Блоки модулей ввода/вывода серии FB

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Universal Input/Output (HART)

FB7204B3

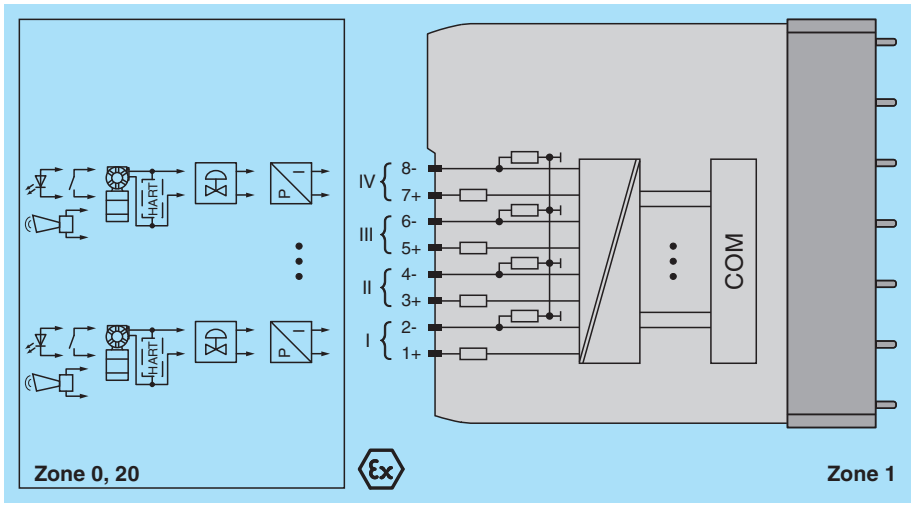
- 4-channel
- Inputs Ex ia, Outputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Analog input, digital input, analog output, digital output
- Supply circuit 21.5 V (4 mA)
- HART communication via field bus or service bus
- Simulation mode for service operations (forcing)
- Line fault detection (LFD): one LED per channel
- Permanently self-monitoring

Function

The device is a configurable universal module. Each channel can operate in the following modes:
- As an analog input (AI) it feeds 2-wire transmitters.
- As an analog output (AO) it can drive proportional valves, I/P converters, or local indicators.
- As a digital input (DI) it reads dry contacts.
- As a digital output (DO) it can drive solenoids, sounders, or LED.

A combination of analog and digital I/O is possible.
Channel LEDs indicate the status of each channel. White LEDs indicate whether AI, AO, DI, DO are selected.
The intrinsically safe signals are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		1
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		2 W
Power consumption		3 W
Internal bus		
Connection		backplane bus

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Technical Data

Interface	manufacturer-specific bus to standard com unit
Analog input	
Number of channels	4
Suitable field devices	
Field device	pressure converter
Field device [2]	flow converter
Field device [3]	level converter
Field device [4]	Temperature Converter
Field device interface	
Connection	2-wire transmitter
Connection	terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Transmitter supply voltage	min. 15 V at 20 mA ; 21.5 V at 4 mA
Input resistance	15 Ω
Line fault detection	can be switched on/off for each channel via configuration tool , configurable via configuration tool
Short-circuit	factory setting: > 21 mA Can be parameterized in the range 0 ... 22 mA
Open-circuit	factory setting: < 3.6 mA Can be parameterized in the range 0 ... 22 mA
HART communication	yes
HART secondary variable	yes
Analog output	
Number of channels	4
Suitable field devices	
Field device	Proportional Valve
Field device [2]	I/P converters
Field device [3]	on-site display
Connection	terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Current	0 ... 20 mA short-circuit protected
Line fault detection	can be switched on/off for each channel via configuration tool , configurable via configuration tool
Short-circuit	factory setting: < 50 Ω configurable between 0 ... 26 mA
Open-circuit	deviation of preset output value > 0.5 mA
Load	max. 750 Ω at 20 mA
HART communication	yes
HART secondary variable	yes
Watchdog	output off 0.5 s after serious fault
Digital input	
Number of channels	4
Sensor interface	
Connection [2]	volt-free contact
Connection	terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Line fault detection	can be switched on/off for each channel via configuration tool
Connection	mechanical switch with additional resistors (see connection diagram)
Short-circuit	> 7 mA
Open-circuit	< 0.1 mA
Digital signals (active)	
Switching point: ON	> 2.1 mA
Switching point: OFF	< 1.2 mA
Digital output	
Number of channels	4
Suitable field devices	
Field device	Solenoid Valve
Field device [2]	audible alarm
Field device [3]	visual alarm
Connection	terminals 1+, 2-, 3+, 4-, 5+, 6-, 7+, 8-

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Technical Data

Drive capability		12 V / 22 mA
Internal resistor	R_i	385 Ω
Current limit	I_{max}	22 mA
Open loop voltage	U_s	min. 22.7 V
Line fault detection		can be switched on/off for each channel via configuration tool
Test current		0.4 mA
Short-circuit		< 50 Ω
Open-circuit		< 0.2 mA
Transfer characteristics		
Deviation		
After calibration		0.1 % of the signal range at 20 °C (68 °F)
Influence of ambient temperature		0.1 %/10 K of the signal range
Resolution		12 Bit (0 ... 26 mA)
Refresh time		approx. 100 ms (4 channels)
Indicators/settings		
LED indication		Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1-4) red: line fault (lead breakage or short circuit) , yellow: state of digital I/O (0/1) Configuration LED (AI, AO, DI, DO) white: selected channel mode
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 425 g
Dimensions		28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14057U
Marking		⟨Ex⟩ II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Supply		

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Technical Data

Voltage	U_o	27 V
Current	I_o	87 mA
Power	P_o	575 mW (linear characteristic)
Input		Ex ia
Voltage	U_o	27 V
Current	I_o	87 mA
Power	P_o	575 mW (linear characteristic)
Internal capacitance	C_i	0 nF
Internal inductance	L_i	0 mH
Output		Ex ia
Voltage	U_o	27 V
Current	I_o	87 mA
Power	P_o	575 mW (linear characteristic)
Galvanic isolation		
Rated voltage	U_m	250 V field circuits to control and supply circuits
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14057U
IECEx approval		IECEx PRE 19.0012U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.

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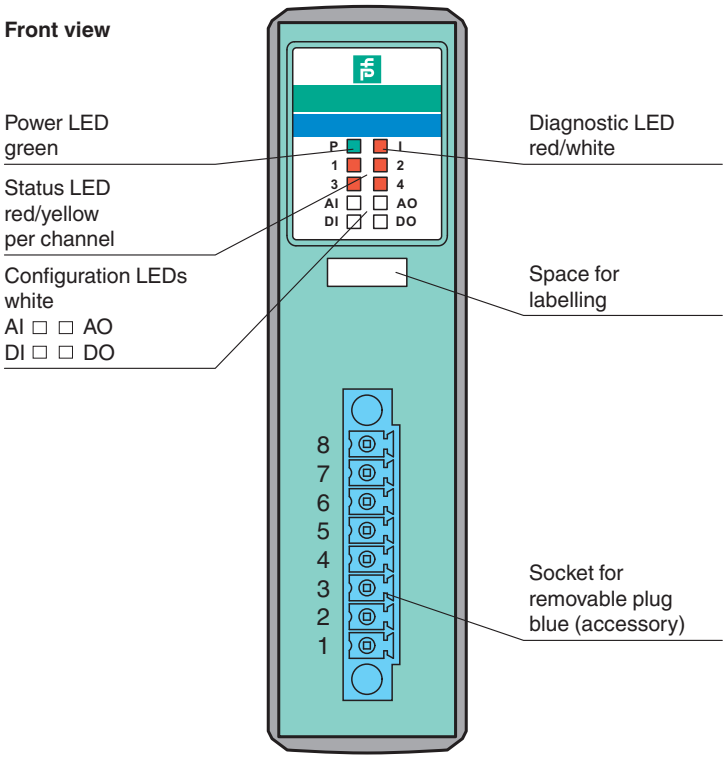
Assembly

Front view



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Universal Input/Output (HART)

FB7304B3

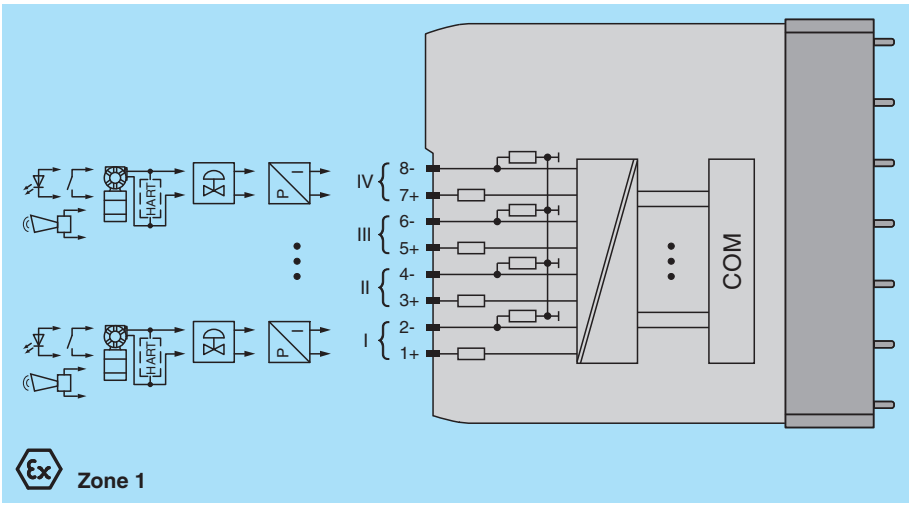
- 4-channel
- Inputs with plug-in Ex e terminals
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Analog input, digital input, analog output, digital output
- Supply circuit 21.5 V (4 mA)
- HART communication via field bus or service bus
- Simulation mode for service operations (forcing)
- Line fault detection (LFD): one LED per channel
- Permanently self-monitoring

Function

The device is a configurable universal module. Each channel can operate in the following modes:
- As an analog input (AI) it feeds 2-wire transmitters.
- As an analog output (AO) it can drive proportional valves, I/P converters, or local indicators.
- As a digital input (DI) it reads dry contacts.
- As a digital output (DO) it can drive solenoids, sounders, or LED.

A combination of analog and digital I/O is possible.
Channel LEDs indicate the status of each channel. White LEDs indicate whether AI, AO, DI, DO are selected.
The intrinsically safe signals are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		1
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		2 W
Power consumption		3 W
Internal bus		
Connection		backplane bus

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Technical Data

Interface	manufacturer-specific bus to standard com unit
Analog input	
Number of channels	4
Suitable field devices	
Field device	pressure converter
Field device [2]	flow converter
Field device [3]	level converter
Field device [4]	Temperature Converter
Field device interface	
Connection	2-wire transmitter
Connection	terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Transmitter supply voltage	min. 15 V at 20 mA ; 21.5 V at 4 mA
Input resistance	15 Ω
Line fault detection	can be switched on/off for each channel via configuration tool , configurable via configuration tool
Short-circuit	factory setting: > 21 mA Can be parameterized in the range 0 ... 22 mA
Open-circuit	factory setting: < 3.6 mA Can be parameterized in the range 0 ... 22 mA
HART communication	yes
HART secondary variable	yes
Analog output	
Number of channels	4
Suitable field devices	
Field device	Proportional Valve
Field device [2]	I/P converters
Field device [3]	on-site display
Connection	terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Current	0 ... 20 mA short-circuit protected
Line fault detection	can be switched on/off for each channel via configuration tool , configurable via configuration tool
Short-circuit	factory setting: < 50 Ω configurable between 0 ... 26 mA
Open-circuit	deviation of preset output value > 0.5 mA
Load	max. 750 Ω at 20 mA
HART communication	yes
HART secondary variable	yes
Watchdog	output off 0.5 s after serious fault
Digital input	
Number of channels	4
Sensor interface	
Connection [2]	volt-free contact
Connection	terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Line fault detection	can be switched on/off for each channel via configuration tool
Connection	mechanical switch with additional resistors (see connection diagram)
Short-circuit	> 7 mA
Open-circuit	< 0.1 mA
Digital signals (active)	
Switching point: ON	> 2.1 mA
Switching point: OFF	< 1.2 mA
Digital output	
Number of channels	4
Suitable field devices	
Field device	Solenoid Valve
Field device [2]	audible alarm
Field device [3]	visual alarm
Connection	terminals 1+, 2-, 3+, 4-, 5+, 6-, 7+, 8-

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Technical Data

Drive capability		12 V / 22 mA
Internal resistor	R_i	385 Ω
Current limit	I_{max}	22 mA
Open loop voltage	U_s	min. 22.7 V
Line fault detection		can be switched on/off for each channel via configuration tool
Test current		0.4 mA
Short-circuit		< 50 Ω
Open-circuit		< 0.2 mA
Transfer characteristics		
Deviation		
After calibration		0.1 % of the signal range at 20 °C (68 °F)
Influence of ambient temperature		0.1 %/10 K of the signal range
Resolution		12 Bit (0 ... 26 mA)
Refresh time		approx. 100 ms (4 channels)
Indicators/settings		
LED indication		Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1-4) red: line fault (lead breakage or short circuit) , yellow: state of digital I/O (0/1) Configuration LED (AI, AO, DI, DO) white: selected channel mode
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21:2007
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-25 ... 85 °C (-13 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 425 g
Dimensions		28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		FIDI 21 ATEX 0013 U
Marking		⟨Ex⟩ II 2G Ex db eb q IIC Gb
Galvanic isolation		
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V

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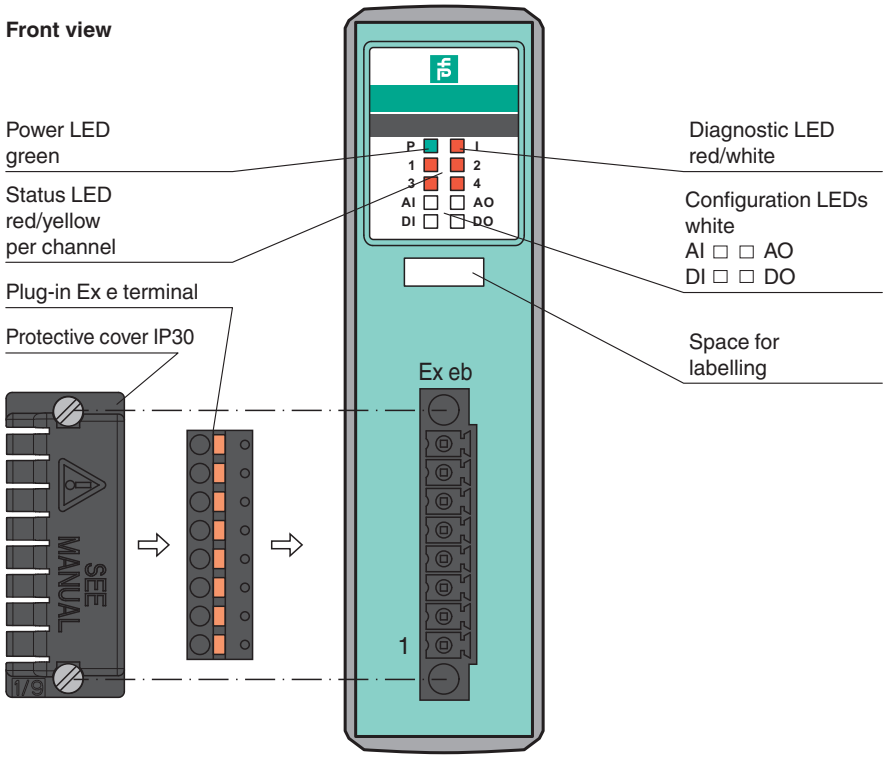
Technical Data

Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018
International approvals		
ATEX approval		FIDI 21 ATEX 0013 U
IECEx approval		
IECEx certificate		IECEx FIDI 21.0003U
IECEx marking		Ex db eb q IIC Gb
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



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Power supply

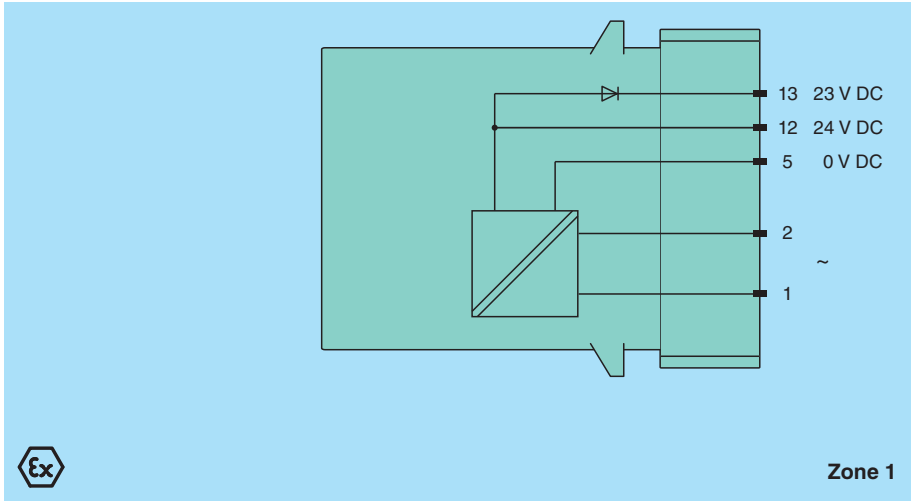
FB9205C

- Power supply for 95 - 230 V AC
- Suitable for the supply of FOL, field products (analyzers, level meters etc.)
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Use two power supplies for redundancy
- Galvanic isolation to mains

Function

The power supply provides power for the I/O modules and com units mounted on the backplane.
Input and output are galvanically isolated from each other (EN 60950-1).

Connection



Technical Data

Supply		
Connection		wired to Ex e terminals
Rated voltage	U_r	95 ... 230 V AC
Power consumption		max. 45 VA
Inrush current		3.4 A (10 ms)
Input		
Input frequency		50 ... 60 Hz
Output		
Voltage		24 V DC +/- 3% (Connectors 5, 12) 23 V DC +/- 3% decoupled via diode (Connectors 5, 13)
Current		1.2 A
Indicators/settings		
LED indication		LED green: supply
Directive conformity		

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Technical Data

Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Low voltage		
Directive 2014/35/EU		EN 61010-1
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-25 ... 85 °C (-13 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Mass		approx. 890 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 97 ATEX 1074 U
Marking		⟨Ex⟩ II 2 G Ex d IIC Gb
Galvanic isolation		
Output/power supply		EN 60950-1 (safety requirement < 60 V)
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014
International approvals		
ATEX approval		PTB 97 ATEX 1075
General information		
System information		The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.

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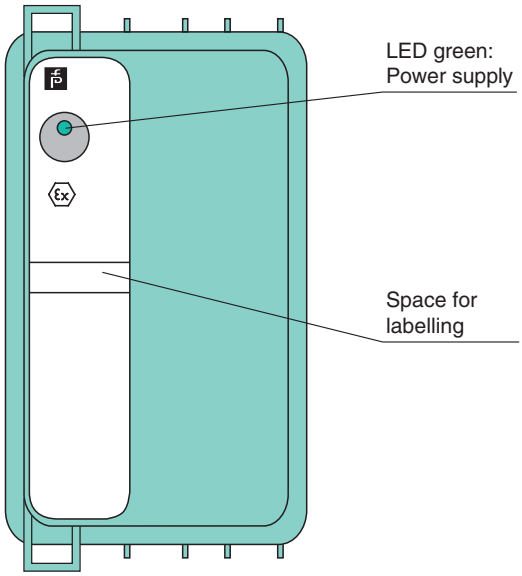
Assembly

Front view



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Digital Input

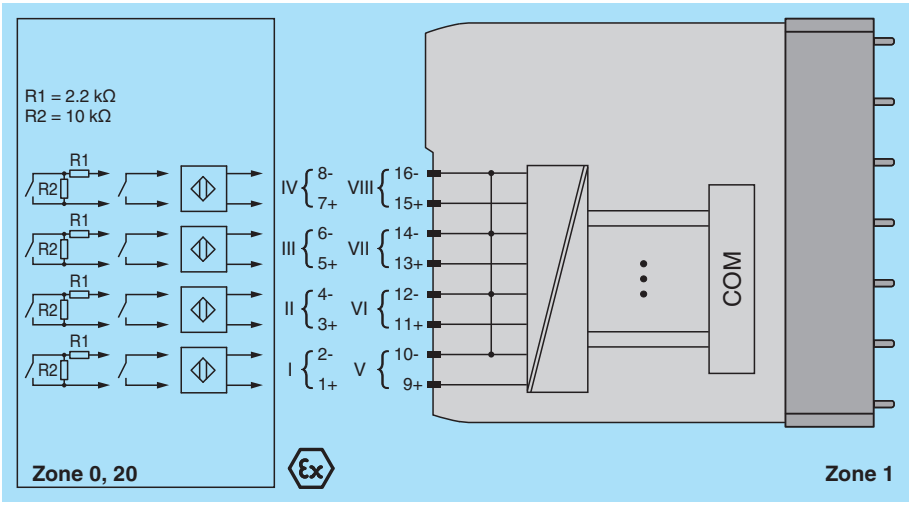
FB1209B3

- 8-channel
- Inputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Dry contact or NAMUR inputs
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring
- On/Off delay

Function

The device accepts digital input signals of NAMUR sensors or mechanical contacts from the hazardous area.
Open or short circuit line fault alarms are detected.
The inputs are galvanically isolated from the bus and the power supply (EN 60079-11).

