



## Ethernet-APL Rail Field Switch

### FieldConnex®

#### ARS11-B2-IC08-1

- Managed Ethernet-APL field switch for process industries
- Powered spur ports intrinsically safe Ex ic according to 2-WISE and FISCO
- 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
- Support of Ethernet-APL and PROFIBUS PA instruments

Ethernet-APL rail field switch with 8 intrinsically safe Ex ic 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 ic) power and communication to instruments located in Zone 2. 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.

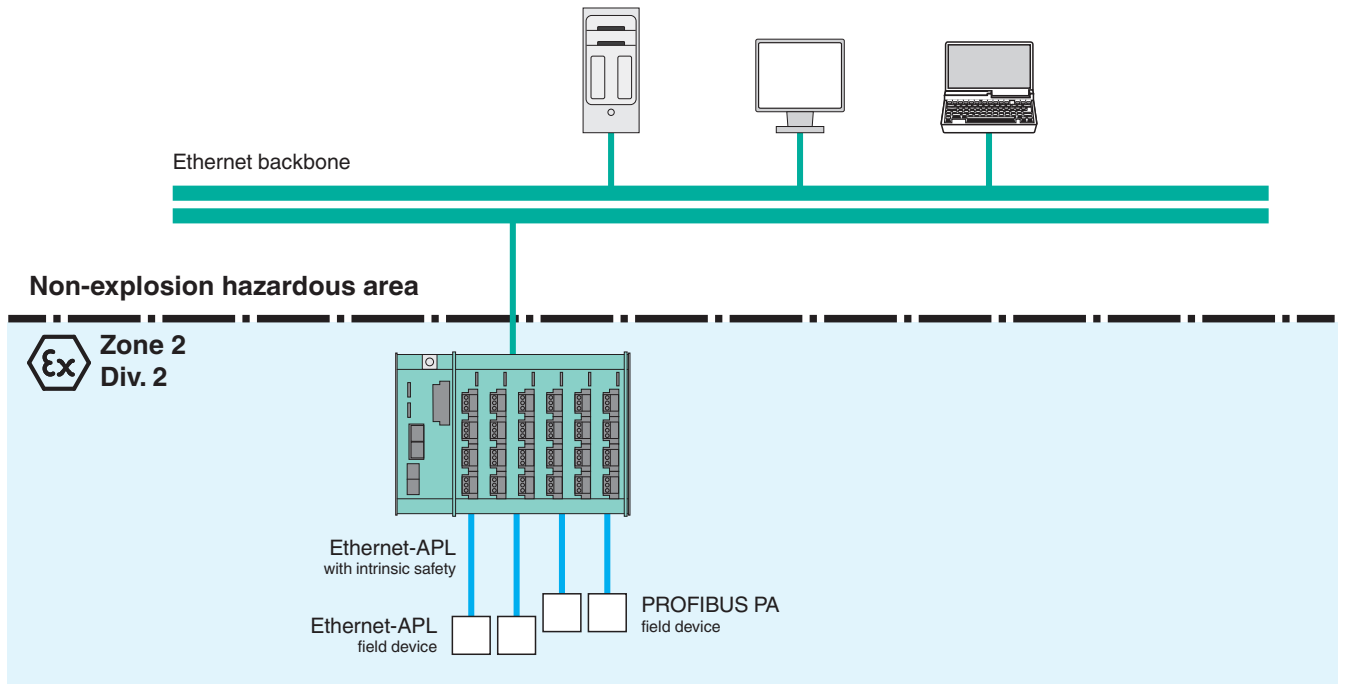
For PROFINET, the APL field switch supports Class B networks. For high-availability installations, the APL field switch provides redundancy mechanisms such as MRP ring redundancy and S2 system redundancy.

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.

