

Features and Benefits

- Power supply of fieldbus segments according to IEC 61158-2
- High power for general purpose or intrinsically safe topologies with Fieldbus Barrier
- High power in the field due to Ex e/ Ex i power feed concept
- Connection of fieldbus trunk in increased safety EEx e
- Installation in zone 1
- Variants for cabinet installation on DIN mounting rail
- Different housing and cable connection variants for installation in the field
- Switchable integrated fieldbus terminator
- Efficient shielding concept due to electrical isolation between the fieldbus trunk and the intrinsically safe outputs



FB 900-SA4



FB 900-SR4

Function

Fieldbus distributor with four individually short-circuit current limited outputs, intrinsically safe (EEx ia IIC) in accordance to FISCO and Entity

Device variants

FB 900-SA4

Aluminium field housing for Fieldbus Barrier with four intrinsically safe outputs EEx ia, trunk EEx e, plastic cable gland

FB 900-SB4

Stainless steel field housing for Fieldbus Barrier with four intrinsically safe outputs EEx ia, trunk EEx e, stainless steel cable gland

FB 900-SR4

Fieldbus Barrier without field housing, for mounting in cabinet on DIN rail, four intrinsically safe outputs EEx ia, trunk EEx e

Functionality

General

In FOUNDATION Fieldbus H1 or PROFIBUS PA topologies for explosion hazardous environments, the Fieldbus Barrier combines three essential functions:

- distribution of the trunk line to up to four branch lines for fieldbus devices
- supply of the connected devices in the explosion protection method "intrinsic safety" (Ex ia IIC)
- protection of the trunk against negative influences due to short circuit current limitation for each branch line

Each output allows the connection of an intrinsically safe field device with a power consumption of up to 40 mA. Each output cable can run up to 120 m without the need for termination.

The trunk connections are designed in protection type "increased safety" (EEx e) and thus allow a high supply current in the fieldbus segment. Several Fieldbus Barrier can be daisy-chained on one trunk. Switchable fieldbus terminators are integrated.

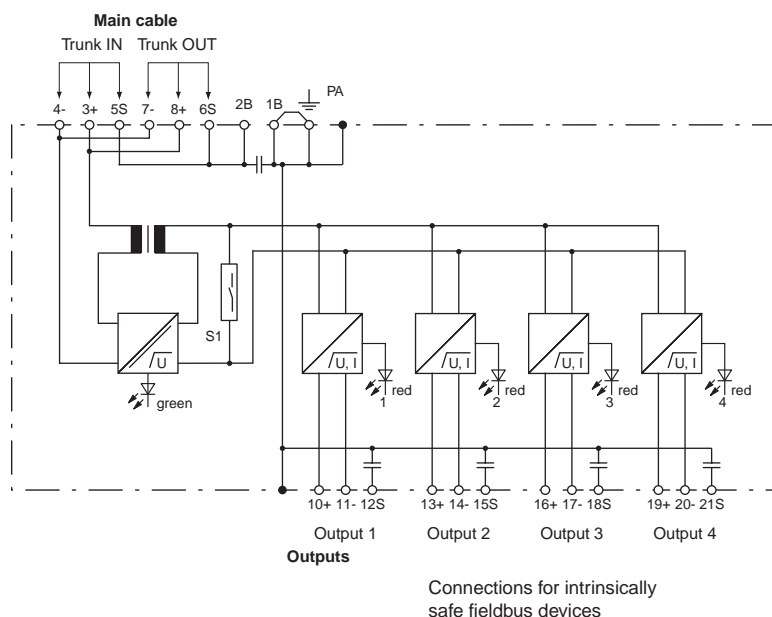
For the interconnection of fieldbus devices (with consideration of the technical data of the FB 900-S*4) Layout Tools are available (price list of the product line 63, Fieldbus and Tools):

- FOUNDATION Fieldbus Layout Tool DTE100, 3KDE633517
- PROFIBUS Layout Tool DTD100, 3KDE633414

For installation and commissioning of the Fieldbus Barrier please refer to the operating instructions 3BDD011862.