Connection



Technical Data

Slots		
Occupied slots		1
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		1.55 W
Power consumption		1.55 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital input		
Number of channels		8

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Technical Data

Sensor interface		
Connection		NAMUR sensor
Connection [2]		volt-free contact
Connection		Terminals 1+, 2-, 3+, 4-, 5+, 6-, 7+, 8-, 9+, 10-, 11+, 12-, 13+,14-, 15+, 16-
Rated values		acc. to EN 60947-5-6 (NAMUR)
Switching point/switching hysteresis		1.2 ... 2.1 mA / ± 0.2 mA
Internal resistor	R_i	1 kΩ
Line fault detection		can be switched on/off for each channel via configuration tool
Connection		mechanical switch with additional resistors (see connection diagram) proximity switches without additional wiring
Short-circuit		< 360 Ω
Open-circuit		< 0.35 mA
Minimum pulse duration		15 ms
Indicators/settings		
LED indication		LED green: supply LED red: line fault, per channel
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with spring terminal (0.14 ... 0.5 mm²)
Mass		approx. 420 g
Dimensions		28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14055U
Marking		⟨Ex⟩ II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Input		
Voltage	U_o	10 V
Current	I_o	13 mA
Power	P_o	33 mW (linear characteristic)
Galvanic isolation		
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		

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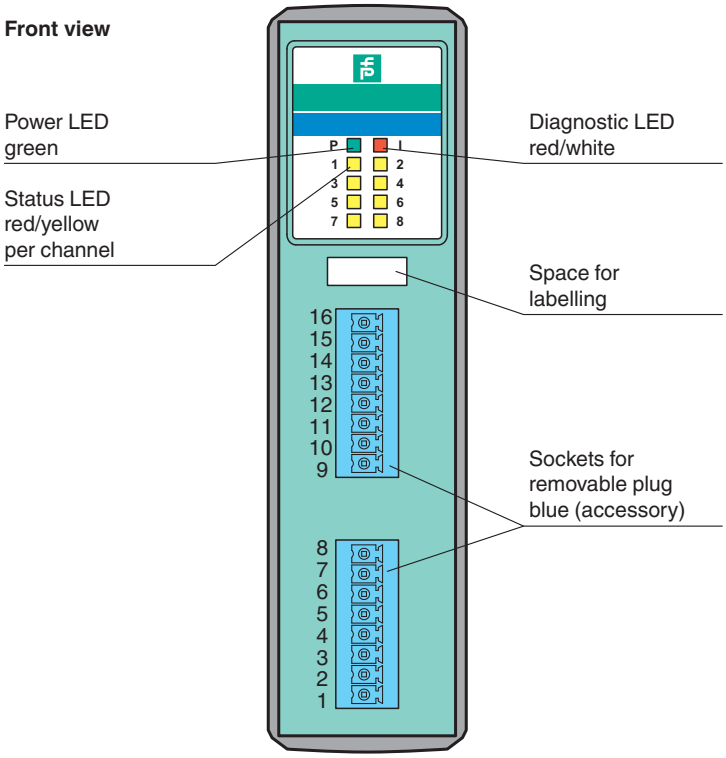
Technical Data

Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14055U
IECEx approval		IECEx PRE 19.0010U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 223079_eng.pdf

Universal Input/Output (HART)

FB7204B3

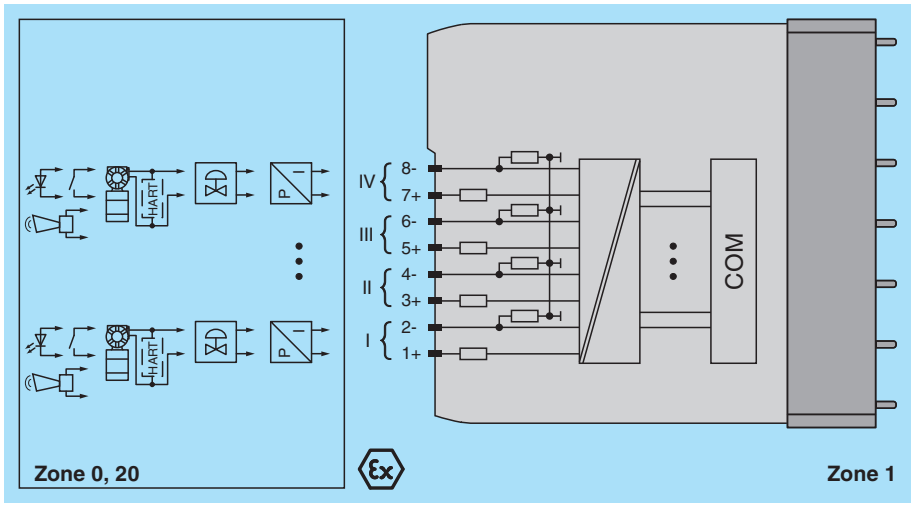
- 4-channel
- Inputs Ex ia, Outputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Analog input, digital input, analog output, digital output
- Supply circuit 21.5 V (4 mA)
- HART communication via field bus or service bus
- Simulation mode for service operations (forcing)
- Line fault detection (LFD): one LED per channel
- Permanently self-monitoring

Function

The device is a configurable universal module. Each channel can operate in the following modes:
- As an analog input (AI) it feeds 2-wire transmitters.
- As an analog output (AO) it can drive proportional valves, I/P converters, or local indicators.
- As a digital input (DI) it reads dry contacts.
- As a digital output (DO) it can drive solenoids, sounders, or LED.

A combination of analog and digital I/O is possible.
Channel LEDs indicate the status of each channel. White LEDs indicate whether AI, AO, DI, DO are selected.
The intrinsically safe signals are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		1
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		2 W
Power consumption		3 W
Internal bus		
Connection		backplane bus

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Technical Data

Interface	manufacturer-specific bus to standard com unit
Analog input	
Number of channels	4
Suitable field devices	
Field device	pressure converter
Field device [2]	flow converter
Field device [3]	level converter
Field device [4]	Temperature Converter
Field device interface	
Connection	2-wire transmitter
Connection	terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Transmitter supply voltage	min. 15 V at 20 mA ; 21.5 V at 4 mA
Input resistance	15 Ω
Line fault detection	can be switched on/off for each channel via configuration tool , configurable via configuration tool
Short-circuit	factory setting: > 21 mA Can be parameterized in the range 0 ... 22 mA
Open-circuit	factory setting: < 3.6 mA Can be parameterized in the range 0 ... 22 mA
HART communication	yes
HART secondary variable	yes
Analog output	
Number of channels	4
Suitable field devices	
Field device	Proportional Valve
Field device [2]	I/P converters
Field device [3]	on-site display
Connection	terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Current	0 ... 20 mA short-circuit protected
Line fault detection	can be switched on/off for each channel via configuration tool , configurable via configuration tool
Short-circuit	factory setting: < 50 Ω configurable between 0 ... 26 mA
Open-circuit	deviation of preset output value > 0.5 mA
Load	max. 750 Ω at 20 mA
HART communication	yes
HART secondary variable	yes
Watchdog	output off 0.5 s after serious fault
Digital input	
Number of channels	4
Sensor interface	
Connection [2]	volt-free contact
Connection	terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Line fault detection	can be switched on/off for each channel via configuration tool
Connection	mechanical switch with additional resistors (see connection diagram)
Short-circuit	> 7 mA
Open-circuit	< 0.1 mA
Digital signals (active)	
Switching point: ON	> 2.1 mA
Switching point: OFF	< 1.2 mA
Digital output	
Number of channels	4
Suitable field devices	
Field device	Solenoid Valve
Field device [2]	audible alarm
Field device [3]	visual alarm
Connection	terminals 1+, 2-, 3+, 4-, 5+, 6-, 7+, 8-

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Technical Data

Drive capability		12 V / 22 mA
Internal resistor	R_i	385 Ω
Current limit	I_{max}	22 mA
Open loop voltage	U_s	min. 22.7 V
Line fault detection		can be switched on/off for each channel via configuration tool
Test current		0.4 mA
Short-circuit		< 50 Ω
Open-circuit		< 0.2 mA
Transfer characteristics		
Deviation		
After calibration		0.1 % of the signal range at 20 °C (68 °F)
Influence of ambient temperature		0.1 %/10 K of the signal range
Resolution		12 Bit (0 ... 26 mA)
Refresh time		approx. 100 ms (4 channels)
Indicators/settings		
LED indication		Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1-4) red: line fault (lead breakage or short circuit) , yellow: state of digital I/O (0/1) Configuration LED (AI, AO, DI, DO) white: selected channel mode
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 425 g
Dimensions		28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14057U
Marking		⟨Ex⟩ II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Supply		

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Technical Data

Voltage	U_o	27 V
Current	I_o	87 mA
Power	P_o	575 mW (linear characteristic)
Input		Ex ia
Voltage	U_o	27 V
Current	I_o	87 mA
Power	P_o	575 mW (linear characteristic)
Internal capacitance	C_i	0 nF
Internal inductance	L_i	0 mH
Output		Ex ia
Voltage	U_o	27 V
Current	I_o	87 mA
Power	P_o	575 mW (linear characteristic)
Galvanic isolation		
Rated voltage	U_m	250 V field circuits to control and supply circuits
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14057U
IECEx approval		IECEx PRE 19.0012U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.

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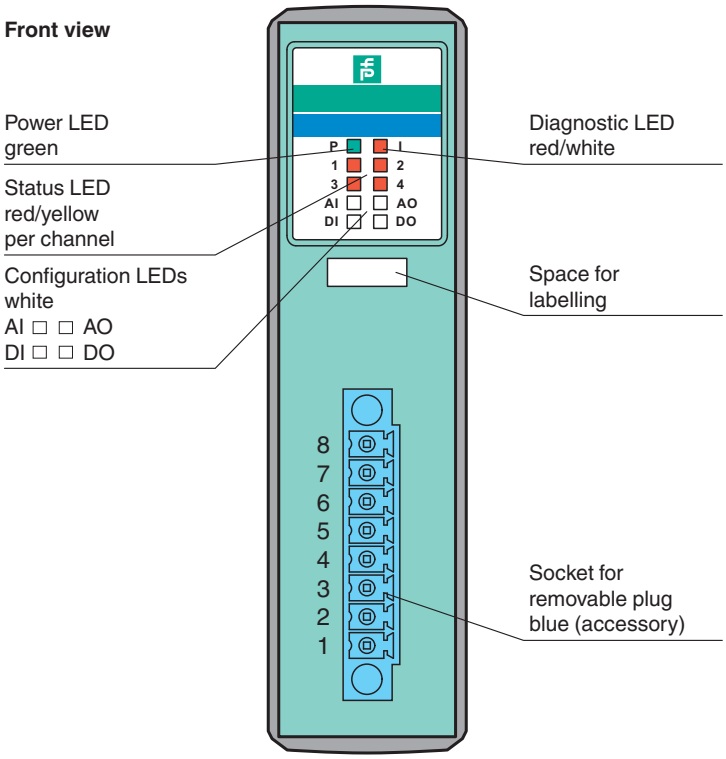
Assembly

Front view



Release date: 2023-08-14 Date of issue: 2023-08-14 Filename: 223085_eng.pdf

HART Transmitter Power Supply, Input Isolator

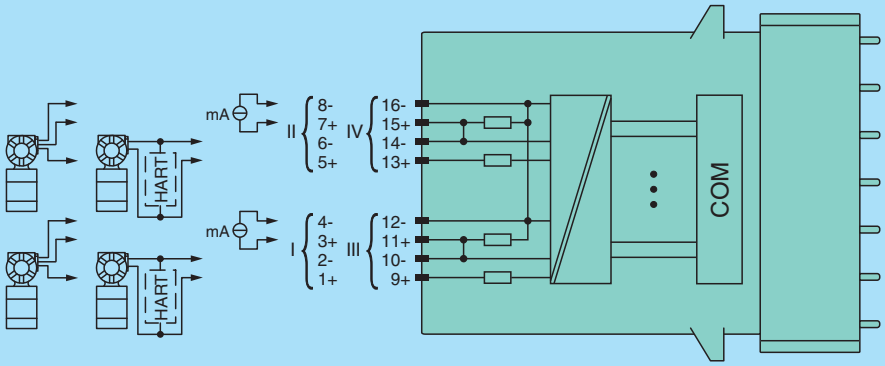
FB3305B2

- 4-channel
- Inputs with plug-in Ex e terminals
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Power supply for 2-wire transmitters with 4 mA ... 20 mA
- Supply circuit 15 V (20 mA)
- Input from active signals of 4-wire transmitters
- HART communication via field bus or service bus
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring

Function

The transmitter power supply feeds 2-wire transmitters.
Active signals from separately powered field devices and 4-wire transmitters can be connected.
Open and short-circuit line faults are detected.
The device is supplied with plug-in Ex e terminals and protective cover.
The input is galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		1.5 W
Power consumption		2.7 W
Internal bus		

Release date: 2021-11-16 Date of issue: 2021-11-16 Filename: 238487_eng.pdf

Technical Data

Connection	backplane bus
Interface	manufacturer-specific bus to standard com unit
Analog input	
Number of channels	4
Suitable field devices	
Field device	pressure converter
Field device [2]	flow converter
Field device [3]	level converter
Field device [4]	Temperature Converter
Field device interface	
Connection	2-wire transmitter
Connection [2]	3-wire transmitter
Connection [3]	4-wire transmitter
Connection	2-wire transmitter (HART):Supply circuit: channel I 1+, 2-, channel II 5+, 6-, channel III 9+, 10-, channel IV 13+, 14-3-wire transmitter:Supply circuit: channel I 1+, 4-, channel II 5+, 8-, channel III 9+, 12-, channel IV 13+, 16-Measurement loop: channel I 3+, 4-, channel II 7+, 8-, channel III 11+, 12-, channel IV 15+, 16-4-wire transmitter (powered externally):Measurement loop: channel I 3+, 4-, channel II 7+, 8-, channel III 11+, 12-, channel IV 15+, 16-
Transmitter supply voltage	min. 15 V at 20 mA ; 21.5 V at 4 mA
Input resistance	15 Ω
Conversion time	max. 100 ms
Line fault detection	can be switched on/off for each channel via configuration tool , configurable via configuration tool
Short-circuit	factory setting: > 22 mA configurable between 0 ... 26 mA
Open-circuit	factory setting: < 1 mA configurable between 0 ... 26 mA
HART communication	yes
HART secondary variable	no
Transfer characteristics	
Deviation	
After calibration	0.1 % of the signal range at 20 °C (68 °F)
Influence of ambient temperature	0.1 %/10 K of the signal range
Resolution	12 Bit (0 ... 26 mA)
Refresh time	100 ms
Indicators/settings	
LED indication	Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1-4) red: line fault (lead breakage or short circuit)
Coding	optional mechanical coding via front socket
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013
Conformity	
Electromagnetic compatibility	NE 21:2007
Degree of protection	IEC 60529:2000
Environmental test	EN 60068-2-14:2009
Shock resistance	EN 60068-2-27:2009
Vibration resistance	EN 60068-2-6:2008
Damaging gas	EN 60068-2-42:2003
Relative humidity	EN 60068-2-78:2001
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18

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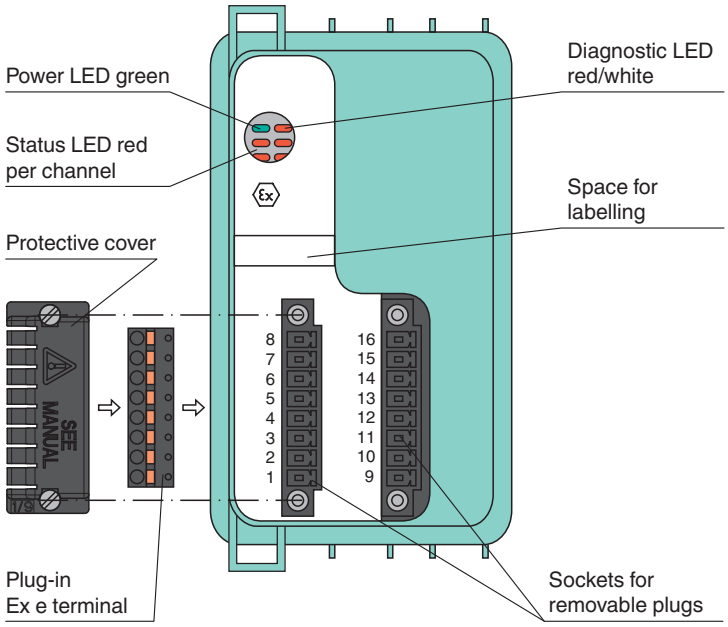
Technical Data

Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	Ex e spring terminal with protective cover
Mass	approx. 750 g
Dimensions	57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EU-type examination certificate	BVS 11 ATEX E 093 X
Marking	Ⓔx II 2 G Ex db eb IIC T4
Galvanic isolation	
Input/power supply, internal bus	safe electrical isolation acc. to EN 60079-11:2007 , voltage peak value 375 V
Directive conformity	
Directive 2014/34/EU	EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-7:2015+A1:2018
International approvals	
ATEX approval	BVS 11 ATEX E 093X
General information	
System information	The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information	

Assembly

Front view



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Relay output

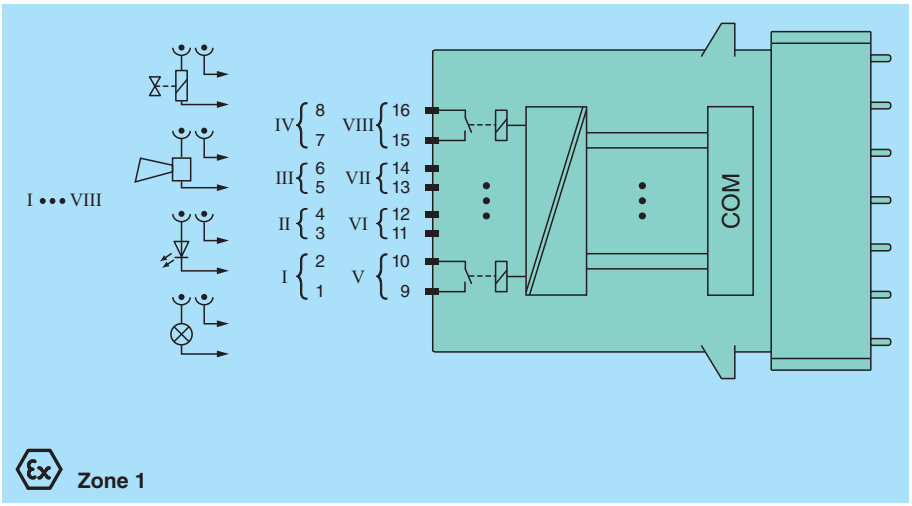
FB6306B2

- 8-channel
- Outputs with plug-in Ex e terminals
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog

Function

The device features 8 independent channels.
The device can be used to switch solenoids, sounders, or lamps.
The device can perform general switching operations, such as switching auxiliary power circuits.
The device is supplied with plug-in Ex e terminals and protective cover.
The outputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		1.4 W
Power consumption		1.4 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital output		

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Technical Data

Number of channels	8
Field device interface	
Connection	Relay output
Connection	channel I: 1-2 NO; channel II: 3-4 NO; channel III: 5-6 NO; channel IV: 7-8 NO; channel V: 9-10 NO; channel VI: 11-12 NO; channel VII: 13-14 NO; channel VIII: 15-16 NO
Relay	
Switching voltage	24 V DC / AC
Switching current	1 A DC / AC resistive load
Switch power	30 VA / 30 W
Minimum load	1 V 1 mA
Electrical life	0.1 mio. cycles
Contact Material	AgPd gold plated
Response time	20 ms (depending on bus cycle time)
Watchdog	within 0.5 s the device goes in safe state, e.g. after loss of communication
Indicators/settings	
LED indication	LED green: supply LED red: communication fault
Coding	optional mechanical coding via front socket
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013
Conformity	
Electromagnetic compatibility	NE 21:2007
Degree of protection	IEC 60529:2000
Environmental test	EN 60068-2-14:2009
Shock resistance	EN 60068-2-27:2009
Vibration resistance	EN 60068-2-6:2008
Damaging gas	EN 60068-2-42:2003
Relative humidity	EN 60068-2-78:2001
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	Ex e spring terminal with protective cover
Mass	approx. 750 g
Dimensions	57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EU-type examination certificate	BVS 11 ATEX E 093 X
Marking	⟨Ex⟩ II 2 G Ex db eb IIC T4
Galvanic isolation	
Output/power supply, internal bus	safe electrical isolation acc. to EN 61010-1:2010
Directive conformity	
Directive 2014/34/EU	EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-7:2015+A1:2018
International approvals	
ATEX approval	BVS 11 ATEX E 093X

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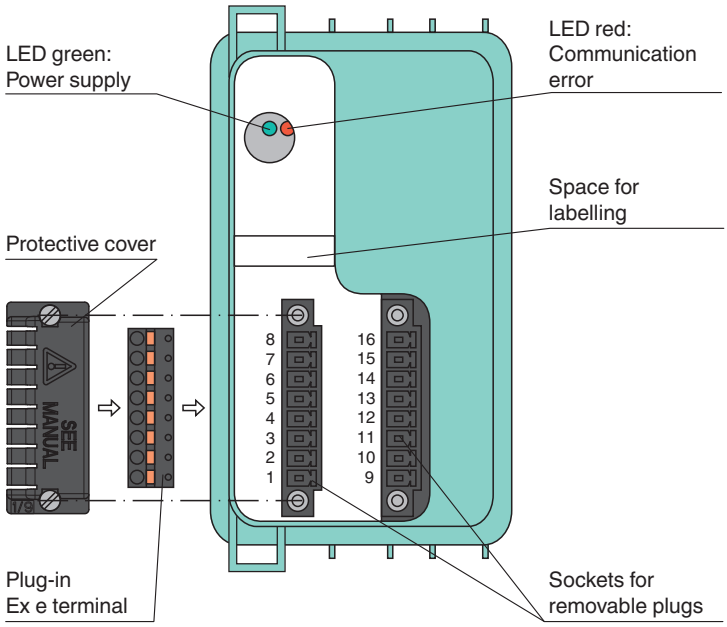
Technical Data

General information	
System information	The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.