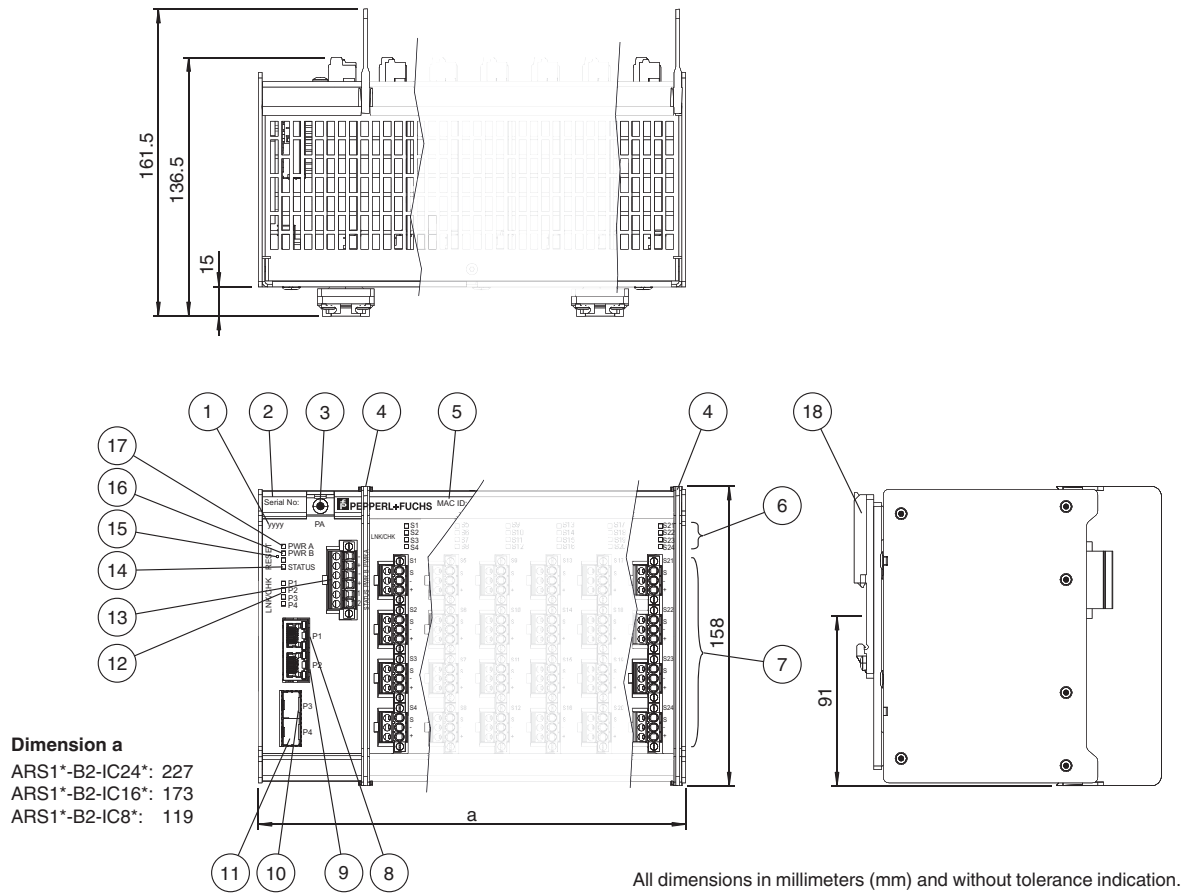
# Function Principle



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**Dimensions**

**DIN Rail Mounting**



- 1 Year of production
- 2 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 <sub>r</sub>       | 20 ... 60 V    |
| Rated current                  | I <sub>r</sub>       | 0.37 ... 1.1 A |
| Power dissipation              | 13.2 W               |                |

