



Ethernet-APL Rail Field Switch

FieldConnex®

ARS11-B2-IA16-1

- Managed Ethernet-APL field switch for process industries
- PROFINET MRP, S2 redundancy and dynamic reconfiguration
- 2 ports each for 1000BASE-T and SFP transceivers
- Redundant power input 20 VDC ... 60 VDC
- Installation in Zone 2
- Physical layer diagnostics at the spur
- Configuration and diagnosis with FDI, web interface, PROFINET device functions and SNMP
- Support of network security
- Powered spur ports intrinsically safe Ex ia according to 2-WISE and FISCO
- Support of Ethernet-APL and PROFIBUS PA instruments

Ethernet-APL rail field switch with 16 intrinsically safe Ex ia spur ports and screw terminals with proxy support selectable for PROFIBUS PA field devices



ethernet-apl™
advanced physical layer



Function

The Ethernet-APL rail field switch is a ruggedized, managed field switch offering connectivity for Ethernet-APL devices to Ethernet networks via any protocol. The connections, i. e., "spur" ports, provide intrinsically safe (Ex ia) power and communication to instruments located in Zone 0/1. APL field switches can be installed in Zone 2.

The APL field switch features 2 Gigabit Ethernet ports and 2 SFP ports. The SFP ports provide connections for a choice of optional SFP transceivers to be used in explosion-hazardous areas and different distances.

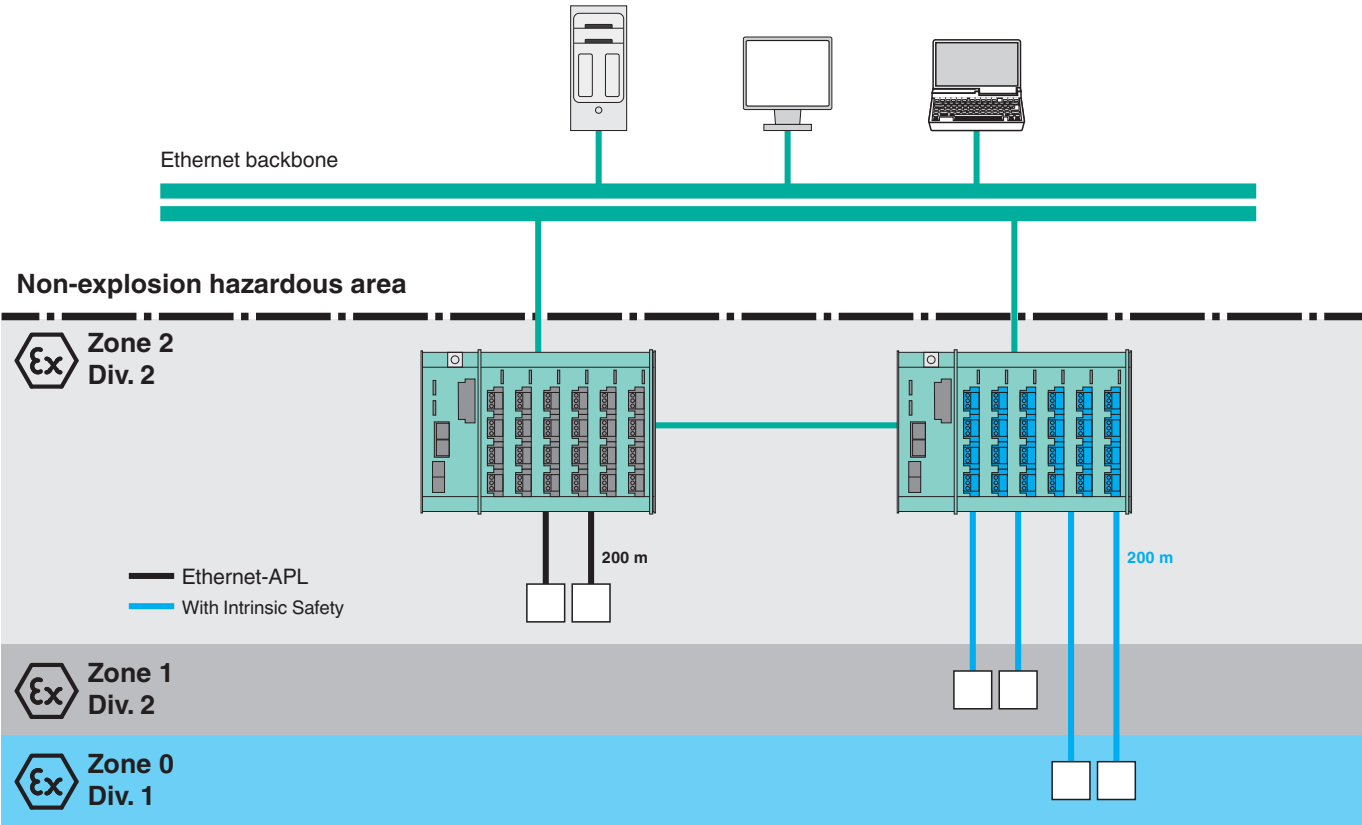
For PROFINET, the APL field switch supports Class B networks. For high-availability installations, the APL field switch provides redundancy mechanisms such as MRP ring redundancy and S2 system redundancy.

