

Features

- 4 ... 10 outputs Ex ic (FISCO or Entity)
- Advanced fault isolation at the spur
- Segment Protector in Zone 2
- Instruments in Zone 2 or Zone 1
- For FOUNDATION Fieldbus H1 and PROFIBUS PA
- Advanced Diagnostics at the spur
- Power, Com, Terminator, Diagnostics, and Error LEDs

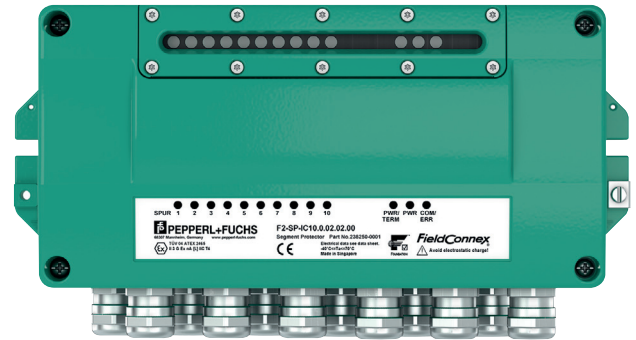
Function

The F2 Segment Protector with integrated diagnostics, a device coupler in aluminum housing, connects 4 ... 10 instruments to the segment with intrinsic safety (Ex ic, Zone 2). Device connections in Zone 1 require additional methods of ignition protection. Pre-engineering options are: cable glands in various materials; a choice of fixed or plug-in terminals with screw or spring-clamp connections. Short circuit, jabber, and bounce protection isolate most fault condition types from the segment.

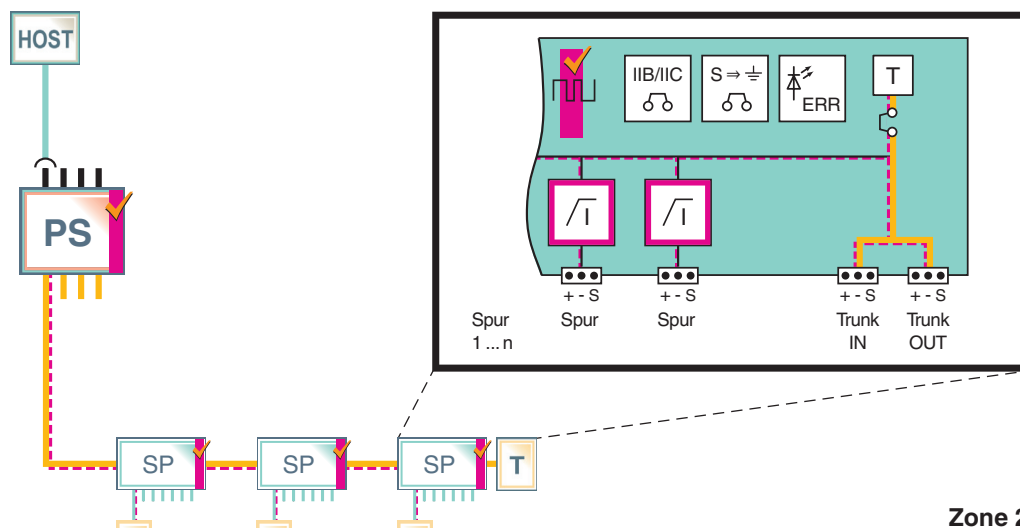
The short circuit current limitation is adjustable for maximum load with Ex ic for gas groups IIB and IIC. The shield can be connected hard-to-ground or floating. A terminator with LED indication is selectable via jumper.

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 and can be chosen via a jumper.

