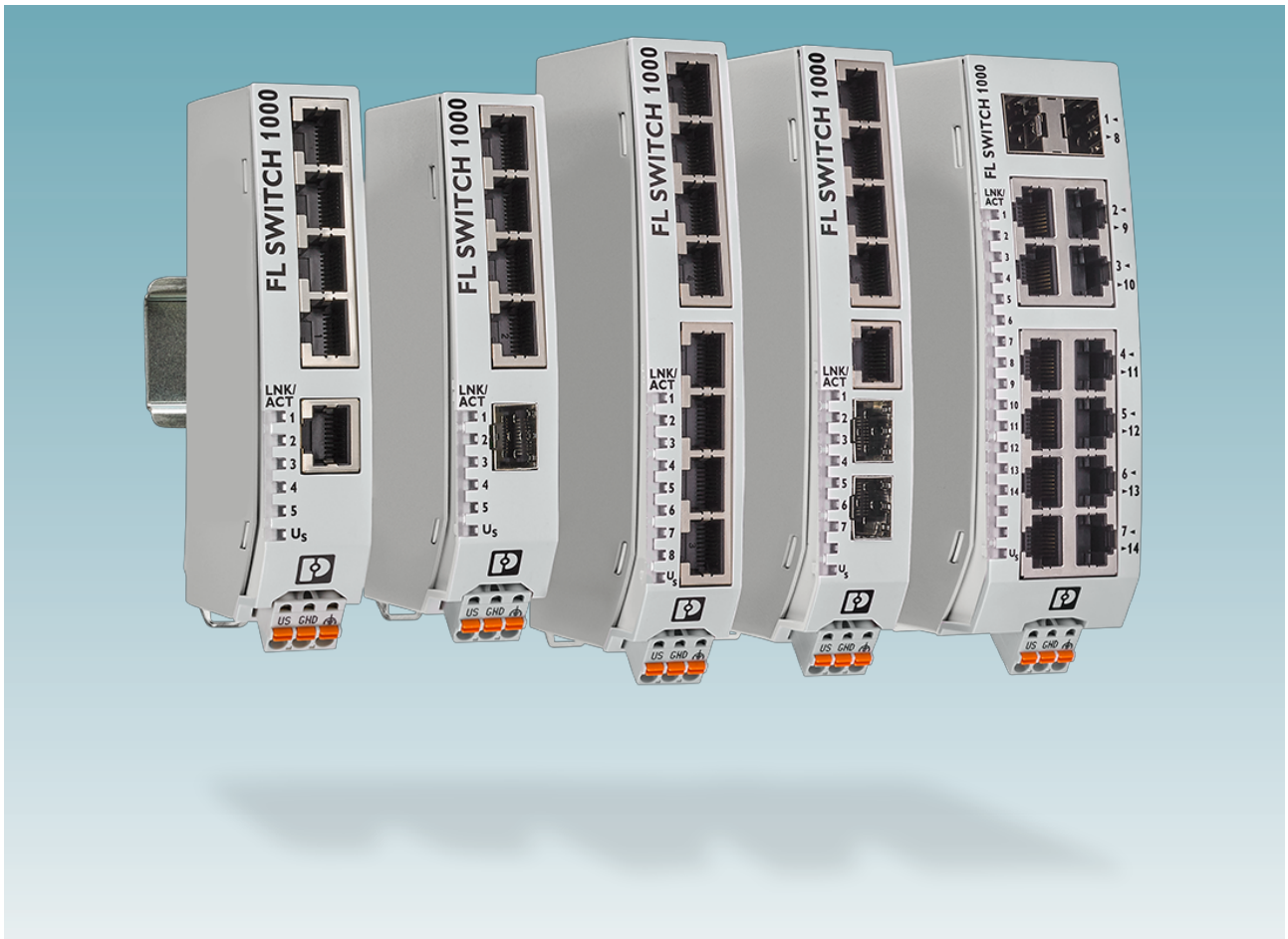

Unmanaged narrow Ethernet switches

User manual

UM EN FL SWITCH 1000

PHOENIX CONTACT
INSPIRING INNOVATIONS

User manual
Unmanaged narrow Ethernet switches

UM EN FL SWITCH 1000, Revision A 2023-01-20

This user manual is valid for:

Designation	Version
FL SWITCH 1005N	1085039
FL SWITCH 1008N	1085256
FL SWITCH 1105N	1085254
FL SWITCH 1108N	1085243
FL SWITCH 1016N	1085255
FL SWITCH 1116N	1085219
FL SWITCH 1004N-FX	1084159
FL SWITCH 1004N-FX ST	1085179
FL SWITCH 1004N-FX SM	1085214
FL SWITCH 1004N-SFX	1085177
FL SWITCH 1104N-SFP	1085173
FL SWITCH 1005N-2SFX	1085176
FL SWITCH 1105N-2SFP	1085171
FL SWITCH 1108NT	1085162
FL SWITCH 1105NT	1085163
FL SWITCH 1006NT-2SFX	1085164
FL SWITCH 1008NT	1085165
FL SWITCH 1004NT-SFX	1085169
FL SWITCH 1005NT	1085170
FL SWITCH 1012NT-SFP	1249598
FL SWITCH 1024T	1343027
FL SWITCH 1116T	1085115
FL SWITCH 1104NT-2SFP	1343023
FL SWITCH 1105-2SFP	1343025

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Table of contents

1 For your safety

Read this user manual carefully and keep it for future reference.

1.1 Labeling of warning notes

This symbol indicates hazards that could lead to personal injury.

There are three signal words indicating the severity of a potential injury.

DANGER
Indicates a hazard with a high risk level. If this hazardous situation is not avoided, it will result in death or serious injury.

WARNING
Indicates a hazard with a medium risk level. If this hazardous situation is not avoided, it could result in death or serious injury.

CAUTION
Indicates a hazard with a low risk level. If this hazardous situation is not avoided, it could result in minor or moderate injury.

