

# Industrial Ethernet Switch - FL SWITCH 4000T-4POE-SFP - 1026924

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Managed PoE+ Ethernet switch conforms to IEEE 802.3at. Includes four 10/100 PoE+ ports with 60 W capability, one 100/1000 Mbps SFP port, and a total PoE system budget of 180 W.


## Product Description

FL SWITCH 4000 managed industrial PoE Ethernet switches combine Gigabit interfaces with extensive network performance for the most demanding applications. Extensive user and device access control security features with complete IEEE redundancy and 15 ms recovery time extended ring redundancy optimize network uptime. POE control is optimized with POE diagnostics, watchdog, and scheduling, functions. A comprehensive mix of 10/100 Mbps and Gigabit fiber optic connections combine performance with installed cost savings.

## Your advantages

- ✔ Unique cleanup function hides unused configuration pages, reducing complexity, maintenance and startup times
- ✔ Secure web-based and SNMP-based management
- ✔ Wide -40° ... +75°C temperature range
- ✔ Redundant power supply
- ✔ Extensive web diagnostics with configurable LED and remote alarm contacts
- ✔ Four 10/100 Mbps RJ45 ports for device connections and one SFP-based fiber optic LC interfaces for network trunk lines.
- ✔ -40 to 75°C ambient temperature
- ✔ RSTP
- ✔ MSTP
- ✔ DHCP client
- ✔ VLANs
- ✔ Web-based management, SNMP

## Key Commercial Data

Packing unit	1 pc
GTIN	 4 055626 519968
GTIN	4055626519968

## 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	75 mm
Height	170 mm
Depth	152 mm

### Ambient conditions

Degree of protection	IP30
Ambient temperature (operation)	-40 °C ... 75 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	5 % ... 95 % (non-condensing)
Air pressure (operation)	57 kPa ... 108 kPa (up to 4850 m above mean sea level)
Air pressure (storage/transport)	57 kPa ... 108 kPa (up to 4850 m above mean sea level)

### Interfaces

Interface	Ethernet (PoE)
No. of ports	4 (RJ45 ports)
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Ethernet in RJ45 twisted pair
Transmission speed	10/100 Mbps
Transmission length	100 m
Interface	SFP module
No. of ports	1 (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 fiber/SFP module used)
Signal LEDs	Data receive, link status

### Function

Basic functions	Store and forward switch, Extended Ring and IEEE redundancy, Multicast control, IGMP snooping, trunking, Port and Tagging VLANs, Port and IEEE 802.1x security, SNMP V3 and Https security, SNTP, web customization, user accounts, Modbus/TCP, PoE according to IEEE 802.3at/af.
Management	Web-based management (HTTP/HTTPS)
	SNMPv1/v2/v3
Diagnostic functions	RMON History
	LLDP (Link Layer Discovery Protocol)
	SNMP-Traps
	N:1-Portmirroring
Filter functions	Quality of Service (8 and 64 priority classes)

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## Technical data

### Function

	Port prioritization
	VLAN (up to 64 VLANs)
	IGMP Snooping (256 groups)
	IGMP Query
Redundancy	ERR (Extended ring redundancy (15 ms))
	RSTP (Rapid Spanning Tree Protocol)
	MSTP (Multiple Spanning Tree Protocol)
Additional functions	Transmission of MMS and GOOSE (IEC 61850-8-1)
IP parameterization	DHCP-Client
	BootP
Time synchronization	SNTP (Simple Network Time Protocol)
Status and diagnostic indicators	LEDs: U <sub>S1</sub> , U <sub>S2</sub> (redundant voltage supply), Alarm (alarm contact), Link/Activity and PoE per Ethernet port

### Network expansion parameters

Cascading depth	Network, linear, and star structure: any
Maximum conductor length (twisted pair)	100 m

### Supply voltage

Supply voltage	55 V DC (redundant)
Residual ripple	3.6 V <sub>PP</sub> (within the permitted voltage range)
Supply voltage range	46 V DC ... 57 V DC (> 52 V DC for PoE+ or 60 W output recommended)
Typical current consumption	142 mA (U <sub>S</sub> = 55 V DC)
Max. current consumption	3.9 A (Maximum, nominal load)
Inrush current	43.6 A (52 V DC for 1830 µs)

### General

Mounting type	DIN rail
Type AX	Block design
Net weight	1562 g
Housing material	Aluminum
Note	Designed to function with all 48 V DC QUINT and TRIO power supplies.
MTTF	21.3 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)

### Connection data

Connection method	Pluggable COMBICON screw connections
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

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## Technical data

### Connection data

Stripping length	7 mm
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### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC
Standards/specifications	EN 50121 for railway applications
Noise emission	EN 61000-6-4
Noise immunity	EN 61000-6-2:2005
Conformance	CE-compliant

### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 10;
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Classifications

### eCl@ss

eCl@ss 10.0.1	19170401
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 5.0	EC000734
ETIM 6.0	EC000734
ETIM 7.0	EC000734