PROFINET dynamic reconfiguration permits re-configuration of the APL field switch during runtime without interrupting the data exchange.

Easy configuration and diagnostics of the APL field switch are accessible via FDI and web-based management. PROFINET device functions and SNMP assure fast start-up and enable the use of predictive maintenance. Comprehensive network and physical layer diagnostics enable proactive management strategies to reduce risk of failure and downtime.

The APL field switch implements enhanced network security and supports SNMPv3, the locking of unused ports, and the HTTPS protocol.

Function Principle



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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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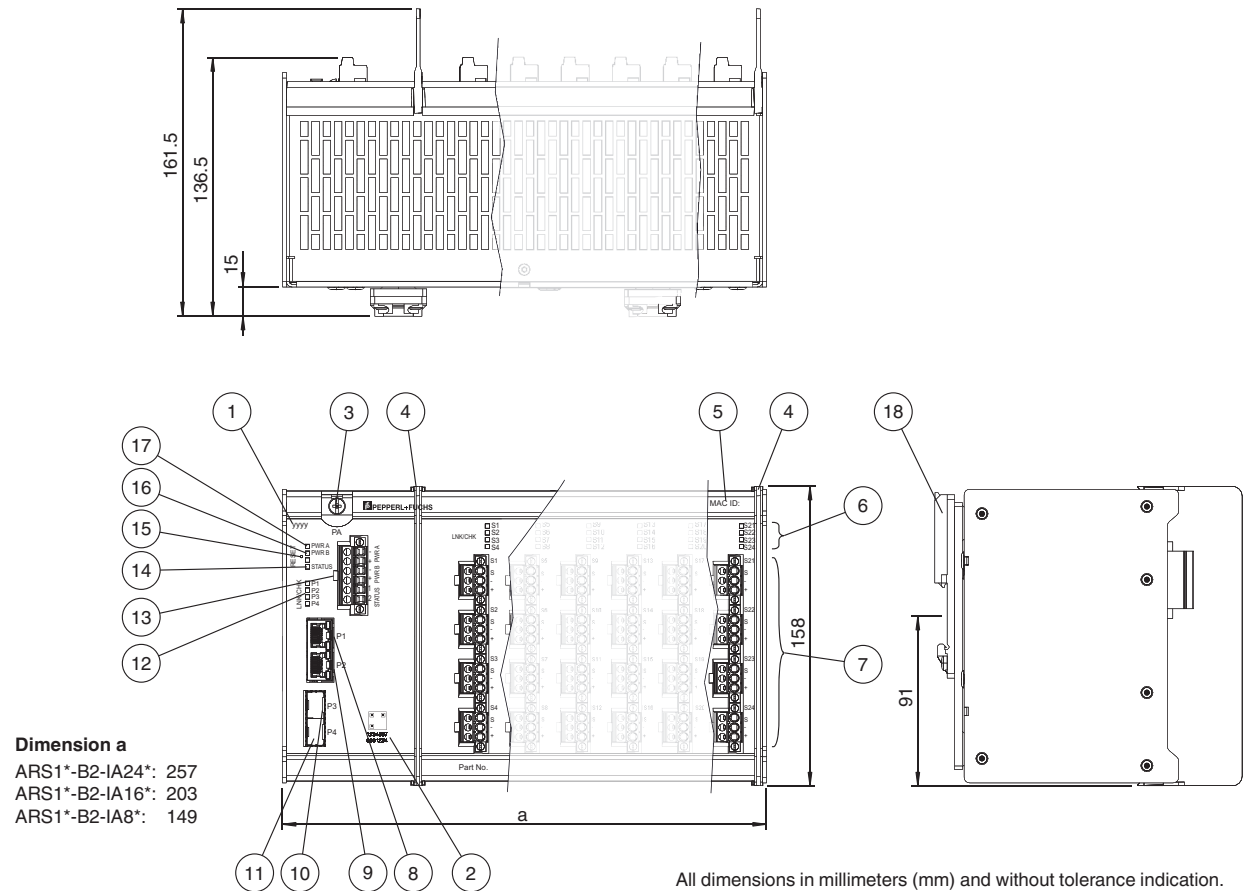
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PEPPERL+FUCHS