This symbol together with the **NOTE** signal word warns the reader of actions that might cause property damage or a malfunction.

Here you will find additional information or detailed sources of information.

1.2 Qualification of users

The use of products described in this user manual is oriented exclusively to:

– Qualified electricians or persons instructed by them. The users must be familiar with the relevant safety concepts of automation technology as well as applicable standards and other regulations.
– Qualified application programmers and software engineers. The users must be familiar with the relevant safety concepts of automation technology as well as applicable standards and other regulations.

1.3 Product changes

Changes or modifications to hardware and software of the device are not permitted.

Incorrect operation or modifications to the device can endanger your safety or damage the device. Do not repair the device yourself. If the device is defective, please contact Phoenix Contact.

1.4 Security in the network

NOTE: Risk of unauthorized network access

Connecting devices to a network via Ethernet entails the danger of unauthorized access to the network.

To prevent unauthorized network access, please read the following notes:

- If possible, deactivate unused communication channels.
- Assign passwords such that third parties cannot access the device and make unauthorized changes.
- Due to its communication interfaces, the device should not be used in security-critical applications unless additional security appliances are used. Therefore, please take additional protective measures in accordance with the IT security requirements and the standards applicable to your application, e.g., virtual networks (VPN) for remote maintenance access, firewalls, etc., for protection against unauthorized network access.
- On first request, you shall release Phoenix Contact and the companies associated with Phoenix Contact GmbH & Co. KG, Flachsmarkstrasse 8, 32825 Blomberg, Germany in accordance with §§ 15 ff AktG (German Stock Corporation Act), hereinafter collectively referred to as “Phoenix Contact”, from all third-party claims made due to improper use.
- For the protection of networks for remote maintenance via VPN, Phoenix Contact offers the mGuard product series of security appliances; these are described in the latest Phoenix Contact catalog (phoenixcontact.net/products).
- Additional measures for protection against unauthorized network access are listed in the AH EN INDUSTRIAL SECURITY application note. The application note can be downloaded at phoenixcontact.net/products).

1.5 UL notes

WARNING:

This equipment is an open-type device meant to be installed in an enclosure suitable for the environment that is only accessible with the use of a tool.

This equipment is suitable for use in Class I, Division 2, Groups A, B, C, and D or non-hazardous locations only.

The wire temperature rating must be at least 105°C.

The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC/EN 60664-1.

If the equipment is used in a manner not specified, the protection provided by the equipment may be impaired.

The device must not be opened or modified.

Do not attempt to repair the device yourself but replace it with an equivalent device. Repairs may only be carried out by the manufacturer. The manufacturer is not liable for damage resulting from failure to comply.

2 Overview and ordering data

2.1 Descriptions

FL SWITCH product descriptions are coded to signify its configuration.

Figure 2-1 FL SWITCH nomenclature

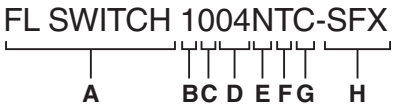


Table 2-1 Nomenclature key

Category	Indicator	Meaning
Product line	A	FL SWITCH
Management	B	1 = Unmanaged
Transfer speed	C	0 = 10/100 Mbps 1 = 1000 Mbps 6 = 10/100 Mbps IP67 7 = 1000 Mbps IP67
Number of RJ45 ports	D	As shown
Structure	E	N = Narrow form factor
Environment	F	T = Wide temperature
Coating	G	C = Conformal coating
Connections	H	ST = ST fiber optic connectors SC = SC fiber optic connectors LC = LC fiber optic connectors SFX = Port for small 10/100 Mbps form-factor modules SFP = Port for small 100/1000 Mbps form-factor modules

FL SWITCH 10…N and FL SWITCH 11…N

The FL SWITCH 10…N and FL SWITCH 11…N Ethernet switches provide basic, cost-effective switch functions. They include automatic detection of data transmission rates and autocrossing with up to two fiber optic interfaces.

- Auto negotiation and autocrossing detection simplifies installation and setup
- Local diagnostic indicator LEDs
- RJ45 ports support a transmission speed of 10/100 Mbps on FL SWITCH 10… switches and 10/100/1000 Mbps on FL SWITCH 11… switches
- QoS prioritization support
- PROFINET conformance Class A for real-time data exchange
- Energy-efficient Ethernet in accordance with IEEE 802.3az
- PROFINET PTCP filter for reliable communication on PROFINET networks
- Enhanced traffic prioritization for automation protocols

FL SWITCH 10…NT and FL SWITCH 11…NT

The FL SWITCH 10…NT and FL SWITCH 11…NT Ethernet switches provide basic switch functions in a robust housing with expanded temperature and installation ranges. They include automatic detection of data transmission rates and autocrossing with up to two fiber optic interfaces.

- Auto negotiation and autocrossing detection simplifies installation and setup
- Local diagnostic indicator LEDs
- RJ45 ports support a transmission speed of 10/100 Mbps on FL SWITCH 10… switches and 10/100/1000 Mbps on FL SWITCH 11… switches
- QoS prioritization support
- PROFINET conformance Class A for real-time data exchange
- Energy-efficient Ethernet in accordance with IEEE 802.3az
- PROFINET PTCP filter for reliable communication on PROFINET networks
- Enhanced traffic prioritization for automation protocols

2.1.1 SFP module compatibility

Table 2-2 SFP module compatibility

Descriptor	Order No.	Compatible with	
		FL SWITCH 1…SFX	FL SWITCH 1…SFP
FL SFP FX	2891081	X	X
FL SFP FX SM	2891082	X	X
FL SFP FE WDM20 A/B	2702439	X	X
FL SFP SX	2891754		X
FL SFP SX2	2702397		X
FL SFP LX10-B	1025401		X
FL SFP LX40	1113081		X
FL SFP LX	2891767		X
FL SFP LH	2989912		X
FL SFP WDM10 A/B	2702442		X
FL SFP GT	2989420		X
FL SFP WDM10-A	2702440		
FL SFP WDM10-B	2702441		
FL SFP FE WDM20-A	2702437		
FL SFP FE WDM20-B	2702438		