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## Technical Data

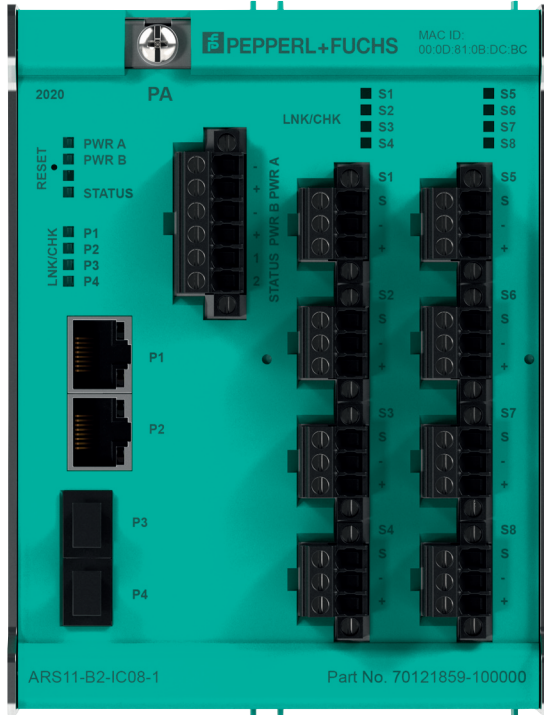
|                                       |  |
|---------------------------------------|--|
| Voltage difference dual supply input  | +/- 10 %   |
| Power consumption                     | max. 22 W  |
| Redundancy                            | dual supply input  |
| <b>Indicators/operating means</b>     |  |
| LED PWR A/B                           | green: power on  |
| LED LNK/CHK                           | Off: no communication link active ,<br>Green: communication link active ,<br>Green flashing: communication link activity ,<br>Yellow flashing: communication with PROFIBUS PA field device ,<br>Red flashing: check function |
| LED STATUS                            | Off: Good ,<br>Blue: Maintenance required ,<br>Red: Failure  |
| Fault signal                          | VFC alarm 100 mA, 32 V DC, normally closed   |
| Button                                | Device reset   |
| <b>Interface 1</b>                    |  |
| Interface type                        | Ethernet-APL : 1 Vpp option spur connection , PROFIBUS PA  |
| Port classification                   | S P C C  |
| Number of ports                       | 8  |
| Port identification                   | S 1 ... S 8  |
| Power option                          | powered  |
| Transfer rate                         | 10 MBit/s full duplex  |
| Rated voltage                         | 11.61 V  |
| Rated current                         | 95 mA  |
| Rated power                           | 1.11 W   |
| Cable shield grounding option         | capacitive grounded  |
| Connection type                       | screw terminals , pluggable  |
| Conductor cross section solid wire    | 0.34 ... 2.5 mm <sup>2</sup> , 14 ... 22 AWG   |
| Conductor cross section flexible wire | 0.34 ... 2.5 mm <sup>2</sup> , 14 ... 22 AWG   |
| <b>Interface 2</b>                    |  |
| 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  |
| <b>Interface 3</b>                    |  |
| Interface type                        | Slot for SFP transceiver SFP Multi-Source (MSA) compliant  |
| Number of ports                       | 2  |
| Port identification                   | P 3 ... P 4  |
| <b>Galvanic isolation</b>             |  |
| Spurs/Supply                          | 1500 V AC  |
| SFP/Supply                            | 500 V AC   |
| 1000BASE-T/Supply                     | 1500 V AC  |
| 1000BASE-T/Spurs                      | 1500 V AC  |
| 1000BASE-T/1000BASE-T                 | 1500 V AC  |
| Housing/All                           | 620 V AC   |
| Fault signal/All                      | 1500 V AC  |
| <b>Directive conformity</b>           |  |
| Electromagnetic compatibility         |  |
| Directive 2014/30/EU                  | EN 61326-1:2013  |
| <b>Conformity</b>                     |  |
| Galvanic isolation                    | IEC 61010-1  |
| Electromagnetic compatibility         | EN 61326 , NE 21   |
| Degree of protection                  | IEC 60529  |