Connection

Connections for the non-intrinsically safe fieldbus segment



S1: Fieldbus terminator, switchable

Technical Data

Fieldbus interface	Main cable (Trunk)	
	Connection	input (Trunk IN): terminals 3+, 4-, 5s output (Trunk OUT): terminals 7-, 8+, 6s
	Rated voltage	16 ... 32 V DC
	Rated current	25 mA ... 22 mA (without load) 121 mA ... 74mA (at 20 mA load per input) 230 mA ... 125 mA (at 40 mA load per input) 255 mA ... 135 mA (short-circuit on all outputs)
	Number of Fieldbus Barriers	max. 4 devices per segment
	Outputs	
	Connection	output 1: terminals 10+, 11-, 12S shield; output 2: terminals 13+, 14-, 15S shield; output 3: terminals 16+, 17-, 18S shield; output 4: terminals 19+, 20-, 21S shield
	Rated voltage	≥ 10 V at 40 mA
	Rated current	≤ 40 mA
	Short-circuit current	≤ 50 mA
	Terminating impedance	100 Ω switchable on
Indicators/operating means	LED voltage Fieldbus	green: on, bus voltage existent
	LED state outputs	red flashing: short-circuit
Electrical isolation	Main wire/outputs	isolation is not affected by interference according to EN 50020, voltage peak value 375 V
Directive conformity	Electromagnetic compatibility	
	Directive 89/336/EC	EN 61326
Conformity	Electromagnetic compatibility	NAMUR NE 21
	Protection degree	IEC/EN 60529
	Fieldbus standard	IEC 61158-2
	Climatic conditions	DIN IEC 721
Ambient conditions	Ambient temperature	see table 2
	Storage temperature	-40 ... 85 °C (233 ... 358 K)
	Relative humidity	< 95 % non-condensing
	Degree of soiling	max. 2, according to IEC 60664
Mechanical specifications	Connection type	see table 2
	Core cross-section	up to 2.5 mm ²
	Cable diameter	see table 3
	Cable gland	see table 2
	Housing	see figures
	Housing material	
	FB 900-SR4	PA 6.6
	FB 900-SA4	ALSI12 (Cu) DIN1725 (Si 1,2%), anodised
	FB 900-SB4	1.4404 (S316L)
	Mounting	see table 4


Data for application in conjunction with hazardous areas	EC-Type Examination Certificate Group, category, type of protection, temperature classification	PTB 05 ATEX 2033  II 2 (1G/D) G EEx me [ia] IIC T4
	Main cable (Trunk) Safety maximum voltage U_m	253 V AC
	Outputs Voltage U_o Current I_o Power P_o	15.75 V 248 mA 975 mW
	Directive conformity Directive 94/9 EC	EN 50014, EN 50019, EN 50020, EN 50028

Table 1: Connection of terminals

Terminals	Function
10+, 13+, 16+, 19+	Output EEx ia +
11-, 14-, 17-, 20-	Output EEx ia -
12s, 15s, 18s, 21s	Output shield
3+	Trunk IN, EEx e +
4-	Trunk IN, EEx e -
5s	Trunk IN, shield
7-	Trunk OUT, EEx e -
8+	Trunk OUT, EEx e +
6s	Trunk OUT, shield
1B	Outputs, shield bridge (delivery status)
2B	Trunk
PA	Potential equalization, shield bridge (delivery status)

The terminals 5s and 6s are connected internally with terminal 2B.

The terminals 12s, 15s, 18s and 21s are connected internally with terminal 1B.

The terminal PA is connected to the external earthing point (versions with field housing only).

Changing the bridge from 1B – PA to 1B – 2B changes the shielding concept from "capacitive grounding" to "hard grounding".