2.2 Ordering data

Description	Type	Order No.	Pcs./Pkt
Industrial Ethernet switch, five RJ45 ports with 10/100 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1005N	1085039	1
Industrial Ethernet switch, eight RJ45 ports with 10/100 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1008N	1085256	1
Industrial Ethernet switch, five RJ45 ports with 10/100/1000 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1105N	1085254	1
Industrial Ethernet switch eight RJ45 ports with 10/100/1000 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1108N	1085243	1
Industrial Ethernet switch, 16 RJ45 ports with 10/100 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1016N	1085255	1
Industrial Ethernet switch, sixteen RJ45 ports with 10/100/1000 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1116N	1085219	1

Description [...]	Type	Order No.	Pcs./Pkt
Industrial Ethernet switch, four RJ45 ports with 10/100 Mbps, one SC-D fiber optic port with 100 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1004N-FX	1084159	1
Industrial Ethernet switch, four RJ45 ports with 10/100 Mbps, one ST fiber optic port with 100 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1004N-FX ST	1085179	1
Industrial Ethernet switch, four RJ45 ports with 10/100 Mbps, one SC fiber optic port with 100 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1004N-FX SM	1085214	1
Industrial Ethernet switch, four RJ45 ports with 10/100 Mbps, one SFP port with 100 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1004N-SFX	1085177	1
Industrial Ethernet switch, four RJ45 ports with 10/100/1000 Mbps, one SFP port with 100/1000 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1104N-SFP	1085173	1
Industrial Ethernet switch, five RJ45 ports with 10/100 Mbps, two SFP ports with 100 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1005N-2SFX	1085176	1
Industrial Ethernet switch, five RJ45 ports with 10/100/1000 Mbps, two SFP ports with 100/1000 Mbps, automatic speed detection, autocrossing, QoS	FL SWITCH 1105N-2SFP	1085171	1
Industrial Ethernet switch, eight RJ45 ports with 10/100/1000 Mbps, automatic speed detection, autocrossing, QoS, wide temperature range	FL SWITCH 1108NT	1085162	1
Industrial Ethernet switch, five RJ45 ports with 10/100/1000 Mbps, automatic speed detection, autocrossing, QoS, wide temperature range	FL SWITCH 1105NT	1085163	1
Industrial Ethernet switch, five RJ45 ports with 10/100 Mbps, two SFP ports with 100 Mbps, automatic speed detection, autocrossing, QoS, wide temperature range	FL SWITCH 1006NT-2SFX	1085164	1
Industrial Ethernet switch, eight RJ45 ports with 10/100/1000 Mbps, automatic speed detection, autocrossing, QoS, wide temperature range	FL SWITCH 1008NT	1085165	1
Industrial Ethernet switch, four RJ45 ports with 10/100 Mbps, one SFP ports with 100 Mbps, automatic speed detection, autocrossing, QoS, wide temperature range	FL SWITCH 1004NT-SFX	1085169	1
Industrial Ethernet switch, five RJ45 ports with 10/100/1000 Mbps, automatic speed detection, autocrossing, QoS, wide temperature range	FL SWITCH 1005NT	1085170	1
Industrial Ethernet switch, twelve RJ45 ports with 10/100 Mbps, two SFP ports with 100/1000 Mbps, automatic speed detection, autocrossing, QoS, wide temperature range	FL SWITCH 1012NT-2SFP	1249598	1

Description [...]	Type	Order No.	Pcs./Pkt
Industrial Ethernet switch, 24 RJ45 ports with 10/100 Mbps, automatic speed detection, autocrossing, QoS, wide temperature range	FL SWITCH 1024T	1343027	1
Industrial Ethernet switch, four RJ45 ports with 10/100/1000 Mbps, one SFP ports with 100/1000 Mbps, automatic speed detection, autocrossing, QoS, wide temperature range	FL SWITCH 1104NT-SFP	1343023	1
Industrial Ethernet switch, five RJ45 ports with 10/100/1000 Mbps, two SFP ports with 100/1000 Mbps, automatic speed detection, autocrossing, QoS, wide temperature range	FL SWITCH 1105NT-2SFP	1343025	1
Industrial Ethernet switch, 16 RJ45 ports with 10/100/1000 Mbps, automatic speed detection, autocrossing, QoS, wide temperature range	FL SWITCH 1116T	1085115	1

Accessories

Description	Type	Order No.	Pcs./Pkt.
Mounting plate	FL DIN-RAIL ADAPTER 22.5	1085485	1
Mounting plate	FL PANEL ADAPTER 22.5	1085488	1
Mounting plate	FL DIN-RAIL ADAPTER 40	1085484	1
Mounting plate	FL PANEL ADAPTER 40	1085486	1
Patch cable	NBC-R4AC-R4AC-IE8A/…/…	1411854	1
Patch cable	NBC-R4AC/10G-R4AC/10G-94F/2.0	1408360	1
Patch cable	NBC-R4AC/10G-R4AC/10G-94F/3.0	1408365	1
Patch cable	NBC-R4AC/1,0-93B/R4AC	1408968	1
Patch cable	NBC-R4AC/2,0-93B/R4AC	1408969	1
Patch cable	NBC-R4AC/5,0-93B/R4AC	1408970	1
Patch cable, FO, 1 m	FOC-LC:PA-SC:PA-OM2:D01/1	1115607	1
Patch cable, FO, 2 m	FOC-LC:PA-SC:PA-OM2:D01/2	1115605	1
Patch cable, FO, 1 m	FOC-LC:PA-LC:PA-OM2:D01/1	1115633	1
Patch cable, FO, 2 m	FOC-LC:PA-LC:PA-OM2:D01/2	1115634	1
Patch cable, fiber optic, 1 m	FOC-LC:PA-ST:PA-OM2:D01/1	1115588	1
Patch cable, fiber optic, 2 m	FOC-LC:PA-ST:PA-OM2:D01/2	1115587	1

Accessories [...]