Assembly

Front view



Release date: 2021-11-16 Date of issue: 2021-11-16 Filename: 238526_eng.pdf

HART Transmitter Power Supply, Input Isolator

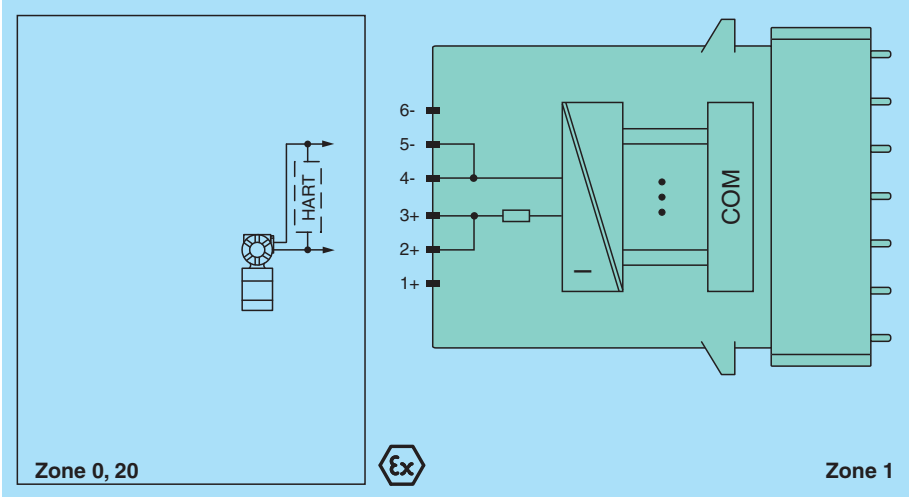
FB3202B1

- 1-channel
- Input Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Power supply for 2-wire transmitters with 4 mA ... 20 mA
- HART communication via field bus or service bus
- Simulation mode for service operations (forcing)
- Line fault detection (LFD) and Live Zero monitoring
- Permanently self-monitoring
- Supply circuit 15 V (20 mA)

Function

The transmitter power supply feeds 2-wire transmitters.
Open-circuit, short-circuit, and Live Zero status are detected.
The intrinsically safe input is galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		1
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		0.75 W
Power consumption		1.1 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit

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Technical Data

Analog input	
Number of channels	1
Suitable field devices	
Field device	pressure converter
Field device [2]	flow converter
Field device [3]	level converter
Field device [4]	Temperature Converter
Field device interface	
Connection	2-wire transmitter
Connection	2-wire transmitter (HART): supply circuit: 2/3+, 4/5-
Transmitter supply voltage	min. 15 V at 20 mA ; 21.5 V at 4 mA
Input resistance	15 Ω (terminals 5, 6) <P></P> 236 Ω (terminals 1, 6) HART
Line fault detection	can be switched on/off for each channel via configuration tool , configurable via configuration tool
Short-circuit	factory setting: > 22 mA configurable between 0 ... 26 mA
Open-circuit	factory setting: < 1 mA configurable between 0 ... 26 mA
HART communication	yes
HART secondary variable	yes
Transfer characteristics	
Deviation	
After calibration	0.1 % of the signal range at 20 °C (68 °F)
Influence of ambient temperature	0.1 %/10 K of the signal range
Resolution	12 Bit (0 ... 26 mA)
Refresh time	100 ms
Indicators/settings	
LED indication	Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1) red: line fault (lead breakage or short circuit) Status LED (2) yellow: Live Zero monitoring
Coding	optional mechanical coding via front socket
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013
Conformity	
Electromagnetic compatibility	NE 21:2007
Degree of protection	IEC 60529:2000
Environmental test	EN 60068-2-14:2009
Shock resistance	EN 60068-2-27:2009
Vibration resistance	EN 60068-2-6:2008
Damaging gas	EN 60068-2-42:2003
Relative humidity	EN 60068-2-78:2001
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description

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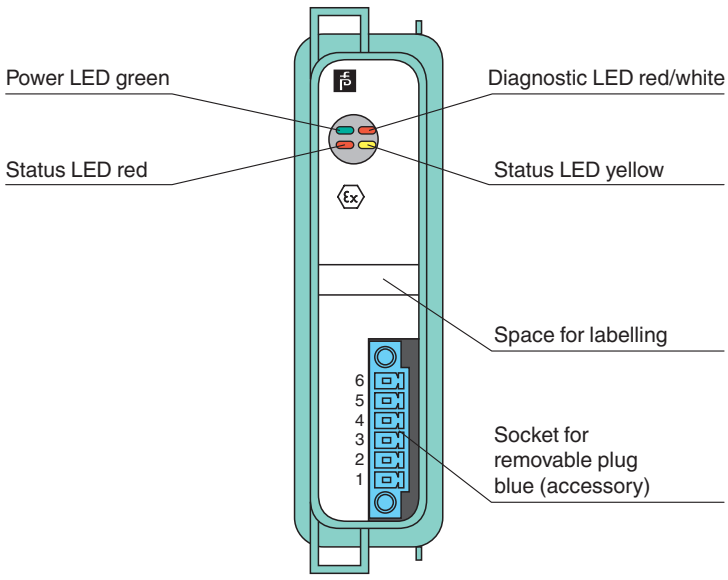
Technical Data

Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm²) or screw terminals (0.08 ... 1.5 mm²)
Mass		approx. 350 g
Dimensions		28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		BVS 12 ATEX E 015 X
Marking		⟨Ex⟩ II 2(1) G Ex d [ia Ga] IIC T4 Gb ⟨Ex⟩ II (1) D [Ex ia Da] IIIC
Supply		
Voltage	U_o	27 V
Current	I_o	87 mA
Power	P_o	575 mW (linear characteristic)
Galvanic isolation		
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11:2007 , voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-11:2012
International approvals		
ATEX approval		BVS 12 ATEX E 015 X
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.

Assembly

Front view



Release date: 2021-11-16 Date of issue: 2021-11-16 Filename: 243085_eng.pdf

Power supply

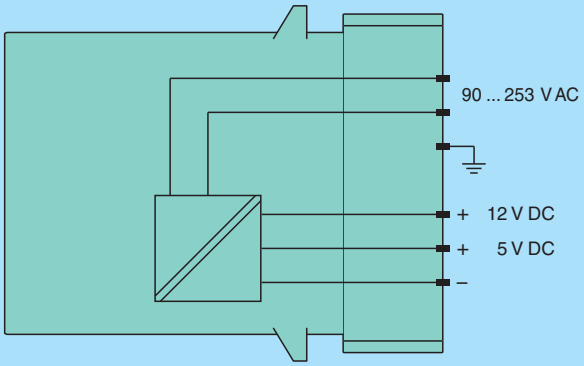
FB9215B2

- Multi range power supply 90 ... 253 V AC
- Suitable for the supply of 24 I/O modules and 1 bus coupler
- Use two power supplies for redundancy
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)

Function

The power supply provides power for the I/O modules and Com Units mounted on the backplane.
Power supplies can be connected in parallel to achieve redundancy.
Input and output are galvanically isolated from each other.
This power supply is a fully compatible replacement for FB9215 and FB9216.

Connection



Technical Data

Slots		
Bus coupler		2
I/O modules		>12, depending on the type
Supply		
Connection		wired to Ex e terminals via backplane
Maximum safe voltage U_m		253 V AC
Input		
Input voltage range		90 ... 253 V AC
Input frequency		50 ... 60 Hz
Inrush current (< 2 ms)		30 A max. (115 V AC) 50 A max. (230 V AC)
Current consumption		0.95 A (115 V AC) 0.6 A (230 V AC)

Release date: 2023-11-20 Date of issue: 2023-11-20 Filename: 271245_eng.pdf

Technical Data

Output		
Voltage		5.4 V DC +/- 5% , 12 V DC +/- 3%
Power		$P_{5V} \leq 5.4$ W, $P_{12V} \leq 39$ W - P_{5V}
Power dissipation		approx. 18 % of power consumption
Indicators/settings		
LED indication		LED green: OFF in case of loss of main power or internal voltages (12 V, 5.4 V)
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Low voltage		
Directive 2014/35/EU		EN 61010-1
Conformity		
Electromagnetic compatibility		NE 21:2007
Degree of protection		IEC 60529:2000
Environmental test		EN 60068-2-14:2009
Shock resistance		EN 60068-2-27:2009
Vibration resistance		EN 60068-2-6:2008
Damaging gas		EN 60068-2-42:2003
Relative humidity		EN 60068-2-78:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-25 ... 85 °C (-13 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Mass		approx. 890 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 97 ATEX 1074 U
Marking		⟨Ex⟩ II 2 G Ex d IIC Gb
Galvanic isolation		
Output/power supply		EN 60950-1 (safety requirement < 60 V, external power supply SELV/PELV)
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014
General information		
System information		The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information		

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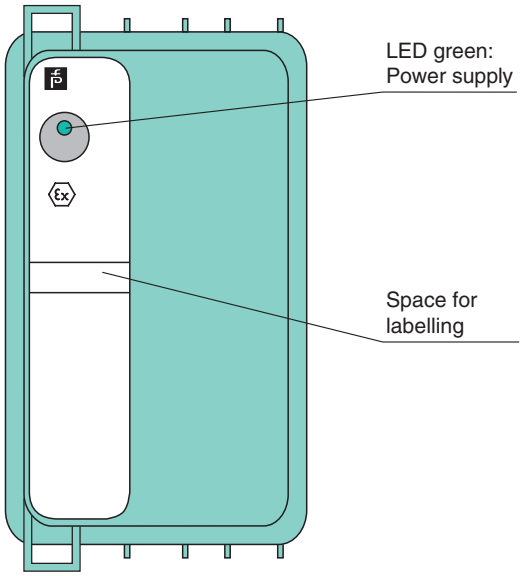
Assembly

Front view



Release date: 2023-11-20 Date of issue: 2023-11-20 Filename: 271245_eng.pdf

Frequency / Counter Input

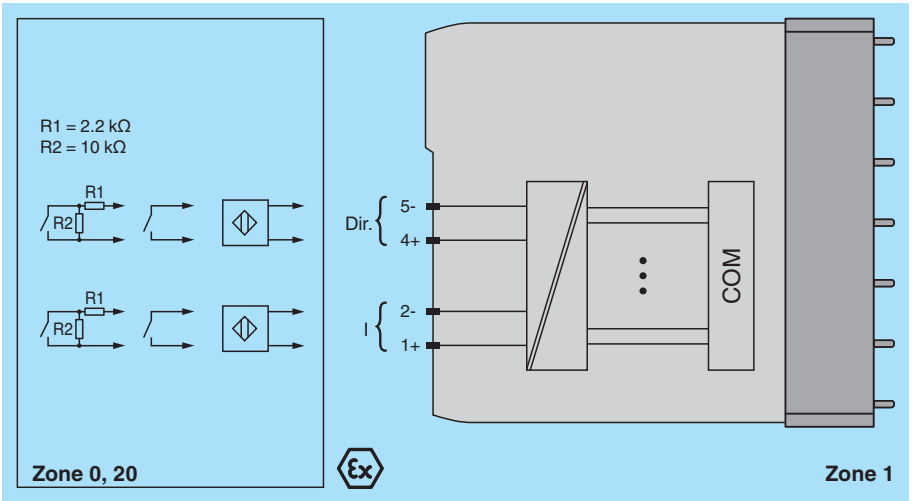
FB1203B3

- 1-channel
- Input Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Input for frequency, counter, direction of rotation
- Digital input max. 15 kHz
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring

Function

The device accepts digital input signals of NAMUR sensors or mechanical contacts from the hazardous area.
Open and short-circuit line faults are detected.
The intrinsically safe inputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		1
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		0.65 W
Power consumption		0.65 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital input		
Number of channels		1

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276062_eng.pdf

Technical Data

Function		
Function		Counter
Function [2]		frequency
Function [3]		direction of rotation
Sensor interface		
Connection		NAMUR sensor
Connection [2]		volt-free contact
Connection		channel I: 1+, 2/3-; direction: 4+, 5/6-
Rated values		acc. to EN 60947-5-6 (NAMUR)
Switching point/switching hysteresis		1.2 ... 2.1 mA / ± 0.2 mA
Internal resistor	R_i	1 kΩ
Line fault detection		can be switched on/off for each channel via configuration tool
Connection		mechanical switch with additional resistors (see connection diagram) proximity switches without additional wiring
Short-circuit		< 360 Ω
Open-circuit		< 0.35 mA
Minimum pulse duration		20 ms
Operating frequency		0 ... 15 kHz ; in frequency + counter mode ... 40 Hz
Indicators/settings		
LED indication		LED green: supply LED red: line fault
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 420 g
Dimensions		28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14058U
Marking		⟨Ex⟩ II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Input		

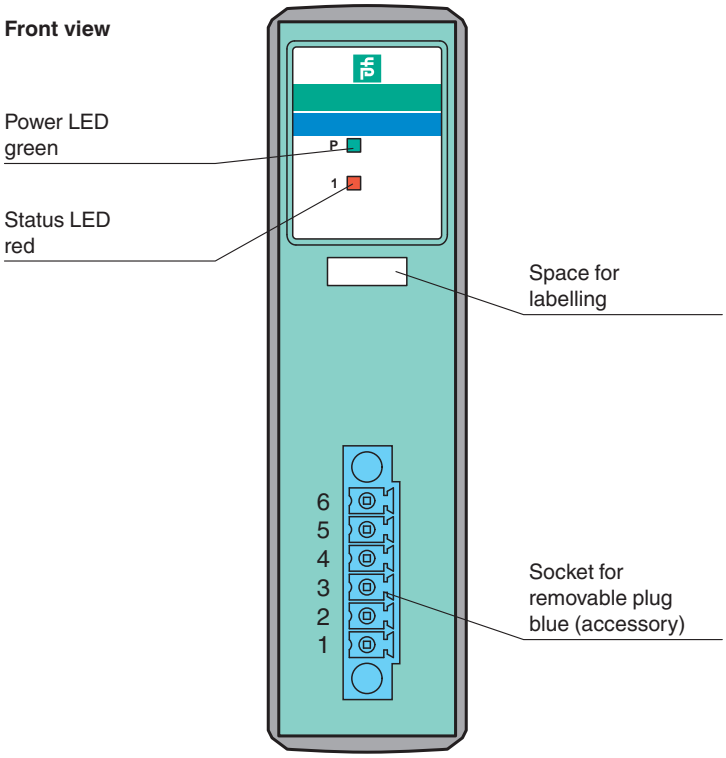
Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276062_eng.pdf

Technical Data

Voltage	U_o	10.5 V
Current	I_o	23.34 mA
Power	P_o	61.27 mW (linear characteristic)
Galvanic isolation		
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14058U
IECEx approval		IECEx PRE 19.0013U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.

Assembly

Front view



Accessories

	FB9224*	Field Unit
	FB9225*	Redundancy Field Unit
	FB9248*	Field Unit

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276062_eng.pdf

Digital Input

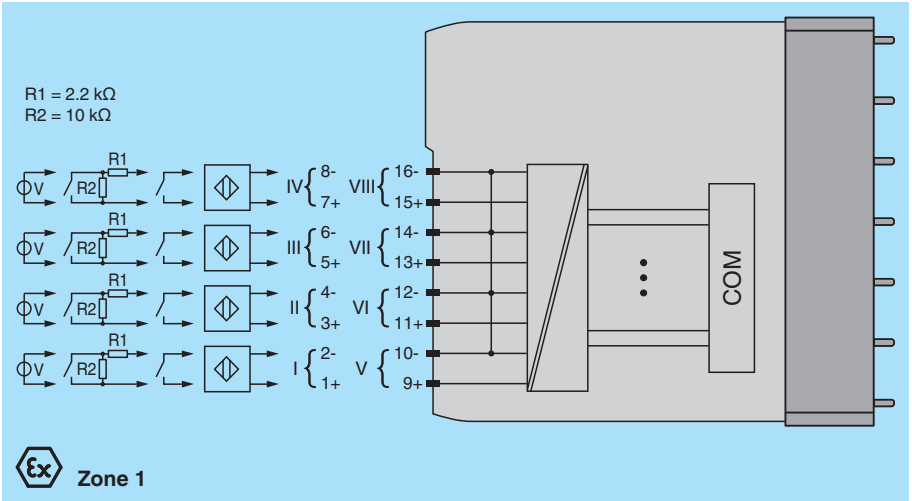
FB1308B3

- 8-channel
- Inputs with plug-in Ex e terminals
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Dry contact or NAMUR inputs
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring
- On/Off delay

Function

The device accepts digital input signals of NAMUR sensors or mechanical contacts from the hazardous area. Furthermore it can read active inputs with 24 V or 5 V DC.
Open and short circuit line faults are detected. This does not apply for active signals.
The device is supplied with plug-in Ex e terminals and protective cover.
The inputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		0.95 W
Power consumption		0.95 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit

Release date: 2021-12-01 Date of issue: 2021-12-01 Filename: 276221_eng.pdf

Technical Data

Digital input		
Number of channels		8
Sensor interface		
Connection		NAMUR sensor
Connection [2]		volt-free contact
Connection [3]		active binary signal 24 V DC
Connection		channel I: 1+, 2-; channel II: 3+, 4-; channel III: 5+, 6-; channel IV: 7+, 8-; channel V: 9+, 10-; channel VI: 11+, 12-; channel VII: 13+, 14-; channel VIII: 15+, 16-
Rated values		acc. to EN 60947-5-6 (NAMUR)
Switching point/switching hysteresis		1.2 ... 2.1 mA / ± 0.2 mA
Internal resistor	R_i	1 kΩ
Line fault detection		can be switched on/off for each channel via configuration tool , active signals (24 V, 5 V) without line fault detection
Connection		mechanical switch with additional resistors (see connection diagram) proximity switches without additional wiring
Short-circuit		< 360 Ω
Open-circuit		< 0.35 mA
Digital signals (active)		configurable 24 V 5 V
Switching point: ON		> 8 V > 2.7 V
Switching point: OFF		< 3 V < 2.3 V
Minimum pulse duration		1 ms
Indicators/settings		
LED indication		LED green: supply LED red: line fault , red flashing: communication error
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Degree of protection		IEC 60529:2000
Environmental test		EN 60068-2-14:2009
Shock resistance		EN 60068-2-27:2009
Vibration resistance		EN 60068-2-6:2008
Damaging gas		EN 60068-2-42:2003
Relative humidity		EN 60068-2-78:2001
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		Ex e spring terminal with protective cover
Mass		approx. 750 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		FIDI 21 ATEX 0012 U
Marking		Ⓔx II 2G Ex db eb q IIC Gb
Galvanic isolation		
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11:2007 , voltage peak value 375 V

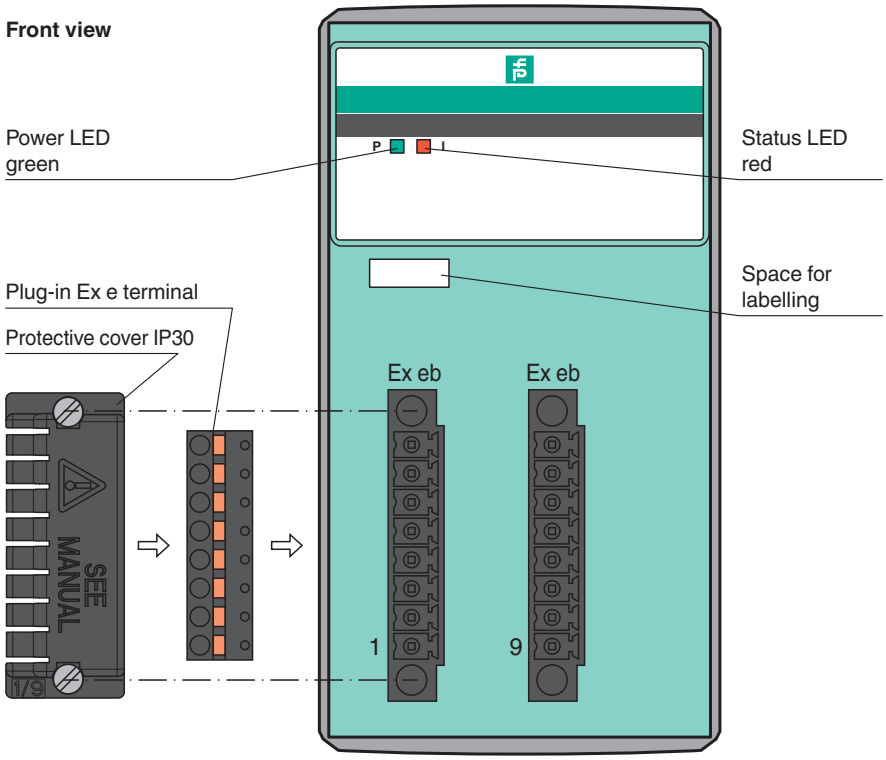
Release date: 2021-12-01 Date of issue: 2021-12-01 Filename: 276221_eng.pdf

Technical Data

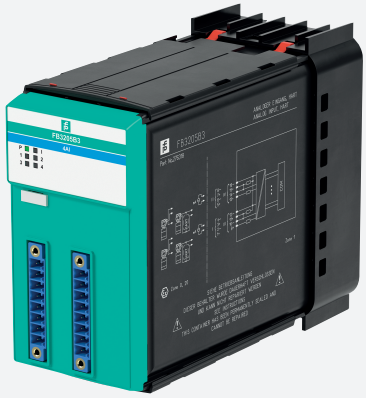
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2018 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018
International approvals	
ATEX approval	FIDI 21 ATEX 0012 U
IECEx approval	
IECEx certificate	IECEx FIDI 21.0002U
IECEx marking	Ex db eb q IIC Gb
General information	
System information	The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.