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## Technical Data

|  |       |   |
|--|-------|---|
| 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   |
| <b>Software</b>  |       |   |
| 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   |
| <b>Cybersecurity</b>   |       |   |
| <b>Ambient conditions</b>                                      |       |   |
| Ambient temperature  |       | -40 ... 70 °C (-40 ... 158 °F) horizontally mounted no SFP installed<br>-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  |
| <b>Mechanical specifications</b>                               |       |   |
| Housing material   |       | stainless steel 1.4301 , Polycarbonate  |
| Degree of protection   |       | IP20  |
| Mass   |       | 2100 g  |
| <b>Dimensions</b>  |       |   |
| Height   |       | 158 mm  |
| Width  |       | 119 mm  |
| Depth  |       | 136.5 mm  |
| Mounting   |       | DIN rail mounting , wall mounting   |
| <b>Data for application in connection with hazardous areas</b> |       |   |
| EU-type examination certificate                                |       | TÜV 20 ATEX 8571 X  |
| Marking  |       | Ⓜ II 3 G Ex ic ec nC [ic] IIC T4 Gc<br>Ⓜ II (3) D [Ex ic Dc] IIIC   |
| <b>Supply</b>  |       |   |
| Maximum safe voltage   | $U_m$ | 60 V  |
| <b>Interface 1</b>   |       |   |
| 2-WISE power source, FISCO power supply                        |       |   |
| Voltage $U_o$  |       | 17.5 V  |
| Current $I_o$  |       | 105 mA  |
| <b>Interface 2</b>   |       |   |
| Maximum safe voltage $U_m$                                     |       | 60 V  |
| <b>Interface 3</b>   |       |   |
| Maximum safe voltage $U_m$                                     |       | 60 V  |
| <b>Directive conformity</b>                                    |       |   |
| Directive 2014/34/EU   |       | EN 60079-0:2018 , EN 60079-11:2012 , EN 60079-7:2015+A1:2018 , EN 60079-15:2019 , IEC TS 60079-47:2021  |
| <b>International approvals</b>                                 |       |   |
| IECEX approval   |       | IECEX TUR 20.0105X  |
| Approved for   |       | Ex ic ec nC [ic] IIC T4 Gc<br>[Ex ic Dc] IIIC   |
| <b>Certificates and approvals</b>                              |       |   |
| Patents  |       | This product may be covered by the following patent: US 9,762,409   |
| <b>General information</b>                                     |       |   |
| Supplementary information                                      |       | Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> . |

**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 | - | IC | (2) | - | (3) |
| <b>ARS1</b> | <b>Device</b>                       |   |   |   |    |     |   |     |
| ARS1        | Ethernet-APL Rail Field Switch      |   |   |   |    |     |   |     |
| <b>(1)</b>  | <b>PROFIBUS PA Proxy</b>            |   |   |   |    |     |   |     |
| 1           | With proxy                          |   |   |   |    |     |   |     |
| 2           | Without proxy                       |   |   |   |    |     |   |     |
| <b>B</b>    | <b>Power Supply</b>                 |   |   |   |    |     |   |     |
| B           | Separately powered 20 V ... 60 V    |   |   |   |    |     |   |     |
| <b>2</b>    | <b>Uplink Ports</b>                 |   |   |   |    |     |   |     |
| 2           | 2 ports each for RJ45 and SFP slots |   |   |   |    |     |   |     |
| <b>IC</b>   | <b>Intrinsic Safety at Spurs</b>    |   |   |   |    |     |   |     |
| IC          | Ex ic IIC                           |   |   |   |    |     |   |     |
| <b>(2)</b>  | <b>Spur Port Count</b>              |   |   |   |    |     |   |     |
| 08          | Spur ports                          |   |   |   |    |     |   |     |
| 16          | Spur ports                          |   |   |   |    |     |   |     |
| 24          | Spur ports                          |   |   |   |    |     |   |     |
| <b>(3)</b>  | <b>Pluggable Terminal Types</b>     |   |   |   |    |     |   |     |
| 1           | Screw terminals                     |   |   |   |    |     |   |     |
| 2           | Spring terminals                    |   |   |   |    |     |   |     |

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