Description	Type	Order No.	Pcs./Pkt.
Patch cable, FO, 1 m	FOC-LC:PA-SC:PA-OM4:D01/1	1115601	1
Patch cable, FO, 2 m	FOC-LC:PA-SC:PA-OM4:D01/2	1115600	1
Patch cable, FO, 1 m	FOC-LC:PA-LC:PA-OM4:D01/1	1115625	1
Patch cable, FO, 2 m	FOC-LC:PA-LC:PA-OM4:D01/2	1115624	1
Patch cable, FO, 1 m	FOC-LC:PA-LC:PA-OS2:D01/1	1115636	1
Patch cable, FO, 2 m	FOC-LC:PA-LC:PA-OS2:D01/2	1115629	1
Patch cable, FO, 1 m	FOC-LC:PA-ST:PA-OS2:D01/1	1115596	1
Patch cable, FO, 2 m	FOC-LC:PA-ST:PA-OS2:D01/2	1115595	1
Patch cable, FO, 1 m	FOC-LC:PA-SC:PA-OS2:D01/1	1115618	1
Patch cable, FO, 2 m	FOC-LC:PA-SC:PA-OS2:D01/2	1115617	1
End clamp	E/NS 35 N	0800886	1
Patch cable	FL CAT5 PATCH 0.5	2832263	1
Patch cable	FL CAT5 PATCH 1.0	2832276	1
Patch cable	FL CAT5 PATCH 2.0	2832289	1
PCB connector	FKCT 2.5/3-ST KMGY BD:US, GND	1087544	1
PCB connector	FKCT 2.5/3-ST KMGY	1998263	1
Dust protection	FL RJ45 PROTECT CAP	2832991	1
Surge protection device	DT-LAN-CAT .6+	2881007	1

Visit phoenixcontact.net/products for available accessories

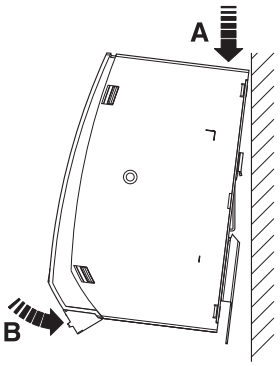
3 Installation

3.1 DIN rail

3.1.1 Mounting

Place the module on a grounded DIN rail from above using the slot (A). Push the front of the module toward the mounting surface until it audibly snaps into place (B).

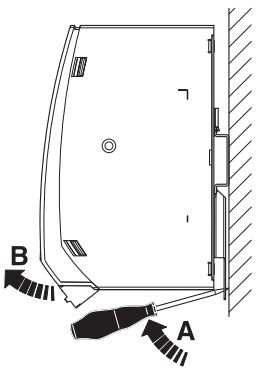
Figure 3-1 DIN rail installation



3.1.2 Removal

Insert a suitable tool into the latch of the holding clamp and pull the latch downward by pushing the tool upward (A). Pull out the lower edge (B) and then remove the module from the rail.

Figure 3-2 Removal



3.2 Power

WARNING:
This device is designed for SELV and PELV operation according to IEC 61140/ EN 61140.

The switch connects to a single power source through a removable COMBICON connector.

Snapping the switch onto a grounded rail connects it to the ground potential.

Protective ground is through the DIN rail.

In an environment particularly prone to EMI, noise immunity can be increased by an additional low-impedance connection to functional earth ground.

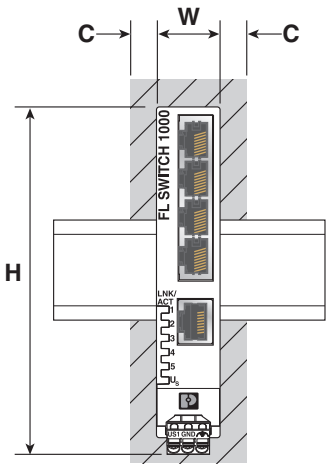
Table 3-1 Current rating

Order No.	Designation	Maximum current	Typical current
1085039	FL SWITCH 1005N	110 mA	19 mA
1085256	FL SWITCH 1008N	173 mA	28 mA
1085254	FL SWITCH 1105N	311 mA	38 mA
1085243	FL SWITCH 1108N	452 mA	54 mA
1085255	FL SWITCH 1016N	266 mA	68 mA
1085219	FL SWITCH 1116N	925 mA	195 mA
1084159	FL SWITCH 1004N-FX	230 mA	59 mA
1085179	FL SWITCH 1004N-FX ST	230 mA	60 mA
1085214	FL SWITCH 1004N-FX SM	196 mA	51 mA
1085177	FL SWITCH 1004N-SFX	162 mA	21 mA
1085173	FL SWITCH 1004N-SFP	474 mA	48 mA
1085176	FL SWITCH 1005N-2SFX	252 mA	25 mA
1085171	FL SWITCH 1005N-2SFP	681 mA	30 mA
1085162	FL SWITCH 1108NT	435 mA	18 mA
1085163	FL SWITCH 1105NT	335 mA	34 mA
1085164	FL SWITCH 1006NT-2SFX	310 mA	25 mA
1085165	FL SWITCH 1008NT	170 mA	26 mA
1085169	FL SWITCH 1004NT-SFX	215 mA	21 mA
1085170	FL SWITCH 1005NT	115 mA	21 mA
1249598	FL SWITCH 1012NT-2SFP	480 mA	125 mA
1343027	FL SWITCH 1024T	370 mA	56 mA
1085115	FL SWITCH 1116T	938 mA	191 mA
1343023	FL SWITCH 1104NT-2SFP	425 mA	47 mA
1343025	FL SWITCH 1105-2SFX	560 mA	33 mA

3.2.1 Derating

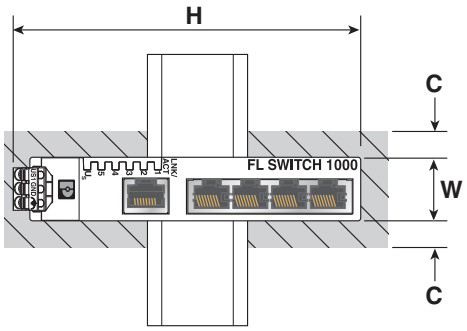
FL SWITCH 10…N and FL SWITCH 11…N

Figure 3-3 Horizontal DIN rail clearance



When installed on a horizontal rail, the Ethernet switches may be mounted immediately next to one another without derating the temperature (c ≥ 0 mm).

