

FL SWITCH APL 2224-4A-213-PA - Industrial Ethernet Switch



1384244

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24-port Ethernet-APL + PROFIBUS PA field switch, Zone 2 mountable, Ex 'ia' APL ports, four uplink ports

Your advantages

- Six isolation groups of four spurs
- Redundant power connections
- APL-managed switch
- Top-down wiring terminations
- PROFINET-managed switch
- Dynamic reconfiguration
- Proxy capability
- Connects to Ex ia devices in Zone 1/0 hazardous locations using 2-WISE, FISCO, or intrinsically safe entity parameters
- Global approvals
- MRP and S2 PROFINET System Redundancy

Commercial data

Item number	1384244
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	*****
Product key	DNN128
GTIN	4063151759506
Weight per piece (including packing)	5,833.8 g
Weight per piece (excluding packing)	5,334.5 g
Customs tariff number	85176200
Country of origin	US

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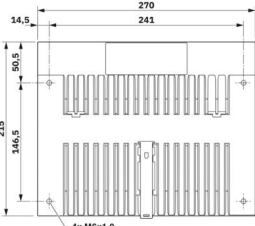


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Technical data

Dimensions

Dimensional drawing	
	
Width	270 mm
Height	215 mm
Depth	127 mm
Note on dimensions	Depth valid when a TH 35-15 DIN rail is used (according to EN 60715).

Notes

Note on application	
Note on application	Only for industrial use
Utilization restriction	
EMC note	EMC: class A product, see manufacturer's declaration in the download area

Material specifications

Housing material	Die-cast aluminum
	PC

Mounting

Mounting type	Panel mount
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Interfaces

Ethernet (RJ45)	
Number of interfaces	2
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission speed	10/100 Mbps
Transmission physics	Copper
Transmission length	100 m (per segment)
Signal LEDs	Data receive, link status
No. of channels	2 (RJ45 ports)

Ethernet (SFP)	
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Number of interfaces	2
Connection method	SFP
Note on the connection method	Full duplex
Transmission speed	100/1000 Mbps (full duplex)
Transmission physics	FO
Transmission length	Depending on the SFP module used
No. of channels	2 (SFP ports)

Ethernet (APL)

Connection method	Screw connection
Note on the connection method	APL, full duplex
Transmission speed	10 Mbps
Transmission physics	Copper
No. of channels	24 (APL ports)

Power Source Equipment (PSE) Port: Class A

Power Class	SPAA
Note	Each port configurable via software
Output nominal voltage	$\geq 9.6 \text{ V DC}$
Output current	$\geq 55.56 \text{ mA}$
Output power	$\geq 0.54 \text{ W}$

Power Source Equipment (PSE) Port: Class B, length 20 m

Power Class	SPBA
Note	Each port configurable via software
Output nominal voltage	$\geq 8.9 \text{ V DC}$
Output current	$\leq 100 \text{ mA}$
Output power	$\leq 0.89 \text{ W}$

Power Source Equipment (PSE) Port: Class B, length 200 m

Power Class	SPBA
Note	Each port configurable via software
Output nominal voltage	$\geq 8.9 \text{ V DC}$
Output current	$\geq 84 \text{ mA}$
Output power	$\leq 0.739 \text{ W}$

Power Source Equipment (PSE) Port: Class B, length 120 m

Power Class	SPBA
Note	Each port configurable via software
Output nominal voltage	$\geq 9.52 \text{ V DC}$
Output current	$\geq 95 \text{ mA}$
Output power	$\leq 0.845 \text{ W}$

Product properties

Product type	Switch
Product family	Managed Switch 2000

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MTTF	37.59 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	19.62 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	11.6 Years (SN 29500 standard, temperature 70°C, operating cycle 100%)
Special properties	PROFIBUS PA field switch
	Zone 2 mountable
	Ex 'ia' APL ports
	four uplink ports

Insulation characteristics

Protection class	III (IEC 61140, EN 61140, VDE 0140-1)
Overvoltage category	II
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
Filter functions	Quality of Service (8 priority classes)
	Class of Service
	DiffServ/DSCP
	Port prioritization
	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)
	8k
Management	Web-based management (HTTP/HTTPS)
	Role-based user management (LDAP, RADIUS)
	SNMPv1/v2/v3
Redundancy	MRP (Media Redundancy Protocol)
	RSTP (Rapid Spanning Tree Protocol)
	Large Tree Support
	LACP (Link Aggregation Control Protocol)
	PROFINET S2 system redundancy

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Time synchronization	SNTP (Simple Network Time Protocol)
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Electrical properties