Dimensions

DIN Rail Mounting



- 1 Year of production
- 2 QR code and serial number
- 3 PA, connection to equipotential bonding
- 4 Slot for separation wall
- 5 MAC ID
- 6 LED S1 ... Sn, status spur ports S1 ... Sn
- 7 Connectors for intrinsically safe spurs S1 ... Sn
- 8 Ethernet port P1
- 9 Ethernet port P2
- 10 Ethernet SFP port P3
- 11 Ethernet SFP port P4
- 12 LED LNK/CHK P1 ... P4, communication status LED P1 ... P4
- 13 Connector for auxiliary power and status indication output
- 14 LED STATUS, status rail field switch
- 15 Reset button
- 16 LED PWR B, status power input B
- 17 LED PWR A, status power input A
- 18 DIN rail mounting brackets

Technical Data

General specifications

Design / Mounting	Cabinet installation
Installation in hazardous area	Zone 2
Fieldbus support	PROFIBUS PA

Supply

Rated voltage	U_r	20 ... 60 V
Rated current	I_r	1.3 ... 0.45 A
Power dissipation		max. 17.4 W

Technical Data

Voltage difference dual supply input		+/- 10 %
Power consumption		max. 26 W
Redundancy		dual supply input
Indicators/operating means		
LED PWR A/B		green: power on
LED LNK/CHK		Off: no communication link active , Green: communication link active , Green flashing: communication link activity , Yellow flashing: communication with PROFIBUS PA field device , Red flashing: check function
LED STATUS		Off: Good , Blue: Maintenance required , Red: Failure
Fault signal		VFC alarm 100 mA, 32 V DC, normally closed
Button		Device reset
Interface 1		
Interface type		Ethernet-APL : 1 Vpp option spur connection , PROFIBUS PA
Port classification		S P A A
Number of ports		16
Port identification		S1...S16
Power option		powered
Transfer rate		10 MBit/s full duplex
Rated voltage		9.6 V
Rated current		55.56 mA
Rated power		540 mW
Cable shield grounding option		capacitive grounded
Connection type		screw terminals , pluggable
Conductor cross section		single wire/stranded wire: 0.2 ... 2.5 mm ²
Conductor cross section solid wire		2.08 ... 0.326 mm ² , 14 ... 18 AWG
Conductor cross section flexible wire		2.08 ... 0.326 mm ² , 14 ... 18 AWG
Interface 2		
Interface type		1000BASE-T
Number of ports		2
Port identification		P 1 ... P 2
Transfer rate		10/100/1000 Mbps
Connection type		RJ-45 , EIA/TIA 568 B
Interface 3		
Interface type		Slot for SFP transceiver SFP Multi-Source (MSA) compliant
Number of ports		2
Port identification		P 3 ... P 4
Galvanic isolation		
Spurs/Supply		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
SFP/Supply		620 V AC
1000BASE-T/Supply		1500 V AC
1000BASE-T/Spurs		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
1000BASE-T/1000BASE-T		1500 V AC
Housing/All		620 V AC
Fault signal/All		620 V AC
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Galvanic isolation		IEC 61010-1
Electromagnetic compatibility		EN 61326 , NE 21

