

Segment Protector for Cabinet Installation

R2-SP-IC*

- 4 ... 12 outputs Ex ic (FISCO or Entity) or non-incendive (Div 2)
- Advanced fault isolation at the spur
- Segment Protector in Zone 2/Div. 2
- Instruments in Zone 2/Div. 2 or Zone 1/Div. 1
- For FOUNDATION Fieldbus H1 and PROFIBUS PA
- Advanced Diagnostics at the spur
- Power, Com, Diagnostics, and Error LEDs
- T-connector for easy installation and maintenance
- Test points for easy troubleshooting



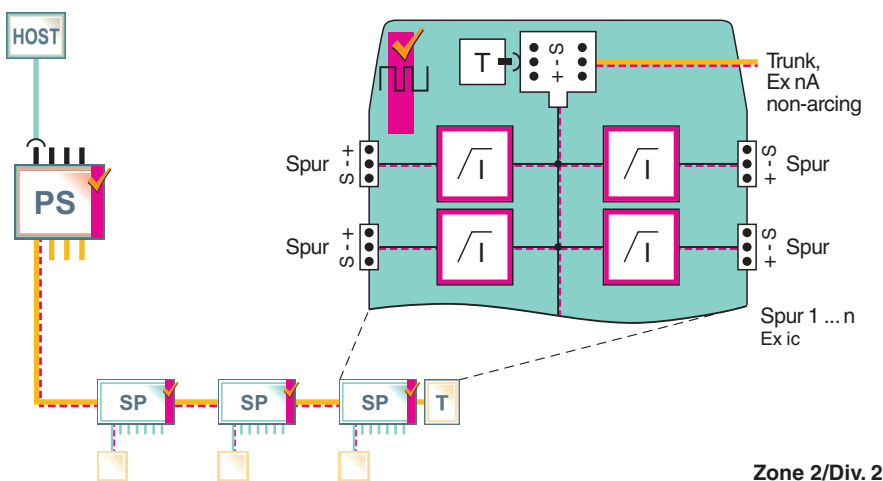
Function

The R2 Segment Protector with integrated diagnostics, a device coupler for DIN rail installation, connects 4 ... 12 instruments to the segment with intrinsic safety (Ex ic, Zone 2/Div. 2). Device connections in Zone 1/Div. 1 require additional methods of ignition protection. Short-circuit, jabber, and bounce protection isolates most fault condition types from the segment. The short-circuit limit is adjustable for maximum load with Ex ic for gas groups IIB and IIC.

The T-connector at the trunk allows for exchange of a Segment Protector with no effect on the remaining segment. The terminator is mounted at the 'T' and removed for network extensions ensuring proper termination.

Short circuit protection ensures proper operation of the segment in case of unwanted faults at the spur. Intrinsic safety at the spur enables work on devices with hot work permit. The integrated fieldbus terminator features a high-availability design.

Connection



Zone 2/Div. 2

Technical Data

General specifications

Design / Mounting Cabinet installation

Fieldbus interface

Main cable (Trunk)

Rated voltage 9 ... 31 V DC
10.5 V DC minimum input voltage acc. to FF-846

Rated current max. 4.5 A

Outputs

Number of outputs see table "Technical data depending on model"