Table 2: Variations of cable connections, housing types and temperature ranges

Device variants	Type of cable connection	Height (mm)	SW1 (mm)	SW2 (mm)	Temperature range (°C)
FB 900-SA4	Terminals, cable glands plastic	X = 140	20	24	-30 ... 70
FB 900-SB4	Terminals, cable glands stainless steel	Y = 200	22	24	-40 ... 70
FB 900-SR4	Terminals	–	–	–	-40 ... 70

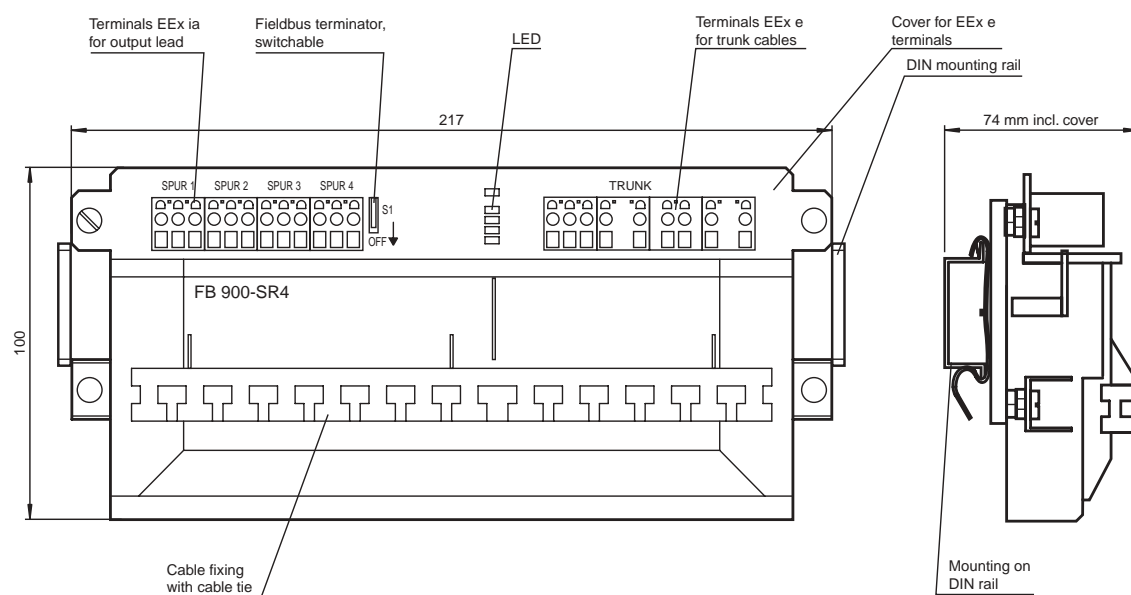
Table 3: Cable diameter depending on cable gland

Device variants	Output cable diameter (mm)	Trunk cable diameter (mm)
FB 900-SA4	5 ... 10	7 ... 12
FB 900-SB4	5 ... 10	7 ... 12

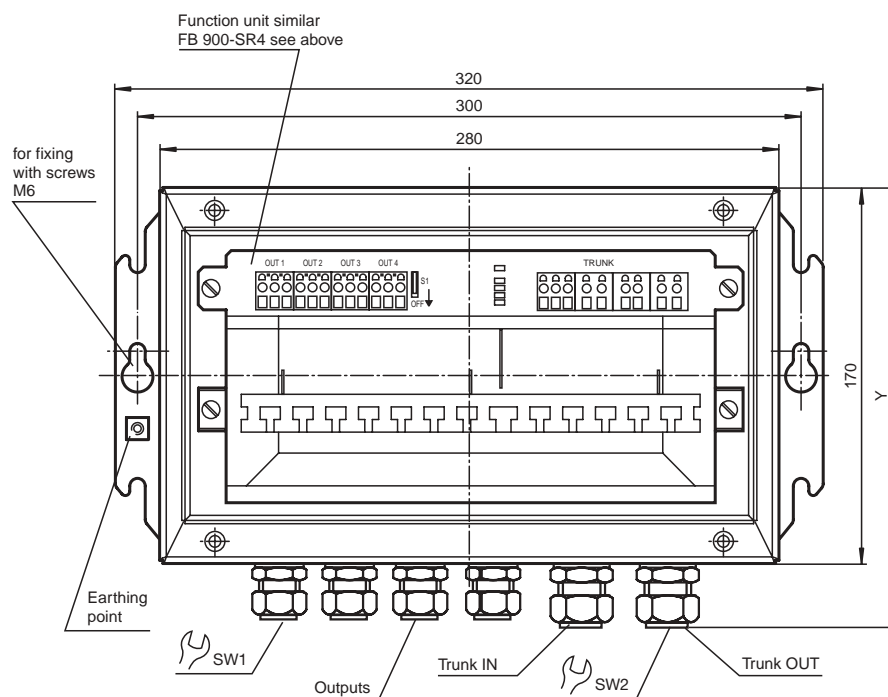
Table 4: Mechanical specifications

Device variants	Protection degree	Mass (g)	Mounting
FB 900-SA4	IP67	3350	Panel mounting
FB 900-SB4	IP66	2500	Panel mounting
FB 900-SR4	IP20	1050	Mounting on DIN rail in cabinet