Assembly

Front view



Release date: 2021-12-01 Date of issue: 2021-12-01 Filename: 276221_eng.pdf



HART Transmitter Power Supply, Input Isolator

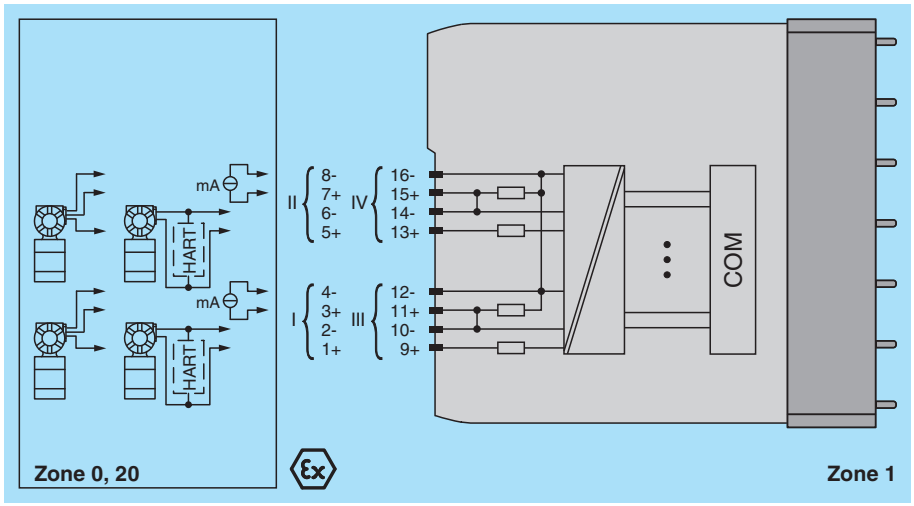
FB3205B3

- 4-channel
- Inputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Power supply for 2-wire transmitters with 4 mA ... 20 mA
- Supply circuit 15 V (20 mA)
- Input from active signals of 4-wire transmitters
- HART communication via field bus or service bus
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring

Function

The transmitter power supply feeds 2- and 3-wire transmitters.
Active signals from separately powered field devices and 4-wire transmitters can be connected.
Open and short-circuit line faults are detected.
The intrinsically safe inputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		1.5 W
Power consumption		2.7 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276318_eng.pdf

Technical Data

Analog input	
Number of channels	4
Suitable field devices	
Field device	pressure converter
Field device [2]	flow converter
Field device [3]	level converter
Field device [4]	Temperature Converter
Field device interface	
Connection	2-wire transmitter
Connection [2]	3-wire transmitter
Connection [3]	4-wire transmitter
Connection	2-wire transmitter (HART):Supply circuit: channel I 1+, 2-, channel II 5+, 6-, channel III 9+, 10-, channel IV 13+, 14-3-wire transmitter:Supply circuit: channel I 1+, 4-, channel II 5+, 8-, channel III 9+, 12-, channel IV 13+, 16-Measurement loop: channel I 3+, 4-, channel II 7+, 8-, channel III 11+, 12-, channel IV 15+, 16-4-wire transmitter (powered externally):Measurement loop: channel I 3+, 4-, channel II 7+, 8-, channel III 11+, 12-, channel IV 15+, 16-
Transmitter supply voltage	min. 15 V at 20 mA ; 21.5 V at 4 mA
Input resistance	15 Ω
Conversion time	max. 100 ms
Line fault detection	can be switched on/off for each channel via configuration tool , configurable via configuration tool
Short-circuit	factory setting: > 22 mA configurable between 0 ... 26 mA
Open-circuit	factory setting: < 1 mA configurable between 0 ... 26 mA
HART communication	yes
HART secondary variable	no
Transfer characteristics	
Deviation	
After calibration	0.1 % of the signal range at 20 °C (68 °F)
Influence of ambient temperature	0.1 %/10 K of the signal range
Resolution	12 Bit (0 ... 26 mA)
Refresh time	100 ms
Indicators/settings	
LED indication	Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1-4) red: line fault (lead breakage or short circuit)
Coding	optional mechanical coding via front socket
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013
Conformity	
Electromagnetic compatibility	NE 21:2007
Degree of protection	IEC 60529:2000
Environmental test	EN 60068-2-14:2009
Shock resistance	EN 60068-2-27:2009
Vibration resistance	EN 60068-2-6:2008
Damaging gas	EN 60068-2-42:2003
Relative humidity	EN 60068-2-78:2001
Ambient conditions	
Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18

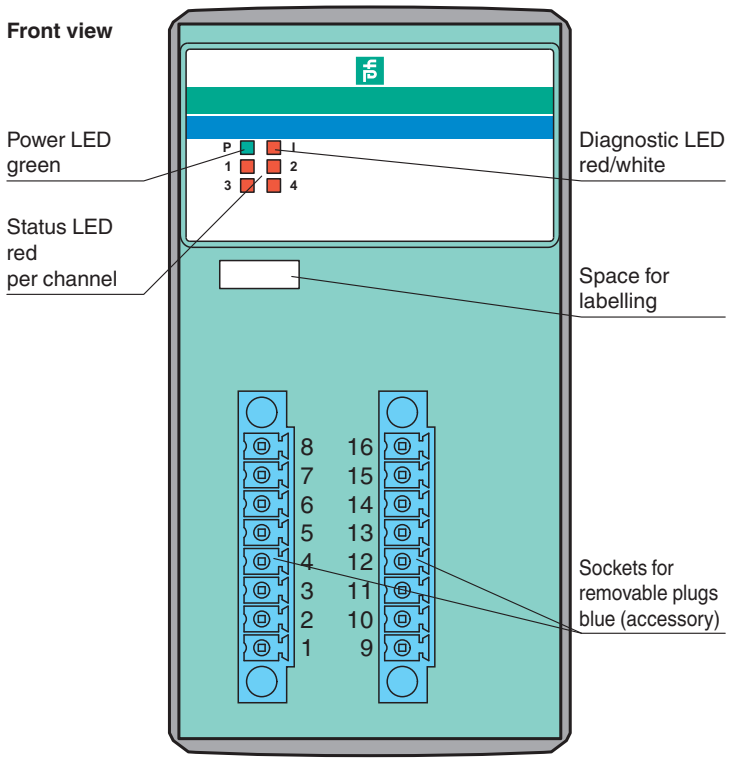
Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276318_eng.pdf

Technical Data

Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 955 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14056U
Marking		⟨Ex⟩ II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Supply		
Voltage	U_o	27 V
Current	I_o	90 mA
Power	P_o	588 mW (linear characteristic)
Input		
Voltage	U_o	0.7 V
Current	I_o	2.78 mA
Power	P_o	2 mW (trapezoid characteristic curve)
Internal capacitance	C_i	242 nF
Internal inductance	L_i	0 mH
Galvanic isolation		
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14056U
IECEx approval		IECEx PRE 19.0011U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276318_eng.pdf

Assembly



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276318_eng.pdf

HART Output Isolator

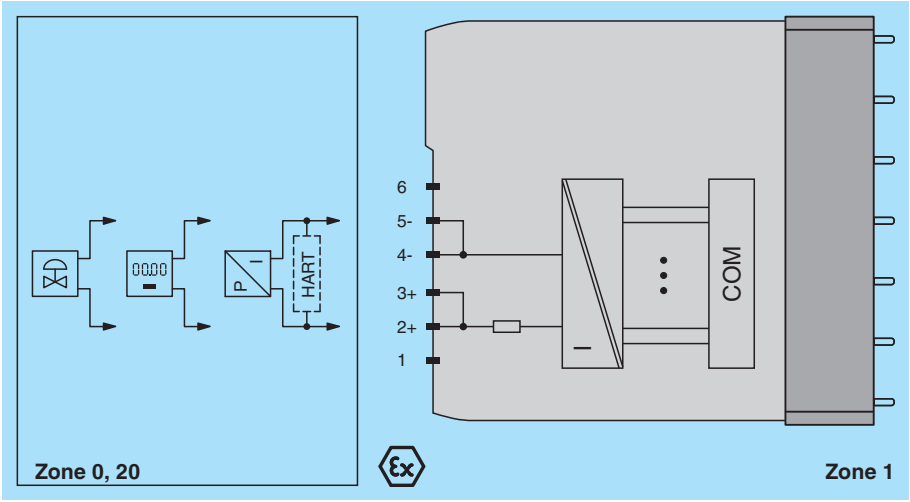
FB4202B3

- 1-channel
- Output Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Analog output module for 0/4 mA ... 20 mA
- HART communication via field bus or service bus
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring

Function

The device drives positioners, proportional valves, I/P converters, or local indicators.
Open and short-circuit line faults are detected.
The output is galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		1
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		0.8 W
Power consumption		0.95 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Analog output		
Number of channels		1
Suitable field devices		

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276322_eng.pdf

Technical Data

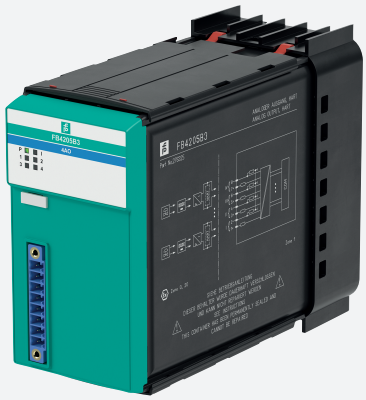
Field device	Proportional Valve
Field device [2]	I/P converters
Field device [3]	on-site display
Connection	channel I: 2/3+, 4/5-
Current	0 ... 25 mA short-circuit protected
Line fault detection	can be switched on/off for each channel via configuration tool , configurable via configuration tool
Short-circuit	No
Open-circuit	deviation of preset output value > 0.5 mA
Load	750 Ω max.
HART communication	yes
HART secondary variable	MODBUS: yes; all other bus systems: no
Watchdog	within 0.5 s the device goes in safe state, e.g. after loss of communication
Transfer characteristics	
Deviation	
After calibration	0.1 % of the signal range at 20 °C (68 °F)
Influence of ambient temperature	0.1 %/10 K of the signal range
Refresh time	100 ms
Indicators/settings	
LED indication	Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1) red: line fault (lead breakage or short circuit)
Coding	optional mechanical coding via front socket
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013
Conformity	
Electromagnetic compatibility	NE 21:2007
Degree of protection	IEC 60529:2000
Environmental test	EN 60068-2-14:2009
Shock resistance	EN 60068-2-27:2009
Vibration resistance	EN 60068-2-6:2008
Damaging gas	EN 60068-2-42:2003
Relative humidity	EN 60068-2-78:2001
Ambient conditions	
Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass	approx. 350 g
Dimensions	28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EU-type examination certificate	Presafe 19 ATEX 14057U

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276322_eng.pdf

Technical Data

Marking		⟨Ex⟩ II 2(1) G Ex d [ia Ga] IIC T4 Gb ⟨Ex⟩ II (1) D [Ex ia Da] IIIC
Output		
Voltage	U_o	27 V
Current	I_o	87 mA
Power	P_o	575 mW (linear characteristic)
Galvanic isolation		
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11:2007 , voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276322_eng.pdf



HART Output Isolator

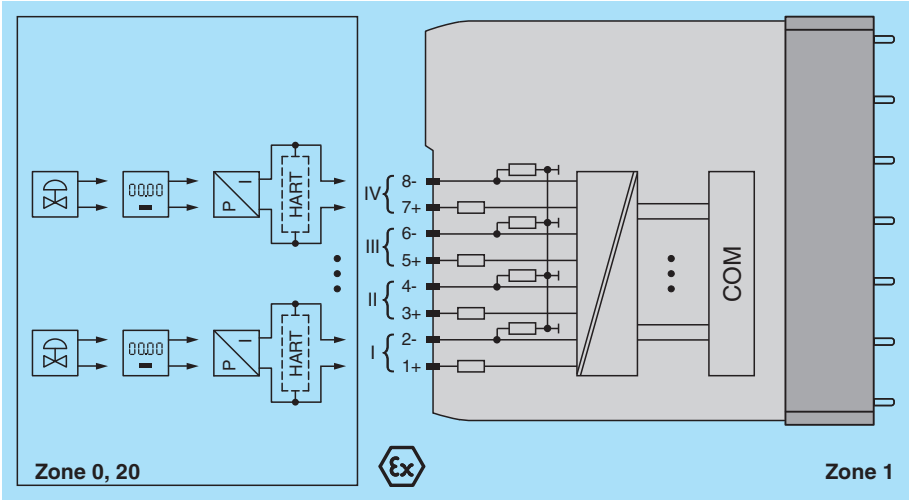
FB4205B3

- 4-channel
- Outputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Analog output module for 0/4 mA ... 20 mA
- HART communication via field bus or service bus
- Simulation mode for service operations (forcing)
- Line fault detection (LFD): one LED per channel
- Permanently self-monitoring

Function

The device drives positioners, proportional valves, I/P converters, or local indicators.
Open and short-circuit line faults are detected.
The outputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		1.5 W
Power consumption		3 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Analog input		
HART communication		yes
HART secondary variable		no

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276325_eng.pdf

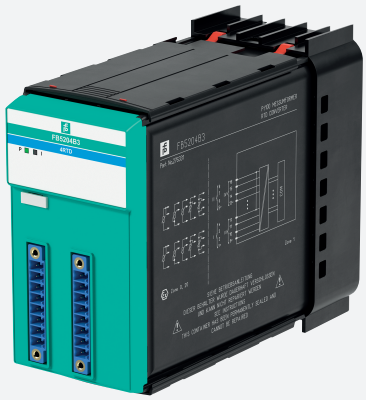
Technical Data

Analog output		
Number of channels		4
Suitable field devices		
Field device		Proportional Valve
Field device [2]		I/P converters
Field device [3]		on-site display
Connection		terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Current		0 ... 20 mA short-circuit protected
Line fault detection		can be switched on/off for each channel via configuration tool , configurable via configuration tool
Short-circuit		No
Open-circuit		deviation of preset output value > 0.5 mA
Load		max. 750 Ω at 20 mA
HART communication		yes
HART secondary variable		yes
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Transfer characteristics		
Deviation		
After calibration		0.1 % of the signal range at 20 °C (68 °F)
Influence of ambient temperature		0.1 %/10 K of the signal range
Resolution		12 Bit (0 ... 26 mA)
Refresh time		approx. 100 ms (4 channels)
Indicators/settings		
LED indication		Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1-4) red: line fault (lead breakage or short circuit)
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21:2007
Degree of protection		IEC 60529:2000
Environmental test		EN 60068-2-14:2009
Shock resistance		EN 60068-2-27:2009
Vibration resistance		EN 60068-2-6:2008
Damaging gas		EN 60068-2-42:2003
Relative humidity		EN 60068-2-78:2001
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 750 g

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276325_eng.pdf

Technical Data

Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14057U
Marking		⟨Ex⟩ II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Supply		
Voltage	U_o	27 V
Current	I_o	87 mA
Power	P_o	575 mW (linear characteristic)
Input		Ex ia
Output		Ex ia
Voltage	U_o	27 V
Current	I_o	87 mA
Power	P_o	575 mW (linear characteristic)
Galvanic isolation		
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11:2007 , voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14057U
IECEx approval		IECEx PRE 19.0012U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.



RTD Converter

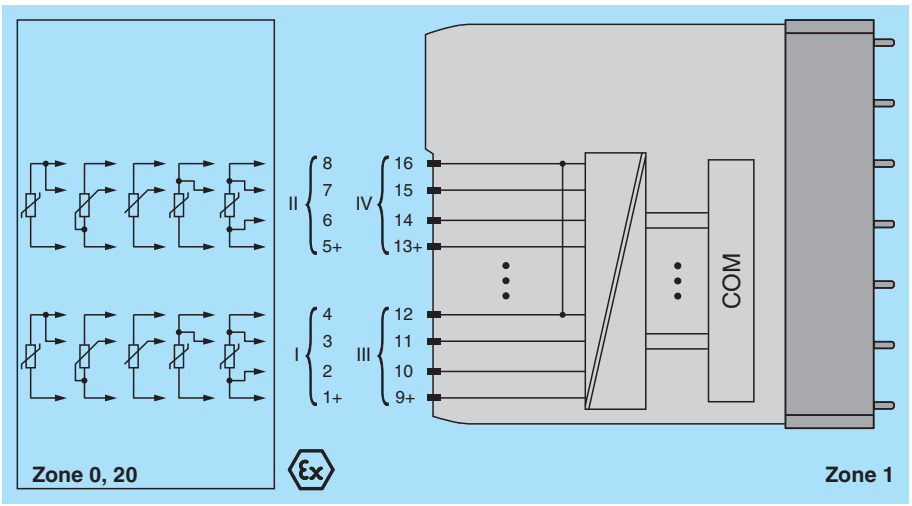
FB5204B3

- 4-channel
- Inputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Converter for 2-, 3- and 4-wire RTDs (Pt100 ... Pt1000), slide wire sensors etc.
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring

Function

The RTD converter accepts 2-, 3-, 4-wire RTD signals (Pt100 ... Pt1000) and slide-wire sensors from the field. Ni100 through Ni1000 can also be connected.
Open and short-circuit line faults are detected.
The intrinsically safe inputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		0.35 W
Power consumption		0.35 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
temperature input		
Number of channels		4

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276331_eng.pdf

Technical Data

Suitable field devices		
Field device		resistance thermometer
Field device [2]		slide-wire sensors
Field device [3]		potentiometer
Field device interface		
Connection		2-wire sensor
Connection [2]		3-wire sensor
Connection [3]		4-wire sensor
Connection		channel I: resistance/potentiometer input 1 ... 4 channel II: resistance/potentiometer input 5 ... 8 channel III: resistance/potentiometer input 9 ... 12 channel IV: resistance/potentiometer input 13 ... 16
Measurement range		Pt100 (18-390 Ω) (500 Ω incl. line resistance) Pt200 (37-780 Ω) Pt500 (92-1952 Ω) Pt1000 (185-3905 Ω) Ni100 (69-270 Ω) Ni500 (345-1350 Ω) Ni1000 (690-2700 Ω)
Slide-wire sensor		0 ... 10 kΩ
Measuring current		200 µA
Smallest span		50 Ω for 0.1 % accuracy
Linearity error		0.1 %
Conversion time		max. 500 ms (4 channels) max. 1 s (for 4x 3-wire Pt100)
Busy after download		5 ... 15 s
Lead resistance		max. 50 Ω per strand
Line fault detection		can be switched on/off for each channel via configuration tool
Short-circuit		< 10 Ω
Open-circuit		> 1 kΩ
Transfer characteristics		
Deviation		
Influence of ambient temperature		max. 0,1 %/10 K
Indicators/settings		
LED indication		LED green: supply LED red: line fault, collective alarm , flashing: communication error
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3