Figure 3-4 Vertical DIN rail clearance



When installed on a vertical rail, the Ethernet switches may be mounted immediately next to one another. However, the maximum temperature must be reduced by 5°C (c = 0 mm). See “Technical data” on page 19 for maximum temperature rating.

FL SWITCH 10…NT and FL SWITCH 11…NT

When installed on a horizontal rail, the Ethernet switches may be mounted immediately next to one another without derating the temperature (c ≥ 0 mm).

When installed on a vertical rail, the Ethernet switches may be mounted immediately next to one another. However, the maximum temperature must be reduced by 5°C (c = 0 mm). See “Technical data” on page 19 for maximum temperature rating.

4 Operation

4.1 Diagnostic and status indicators

A Link/ACT LED corresponding to the port number indicates the status of that port.

Table 4-1 LED indicators

Ports			
	Link/ACT	On	Link established and network available
		Flashing	Data transmission active
		Off	No link established. Network not communicating.
Switch LED			
	U_S	On	Power is present
		Off	Power is not present

4.2 SFP modules

SFP ports are rated at 100 Mbps (FL SWITCH…SFX…) or 100/1000 Mbps (FL SWITCH…SFP…).

The listed Ethernet switches (see “SFP module compatibility” on page 9) provide 3.3 V DC to power the SFP module.

Installed SFP modules must have an insulation material rating of V-2 and be a Class 1 laser product.

5 Technical data

5.1 FL SWITCH 1005N (Order No. 1085039)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	117 mm
Depth	84 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)
Free from substances that could impair the application of coating	In acc. with VW specification

General data	
Mounting type	DIN rail
Weight	129.9 g
Housing material	Polycarbonate fiber reinforced
MAC address table	2k
MTTF	167.2 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	1627 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	1526 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	5
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 (per segment)

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	19 mA
Max. current consumption	110 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, KC, UL Listed, IECEE CB Scheme

5.2 FL SWITCH 1008N (Order No. 1085256)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	140.4 mm
Depth	92.4 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)

General data	
Mounting type	DIN rail
Weight	173.2 g
Housing material	Polycarbonate fiber reinforced
MAC address table	2k
MTTF	133.9 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	1254 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	1196 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	8
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 (per segment)

Supply voltage	
Supply voltage	24 V
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	28 mA
Max. current consumption	173 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, KC, UL Listed, IECEE CB Scheme

5.3 FL SWITCH 1105N (Order No. 1085254)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	117 mm
Depth	84 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)

General data	
Mounting type	DIN rail
Weight	135.1 g
Housing material	Polycarbonate fiber reinforced
MAC address table	2k
MTTF	87.5 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	1058 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	951 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	5
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Ethernet in RJ45 twisted pair
Transmission speed	10/100/1000 Mbps
Transmission length	100 m (per segment)

Supply voltage	
Supply voltage	24 V
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	38 mA
Max. current consumption	311 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA	UL 61010-1
UL, USA/Canada	Class I, Div. 2, Groups A, B, C, D T4 Class I, Zone 2, IIC T4
Further approvals	cUL Listed, EAC, KC, UL Listed, CC-Link IE Field, IECEE CB Scheme

5.4 FL SWITCH 1108N (Order No. 1085243)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	140.4 mm
Depth	92.4 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)

General data	
Mounting type	DIN rail
Weight	179.2 g
Housing material	Polycarbonate fiber reinforced
MAC address table	4k
MTTF	66.1 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	786 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	709 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	8
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Ethernet in RJ45 twisted pair
Transmission speed	10/100/1000 Mbps
Transmission length	100 m (per segment)

Supply voltage	
Supply voltage	24 V
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	54 mA
Max. current consumption	452 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, KC, UL Listed, IECEE CB Scheme

5.5 FL SWITCH 1016N (Order No. 1085255)

Dimensions (nominal sizes in mm)	
Width	40 mm
Height	140.4 mm
Depth	92.4 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)

General data	
Mounting type	DIN rail
Weight	265.9 g
Housing material	Polycarbonate fiber reinforced
MAC address table	8k
MTTF	63.7 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	729 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	639 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	16
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 (per segment)

Supply voltage	
Supply voltage	24 V
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	68 mA
Max. current consumption	266 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, KC, UL Listed, IECEE CB Scheme

5.6 FL SWITCH 1116N (Order No. 1085219)

Dimensions (nominal sizes in mm)	
Width	40 mm
Height	151 mm
Depth	98 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)

General data	
Mounting type	DIN rail
Weight	455 g
Housing material	Polycarbonate fiber reinforced
MAC address table	8k
MTTF	77.4 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	833.6 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	616.1 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	16
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Ethernet in RJ45 twisted pair
Transmission speed	10/100/1000 Mbps
Transmission length	100 m (per segment)

Supply voltage	
Supply voltage	24 V
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	195 mA
Max. current consumption	344 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4

5.7 FL SWITCH 1004N-FX (Order No. 1084159)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	117 mm
Depth	84 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)