Assembly





Connection



Zone 2

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General specifications		
Design / Mounting	Outside 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	≤ 4.5 A	
Outputs		
Number of outputs	see table "Technical data depending on model"	
Number of devices per output	1	
Rated voltage	≤ 31 V	
Rated current	≤ 32 mA jumper 1, position 2 ≤ 43 mA jumper 1, position 1	
Short-circuit current	46 mA jumper 1, position 2 57 mA jumper 1, position 1	
Self current consumption	see table "Technical data depending on model"	
Voltage drop main cable/outputs	≤ 1.2 V	
Voltage drop trunk In/Out	0 V	
Terminating resistor	selectable via Jumper 100 Ω +/- 10 %	
Surge protection	trunk, spurs overvoltage protected if voltage exceeds typ. 39 V, max. 41 V	
Indicators/operating means		
LED PWR	green: Fieldbus voltage > 10 V and fieldbus terminator is deactivated	
LED PWR/TERM	green: Fieldbus voltage > 10 V and fieldbus terminator is activated	
LED COM/ERR	yellow: flashing: fieldbus communication status and physical layer diagnostic status	
LED SPURS	red: 2 Hz flashing in short-circuit condition	
Jumper 1	configuration of short-circuit current/rated current	
Jumper 2	configuration of grounding option for trunk and cable screen/shield	
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU	EN 61326-1:2013	
Standard conformity		
Electromagnetic compatibility		
Degree of protection	NE 21:2011	
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		
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)	
Relative humidity	< 95 % non-condensing	
Shock resistance	15 g , 11 ms	
Vibration resistance	5 g , 10 ... 150 Hz	
Corrosion resistance	acc. to ISA-S71.04-1985, severity level G3	
Mechanical specifications		
Connection type		
Core cross-section	removable screw terminal , removable spring terminal , screw terminal	
Cable diameter	≤ 2.5 mm ² /AWG 12-24	
Cable gland	see table 3	
Housing	see table 2	
Housing material	see figure 1	
Degree of protection	EN 1780-1 46000 , ISO AlSi9Cu3(Fe) , anodized	
Mass	IP66	
Dimensions	max 2.6 kg , depending on model	
Mounting	see table 2	
Data for application in connection with hazardous areas		
EU-type examination certificate	TÜV 13 ATEX 107689 X	
Marking	 II 3 G Ex nAc [ic] IIC T4 ,  II 2(3) D Ex tb [ic] IIIC T130°C (for cable gland version only)	
Supply		
Maximum safe voltage	U _m	35 V
Outputs		
Voltage	U _o	32 V

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Current	I_o	46 mA jumper 1, position 2 65 mA jumper 1, position 1
Inductance	L_o	0.25 mH jumper 1, position 1 0.125 mH jumper 1, position 2
Capacitance	C_o	60 nF
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012 , EN 60079-11:2012 , EN 60079-15:2010 , EN 60079-31:2009
International approvals		
IECEX approval		IECEX TUN 13.0004X
Approved for		Ex nAc [ic] IIC T4 , Ex tb [ic] IIIC T130°C (for cable gland version only)
Certificates and approvals		
FOUNDATION Fieldbus		FF-846
Marine approval		DNV A-14038
General information		
Supplementary information		Statement of Conformity, Declaration of Conformity and instructions have to be observed where applicable. For information see

Type Code/Order Designation

Type of housing

F2 Field housing, aluminum, IP66

Function

SP Segment Protector

Type of protection

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

Number of outputs

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

Terminal options

- 0** Screw terminal, non-pluggable
- 1** Screw terminal, pluggable
- 2** Spring terminal

Trunk entry options³

- 00** M20 stopping plug, plastic
- 02** M20 cable gland, plastic
- 03** M20 cable gland, nickel plated brass
- 04** M20 cable gland, stainless steel
- 05** M20 cable gland, nickel plated brass for armored cable
- 09** M12 plug connection, nickel plated brass FOUNDATION Fieldbus²
- 10** M12 plug connection, nickel plated brass PROFIBUS PA²
- 11** M12 plug connection, stainless steel FOUNDATION Fieldbus¹
- 12** M12 plug connection, stainless steel PROFIBUS PA¹