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Technical Data

Degree of protection		IEC 60529
Ethernet		IEEE 802.3z , IEEE 802.3u , IEEE 802.3cg
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Climatic conditions		DIN IEC 721
Software		
Industrial protocols		PROFINET , CC-B (PA) , dynamic reconfiguration , Netload Class III , pruning
Management		Web user interface , SNMP v1, v2 , v3 , PROFINET
Redundancy		PROFINET MRP , PROFINET system redundancy S2
Management Information Base (MIB)		PROFINET conformance class B
Diagnostics function		10BASE-T1L physical layer , port , Packet statistics , LLDP , PROFIBUS PA
Cybersecurity		
Ambient conditions		
Ambient temperature		-40 ... 70 °C (-40 ... 158 °F) horizontally mounted no SFP installed -40 ... 65 °C (-40 ... 149 °F) horizontally mounted SFP installed
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		≤ 95 % non-condensing
Shock resistance		15 g 11 ms
Vibration resistance		1 g 10 ... 150 Hz
Pollution degree		max. 2, according to IEC 60664
Corrosion resistance		acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Housing material		stainless steel 1.4301 , Polycarbonate
Degree of protection		IP20
Mass		3201 g
Dimensions		
Height		158 mm
Width		203 mm
Depth		136.5 mm
Mounting		DIN rail mounting , wall mounting
Data for application in connection with hazardous areas		
EU-type examination certificate		TÜV 21 ATEX 8666 X
Marking		Ⓔ II 3 (1) G Ex ic ec [ia Ga] IIC T4 Gc Ⓔ II (1) D [Ex ia Da] IIIC
Supply		
Maximum safe voltage	U _m	60 V
Interface 1		2-WISE power source, FISCO power supply
Voltage U _o		17.5 V
Current I _o		380 mA
Power P _o		1.67 W
Capacitance C _o		IIC : 0.25 µF IIB/IIIC : 1.5 µF
Inductance L _o		IIC : 0.15 mH IIB/IIIC : 0.5 mH
Interface 2		
Maximum safe voltage U _m		60 V
Interface 3		
Maximum safe voltage U _m		60 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN 60079-11:2012 , EN 60079-7:2015+A1:2018 , IEC TS 60079-47:2021
International approvals		
IECEx approval		IECEx TUR 21.0072X
Approved for		Ex ic ec [ia Ga] IIC T4 Gc [Ex ia Da] IIIC

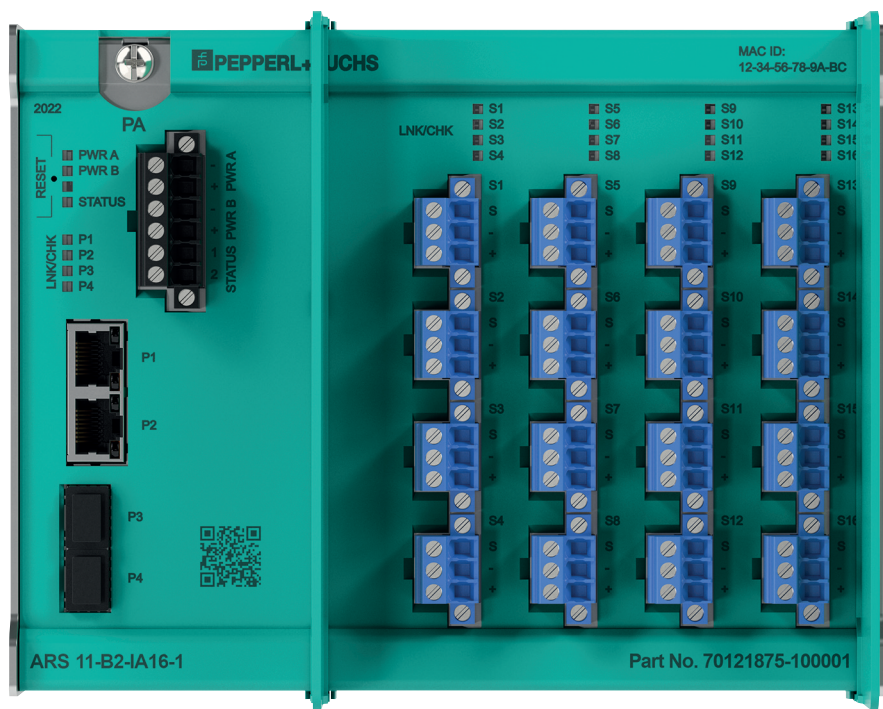
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Technical Data

Certificates and approvals

Patents	This product may be covered by the following patent: US 9,762,409
General information	
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .

Assembly



Mounting

Wall Mounting Option

For wall mounting the APL rail field switch use the accessory ACC-ARS-WM. See manual for details and dimensions.

Type Code

ARS1	(1)	B	2	-	IA	(2)	-	(3)
ARS1	Device							
ARS1	Ethernet-APL Rail Field Switch							
(1)	PROFIBUS PA Proxy							
1	With proxy							
2	Without proxy							
B	Power Supply							
B	Separately powered 20 V ... 60 V							
2	Uplink Ports							
2	2 ports each for RJ45 and SFP slots							

Type Code	
IA	Intrinsic Safety at Spurs
IA	Ex ia IIC
(2)	Spur Port Count
08	Spur ports
16	Spur ports
24	Spur ports
(3)	Pluggable Terminal Types
1	Screw terminals
2	Spring terminals

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