General data	
Mounting type	DIN rail
Housing material	Polycarbonate fiber reinforced
MAC address table	2k
MTTF	115.1 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	427.5 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	279.5 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	4
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 (per segment)

Interface: Ethernet FO	
Number of interfaces	1
Connection method	SC
Transmission physics	multi-mode fiberglass
Transmission speed	100 Mbps (full duplex)
Transmission length	8 km (fiberglass with F-G 62.5/125 0.7 dB/km F1000)
Transmission length	4.29 km (fiberglass with F-G 50/125 0.7 dB/km F1200)
Wavelength	1300 nm

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	59 mA
Max. current consumption	230 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, UL Listed

5.8 FL SWITCH 1004N-FX ST (Order No. 1085179)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	117 mm
Depth	84 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)

General data	
Mounting type	DIN rail
Housing material	Polycarbonate fiber reinforced
MAC address table	2k
MTTF	115.1 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	427.5 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	279.5 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	4
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 (per segment)

Interface: Ethernet FO	
Number of interfaces	1
Connection method	ST
Transmission physics	multi-mode fiberglass
Transmission speed	100 Mbps (full duplex)
Transmission length	8 km (fiberglass with F-G 62.5/125 0.7 dB/km F1000)
Transmission length	5.71 km (fiberglass with F-G 50/125 0.7 dB/km F1200)
Wavelength	1300 nm

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	60 mA
Max. current consumption	230 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, UL Listed

5.9 FL SWITCH 1004N-FX SM (Order No. 1085214)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	117 mm
Depth	84 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)

General data	
Mounting type	DIN rail
Housing material	Polycarbonate fiber reinforced
MAC address table	2k
MTTF	95.9 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	298.8 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	188.3 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	4
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 (per segment)

Interface: Ethernet FO	
Number of interfaces	1
Connection method	SC
Transmission physics	Single-mode fiberglass
Transmission speed	100 Mbps (full duplex)
Transmission length	20 km (fiberglass with F-G 9/125 0.5 dB/km)
Wavelength	1310 nm

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	51 mA
Max. current consumption	196 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, UL Listed

5.10 FL SWITCH 1004N-SFX (Order No. 1085177)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	117 mm
Depth	84 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)

General data	
Mounting type	DIN rail
Housing material	Polycarbonate fiber reinforced
MAC address table	2k
MTTF	138.3 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	1647 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	1503.6 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	4
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 (per segment)

Interface: SFP module	
Number of interfaces	1
Connection method	SFP ports
Transmission physics	Depending on the SFP module
Transmission speed	100 Mbps (full duplex)
Transmission length	up to 40 km (Depending on the fiber/SFP module used)

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Max. current consumption	162 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, UL Listed

5.11 FL SWITCH 1104N-SFP (Order No. 1085173)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	117 mm
Depth	84 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)

General data	
Mounting type	DIN rail
Housing material	Polycarbonate fiber reinforced
MAC address table	4k
MTTF	77.4 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	949.7 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	828.9 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	4
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Ethernet in RJ45 twisted pair
Transmission speed	10/100/1000 Mbps
Transmission length	100 m (per segment)

Interface: SFP module	
Number of interfaces	1
Connection method	SFP ports
Transmission physics	Depending on the SFP module
Transmission speed	100 or 1000 Mbps (full duplex)
Transmission length	up to 40 km (Depending on the fiber/SFP module used)

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	48 mA
Max. current consumption	474 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, UL Listed

5.12 FL SWITCH 1005N-2SFX (Order No. 1085176)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	140.4 mm
Depth	92.4 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)

General data	
Mounting type	DIN rail
Housing material	Polycarbonate fiber reinforced
MAC address table	2k
MTTF	107.9 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	1346 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	1294.8 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	5
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 (per segment)

Interface: SFP module	
Number of interfaces	2
Connection method	SFP ports
Transmission physics	Depending on the SFP module
Transmission speed	100 Mbps (full duplex)
Transmission length	up to 40 km (Depending on the fiber/SFP module used)

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	25 mA
Max. current consumption	252 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, UL Listed

5.13 FL SWITCH 1105N-2SFP (Order No. 1085171)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	140.4 mm
Depth	92.4 mm

Ambient conditions	
Degree of protection	IP30
Ambient temperature (operation)	-10°C ... 60°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)	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)

General data	
Mounting type	DIN rail
Housing material	Polycarbonate fiber reinforced
MAC address table	4k
MTTF	59.2 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	872.1 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	836.5 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	5
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Ethernet in RJ45 twisted pair
Transmission speed	10/100/1000 Mbps
Transmission length	100 m (per segment)

Interface: SFP module	
Number of interfaces	2
Connection method	SFP ports
Transmission physics	Depending on the SFP module
Transmission speed	100 or 1000 Mbps (full duplex)
Transmission length	Up to 40 km (Depending on the fiber/SFP module used)

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	30 mA
Max. current consumption	681 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, UL Listed

5.14 FL SWITCH 1108NT (Order No. 1085162)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	140.4 mm
Depth	92.4 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)	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)

General data	
Mounting type	DIN rail
Weight	280 g
Housing material	Polycarbonate fiber reinforced
MAC address table	4k
MTTF	73 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	755.6 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	653.6 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
Conductor cross section solid min.	0.2 mm^2
Conductor cross section solid max.	2.5 mm^2
Conductor cross section flexible min.	0.2 mm^2
Conductor cross section flexible max.	2.5 mm^2
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	8
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Ethernet in RJ45 twisted pair
Transmission speed	10/100/1000 Mbps
Transmission length	100 m (per segment)
Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	18 mA
Max. current consumption	121 mA
Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)
Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A
Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4

5.15 FL SWITCH 1105NT (Order No. 1085163)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	117 mm
Depth	84 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)	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)