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

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Technical Data

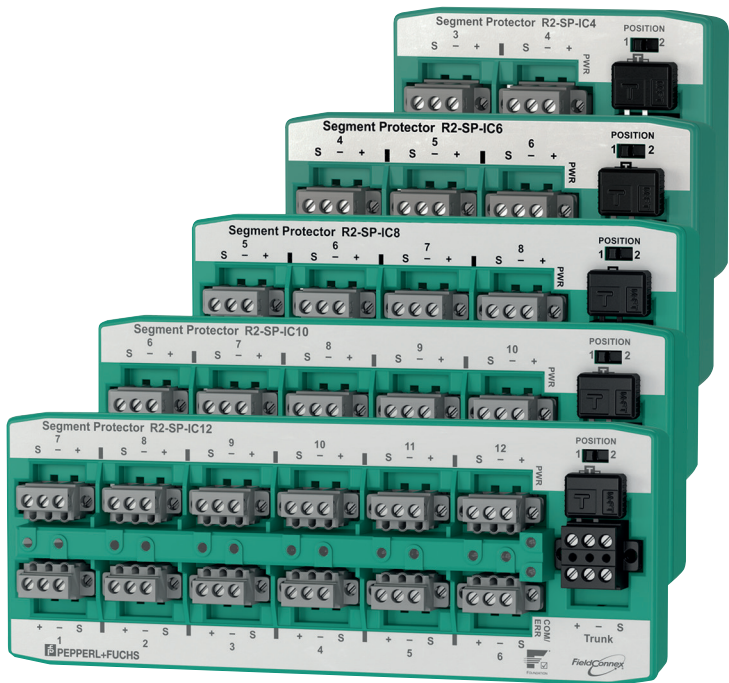
| | | |
|--|----------------|--|
| Number of devices per output | | 1 |
| Rated voltage | | max. 31 V |
| Rated current | | max. 32 mA switch 1, position 1 max. 43 mA switch 1, position 2 |
| Short-circuit current | | 46 mA switch 1, position 1 57 mA switch 1, position 2 |
| Self current consumption | | see table "Technical data depending on model" |
| Voltage drop main cable/outputs | | max. 1.2 V |
| Voltage drop trunk In/Out | | 0 V |
| Terminating resistor | | external type M-FT 100 Ω +/- 10 % |
| Surge protection | | Trunk overvoltage protection if voltage exceeds typ. 39 V, max. 41 V |
| Indicators/operating means | | |
| Switch | | configuration of short-circuit current/rated current |
| LED PWR | | green: Fieldbus voltage > 10 V and fieldbus terminator is deactivated |
| LED COM/ERR | | yellow: flashing: fieldbus communication status and physical layer diagnostic status |
| LED SPURS | | red: 2 Hz flashing in short-circuit condition |
| Directive conformity | | |
| Electromagnetic compatibility | | |
| Directive 2014/30/EU | | EN 61326-1:2013 |
| Standard conformity | | |
| Electromagnetic compatibility | | NE 21:2011 |
| Degree of protection | | IEC 60529 |
| Fieldbus standard | | IEC 61158-2 |
| Climatic conditions | | IEC 60721 |
| Shock resistance | | EN 60068-2-27 |
| Vibration resistance | | EN 60068-2-6 |
| Ambient conditions | | |
| Ambient temperature | | -50 ... 70 °C (-58 ... 158 °F) |
| Storage temperature | | -50 ... 85 °C (-58 ... 185 °F) |
| Relative humidity | | < 95 % non-condensing |
| Shock resistance | | 15 g 11 ms |
| Vibration resistance | | 1 g, 10 ... 150 Hz |
| Corrosion resistance | | acc. to ISA-S71.04-1985, severity level G3 |
| Mechanical specifications | | |
| Connection type | | pluggable, screw terminal or spring terminal |
| Core cross-section | | see table 2 |
| Housing material | | Polycarbonate |
| Degree of protection | | IP20 |
| Mass | | see table "Technical data depending on model" |
| Dimensions | | see table "Technical data depending on model" |
| Mounting | | DIN rail mounting |
| Data for application in connection with hazardous areas | | |
| EU-type examination certificate | | TÜV 12 ATEX 098651 X |
| Marking | | Ⓔ II 3 G Ex nA [ic] IIC T4 Gc Ⓔ II (3 D) [Ex ic Dc] IIIC |
| Supply | | |
| Maximum safe voltage | U _m | 35 V |
| Outputs | | |
| Voltage | U _o | 32 V |
| Current | I _o | 46 mA switch 1, position 1 65 mA switch 1, position 2 |
| Inductance | L _o | 0.125 mH switch 1, position 1 0.25 mH switch 1, position 2 |
| Capacitance | C _o | 60 nF |
| Directive conformity | | |

