

FL SWITCH TSN 2316 - Industrial Ethernet Switch



1232304

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Managed TSN Switch 2000 series, 16 RJ45 ports 10/100/1000 Mbps, degree of protection: IP20, Ambient temperature (operation): -40 °C ... 60 °C, Supply voltage range: 12 V DC ... 57 V DC, PROFINET Conformance-Class B, Development process certified in accordance with IEC 62443-4-1, Compatible with IEC 62443-4-2

Your advantages

- Realization of innovative TSN applications with precise time synchronization in accordance with IEEE 802.1AS, frame preemption and PROFINET stream
- Extensive options for setting up decentral and time-critical applications
- Improved performance, robustness, and availability of Ethernet networks
- Can be used in classic applications as well as TSN networks
- Supports all functions of the FL SWITCH 2300 series

Commercial data

Item number	1232304
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DNN127
Product key	DNN127
GTIN	4063151334314
Weight per piece (including packing)	680.6 g
Weight per piece (excluding packing)	445 g
Customs tariff number	85176200
Country of origin	DE

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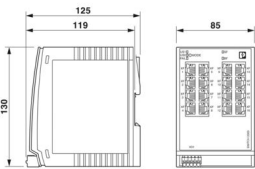


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Technical data

Dimensions

Dimensional drawing	
Width	85 mm
Height	130 mm
Depth	115 mm

Notes

General	Support by phone or on-site (fee is charged)
Note on application	
Note on application	Only for industrial use

Material specifications

Housing material	Polycarbonate fiber reinforced
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Mounting

Mounting type	DIN rail mounting
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Interfaces

Ethernet (RJ45)	
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission speed	10/100/1000 Mbps
Transmission physics	Copper
Transmission length	100 m (per segment)
Signal LEDs	Data receive, link status
No. of channels	16 (RJ45 ports)

Output data

Digital:	
Output name	Alarm output

Product properties

Product type	Switch
Product family	Managed TSN Switch 2000
Type	Book type

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1232304

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MTTF	257.17 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	126.12 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	25.76 Years (SN 29500 standard, temperature 60°C, operating cycle 100%)
Special properties	Development process certified in accordance with IEC 62443-4-1
	Compatible with IEC 62443-4-2
Basic functions	Store-and-forward switch, complies with IEEE 802.3

Insulation characteristics

Protection class	III (VDE 0106)
Degree of pollution	2

Switch functions

Diagnostic functions	RMON History
	LLDP (Link Layer Discovery Protocol)
	SNMP-Traps
	N:1-Portmirroring
	ACD (Address Conflict Detection)
	SysLog
	CRC-Surveillance
Basic functions	Store-and-forward switch, complies with IEEE 802.3
Signal contact control voltage	typ. 24 V DC
PROFINET conformance class	Conformance-Class B
PROFINET device function	PROFINET device
	Fast Startup
Filter functions	Quality of Service (8 priority classes)
	Class of Service
	DiffServ/DSCP
	Port-Priorisierung
	VLAN (up to 32 VLANs)
	IGMP Snooping/Querier (v1/v2)
	Auto-Query-Port
IP parameterization	Extended Multicast Filtering
	DHCP client
	DHCP Option 82 (Relay Agent)
	DHCP server (pool-based, port-based)
	BootP
MAC address table	DCP (Discovery and Configuration Protocol)
	32k
Management	Web-based management (HTTP/HTTPS)
	Role-based user management (LDAP, RADIUS)
	SNMPv1/v2/v3
	Command Line Interface (Telnet, SSH)
	MRP (Media Redundancy Protocol)

1232304

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Redundancy	RSTP (Rapid Spanning Tree Protocol)
	FRD (Fast Ring Detection)
	Large Tree Support
	LACP (Link Aggregation Control Protocol)
	PROFINET S2 system redundancy
Status and diagnostic indicators	LEDs: US1, US2 (power supply), Fail (alarm contact), 2 LEDs per Ethernet port (Link/Activity and Speed)
Additional functions	Jumbo frames (max. 9,600 bytes)
	Transmission of MMS and GOOSE (IEC 61850-8-1)
	Transmission of Modbus/TCP
Time synchronization	SNTP (Simple Network Time Protocol)
	gPTP (IEEE 802.1AS)
	IEEE 1588v2 (Transparent Clock)

Security functions

Port security	MAC-based, RADIUS (IEEE 802.1X), MAC Authentication Bypass
Basic functions	Store-and-forward switch, complies with IEEE 802.3

Electrical properties

Current consumption	740 mA
Local diagnostics	US1/2 Supply voltage US1, US2 Green LED
	FAIL Div. LED red
	LINK Link status Green LED
Maximum power dissipation for nominal condition	30 W ($U_S = \text{Min}$, $T_{\text{amb}} = \text{Max}$, $DO_1 = \text{Max}$)
Test section	24 V supply / functional ground 500 V DC 1 min
	Ethernet interface/all other potentials 2.25 kV DC 1 min
Transmission medium	Copper