Dimensions

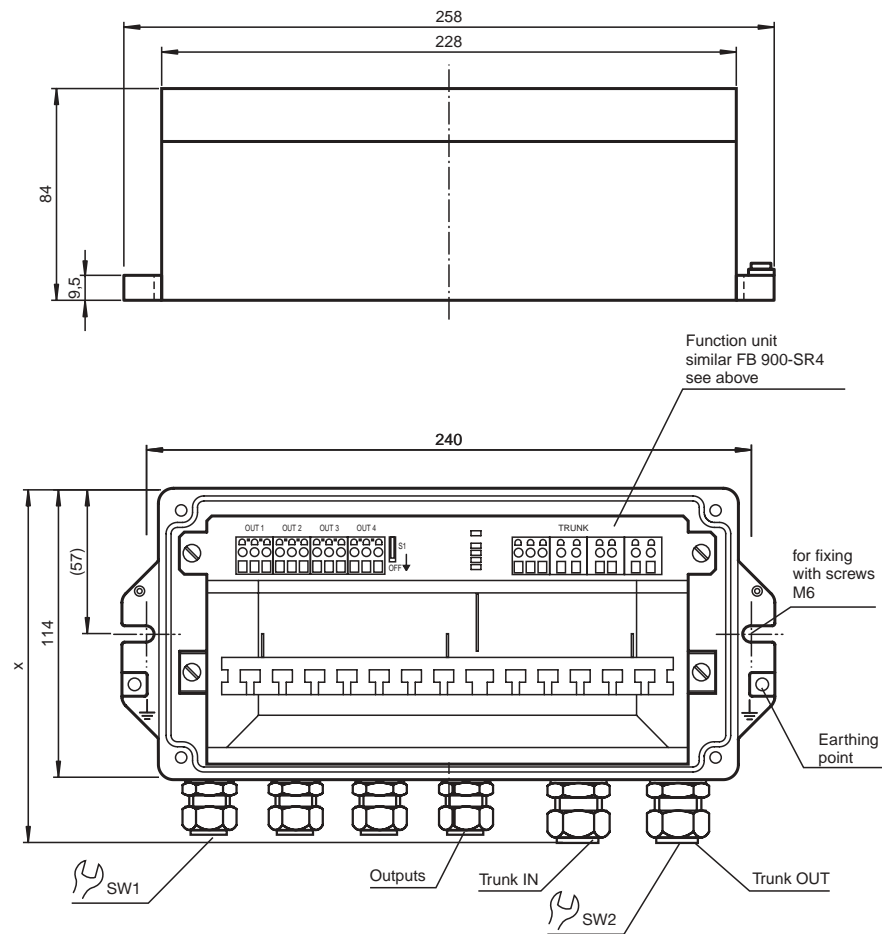


FB 900-SR4 for cabinet installation on DIN rail, terminal connections see table 1



Height of housing: 86 mm

FB 900-SB4 with stainless steel housing, connection variants and dimensions see tables 2 and 3



FB 900-SA4 with aluminium housing, connection variants and dimensions see tables 2 and 3

For more information on Field^{IT}, contact us at fieldbus@de.abb.com
 For the latest information on ABB visit us on the World Wide Web at <http://www.abb.com>



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Automation Technologies
 Wickliffe, Ohio, USA
<http://www.abb.com/controlsystems>
 email: industrialitsolutions@us.abb.com

Automation Technologies
 Västerås, Sweden
<http://www.abb.com/controlsystems>
 email: processautomation@se.abb.com

Automation Technologies
 Mannheim, Germany
<http://www.abb.de/controlsystems>
 email: marketing.control-products@de.abb.com