 140324
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PROFenergy	Z40010
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PROFINET	Z10406
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EAC		RU* DE.*.B.00741/19
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cULus Listed	
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## Accessories

### Accessories

#### Configuration memory

Program / configuration memory - FL SD FLASH/L3/MRM - 2700607



Parameterization memory, plug-in, with MRM and Layer 3 functionality

Program / configuration memory - FL SD FLASH/MRM - 2700270



Parameterization memory, plug-in, with MRM functionality

#### Data cable by the meter

FO cable - PSM-LWL-GDM-RUGGED- 50/125 - 2799322



Fiber glass cable, duplex 50 µm/125 µm, by the meter, without male connector, for installation in stationary systems and machines

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### Accessories

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FO cable - PSM-LWL-GDO- 50/125 - 2799432



Fiberglass cable, duplex 50/125  $\mu\text{m}$ , by the meter, without connector, for outdoor installation

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FO cable - FL FOC PN-C-HCS-GI-200/230 - 2313410



PROFINET HCS GI fiber cables, duplex 200/230  $\mu\text{m}$ , increased bandwidth for Ethernet applications in particular. Robust PUR outer sheath. Heavy version suitable for drag chains and indoor installation, sold by the meter without plugs

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### Data cable preassembled

FO patch cable - FOC-GDM-RUGGED-1016/IP20/... - 2901558



Robust GOF installation cable for assembly (IP20 heads only) for installation in stationary systems and machines, aramid strain-relief elements, with individual elements made from FRNC material, halogen-free, ozone and UV resistant, with a polyurethane (PUR) outer sheath

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FO patch cable - FOC-GDM-RUGGED-1016/... - 1402193



rugged GOF installation cable for inner areas with highly tear-proof aramid strain-relief elements. Individual elements consist of highly flexible FRNC material. The cable is halogen-free, ozone and UV resistant and has a rugged polyurethane (PUR) outer sheath.

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FO patch cable - FOC-GDO-1017/IP20/... - 2901559



Highly rugged GOF round cable (IP20 heads only) for assembly and for outdoor installation with integrated moisture barrier as well as rodent-proof scrim. Individual elements made from highly flexible FRNC material. The wire is ozone and UV resistant with a very rugged polyethylene outer sheath.

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## Industrial Ethernet Switch - FL SWITCH GHS 4G/12 - 2700271

### Accessories

Patch cable - NBC-R4AC-R4AC-IE8A/.../... - 1411854



Patch cable, degree of protection: IP20, number of positions: 8, 10 Gbps, CAT6<sub>A</sub>, cable outlet: straight

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Patch cable - NBC-R4AC/10G-R4AC/10G-94F/2,0 - 1408360



Patch cable, CAT6<sub>A</sub>, 4-pair, shielded, connection not crossed (line), assembled at both ends with RJ45/IP20 connectors, outer sheath material: PUR, length: 2.0 m

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Patch cable - NBC-R4AC/10G-R4AC/10G-94F/3,0 - 1408365



Patch cable, CAT6<sub>A</sub>, 4-pair, shielded, connection not crossed (line), assembled at both ends with RJ45/IP20 connectors, outer sheath material: PUR, length: 3.0 m

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Patch cable - NBC-R4AC/1,0-93B/R4AC - 1408968



PROFINET patch cable, shielded, star-quad, 22 AWG stranded (7-wire), green, straight RJ45 male connector/IP20 to straight RJ45 male connector/IP20, length: 1.0 m

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



PROFINET patch cable, shielded, star quad, 22 AWG stranded (7-wire), green, straight RJ45 plug/IP20, to straight RJ45 plug/IP20, length: 2 m

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# Industrial Ethernet Switch - FL SWITCH GHS 4G/12 - 2700271

## Accessories

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



PROFINET patch cable, shielded, star quad, 22 AWG stranded (7-wire), green, straight RJ45 plug/IP20 to straight RJ45 plug/IP20, length: 5 m

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## Extension module

Extension module - FL FXT - 2989307



Extension module for the FL SWITCH GHS... Gigabit Modular Switch, extension by up to 8 Ethernet ports

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Media module - FL IF 2TX VS-RJ-F - 2832344



Interface module for connecting twisted pair cable, RJ45, connection direction forward

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Media module - FL IF 2FX SC-F - 2832412



Fiber optic interface module for connecting 100 Base-FX multi-mode glass fibers (1300 nm), SC, connection direction forward

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Media module - FL IF 2FX SC-D - 2832425



Fiber optic interface module for connecting 100 Base-FX multi-mode glass fibers (1300 nm), SC, connection direction downward

## Industrial Ethernet Switch - FL SWITCH GHS 4G/12 - 2700271

### Accessories

Media module - FL IF 2FX SM SC-D - 2832205



FO interface module for connecting 100 Base-FX single mode glass fibers (1300 nm), SC, connection direction downward

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Media module - FL IF 2FX ST-D - 2884033



Fiber optic interface module for connecting 100 Base-FX multi-mode glass fibers (1300 nm), ST, connection direction downward

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Media module - FL IF 2POF SCRJ-D - 2891084



Fiber optic interface module for connecting 100 Base-FX POF/PCF fibers (650 nm), SC-RJ, connection direction downward

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Media module - FL IF 2PSE-F - 2832904



Interface module for connecting PoE twisted pair ports, RJ45, connection direction forward

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### 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.

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### Parameterization memory

# Industrial Ethernet Switch - FL SWITCH GHS 4G/12 - 2700271

## Accessories

Memory - SD FLASH 512MB - 2988146



Program and configuration memory, plug-in, 512 Mbyte.

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## Patch cable

Patch cable - FL CAT5 PATCH 0,5 - 2832263



Patch cable, CAT5, assembled, 0.5 m

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Patch cable - FL CAT5 PATCH 1,0 - 2832276



Patch cable, CAT5, assembled, 1 m

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Patch cable - FL CAT5 PATCH 2,0 - 2832289



Patch cable, CAT5, assembled, 2 m

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## Programming cable

Connecting cable - COM CAB MINI DIN - 2400127



Connecting cable, for connecting the controller to a PC (RS-232) for PC WORX with flow control, 3 m in length

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## SFP module

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### Accessories

Media module - FL SFP SX - 2891754



Gigabit SFP module for transmission up to 1 km with a wavelength of 850 nm.

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Media module - FL SFP LX - 2891767



Gigabit SFP module for transmission up to 30 km with a wavelength of 1310 nm.

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Media module - FL SFP LH - 2989912



Gigabit SFP module for transmission up to 80 km with a wavelength of 1,550 nm.

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