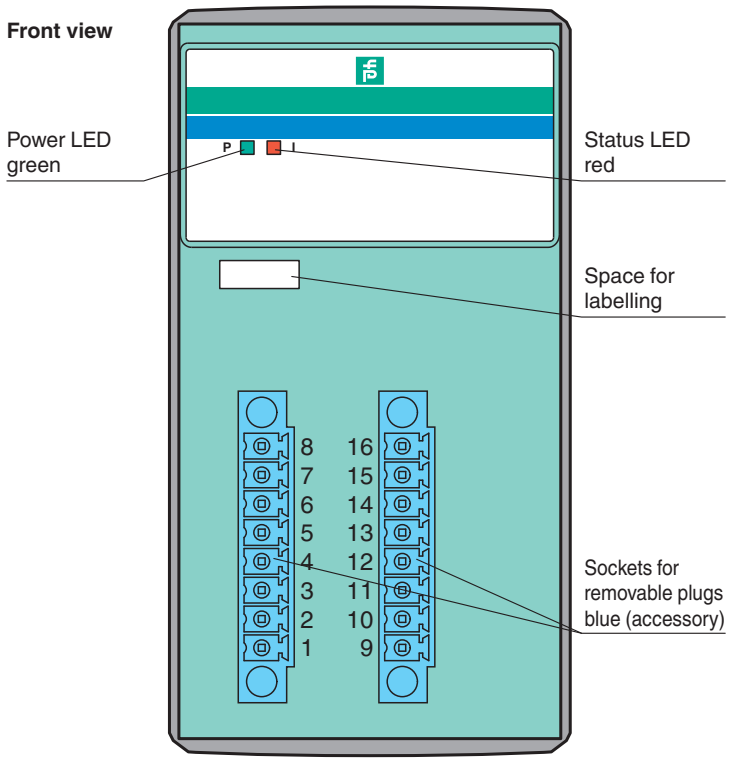
Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276331_eng.pdf

Technical Data

Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 950 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14058U
Marking		Ⓔx II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Input		
Voltage	U_o	7.14 V
Current	I_o	70 mA
Power	P_o	123 mW (linear characteristic)
Galvanic isolation		
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14058U
IECEx approval		IECEx PRE 19.0013U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276331_eng.pdf

Assembly



Accessories

	FB9224*	Field Unit
	FB9225*	Redundancy Field Unit
	FB9248*	Field Unit

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276331_eng.pdf

Thermocouple Converter

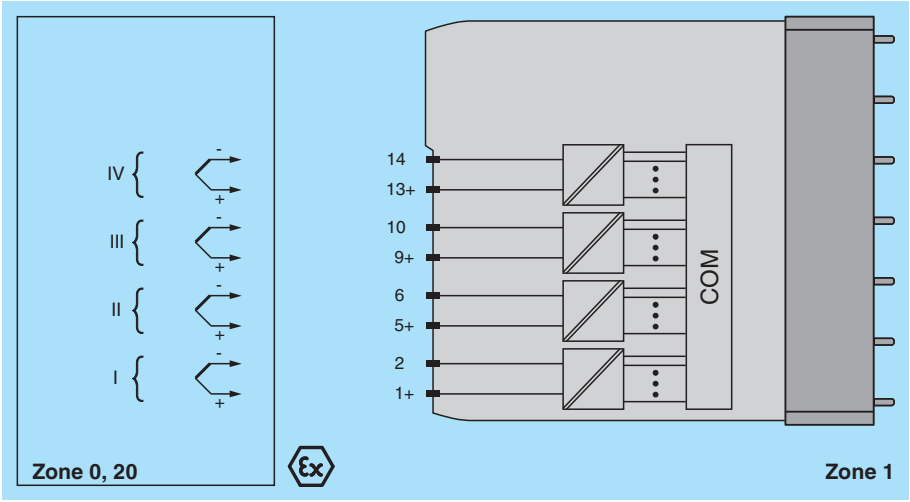
FB5205B3

- 4-channel
- Inputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Converter for thermocouples and mV-signals
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring

Function

The thermocouple converter accepts thermocouple or mV signals from the field.
Open circuit line fault alarms are detected.
The inputs are galvanically isolated from the bus and the power supply (EN 60079-11). There is a functional isolation between the channels.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		0.75 W
Power consumption		0.75 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
temperature input		
Number of channels		4
Suitable field devices		

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276332_eng.pdf

Technical Data

Field device [2]		Thermocouple
Field device [4]		mV source
Suitable sensors		
Sensor		thermocouples U, B, E, T, K, S, R, L, J, N, Pallaplat and mV sources
Connection		channel I: 1+, 2-; channel II: 5+, 6-; channel III: 9+, 10-; channel IV: 13+, 14-
Measurement range		-65 ... 75 mV with LFD , -75 ... 75 mV without LFD
Smallest span		5 mV for 0.1 % accuracy
Linearity error		0.1 %
Conversion time		max. 300 ms (4 channels) without LFD max. 600 ms (4-channel) with LFD
Compensation (reference junction CJC)		internal cold junction compensation or external cold junction
Line fault detection		can be switched on/off for each channel via configuration tool ,
Open-circuit		> 1 kΩ
Transfer characteristics		
Deviation		
Influence of ambient temperature		max. 0,1 %/10 K
Indicators/settings		
LED indication		LED green: supply LED red: line fault, collective alarm , flashing: communication error
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 955 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14058U
Marking		⟨Ex⟩ II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Input		
Voltage	U_o	1 V
Current	I_o	71 mA

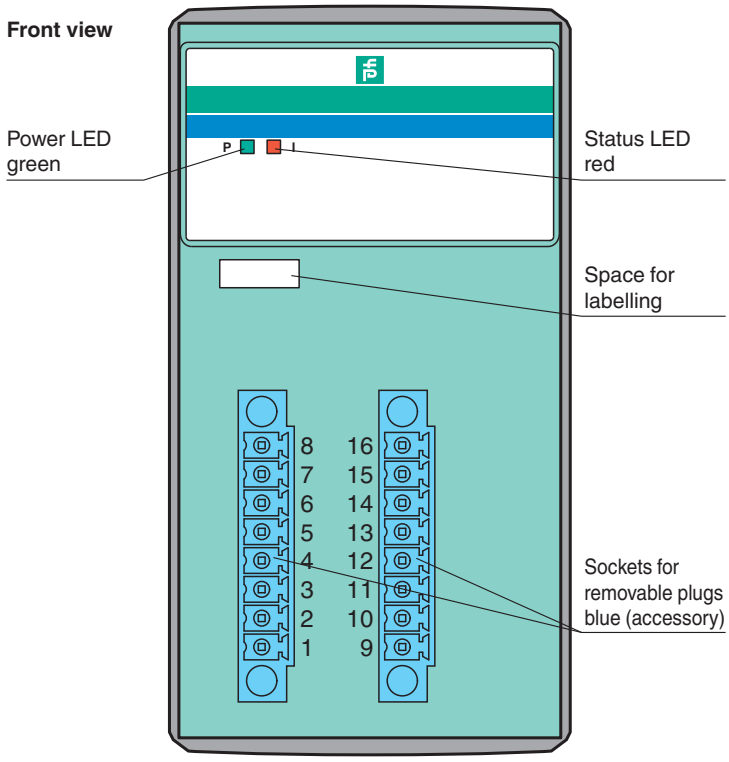
Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276332_eng.pdf

Technical Data

Power	P_o	62 mW (trapezoid characteristic curve)
Galvanic isolation		
Input/input		functional insulation acc. to IEC 60664-1:2007, rated insulation voltage 50 V, testing voltage 500 V
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14058U
IECEx approval		IECEx PRE 19.0013U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

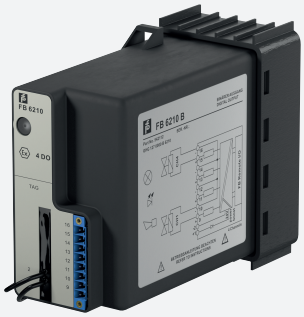
Front view



Accessories

	FB9224*	Field Unit
	FB9225*	Redundancy Field Unit
	FB9248*	Field Unit

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 276332_eng.pdf



Digital Output

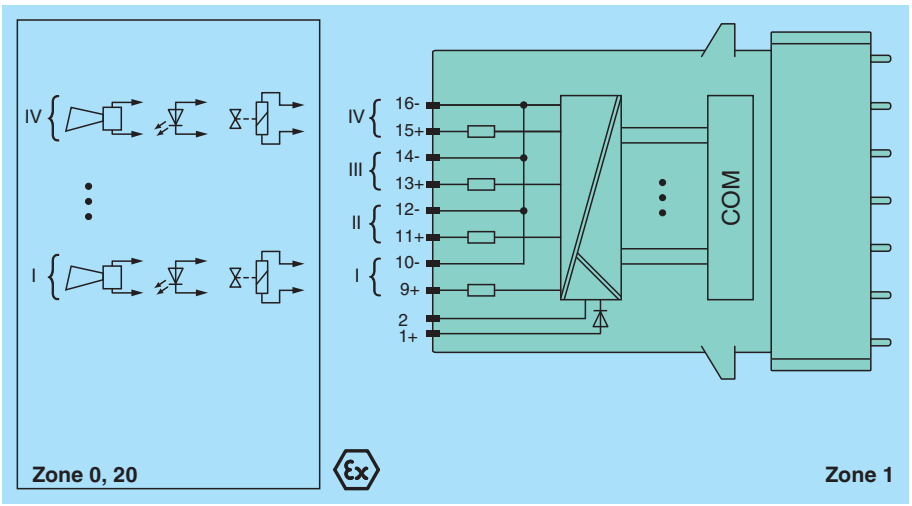
FB6210BR

- 4-channel
- Outputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Line fault detection (LFD)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog

Function

The digital output features 4 independent channels.
The device can be used to drive solenoids, sounders, or LEDs.
Open and short-circuit line faults are detected.
The outputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus / 24 V booster via wire ends
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Input voltage range	U	18.5 ... 32 V DC (SELV/PELV) booster voltage
Power dissipation		3 W
Power consumption		0.15 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital output		

Release date: 2022-06-29 Date of issue: 2022-06-29 Filename: 276336_eng.pdf

Technical Data

Number of channels		4
Suitable field devices		
Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 9+, 10-; channel II: 11+, 12-; channel III: 13+, 14-; channel IV: 15+, 16-
Internal resistor	R_i	max. 370 Ω
Current limit	I_{max}	37 mA
Open loop voltage	U_s	24.5 V
Line fault detection		can be switched on/off for each channel via configuration tool also when turned off (every 2.5 s the valve is turned on for 2 ms)
Short-circuit		< 100 Ω
Open-circuit		> 15 kΩ
Response time		10 ms (depending on bus cycle time)
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Reaction time		10 s
Indicators/settings		
LED indication		LED green: supply LED red: line fault , red flashing: communication error
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-25 ... 85 °C (-13 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 750 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 97 ATEX 1074 U
Marking		⟨Ex⟩ II 2(1) G Ex d [ia Ga] IIC Gb ⟨Ex⟩ II (1) D [Ex ia Da] IIIC
Output		
Voltage	U_o	27.8 V
Current	I_o	90.4 mA

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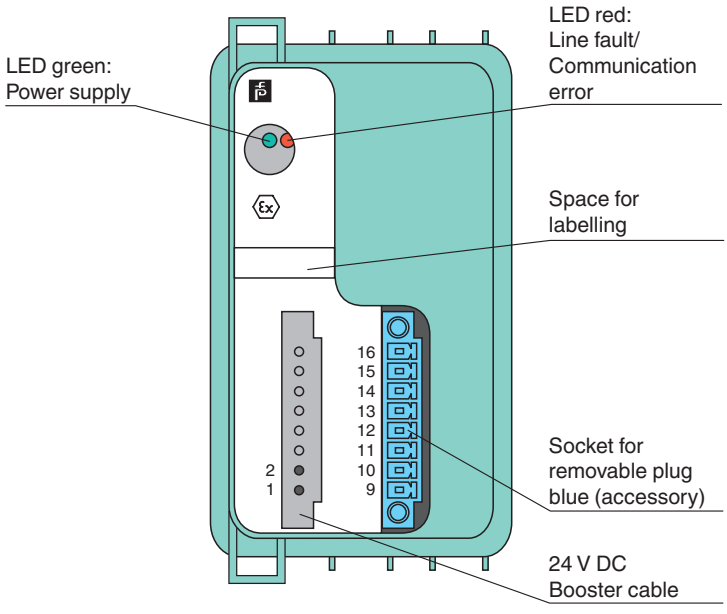
Technical Data

Power	P_o	629 mW
Internal capacitance	C_i	2.5 nF
Internal inductance	L_i	0 mH
Galvanic isolation		
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals		
ATEX approval		PTB 97 ATEX 1075 ; PTB 97 ATEX 1074 U
EAC approval		Russia: RU C-IT.MIII06.B.00129
Marine approval		
Lloyd Register		15/20021
DNV GL Marine		TAA0000034
American Bureau of Shipping		T1450280/UN
Bureau Veritas Marine		22449/B0 BV
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.

Assembly

Front view



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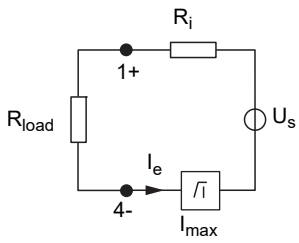
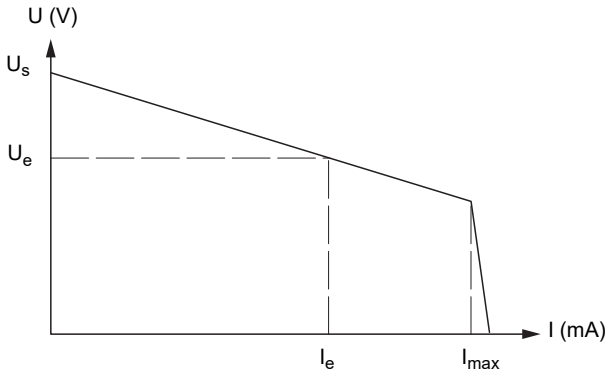
Characteristic Curve

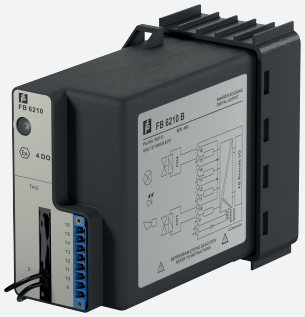
Load calculation



R_{load} = Field loop resistance
$U_e = U_s - R_i \times I_e$
$I_e = U_s/(R_i + R_{load})$

Output characteristics





Digital Output with Shutdown Input

FB6210ER

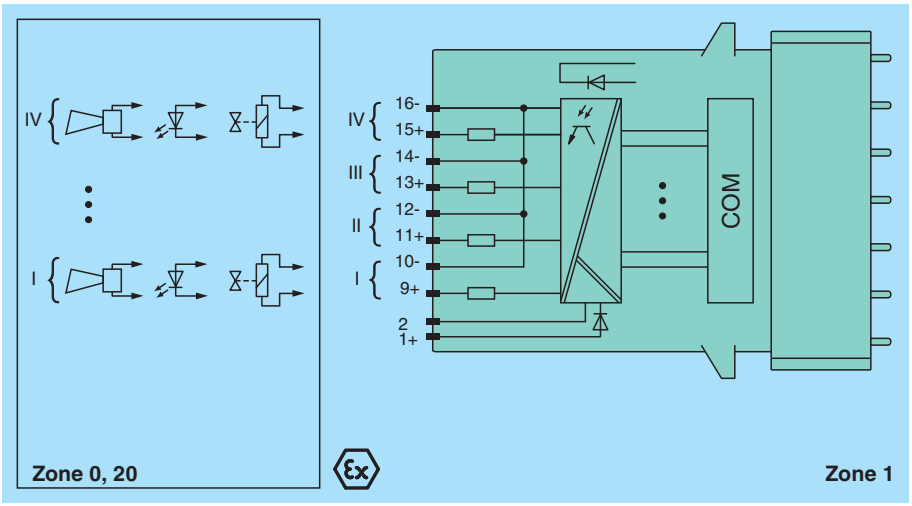
- 4-channel
- Outputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Line fault detection (LFD)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog
- Output with bus-independent safety shutdown input

CE Ex SIL 2

Function

The digital output features 4 independent channels.
The device can be used to drive solenoids, sounders, or LEDs.
Open and short-circuit line faults are detected.
The outputs are galvanically isolated from the bus and the power supply.
The output can be switched off via a contact. This can be used for bus-independent safety applications.

Connection



Technical Data

Slots		
Occupied slots		2
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 2
Supply		
Connection		backplane bus / booster terminals
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Input voltage range	U	18.5 ... 32 V DC (SELV/PELV) booster voltage
Power dissipation		3 W
Power consumption		0.15 W
Internal bus		

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Technical Data

Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital output		
Number of channels		4
Suitable field devices		
Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 9+, 10-; channel II: 11+, 12-; channel III: 13+, 14-; channel IV: 15+, 16-
Internal resistor	R_i	max. 370 Ω
Current limit	I_{max}	37 mA
Open loop voltage	U_s	24.5 V
Line fault detection		can be switched on/off for each channel via configuration tool also when turned off (every 2.5 s the valve is turned on for 2 ms)
Short-circuit		< 100 Ω
Open-circuit		> 15 kΩ
Response time		10 ms (depending on bus cycle time)
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Reaction time		10 s
Indicators/settings		
LED indication		LED green: supply LED red: line fault , red flashing: communication error
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-25 ... 85 °C (-13 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 750 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 97 ATEX 1074 U
Marking		⟨Ex⟩ II 2(1) G Ex d [ia Ga] IIC Gb ⟨Ex⟩ II (1) D [Ex ia Da] IIIC

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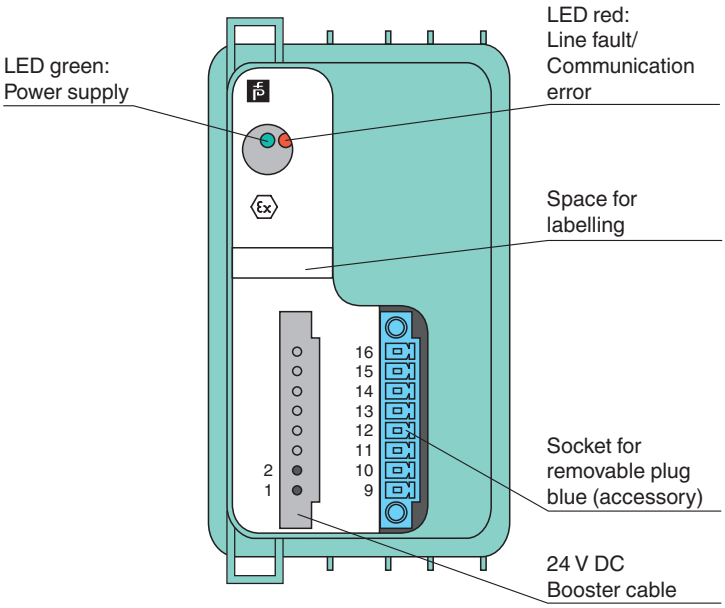
Technical Data

Output		
Voltage	U_o	27.8 V
Current	I_o	90.4 mA
Power	P_o	629 mW
Internal capacitance	C_i	2.5 nF
Internal inductance	L_i	0 mH
Galvanic isolation		
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals		
ATEX approval		PTB 97 ATEX 1075 ; PTB 97 ATEX 1074 U
EAC approval		Russia: RU C-IT.MIII06.B.00129
Marine approval		
Lloyd Register		15/20021
DNV GL Marine		TAA0000034
American Bureau of Shipping		T1450280/UN
Bureau Veritas Marine		22449/B0 BV
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



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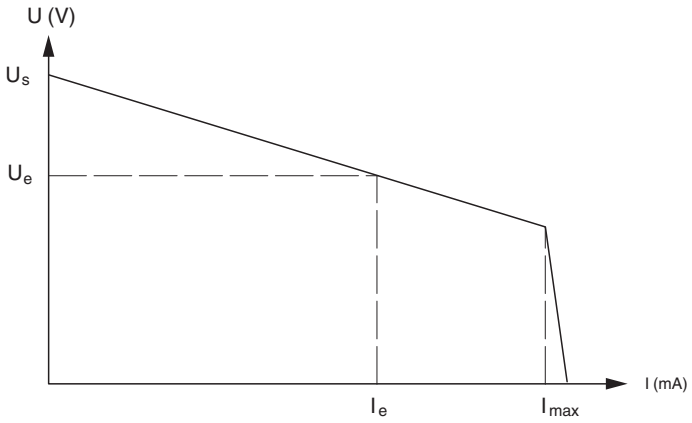
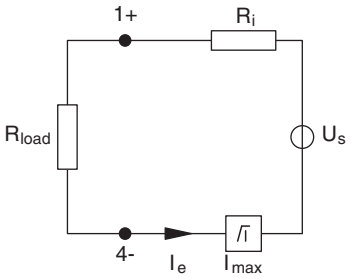
Load calculation
R_{load} = Field loop resistance
$U_e = U_s - R_i \times I_e$
$I_e = U_s/(R_i + R_{load})$