General data	
Mounting type	DIN rail
Weight	222 g
Housing material	Polycarbonate fiber reinforced
MAC address table	4k
MTTF	97.6 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	888.3 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	818.3 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
Conductor cross section solid min.	0.2 mm^2
Conductor cross section solid max.	2.5 mm^2
Conductor cross section flexible min.	0.2 mm^2
Conductor cross section flexible max.	2.5 mm^2
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	5
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Ethernet in RJ45 twisted pair
Transmission speed	10/100/1000 Mbps
Transmission length	100 m (per segment)

Supply voltage	
Supply voltage	24 V
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	34 mA
Max. current consumption	98 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, UL Listed

5.16 FL SWITCH 1005NT-2SFX (Order No. 1085164)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	140.4 mm
Depth	92.4 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)	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)

General data	
Mounting type	DIN rail
Weight	263 g
Housing material	Polycarbonate fiber reinforced
MAC address table	2k
MTTF	115.8 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	1350.4 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	1335.2 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
Conductor cross section solid min.	0.2 mm^2
Conductor cross section solid max.	2.5 mm^2
Conductor cross section flexible min.	0.2 mm^2
Conductor cross section flexible max.	2.5 mm^2
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	6
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 (per segment)

Interface: SFP module	
Number of interfaces	2
Connection method	SFP ports
Transmission physics	Depending on the SFP module
Transmission speed	100 Mbps (full duplex)
Transmission length	up to 40 km (Depending on the fiber/SFP module used)

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	25 mA
Max. current consumption	89 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, UL Listed

5.17 FL SWITCH 1008NT (Order No. 1085165)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	140.4 mm
Depth	92.4 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)	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)

General data	
Mounting type	DIN rail
Weight	266 g
Housing material	Polycarbonate fiber reinforced
MAC address table	2k
MTTF	133.6 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	1254 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	1203.8 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	8
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 (per segment)

Supply voltage	
Supply voltage	24 V
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	26 mA
Max. current consumption	57 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, UL Listed

5.18 FL SWITCH 1004NT-SFX (Order No. 1085169)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	117 mm
Depth	84 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)	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)

General data	
Mounting type	DIN rail
Weight	205 g
Housing material	Polycarbonate fiber reinforced
MAC address table	2k
MTTF	143.4 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	1664.2 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	1582.8 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	4
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 (per segment)

Interface: SFP module	
Number of interfaces	1
Connection method	SFP ports
Transmission physics	Depending on the SFP module
Transmission speed	100 Mbps (full duplex)
Transmission length	up to 40 km (Depending on the fiber/SFP module used)

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	21 mA
Max. current consumption	59 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, UL Listed

5.19 FL SWITCH 1005NT (Order No. 1085170)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	117 mm
Depth	84 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)	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)

General data	
Mounting type	DIN rail
Weight	222 g
Housing material	Polycarbonate fiber reinforced
MAC address table	2k
MTTF	173.1 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	1627.3 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	1538.9 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	5
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 (per segment)

Supply voltage	
Supply voltage	24 V
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	21 mA
Max. current consumption	40 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
Further approvals	cUL Listed, EAC, UL Listed

5.20 FL SWITCH 1012NT-2SFP (Order No. 1249598)

Dimensions (nominal sizes in mm)	
Width	40 mm
Height	140.4 mm
Depth	92.4 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)	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)

General data	
Mounting type	DIN rail
Weight	433 g
Housing material	Polycarbonate fiber reinforced
MAC address table	8k
MTTF	64.3 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	298.8 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	560.1 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	12
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 (per segment)

Interface: SFP module	
Number of interfaces	2
Connection method	SFP ports
Transmission physics	Depending on the SFP module
Transmission speed	100 or 1000 Mbps (full duplex)
Transmission length	up to 40 km (Depending on the fiber/SFP module used)

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	125 mA
Max. current consumption	223 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4

5.21 FL SWITCH 1024T (Order No. 1343027)

Dimensions (nominal sizes in mm)	
Width	65 mm
Height	140mm
Depth	107 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)	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)

General data	
Mounting type	DIN rail
Weight	620 g
Housing material	Polycarbonate fiber reinforced
MAC address table	8k
MTTF	64.3 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	298.8 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	560.1 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
Conductor cross section solid min.	0.2 mm^2
Conductor cross section solid max.	2.5 mm^2
Conductor cross section flexible min.	0.2 mm^2
Conductor cross section flexible max.	2.5 mm^2
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	24
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 (per segment)

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	56 mA
Max. current consumption	370 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

5.22 FL SWITCH 1116T (Order No. 1085115)

Dimensions (nominal sizes in mm)	
Width	65 mm
Height	140 mm
Depth	107 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)	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)

General data	
Mounting type	DIN rail
Weight	631 g
Housing material	Polycarbonate fiber reinforced
MAC address table	8k
MTTF	64.3 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	298.8 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	560.1 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
Conductor cross section solid min.	0.2 mm^2
Conductor cross section solid max.	2.5 mm^2
Conductor cross section flexible min.	0.2 mm^2
Conductor cross section flexible max.	2.5 mm^2
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	16
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Ethernet in RJ45 twisted pair
Transmission speed	10/100/1000 Mbps
Transmission length	100 m (per segment)

Supply voltage	
Supply voltage	24 V DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	191 mA
Max. current consumption	938 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

5.23 FL SWITCH 1104NT-SFP (Order No. 1343023)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	123 mm
Depth	90 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)	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)

General data	
Mounting type	DIN rail
Weight	220 g
Housing material	Polycarbonate fiber reinforced
MAC address table	8k
MTTF	64.3 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	298.8 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	560.1 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
Conductor cross section solid min.	0.2 mm^2
Conductor cross section solid max.	2.5 mm^2
Conductor cross section flexible min.	0.2 mm^2
Conductor cross section flexible max.	2.5 mm^2
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	4
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 (per segment)

Interface: SFP module	
Number of interfaces	1
Connection method	SFP ports
Transmission physics	Depending on the SFP module
Transmission speed	100 or 1000 Mbps (full duplex)
Transmission length	up to 40 km (Depending on the fiber/SFP module used)