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Technical Data

| | |
|-----------------------------------|---|
| Directive 2014/34/EU | EN 60079-0:2012 , EN 60079-11:2012 , EN 60079-15:2010 |
| International approvals | |
| UL approval | E106378 |
| Control drawing | 116-0406 |
| Approved for | Class I, Division 2, Groups A, B, C, D |
| IECEX approval | IECEX TUN 12.0015X |
| Approved for | Ex nA [ic] IIC T4 Gc [Ex ic Dc] IIIC |
| Certificates and approvals | |
| Marine approval | DNV A-14038 |
| General information | |
| Supplementary information | Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com . |

Assembly



Matching System Components







| | |
|--|------------------------------------|
| | F.SP5.P**.B**.1.0.***.***. ***0 |
| | F.SP5.S**.B**.1.0.***.***. ***0 |

Accessories

| | |
|----------|--|
| M-FT | Fieldbus terminator |
| T-CON.3 | T-Connector as Accessory, 3 pcs. |
| TP-CON.3 | Fieldbus Plug Sockets with Test Points, 4 pcs. |

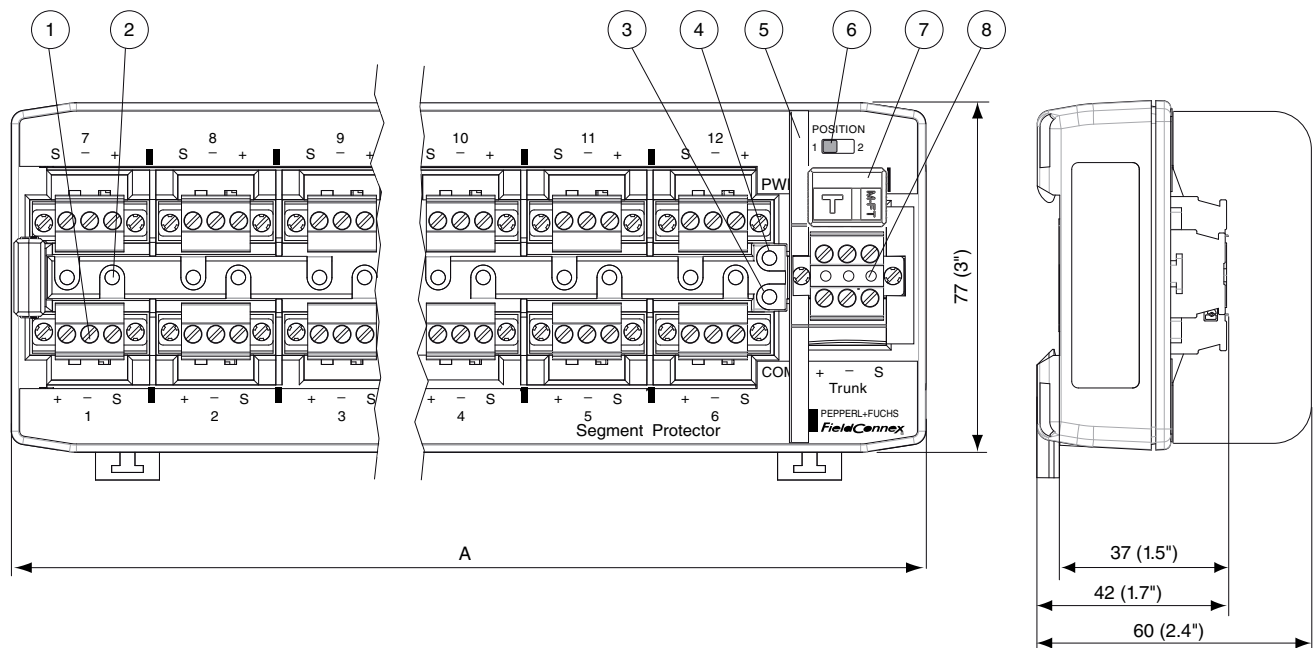
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Accessories