Characteristic Curve





Accessories

	FB9224*	Field Unit
	FB9225*	Redundancy Field Unit
	FB9248*	Field Unit

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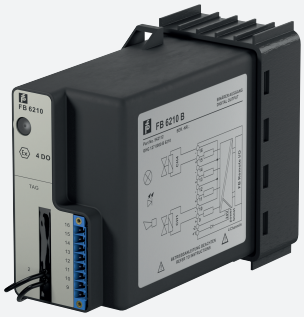


Digital Output

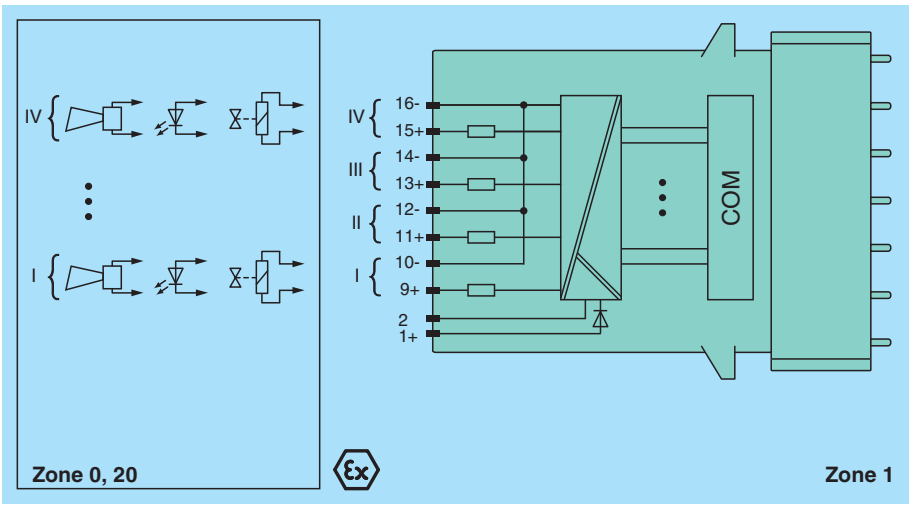
FB6211BR

- 4-channel
- Outputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Line fault detection (LFD)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog

Function

The digital output features 4 independent channels.
The device can be used to drive solenoids, sounders, or LEDs.
Open and short-circuit line faults are detected.
The outputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus / 24 V booster via wire ends
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Input voltage range	U	18.5 ... 32 V DC (SELV/PELV) booster voltage
Power dissipation		3 W
Power consumption		0.15 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital output		

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Technical Data

Number of channels		4
Suitable field devices		
Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 9+, 10-; channel II: 11+, 12-; channel III: 13+, 14-; channel IV: 15+, 16-
Internal resistor	R_i	max. 320 Ω
Current limit	I_{max}	40 mA
Open loop voltage	U_s	24.5 V
Line fault detection		can be switched on/off for each channel via configuration tool also when turned off (every 2.5 s the valve is turned on for 2 ms)
Short-circuit		< 100 Ω
Open-circuit		> 15 kΩ
Response time		10 ms (depending on bus cycle time)
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Reaction time		10 s
Indicators/settings		
LED indication		LED green: supply LED red: line fault , red flashing: communication error
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-25 ... 85 °C (-13 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 750 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 97 ATEX 1074 U
Marking		⟨Ex⟩ II 2(1) G Ex d [ia Ga] IIC Gb ⟨Ex⟩ II (1) D [Ex ia Da] IIIC
Output		
Voltage	U_o	27.8 V
Current	I_o	107 mA

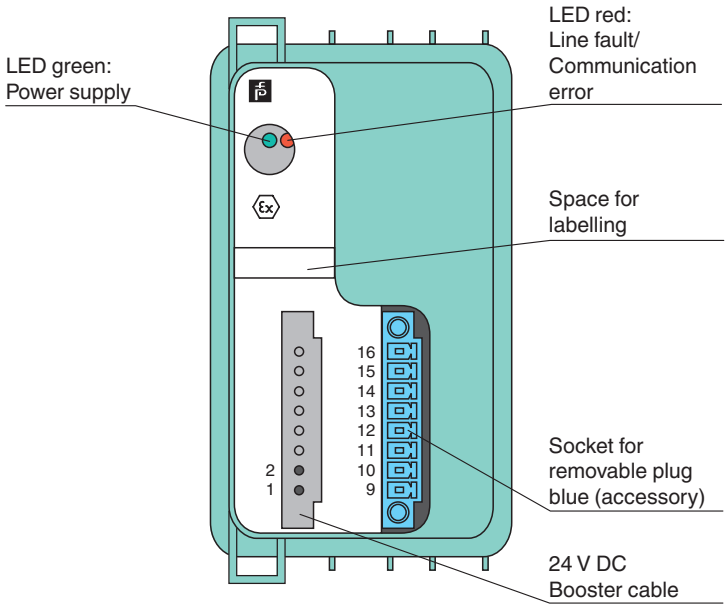
Release date: 2022-06-29 Date of issue: 2022-06-29 Filename: 276338_eng.pdf

Technical Data

Power	P_o	744 mW
Internal capacitance	C_i	2.5 nF
Internal inductance	L_i	0 mH
Galvanic isolation		
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals		
ATEX approval		PTB 97 ATEX 1075 ; PTB 97 ATEX 1074 U
EAC approval		Russia: RU C-IT.MIII06.B.00129
Marine approval		
Lloyd Register		15/20021
DNV GL Marine		TAA0000034
American Bureau of Shipping		T1450280/UN
Bureau Veritas Marine		22449/B0 BV
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



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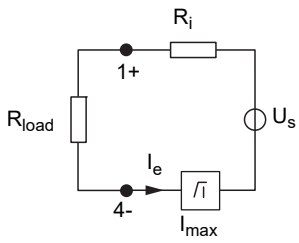
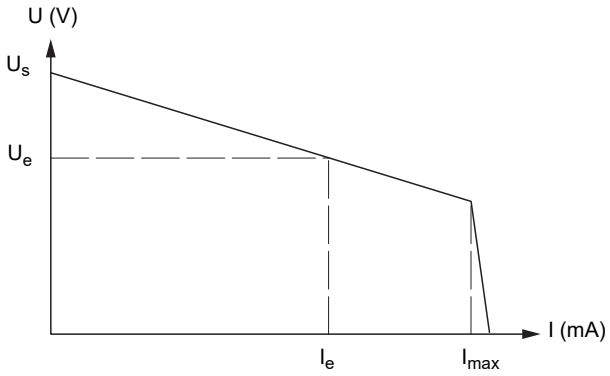
Characteristic Curve

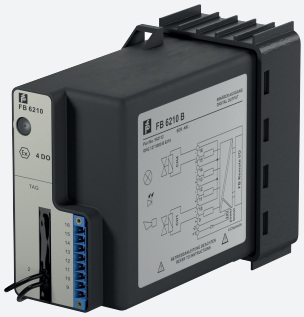
Load calculation



R_{load} = Field loop resistance
$U_e = U_s - R_i \times I_e$
$I_e = U_s/(R_i + R_{load})$

Output characteristics





Digital Output

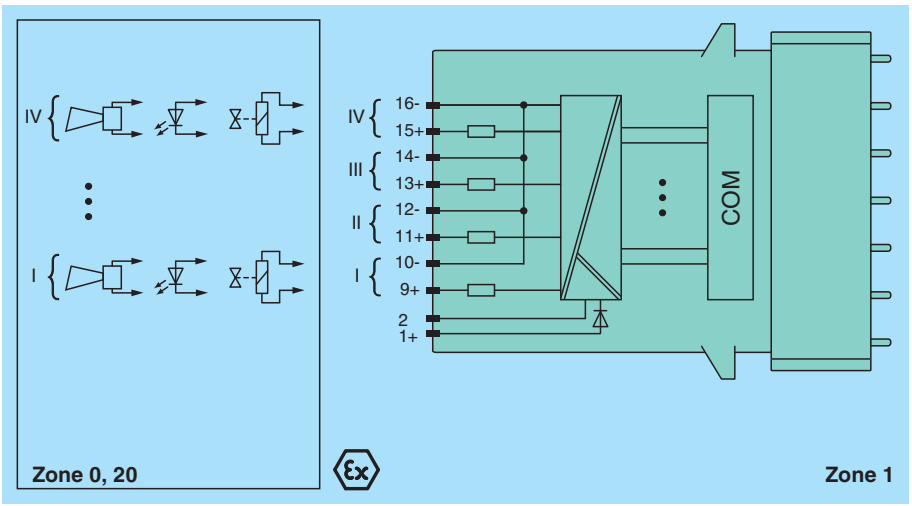
FB6213BR

- 4-channel
- Outputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Line fault detection (LFD)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog

Function

The digital output features 4 independent channels.
The device can be used to drive solenoids, sounders, or LEDs.
Open and short-circuit line faults are detected.
The outputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus / 24 V booster via wire ends
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Input voltage range	U	18.5 ... 32 V DC (SELV/PELV) booster voltage
Power dissipation		3 W
Power consumption		0.15 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital output		

Release date: 2022-06-29 Date of issue: 2022-06-29 Filename: 276340_eng.pdf

Technical Data

Number of channels		4
Suitable field devices		
Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 9+, 10-; channel II: 11+, 12-; channel III: 13+, 14-; channel IV: 15+, 16-
Internal resistor	R_i	max. 290 Ω
Current limit	I_{max}	42 mA
Open loop voltage	U_s	23 V
Line fault detection		can be switched on/off for each channel via configuration tool also when turned off (every 2.5 s the valve is turned on for 2 ms)
Short-circuit		< 100 Ω
Open-circuit		> 15 kΩ
Response time		10 ms (depending on bus cycle time)
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Reaction time		10 s
Indicators/settings		
LED indication		LED green: supply LED red: line fault , red flashing: communication error
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-25 ... 85 °C (-13 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 750 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 97 ATEX 1074 U
Marking		⟨Ex⟩ II 2(1) G Ex d [ia Ga] IIC Gb ⟨Ex⟩ II (1) D [Ex ia Da] IIIC
Output		
Voltage	U_o	26 V
Current	I_o	110 mA

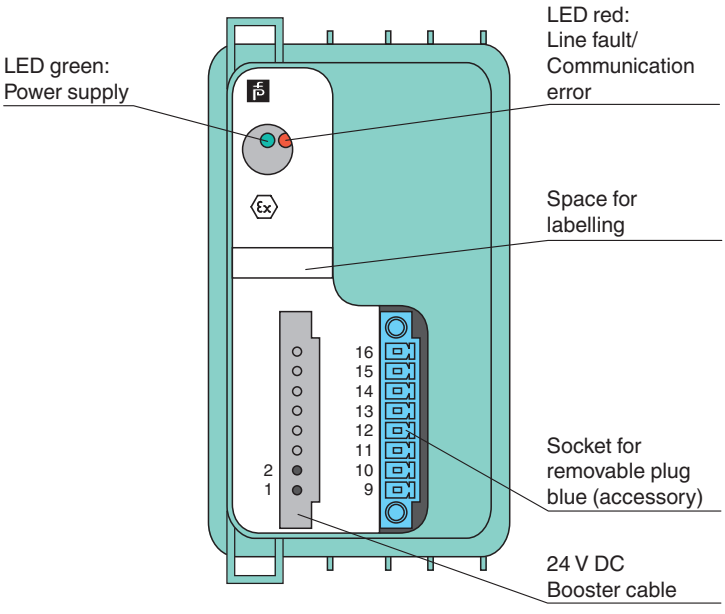
Release date: 2022-06-29 Date of issue: 2022-06-29 Filename: 276340_eng.pdf

Technical Data

Power	P_o	714 mW
Internal capacitance	C_i	2.5 nF
Internal inductance	L_i	0 mH
Galvanic isolation		
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals		
ATEX approval		PTB 97 ATEX 1075 ; PTB 97 ATEX 1074 U
EAC approval		Russia: RU C-IT.MIII06.B.00129
Marine approval		
Lloyd Register		15/20021
DNV GL Marine		TAA0000034
American Bureau of Shipping		T1450280/UN
Bureau Veritas Marine		22449/B0 BV
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

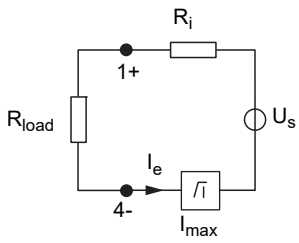
Front view



Release date: 2022-06-29 Date of issue: 2022-06-29 Filename: 276340_eng.pdf

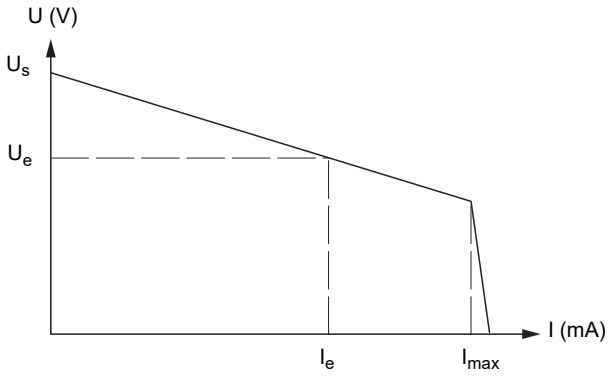
Characteristic Curve

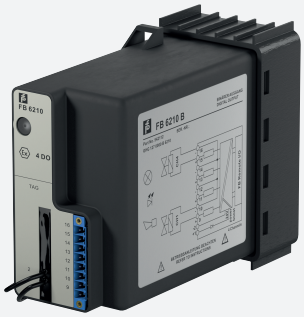
Load calculation



R_{load} = Field loop resistance
$U_e = U_s - R_i \times I_e$
$I_e = U_s/(R_i + R_{load})$

Output characteristics





Digital Output

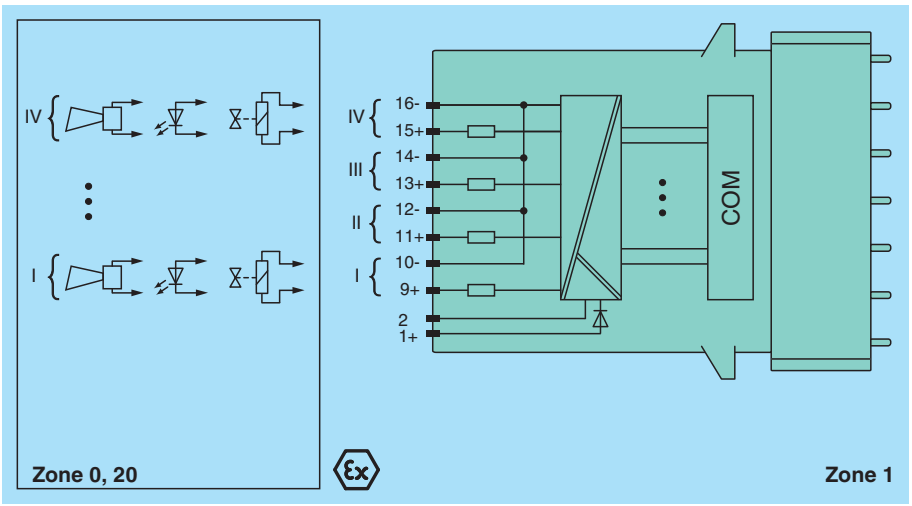
FB6215BR

- 4-channel
- Outputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Line fault detection (LFD)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog

Function

The digital output features 4 independent channels.
The device can be used to drive solenoids, sounders, or LEDs.
Open and short-circuit line faults are detected.
The outputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus / 24 V booster via wire ends
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Input voltage range	U	18.5 ... 32 V DC (SELV/PELV) booster voltage
Power dissipation		3 W
Power consumption		0.15 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital output		

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Technical Data

Number of channels		4
Suitable field devices		
Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 9+, 10-; channel II: 11+, 12-; channel III: 13+, 14-; channel IV: 15+, 16-
Internal resistor	R_i	max. 90 Ω
Current limit	I_{max}	70 mA
Open loop voltage	U_s	16.6 V
Line fault detection		can be switched on/off for each channel via configuration tool also when turned off (every 2.5 s the valve is turned on for 2 ms)
Short-circuit		< 100 Ω
Open-circuit		> 15 kΩ
Response time		10 ms (depending on bus cycle time)
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Reaction time		10 s
Indicators/settings		
LED indication		LED green: supply LED red: line fault , red flashing: communication error
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-25 ... 85 °C (-13 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 750 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 97 ATEX 1074 U
Marking		⟨Ex⟩ II 2(1) G Ex d [ia Ga] IIC Gb ⟨Ex⟩ II (1) D [Ex ia Da] IIIC
Output		
Voltage	U_o	18.9 V
Current	I_o	286 mA

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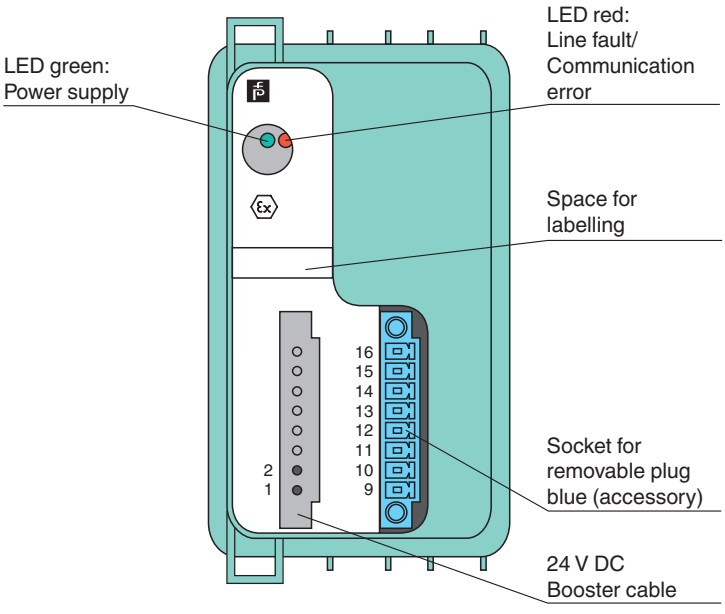
Technical Data

Power	P_o	1351 mW
Internal capacitance	C_i	2.5 nF
Internal inductance	L_i	0 mH
Galvanic isolation		
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals		
ATEX approval		PTB 97 ATEX 1075 ; PTB 97 ATEX 1074 U
EAC approval		Russia: RU C-IT.MIII06.B.00129
Marine approval		
Lloyd Register		15/20021
DNV GL Marine		TAA0000034
American Bureau of Shipping		T1450280/UN
Bureau Veritas Marine		22449/B0 BV
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



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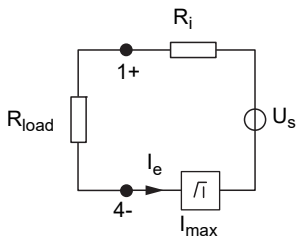
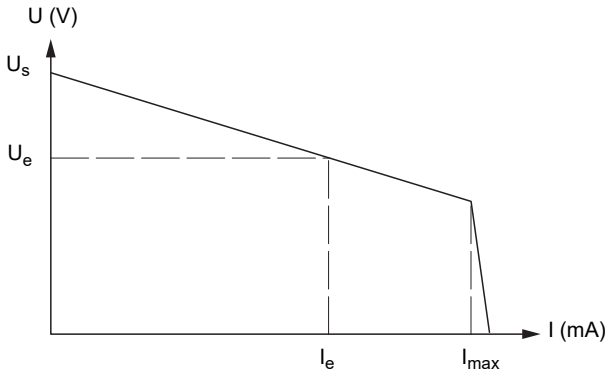
Characteristic Curve

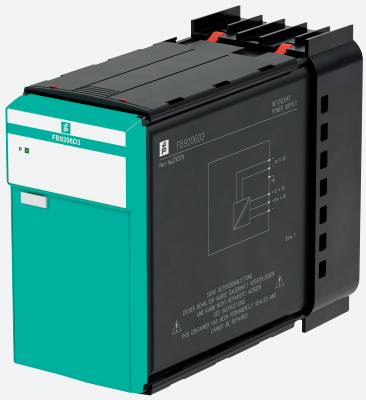
Load calculation



R_{load} = Field loop resistance
$U_e = U_s - R_i \times I_e$
$I_e = U_s/(R_i + R_{load})$

Output characteristics





Power supply

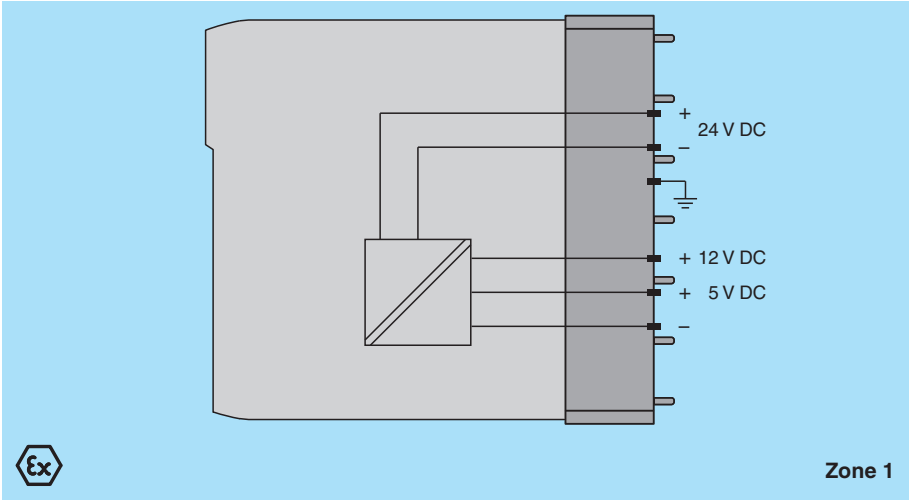
FB9206D3

- Power supply for 24 V DC
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)