Current consumption	5.75 A
Power consumption	25 W (No-load) max. 63 W (24 Class A ports at max. load (22 V DC supply voltage at 70°C))
Maximum power dissipation for nominal condition	50 W (24 Class A ports at max. load (22 V DC supply voltage at 70°C))
Test section	Supply Voltage/spurs 1500 V ACrms
	100BASE-T / Spurs 1500 V ACrms
	SFP / Spurs 1500 V ACrms
	Spurs / Earth Ground (Housing) 500 V ACrms
	Block of Spurs / Block of Spurs 500 V ACrms
	Supply / 100BASE-T 2000 V ACrms
	100BASE-T / 100BASE-T 2000 V ACrms
	Supply / SFP 1500 V ACrms

Supply

Supply voltage (DC)	24 V DC (redundant)
Supply voltage range	22 V DC ... 30 V DC (redundant)
Max. current consumption	5.75 A
Current consumption	5.75 A

Connection data

Connection method	Pluggable screw connection
Conductor cross-section, rigid	0.2 mm ² ... 2.5 mm ²
Conductor cross-section, flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross-section AWG	24 ... 12
Stripping length	7 mm

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C (horizontal)
	-40 °C ... 60 °C (vertical)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	2000 m (maximum)
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	5 % ... 95 % (non-condensing)
Shock (operation)	15g (IEC 60068-2-27)
Vibration (operation)	1g, according to EN 60068-2-6

Approvals

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ATEX

Identification	II 3(1) G Ex ic ec [ia Ga] IIC T4 Gc II (1) D [Ex ia Da] IIIC
Certificate	UL 23 ATEX 2992X

IECEX

Identification	Ex ic ec [ia Ga] IIC T4 Gc [Ex ia Da] IIIC
Certificate	IECEX UL 23.0028X

UL, USA/Canada

Identification	Ind. Cont. Eq. E238705 also Listed Ind. Cont. Eq. for haz. loc. E196811 Install in: Class I, Div. 2, Groups A, B, C, D T4 Intrinsically safe outputs for: Class I, Div. 2, Groups A, B, C, D; Class II, Groups E, F, G; Class III; [Ex ia] Haz. Loc. Class I, Zone 2, AEx ic ec [ia Ga] IIC T4 Gc, [AEx ia Da] IIIC Ex ic ec [ia Ga] IIC T4 Gc [Ex ia Da] IIIC
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CCC

Identification	Ex ic ec [ia Ga] IIC T4 Gc [Ex ia Da] IIIC
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Ex data

Safety data

Max. output voltage U_o	13.23 V
Max. output current I_o	279.38 mA
Max. output power P_o	1.66 W
Safety-related maximum voltage U_m	60 V
A, B / IIC: Max. external inductivity L_o / Max. external capacitance C_o	/ 0.5 μ F
C/IIIB, IIIC: Max. external inductivity L_o / Max. external capacitance C_o	/ 1.3 μ F
D/IIA, E, F, G, Class III: Max. external inductivity L_o / Max. external capacitance C_o	/ 1.4 μ F
A, B / IIC: Max. external inductivity L_o / Max. external capacitance C_o	0.15 mH
C/IIIB, IIIC: Max. external inductivity L_o / Max. external capacitance C_o	1.5 mH
D/IIA, E, F, G, Class III: Max. external inductivity L_o / Max. external capacitance C_o	2.6 mH

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU (Test requirements for NE 21, IEC 61326-7 also considered as per the APL EMC specifications)
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Conformance with EMC directives	EN 61000-6-2 EN 61000-4-2 (ESD) Criterion A, ± 6 kV contact discharge, ± 8 kV air discharge
	EN 61000-6-2 EN 61000-4-3 (electromagnetic fields) Criterion A, Field intensity: 10 V/m
	EN 61000-6-2 EN 61000-4-4 (EFT burst) Criterion A, supply lines: ± 2 kV, signal/data lines: ± 1 kV
	EN 61000-6-2 EN 61000-4-5 (surge) Criterion A, ± 1 kV supply line L-PE; ± 1 kV supply line N-PE; ± 1 kV shielded I/O signal lines for metallic enclosure devices
	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A, 10 Vrms
	EN 61000-6-2 IEC 61000-4-16 (common mode disturbances) Criterion A: 10V (10 kHz to 150 kHz)
Noise immunity	EN 61000-6-4 EN 55011 (emitted interference) Class A
	EN 61000-6-2
Noise emission	
Standards/regulations	EN 61000-6-4