Spur cable entry options³

- 00** M20 stopping plug, plastic
- 02** M20 cable gland, plastic
- 03** M20 cable gland, nickel plated brass
- 04** M20 cable gland, stainless steel
- 05** M20 cable gland, nickel plated brass for armored cable
- 09** M12 plug connection, nickel plated brass FOUNDATION Fieldbus
- 10** M12 plug connection, nickel plated brass PROFIBUS PA
- 11** M12 plug connection, stainless steel FOUNDATION Fieldbus
- 12** M12 plug connection, stainless steel PROFIBUS PA

Accessory options

- 0** No tag plate
- 1** Tag plate stainless steel incl. printing
- 2** Tag plate stainless steel excl. printing
- 0** No trunk surge protector
- 1** Trunk surge protector

F2	-	SP	-	IC
A	-	B	-	C	D	E	F	G	H	I		

Note:

- ¹ If no surge protector is selected, one trunk entry is closed with a stainless steel stopping plug.
 - ² If no surge protector is selected, one trunk entry is closed with a plastic stopping plug.
 - ³ Only options with cable glands are permitted for dust hazardous areas.
- Contact your Pepperl+Fuchs representative to check the availability of individual variants.

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Dimensions

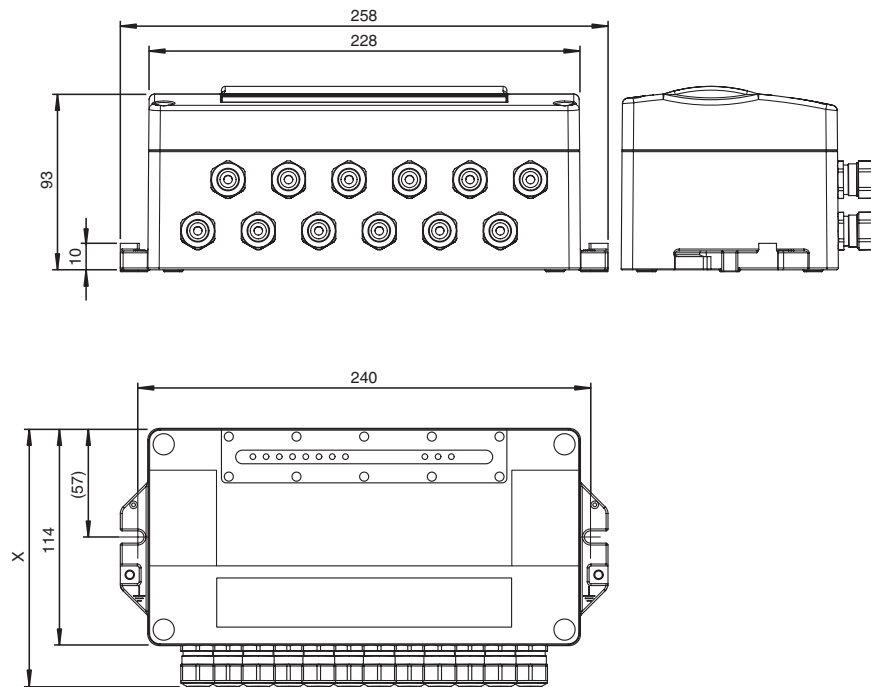


Figure 1: Housing dimensions

All dimensions in millimeters (mm) and without tolerance indication.
Height "X" see table 2.