Function

The power supply provides power for the I/O modules and com units mounted on the backplane.
Input and output are galvanically isolated from each other acc. to EN 61010-1.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		wired to Ex e terminals via backplane
Maximum safe voltage U_m		60 V DC (SELV/PELV) common mode
Input voltage range	U	18 ... 32 V DC (SELV/PELV)
Power dissipation		4.7 W at 100 % load 3.8 W at 50 % load
Power consumption		max. 44 W
Inrush current		6 A (30 ms) 15 A (20 µs)
Output		
Voltage		5.4 V DC +/- 5% , 12 V DC + 4/- 2%

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Technical Data

Power		$P_{5V} \leq 5.4$ W, $P_{12V} \leq 39$ W - P_{5V}
Galvanic isolation		
Power supply/Output		basic insulation according to IEC/EN 61010-1, rated insulation voltage 60 V_{eff}
Indicators/settings		
LED indication		LED green: OFF in case of loss of 24V or 12V or 5V
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
Conformity		
Galvanic isolation		EN 61010-1:2010
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Mass		approx. 970 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		
Marking		Ⓔx II 2G Ex db eb q IIC Gb
Wait time		wait time before removing the device: 7 min For further information see instruction manual.
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018
International approvals		
ATEX approval		Presafe 19 ATEX 14059U
IECEx approval		
IECEx certificate		IECEx PRE 19.0014U
IECEx marking		Ex db eb q IIC Gb
General information		
System information		The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information		

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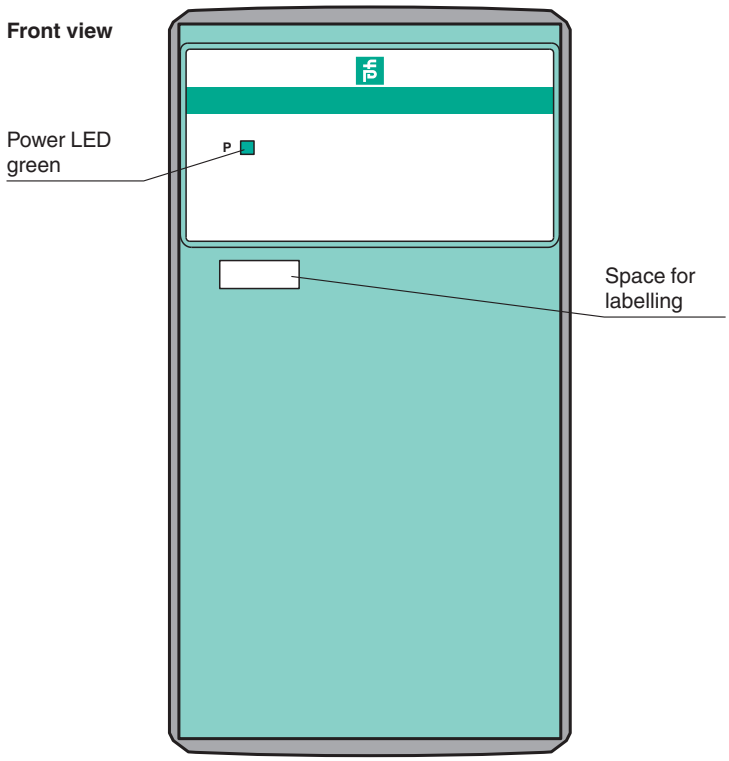
Assembly

Front view



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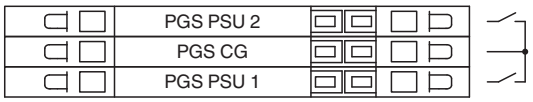
Connection Assignment

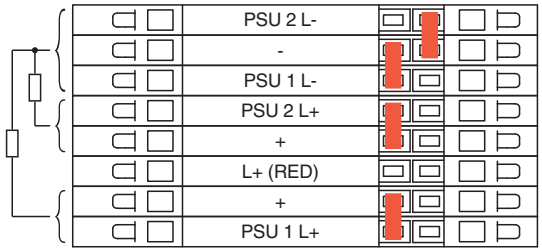
Wiring Power Good Signal

Only in Conjunction with FB9204C3 or FB9205C3



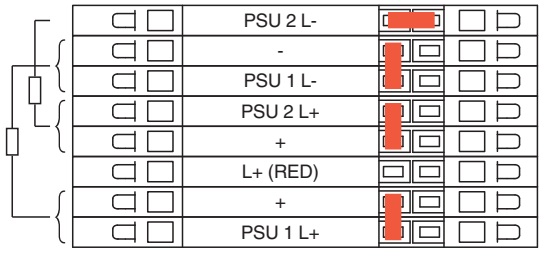
Wiring and Jumper Settings

Seperate PSU, common ground

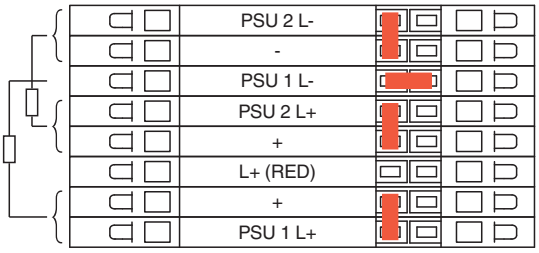


Seperate PSU, seperate ground

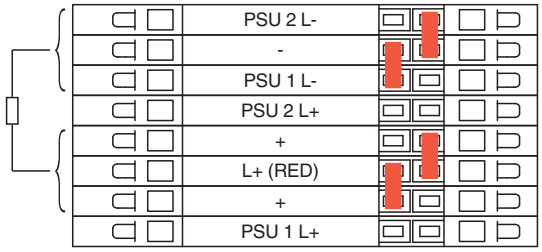
Ground connection doubled for PSU 1



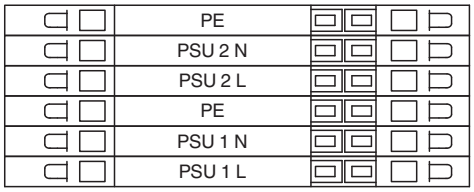
Ground connection doubled for PSU 2



Parallel / Redundant PSUs



Power Connection



Legend	
PSU:	Power Supply Unit

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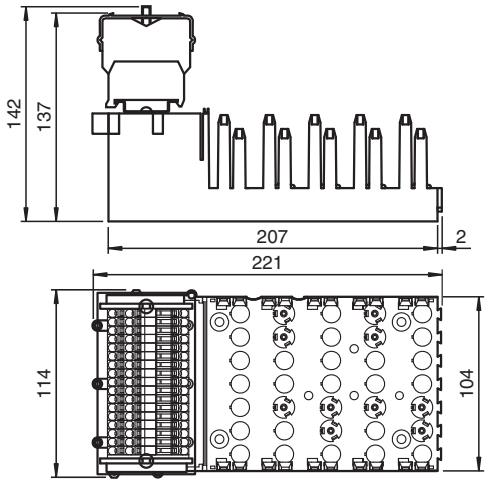
Dimensions



Technical Data

Slots		
Supply		2
Supply		
Maximum safe voltage U_m		253 V AC
Input voltage range	U	95 ... 253 V AC
Redundancy		yes
Output		
Voltage		non-redundant: 24 V ; redundant: 23 V
Current		non-redundant: 2.4 A ; redundant: 1.2 A
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Degree of protection		EN 60529
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Mechanical specifications		
Connection type		Terminals
Core cross section		0.5 ... 2.5 mm²
Degree of protection		IP30
Mass		approx. 512 g , without modules
Dimensions		(l x w x h) 207 x 110 x 137 mm , without modules
Data for application in connection with hazardous areas		
EU-type examination certificate		BVS 11 ATEX E 041 X
Marking		Ⓔx II 2G Ex db eb IIC T4 Gb
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-7:2015+A1:2018 EN 60079-18:2015+A1:2017
International approvals		
IECEx approval		
IECEx certificate		BVS 11.0019X

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Technical Data

IECEx marking		Ex db eb IIC T4 Gb
INMETRO approval		Brazil: TÜV 14.1598X
Marine approval		
Bureau Veritas Marine		22449/B0 BV
General information		
Scope of delivery		Backplane (without modules and surrounding enclosure)
Supplementary information		

Release date: 2023-06-13 Date of issue: 2023-06-13 Filename: 276979_eng.pdf

Digital Output with Shutdown Input

FB6216E3

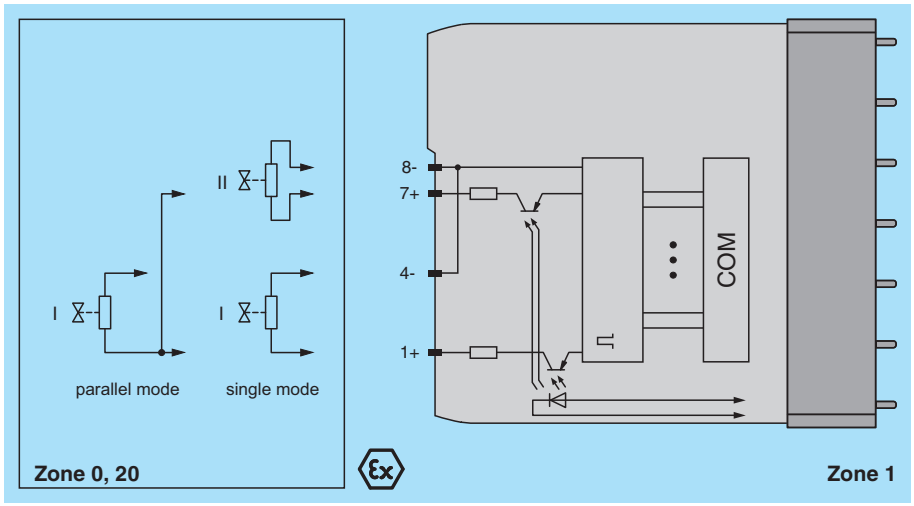
- 2-channel
- Outputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Line fault detection (LFD)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog
- Output with bus-independent safety shutdown input

CE Ex SIL 2

Function

The digital output features 2 independent channels.
The device can be used to drive solenoids, sounders, or LEDs.
Open and short circuit line faults are detected.
The outputs are galvanically isolated from the bus and the power supply.
The output can be switched off via a contact. This can be used for bus-independent safety applications.

Connection Assignment



Technical Data

Supply		
Connection		backplane bus / booster terminals
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		1.95 W
Power consumption		2.9 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital output		
Number of channels		2
Suitable field devices		

Release date: 2024-04-22 Date of issue: 2024-04-22 Filename: 281078_eng.pdf

Technical Data

Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 1+, 4/5/6/8-; channel II: 7+, 4/5/6/8-
Internal resistor	R_i	258 Ω , both channels parallel 129 Ω
Current limit	I_{max}	40 mA both channels parallel 80 mA
Open loop voltage	U_s	23 V , both channels parallel 23 V
Line fault detection		can be switched on/off for each channel via configuration tool also when turned off (every 2.5 s the valve is turned on for 2 ms)
Short-circuit		< 50 Ω
Open-circuit		> 10 kΩ
Response time		10 ms (depending on bus cycle time)
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Indicators/settings		
LED indication		Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1, 2) red: line fault (lead breakage or short circuit) , yellow: state of digital I/O (0/1) Mode LED (M) white: Parallel operation of outputs
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 425 g
Dimensions		28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14054U
Marking		⟨Ex⟩ II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Output		
Voltage	U_o	24.2 V
Current	I_o	108 mA

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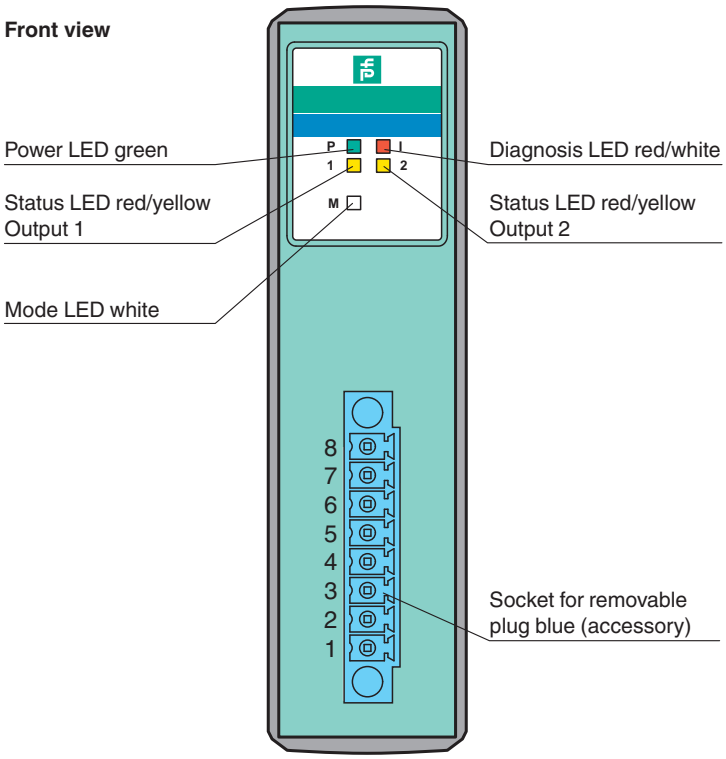
Technical Data

Power	P_o	654 mW
Internal capacitance	C_i	12 nF
Internal inductance	L_i	0 mH
Output (both channels parallel)		
Voltage	U_o	24.2 V
Current	I_o	216 mA
Power	P_o	1308 mW
Internal capacitance	C_i	24 nF
Internal inductance	L_i	0 mH
Galvanic isolation		
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14054U
IECEx approval		IECEx PRE 19.0009U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



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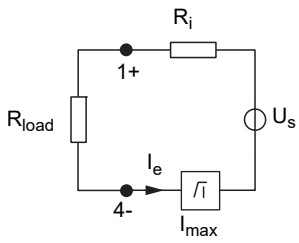
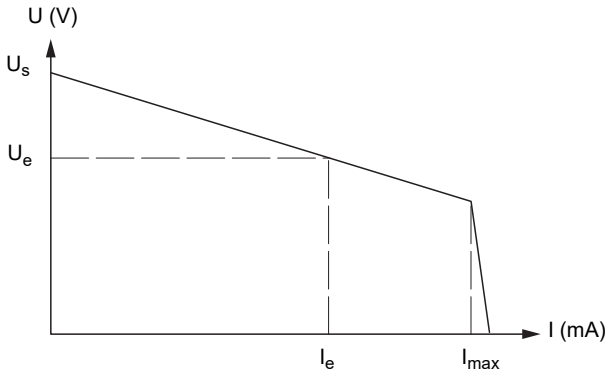
Characteristic Curve

Load calculation



R_{load} = Field loop resistance
$U_e = U_s - R_i \times I_e$
$I_e = U_s/(R_i + R_{load})$

Output characteristics



Digital Output with Shutdown Input

FB6217E3

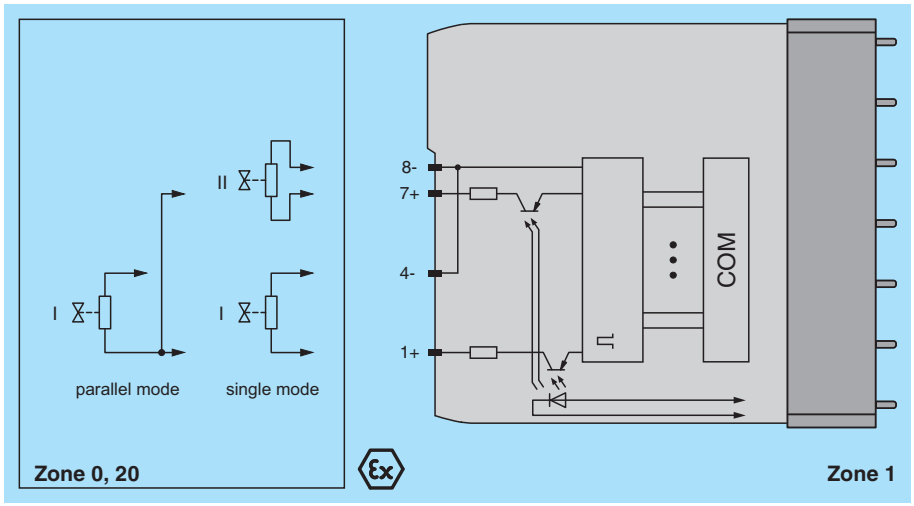
- 2-channel
- Outputs Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Line fault detection (LFD)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog
- Output with bus-independent safety shutdown

CE Ex SIL 2

Function

The digital output features 2 independent channels.
The device can be used to drive solenoids, sounders, or LEDs.
Open and short circuit line faults are detected.
The outputs are galvanically isolated from the bus and the power supply.
The output can be switched off via a contact. This can be used for bus-independent safety applications.

Connection Assignment



Technical Data

Supply		
Connection		backplane bus / booster terminals
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		1.7 W
Power consumption		2.7 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital output		
Number of channels		2
Suitable field devices		

Release date: 2024-04-22 Date of issue: 2024-04-22 Filename: 281081_eng.pdf

Technical Data

Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 1+, 4/5/6/8-; channel II: 7+, 4/5/6/8-
Internal resistor	R_i	131 Ω , both channels parallel 66 Ω
Current limit	I_{max}	50 mA both channels parallel 100 mA
Open loop voltage	U_s	16.5 V , both channels parallel 16.5 V
Line fault detection		can be switched on/off for each channel via configuration tool also when turned off (every 2.5 s the valve is turned on for 2 ms)
Short-circuit		< 50 Ω
Open-circuit		> 10 kΩ
Response time		10 ms (depending on bus cycle time)
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Indicators/settings		
LED indication		Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1, 2) red: line fault (lead breakage or short circuit) , yellow: state of digital I/O (0/1) Mode LED (M) white: Parallel operation of outputs
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 420 g
Dimensions		28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14054U
Marking		⟨Ex⟩ II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Output		
Voltage	U_o	17.8 V
Current	I_o	162 mA

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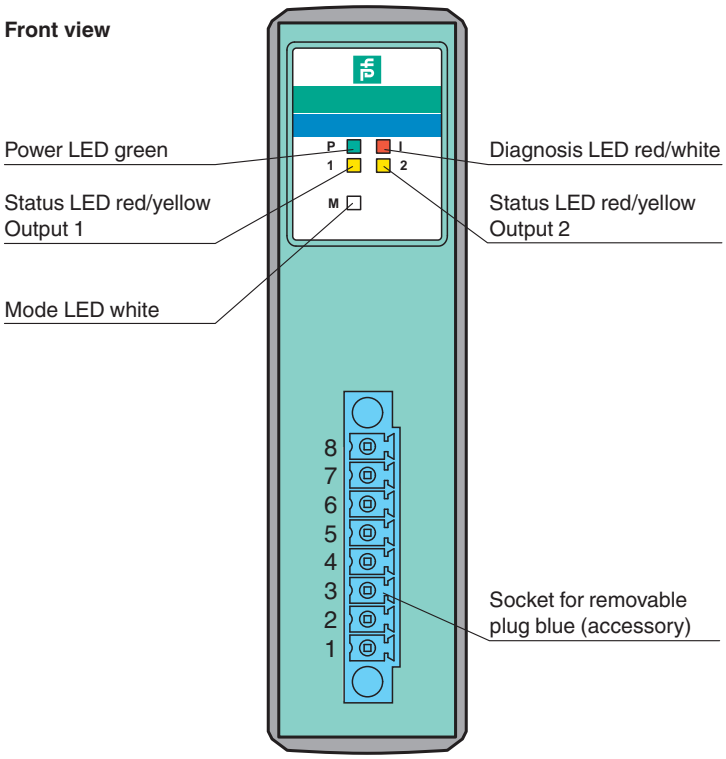
Technical Data

Power	P_o	721 mW
Internal capacitance	C_i	12 nF
Internal inductance	L_i	0 mH
Output (both channels parallel)		
Voltage	U_o	17.8 V
Current	I_o	324 mA
Power	P_o	1442 mW
Internal capacitance	C_i	24 nF
Internal inductance	L_i	0 mH
Galvanic isolation		
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14054U
IECEx approval		IECEx PRE 19.0009U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