Supply

Supply voltage (DC)	24 V DC (redundant)
Supply voltage range	12 V DC ... 57 V DC
Power supply connection	via COMBICON, max. conductor cross-section 1.5 mm ²
Residual ripple	3.6 V _{pp} (within the permitted voltage range)
Max. current consumption	2.5 A ($U_S = \text{Min}$, $T_{\text{amb}} = \text{Max}$, $DO_1 = \text{Max}$)
Typical current consumption	740 mA (at $U_S = 24 \text{ V DC}$ and 25 °C ambient temperature)
Current consumption	740 mA

Function

Signal contact control voltage	typ. 24 V DC
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Connection data

Connection method	Push-in spring connection
Note on the connection method	Only use copper cables that are suitable for the permitted temperature range of -40 °C ... 70 °C (at $T_{\text{amb}} = 60 \text{ °C}$) as connecting cables for the power supply
Conductor cross-section, rigid	0.25 mm ² ... 1.5 mm ²

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Conductor cross-section, flexible	0.25 mm ² ... 1.5 mm ²
Conductor cross-section AWG	24 ... 16
Stripping length	9 mm

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	10 % ... 95 % (non-condensing)
Shock (operation)	30g (EN 60068-2-27)
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
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)

Standards and regulations

Free from substances that could impair the application of coating	Yes
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EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conformance with EMC directives	EN 61000-6-2 EN 61000-4-2 (ESD) Criterion B
	EN 61000-6-2 EN 61000-4-3 (electromagnetic fields) Criterion A
	EN 61000-6-2 EN 61000-4-4 (EFT burst) Criterion A
	EN 61000-6-2 EN 61000-4-5 (surge) Criterion A
	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A
	EN 61000-6-2 EN 61000-6-4 (interference) Class A
	EN 61000-6-2 EN 61000-6-4 (conducted interference) Class A
Noise immunity	EN 61000-6-2

Noise emission

Standards/regulations	EN 61000-6-4
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System properties

Functionality

Basic functions	Store-and-forward switch, complies with IEEE 802.3
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Signaling

Status display	LEDs: US1, US2 (power supply), Fail (alarm contact), 2 LEDs per Ethernet port (Link/Activity and Speed)
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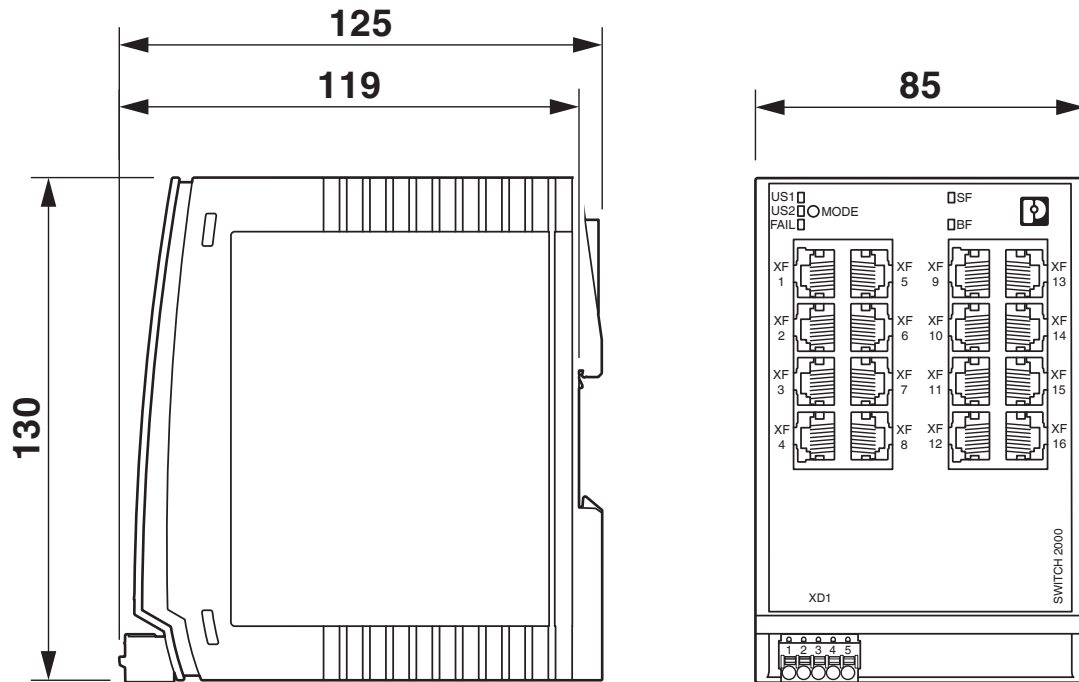


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Drawings

Dimensional drawing



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/gb/products/1232304>



cULus Listed

Approval ID: E238705

CC-Link IE TSN Class B

Approval ID: NRT-IT-00119



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Classifications

ECLASS

ECLASS-13.0	19170401
ECLASS-15.0	19170401

ETIM

ETIM 9.0	EC000734
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UNSPSC

UNSPSC 21.0	43222600
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	60bd18c3-0db6-43e6-9723-fd38c4b7ccc6

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