## Approvals

### Approvals

#### Approvals

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

#### Ex Approvals

### Approval details

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## Approvals

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 238705
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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 238705
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EAC			RU *- DE.A*08.B.00739
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EAC			RU* - DE.*.B.00741/19
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cULus Listed			
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## 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<sub>A</sub>, cable outlet: straight

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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## Accessories

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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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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FO patch cable - FOC-LC:PA-SC:PA-OM2:D01/1 - 1115607



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## Accessories

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



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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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FO patch cable - FOC-LC:PA-LC:PA-OM2:D01/2 - 1115634



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

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Fiber optic cable - FOC-LC:PA-ST:PA-OM2:D01/1 - 1115588



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

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Fiber optic cable - FOC-LC:PA-ST:PA-OM2:D01/2 - 1115587



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

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## Accessories

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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FO patch cable - FOC-LC:PA-LC:PA-OM4:D01/1 - 1115625



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

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FO patch cable - FOC-LC:PA-LC:PA-OM4:D01/2 - 1115624



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

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FO patch cable - FOC-LC:PA-LC:PA-OS2:D01/1 - 1115636



Single-mode OS2 duplex jumper, LC-LC, UPC polishing, length 1 m

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## Accessories

FO patch cable - FOC-LC:PA-LC:PA-OS2:D01/2 - 1115629



Single-mode OS2 duplex jumper, LC-LC, UPC polishing, length 2 m

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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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FO patch cable - FOC-LC:PA-ST:PA-OS2:D01/2 - 1115595



Single-mode OS2 duplex jumper, LC-ST, UPC polishing, length 2 m

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FO patch cable - FOC-LC:PA-SC:PA-OS2:D01/1 - 1115618



Single-mode OS2 duplex jumper, LC-SC, UPC polishing, length 1 m

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FO patch cable - FOC-LC:PA-SC:PA-OS2:D01/2 - 1115617



Single-mode OS2 duplex jumper, LC-SC, UPC polishing, length 2 m

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End block

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## Accessories

End clamp - E/NS 35 N - 0800886



End clamp, width: 9.5 mm, color: gray

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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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## 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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## PCB plug

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## Accessories

Printed-circuit board connector - MSTB 2,5/ 5-ST - 1754504



PCB connector, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 5, pitch: 5 mm, connection method: Screw connection with tension sleeve, color: green, contact surface: Tin

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## Power over Ethernet devices

Ethernet module - FL PD 1001 T GT - 2891042



Factoryline Power over Ethernet splitter (PD) for separating power and data according to IEEE 802.3af and at, no configuration required, can be used with 10, 100, 1000 Mbps networks, 24 V DC output voltage

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## Power supply

Power supply unit - QUINT4-PS/1AC/48DC/5 - 2904610



Primary-switched QUINT POWER power supply for DIN rail mounting with free choice of output characteristic curve and SFB (Selective Fuse Breaking) technology, input: 1-phase, output: 48 V DC / 5 A

Power supply unit - QUINT4-PS/1AC/48DC/10 - 2904611



Primary-switched QUINT POWER power supply for DIN rail mounting with free choice of output characteristic curve and SFB (Selective Fuse Breaking) technology, input: 1-phase, output: 48 V DC / 10 A

Power supply unit - TRIO-PS-2G/1AC/48DC/5 - 2903159



Primary-switched TRIO power supply for DIN rail mounting, input: 1-phase, output: 48 V DC / 5 A, dynamic boost, tool-free fast connection technology for solid and stranded conductors with ferrule

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## Accessories

Power supply unit - TRIO-PS-2G/1AC/48DC/10 - 2903160



Primary-switched TRIO POWER power supply with push-in connection for DIN rail mounting, input: single phase, output: 48 V DC/10 A

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## Protective cap

Dust protection - FL RJ45 PROTECT CAP - 2832991



Dust protection caps for RJ45 socket

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## Safety locking

Port Guard Security Element - FL SEC PAC 4TX - 2832865



Layer1 security elements for four RJ45 network connections for use with patch boxes and panels

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## 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).

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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 SX2 - 2702397



Gigabit SFP module for transmission up to 2 km with a wavelength of 1310 nm.

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Media module - FL SFP LX10-B - 1025401



Gigabit SFP module for transmission up to 10 km with a wavelength of 1310 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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## Accessories

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.

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.

## Surge protection for information technology

Surge protection device - DT-LAN-CAT.6+ - 2881007



Surge protection in accordance with Class E<sub>A</sub> (CAT6<sub>A</sub>), for Gigabit Ethernet (up to 10 Gbps), token ring, FDDI/CDDI, ISDN, and DS1. Suitable for Power over Ethernet (PoE+) "Mode A" and "Mode B". RJ45 attachment plug with separate grounding cable and ground connection snap-on foot for NS 35 DIN rails.

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PHOENIX CONTACT GmbH & Co. KG  
Flachsmarktstr. 8  
32825 Blomberg  
Germany  
Tel. +49 5235 300  
Fax +49 5235 3 41200  
<http://www.phoenixcontact.com>

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