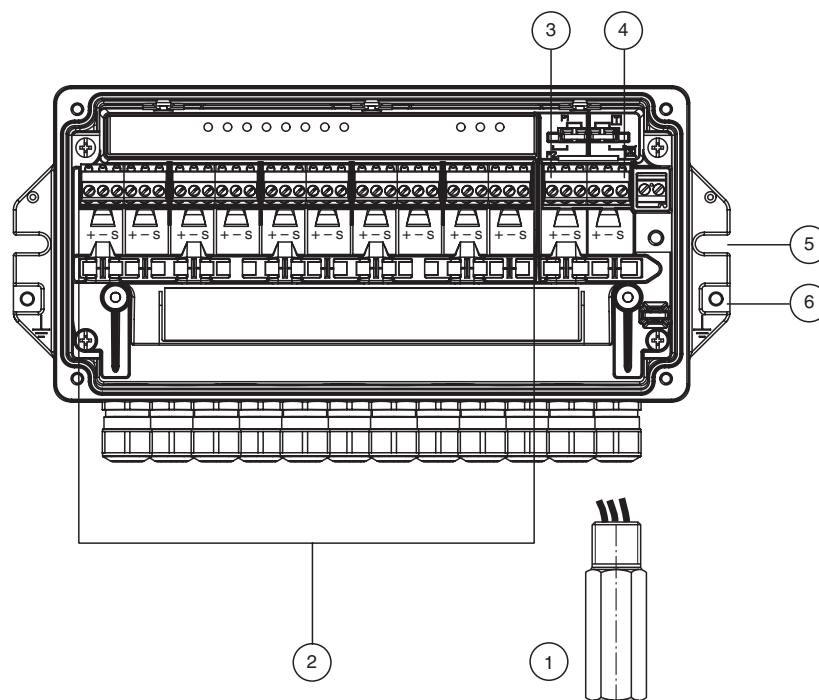


Figure 2: Component overview

Description:

- 1 Surge protector (preinstalled option)
- 2 Spur terminals
- 3 Trunk IN
- 4 Trunk OUT
- 5 Notch for fixing with screw M6
- 6 Grounding point

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Electrical Connection

Table 1: Technical Data Depending on Model

Number of outputs	4	8	10
Quiescent current	max. 15 mA	max. 17 mA	max. 19 mA
Power dissipation at 31 V input	470 mW**	530 mW**	590 mW**

** + 10 mW per spur at 20 mA load

Table 2: Variants of Cable Connections, Housing Types, and Temperature Ranges

Type of connection		Number of outputs				Fixed screw	Pluggable screw	Pluggable spring terminal	Height "X" (mm) ¹	AF (mm)	Temperature range (°C)
		4	6	8	10						
00	Stopping plug plastic	x	x	x	x	x	x	x	120	8	-40 ... +70
02	Cable glands plastic	x	x	x	x	x	x	x	150	24	-40 ... +70
03	Cable glands nickel plated brass	x	x	x	x	x	x	x	140	24	-40 ... +70
04	Cable glands stainless steel	x	x	x	x	x	x	x	140	24	-40 ... +70
05	Cable glands nickel plated brass for armored cable	x	x	x	x	x	x	x	160	24	-40 ... +70
09, 10	Plug connection M12 nickel plated brass	x	x	x	n/a	n/a	n/a	n/a	135	n/a	-25 ... +70
11, 12	Plug connection M12 stainless steel	x	x	x	n/a	n/a	n/a	n/a	135	n/a	-25 ... +70

¹ Height "X" including trunk surge protection: 170 mm; available for all variants

Table 3: Cable Diameter Depending on Cable Gland

Type of connection		Cable diameter (mm)
00	Stopping plug plastic	n/a
02	Cable glands plastic	6 ... 13
03	Cable glands nickel plated brass	7 ... 12
04	Cable glands stainless steel	7 ... 12
05	Cable glands nickel plated brass for armored cable	10 ... 16 outside 7 ... 12 inside 0 ... 1.25 armor
09, 10	Plug connection M12 nickel plated brass	n/a
11, 12	Plug connection M12 stainless steel	n/a

Table 4: Pinout of Plug Connections

Outputs:



M12 x 1

Pin	PROFIBUS PA	FOUNDATION Fieldbus
1	PA+	Data-
2	n.c. (GND)	Data+
3	PA-	Shield
4	Shield	n.c. (GND)

Note:

Outputs are always sockets (female).

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