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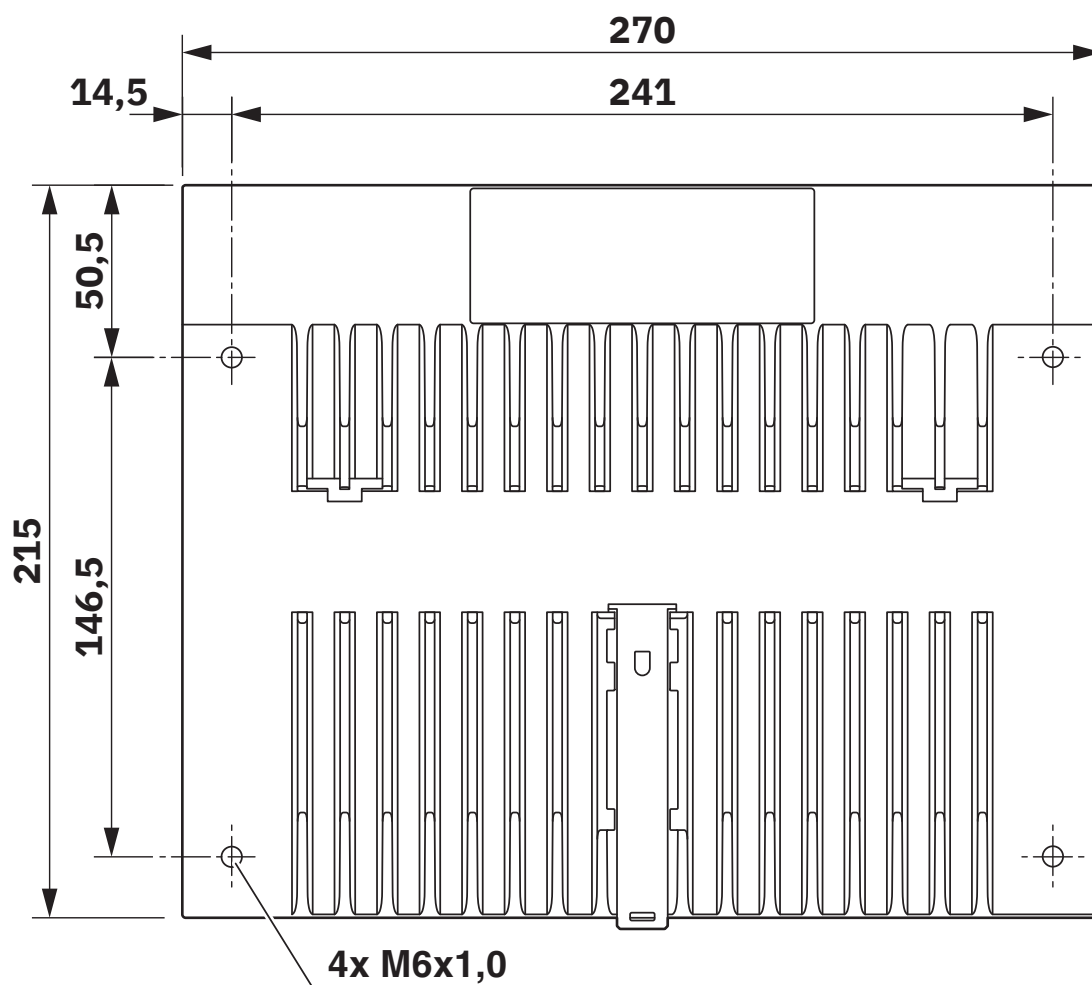


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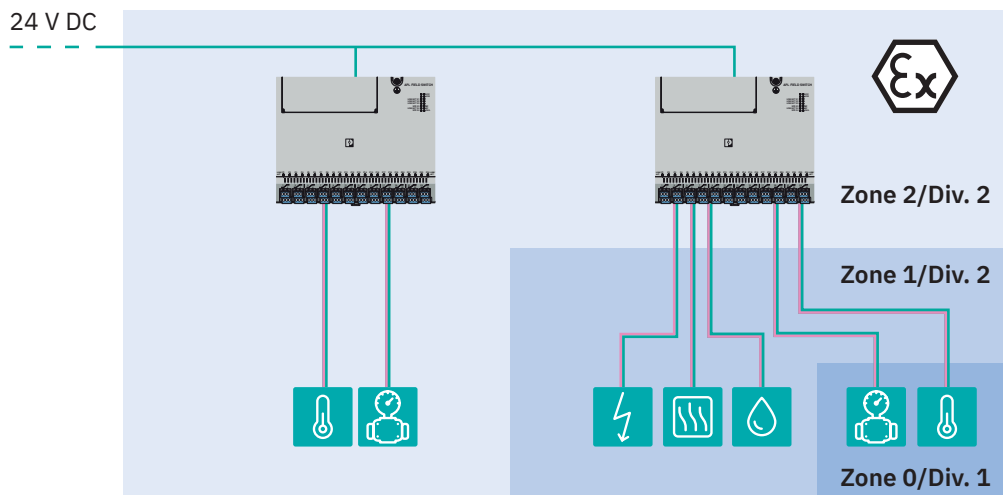
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Drawings

Dimensional drawing



Application drawing



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1384244>



cULus Listed

Approval ID: E238705



IECEx

Approval ID: IECEx UL 23.0028X



ATEX

Approval ID: UL 23 ATEX 2992X



cULus Listed

Approval ID: E196811



UKCA-EX

Approval ID: UL23UKEX2830X



IECEx

Approval ID: IECEx UL 23.0028X



ATEX

Approval ID: UL 23 ATEX 2992X

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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-10
	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)
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