Supply voltage	
Supply voltage	24 V AC/DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC 18 V AC … 30 V AC
Typical current consumption	47 mA
Max. current consumption	425 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4

5.24 FL SWITCH 1105NT-2SFP (Order No. 1343025)

Dimensions (nominal sizes in mm)	
Width	22.5 mm
Height	148 mm
Depth	98 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)	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)

General data	
Mounting type	DIN rail
Weight	279 g
Housing material	Polycarbonate fiber reinforced
MAC address table	4k
MTTF	64.3 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
MTTF	298.8 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
MTTF	560.1 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))

Connection data	
Connection method	Push-in spring connection
Pluggable	Yes
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	10 mm

Interface: Ethernet (RJ45)	
Number of interfaces	5
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission physics	Ethernet in RJ45 twisted pair
Transmission speed	10/100/1000 Mbps
Transmission length	100 m (per segment)

Interface: SFP module	
Number of interfaces	2
Connection method	SFP ports
Transmission physics	Depending on the SFP module
Transmission speed	100 or 1000 Mbps (full duplex)
Transmission length	up to 40 km (Depending on the fiber/SFP module used)

Supply voltage	
Supply voltage	24 V AC/DC
Residual ripple	3.6 V_{PP} (within the permitted voltage range)
Supply voltage range	9 V DC ... 32 V DC 18 V AC … 30 V AC
Typical current consumption	33 mA
Max. current consumption	560 mA

Mechanical tests	
Mechanical tests	Free fall in accordance with EN 61131-2
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Vibration (storage/transport)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Shock (operation)	30g (EN 60068-2-27)

Conformity with EMC directives	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conducted noise emission	EN 61000-6-2 EN 55032 Class A
Interference emission	EN 61000-6-2 EN 61000-4-8 (electromagnetic fields) 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 surge	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
Immunity to conducted interference	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A

Approvals/Certificates	
UL, USA/Canada	UL 61010-1, UL 61010-2-201 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4

A Appendixes

A 1 List of figures

Section 2

Section 3

A 2 List of tables

Section 2

Section 3

Section 4

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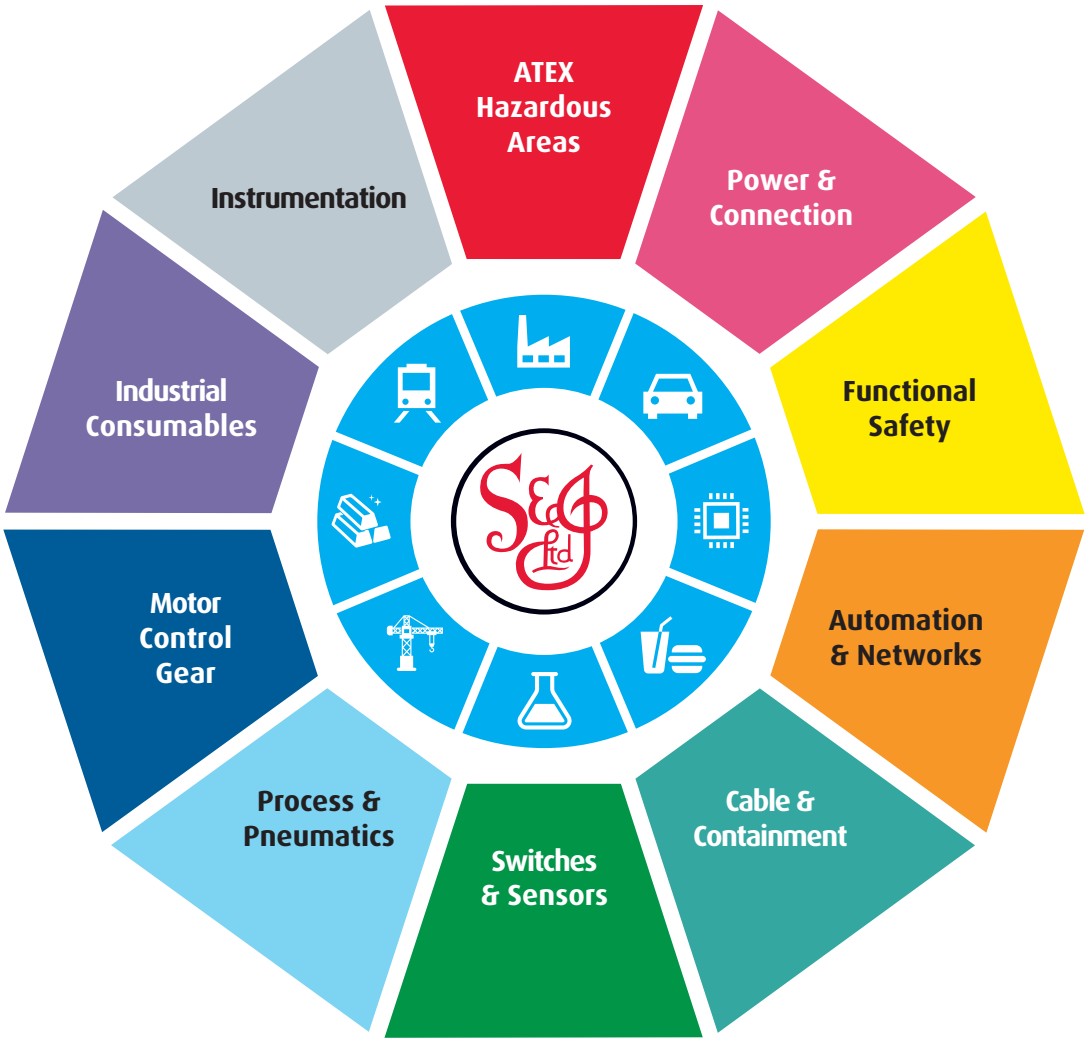

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