| | | |
|---|----------------------------|--|
|  | TCP-LBF-IA1.36.IE* | |
|  | TCP-LBF-IA1.36.IE.0 | Surge Protector for Plugging onto the Trunk, Ex ia |
|  | TCP-LBF-IA1.36.IE.1 | Surge Protector for Plugging onto the Trunk, Ex ia with Integrated Diagnostics |
|  | SCP-LBF-IA1.36.IE* | |
|  | SCP-LBF-IA1.36.IE.0 | Surge Protector, Pluggable onto the device coupler for the Spur, Ex ia |
|  | SCP-LBF-IA1.36.IE.1 | Surge Protector, Pluggable onto the device coupler for the Spur, Ex ia with Integrated Diagnostics |
| | ACC-LBF-EB.6 | 6x Grounding Rail for Surge Protection, SCP-LBF*, R2-SP*, and R4D0-FB* |
| | ACC-LBF-SW.3 | Separation Wall for Installation on the Surge Protector TCP-LBF*, 3 pcs., Ex ic Applications |
| | ACC-R2-SW.3 | Separation Wall for Ex ic Applications |

Additional Information

Dimensions and Assembly



All dimensions in millimeters (mm) and inches (") and without tolerance indication.

Description:

- 1 Connection spur 1
- 2 LED ERR spur 1 (red, short circuit)
- 3 LED COM/ERR (communication/diagnostics)
- 4 LED PWR (power)
- 5 Separation wall ACC-R2-SW.3
- 6 Switch, short circuit current selection
- 7 Terminator M-FT, removable
- 8 T-connector T-CON.3

Housing height "A" see table "Technical data depending on model".

Installation

see manual

Electrical Connection

Table 1: Technical data depending on model

| | R2-SP-IC4* | R2-SP-IC6* | R2-SP-IC8* | R2-SP-IC10* | R2-SP-IC12* |
|--------------------------|--------------|---------------|---------------|-------------|-------------|
| Number of outputs | 4 | 6 | 8 | 10 | 12 |
| Housing height (A) | 93 mm (3.7") | 121 mm (4.7") | 148 mm (5.8") | 177 mm (7") | 205 mm (8") |
| Mass | 130 g | 180 g | 230 g | 280 g | 330 g |
| Quiescent current | max. 15 mA | max. 17 mA | max. 17 mA | max. 19 mA | max. 19 mA |
| Power loss at 31 V input | 470 mW** | 530 mW** | 530 mW** | 590 mW** | 590 mW** |

** + 10 mW per spur at 20 mA load

Table 2: Wire cross section

| Wire cross section | | Trunk terminals | Spur terminals |
|--------------------|---------------|-------------------------|-------------------------|
| Screw terminal | flexible wire | 0.2-2.5 mm ² | 0.2-2.5 mm ² |
| | rigid wire | 0.2-2.5 mm ² | 0.2-2.5 mm ² |

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|-----------------|---------------|-------------------------|-------------------------|
| Spring terminal | flexible wire | 0.5-2.5 mm ² | 0.2-2.5 mm ² |
| | rigid wire | 0.5-2.5 mm ² | 0.2-2.5 mm ² |

Type Code

Type of housing

R2 DIN mounting rail housing for cabinet installation

Function

SP Segment Protector

Explosion protection method

IC Ex ic, non-incendive field wiring rated spur outputs

Number of outputs (equipped with screw terminals)

- 04 4 spurs
- 06 6 spurs
- 08 8 spurs
- 10 10 spurs
- 12 12 spurs

Alternative terminal options

- 1 Spring terminals (instead of screw terminals)

| | | | | | | | |
|----|---|----|---|----|---|---|---|
| R2 | - | SP | - | IC | | . | |
| A | - | B | - | C | D | E | F |

Delivery

Scope of Delivery

| Type code | Description |
|-------------------------|--|
| 1 x M-FT | Fieldbus Terminator |
| 1 x T-CON.3 | T-Connector |
| 1 x TP-CON.3 per output | Fieldbus plug sockets with test points |