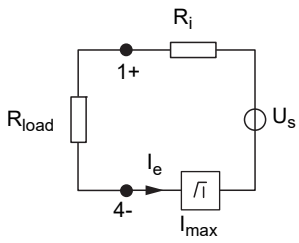
Front view



Release date: 2024-04-22 Date of issue: 2024-04-22 Filename: 281081_eng.pdf

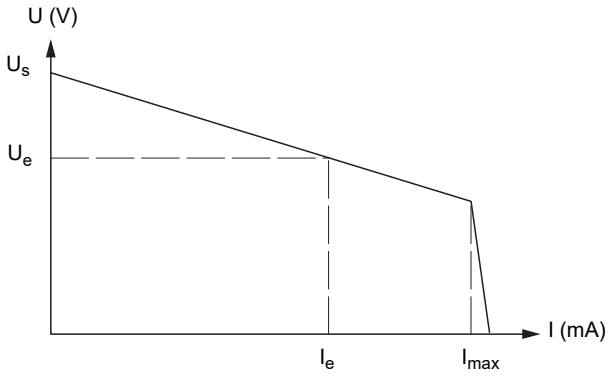
Characteristic Curve

Load calculation



R_{load} = Field loop resistance
$U_e = U_s - R_i \times I_e$
$I_e = U_s/(R_i + R_{load})$

Output characteristics



Digital Output with Position Feedback

FB2216E3

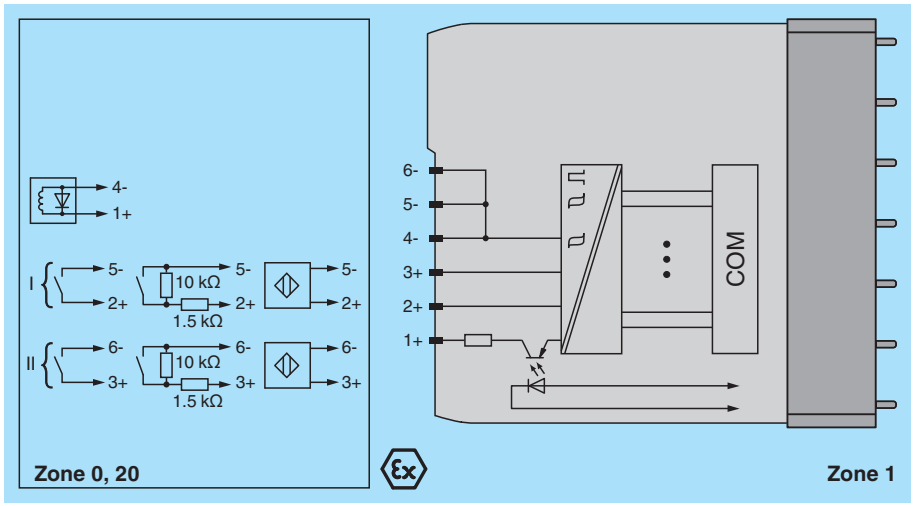
- 1-channel
- 1 digital output, 2 digital inputs
- Inputs and output Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Line fault detection switched on and off
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog
- Output with bus-independent safety shutdown input

CE Ex SIL 2

Function

The digital output features 1 output with 2 feedback inputs.
The device can be used to switch solenoids, sounders, or indicators (without line fault detection) in the field. Furthermore, the device accepts digital input signals of NAMUR sensors or mechanical contacts from the field.
The output can be switched off via a contact. This can be used for bus-independent safety applications.
Open and short circuit line faults are detected in on and off state.
The intrinsically safe inputs and the output are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		1
Supply		
Connection		backplane bus / booster terminals
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		1.3 W
Power consumption		1.85 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 282275_eng.pdf

Technical Data

Digital input		
Number of channels		2
Sensor interface		
Connection		NAMUR sensor
Connection [2]		volt-free contact
Connection		channel I: 2+, 5-; channel II: 3+, 6-
Rated values		acc. to EN 60947-5-6 (NAMUR)
Switching point/switching hysteresis		1.2 ... 2.1 mA / ± 0.2 mA
Internal resistor	R_i	1 kΩ
Line fault detection		can be switched on/off for each channel via configuration tool
Connection		mechanical switch with additional resistors (see connection diagram) proximity switches without additional wiring
Short-circuit		< 360 Ω
Open-circuit		< 0.35 mA
Minimum pulse duration		1 ms
Digital output		
Number of channels		1
Suitable field devices		
Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 1+, 4-
Internal resistor	R_i	258 Ω
Current limit	I_{max}	50 mA
Open loop voltage	U_s	23 V
Line fault detection		can be switched on/off for each channel via configuration tool , also when turned off (every 2.5 s the valve is turned on for 2 ms)
Short-circuit		< 50 Ω
Open-circuit		> 10 kΩ
Response time		10 ms (depending on bus cycle time)
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Indicators/settings		
LED indication		Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (O: output, I1: input 1, I2: input 2) red: line fault (lead breakage or short circuit) , yellow: state of digital I/O (0/1)
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 282275_eng.pdf

Technical Data

Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 750 g
Dimensions		28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14054U
Marking		Ⓔx II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Input		
Voltage	U_o	10 V
Current	I_o	13 mA
Power	P_o	33 mW (linear characteristic)
Internal capacitance	C_i	1.2 nF
Internal inductance	L_i	0 mH
Output		
Voltage	U_o	24.2 V
Current	I_o	108 mA
Power	P_o	654 mW
Internal capacitance	C_i	12 nF
Internal inductance	L_i	0 mH
Galvanic isolation		
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14054U
IECEx approval		IECEx PRE 19.0009U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.
Supplementary information		

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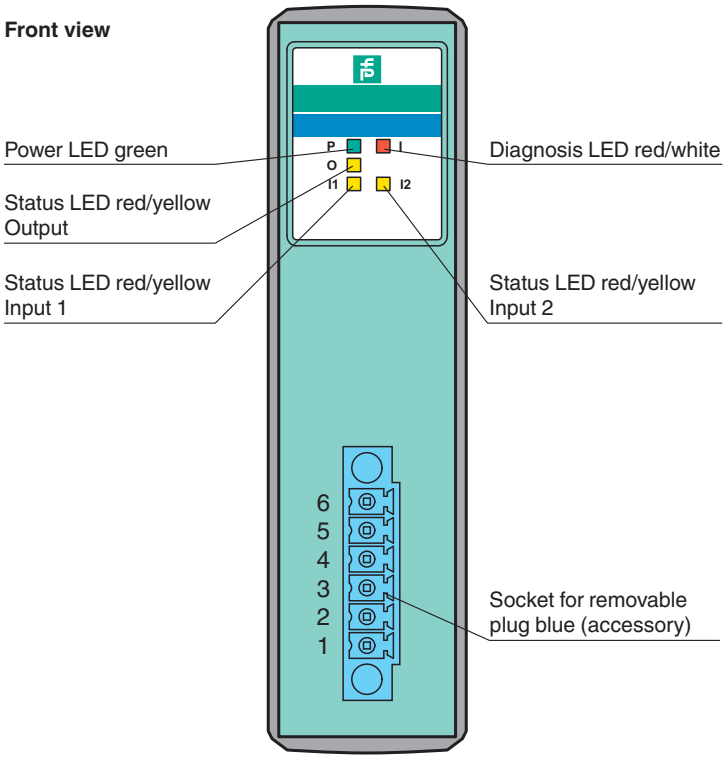
Assembly

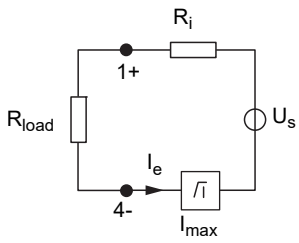
Front view



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 282275_eng.pdf

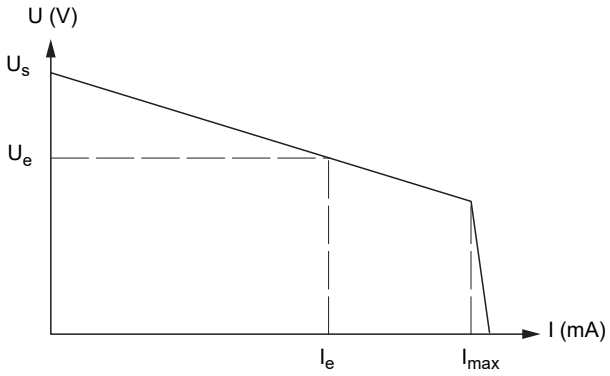
Characteristic Curve

Load calculation



R_{load} = Field loop resistance
$U_e = U_s - R_i \times I_e$
$I_e = U_s/(R_i + R_{load})$

Output characteristics



Digital Output with Position Feedback

FB2217E3

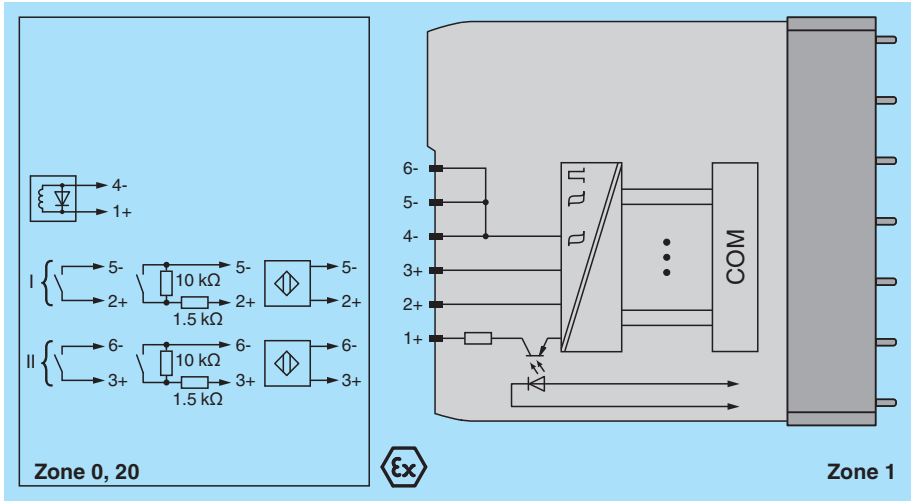
- 1-channel
- 1 digital output, 2 digital inputs
- Inputs and output Ex ia
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Line fault detection switched on and off
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog
- Output with bus-independent safety shutdown input

CE Ex SIL 2

Function

The digital output features 1 output with 2 feedback inputs.
The device can be used to switch solenoids, sounders, or indicators (without line fault detection) in the field. Furthermore, the device accepts digital input signals of NAMUR sensors or mechanical contacts from the field.
The output can be switched off via a contact. This can be used for bus-independent safety applications.
Open and short circuit line faults are detected in on and off state.
The intrinsically safe inputs and the output are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		1
Supply		
Connection		backplane bus / booster terminals
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		1.3 W
Power consumption		1.85 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 282276_eng.pdf

Technical Data

Digital input		
Number of channels		2
Sensor interface		
Connection		NAMUR sensor
Connection [2]		volt-free contact
Connection		channel I: 2+, 5-; channel II: 3+, 6-
Rated values		acc. to EN 60947-5-6 (NAMUR)
Switching point/switching hysteresis		1.2 ... 2.1 mA / ± 0.2 mA
Internal resistor	R_i	1 kΩ
Line fault detection		can be switched on/off for each channel via configuration tool
Connection		mechanical switch with additional resistors (see connection diagram) proximity switches without additional wiring
Short-circuit		< 360 Ω
Open-circuit		< 0.35 mA
Minimum pulse duration		1 ms
Digital output		
Number of channels		1
Suitable field devices		
Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 1+, 4-
Internal resistor	R_i	131 Ω
Current limit	I_{max}	50 mA
Open loop voltage	U_s	16.5 V
Line fault detection		can be switched on/off for each channel via configuration tool , also when turned off (every 2.5 s the valve is turned on for 2 ms)
Short-circuit		< 50 Ω
Open-circuit		> 10 kΩ
Response time		10 ms (depending on bus cycle time)
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Indicators/settings		
LED indication		Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (parameters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (O: output, I1: input 1, I2: input 2) red: line fault (lead breakage or short circuit) , yellow: state of digital I/O (0/1)
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18

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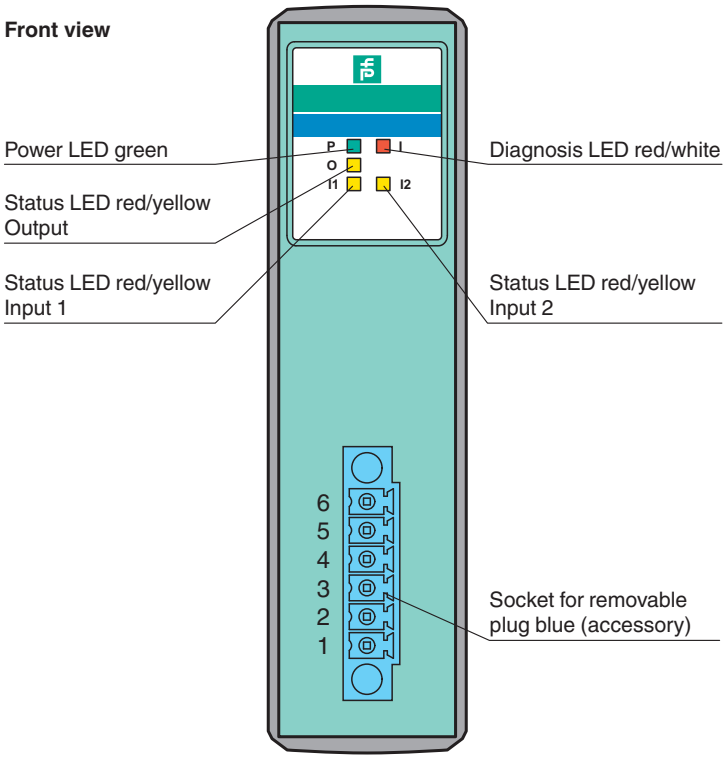
Technical Data

Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm^2) or screw terminals (0.08 ... 1.5 mm^2)
Mass		approx. 750 g
Dimensions		28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14054U
Marking		Ⓔx II 2(1)G Ex db eb q [ia Ga] IIC Gb II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I
Input		
Voltage	U_o	10 V
Current	I_o	13 mA
Power	P_o	33 mW (linear characteristic)
Internal capacitance	C_i	1.2 nF
Internal inductance	L_i	0 mH
Output		
Voltage	U_o	17.8 V
Current	I_o	162 mA
Power	P_o	721 mW
Internal capacitance	C_i	12 nF
Internal inductance	L_i	0 mH
Galvanic isolation		
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14054U
IECEx approval		IECEx PRE 19.0009U
Approved for		Ex db eb q [ia Ga] IIC Gb [Ex ia Da] IIIC [Ex ia Ma] I
General information		
System information		The module has to be mounted in appropriate backplanes and housings (FB92**) in Zone 1, 2, 21, 22 or outside hazardous areas (gas or dust). Here, observe the corresponding EC-type examination certificate.
Supplementary information		

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 282276_eng.pdf

Assembly

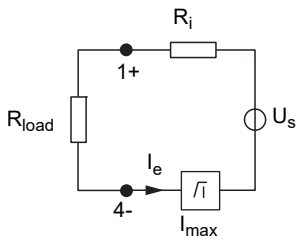
Front view



Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 282276_eng.pdf

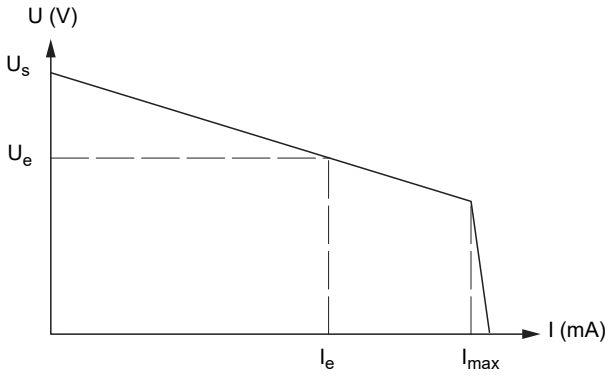
Characteristic Curve

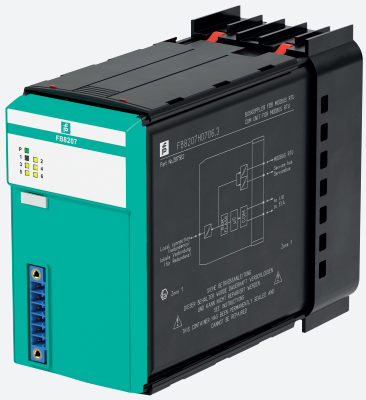
Load calculation



R_{load} = Field loop resistance
$U_e = U_s - R_i \times I_e$
$I_e = U_s/(R_i + R_{load})$

Output characteristics





Com Unit for MODBUS RTU

FB8207H0706.3

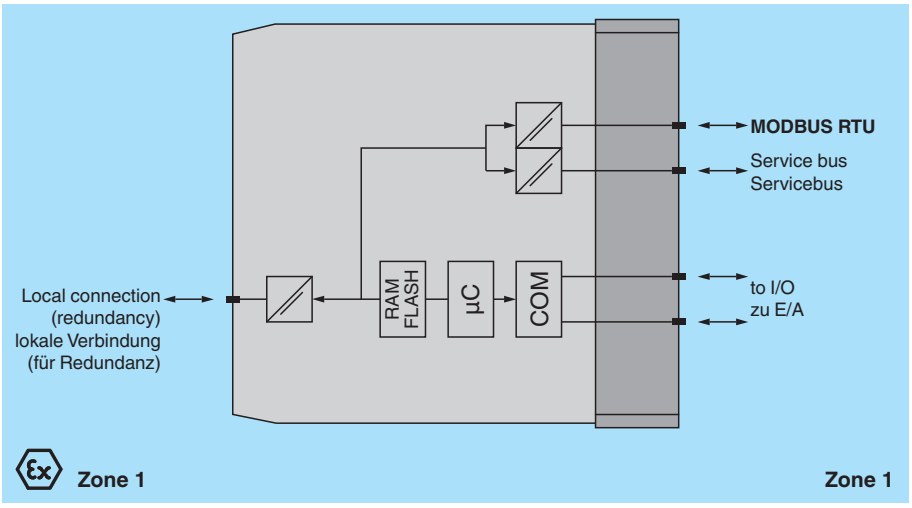
- Interface between the I/O modules and the PCS/PLC
- Com unit for 80 analog or 184 digital channels
- Communication via MODBUS RTU
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- HART communication via service bus
- Configuration via FDT 1.2 DTM
- Non-volatile memory for configuration and parameter settings
- Self configuration in redundant systems
- Permanently self-monitoring
- Outputs drive to safe state in case of failures

Com Unit for MODBUS RTU

Function

The MODBUS RTU com unit forms the interface between the I/O modules on the backplane and the process control system.
It supports all single width and dual width I/O modules. Thereby signals from NAMUR sensors, mechanical contacts, high-power solenoid drivers, power relays, sounders, and alarm LEDs are transported to the higher-level bus system.
The com unit can be easily configured via DTM and supports redundancy as well as HART.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	5 V DC , only in connection with the power supplies FB92**
Power dissipation		1.8 W
Power consumption		1.8 W
Fieldbus connection		
Fieldbus type		MODBUS RTU
MODBUS RTU		
Connection		wired to Ex e terminals via backplane

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Technical Data

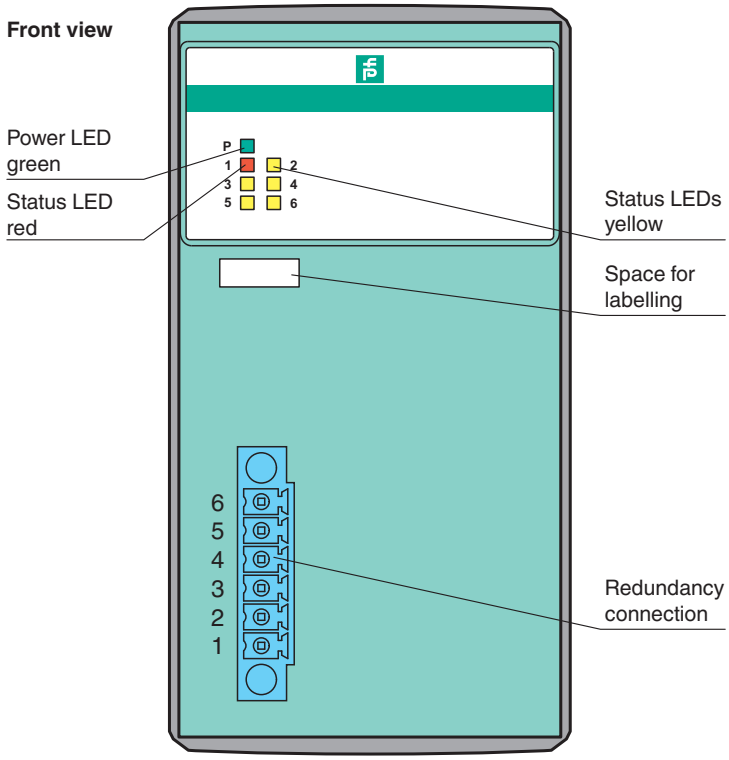
Baud rate	max. 38.4 kBit/s
Number of stations per bus line	max. 245 (MODBUS), max. 119 (service bus)
Number of channels per station	max. 80 analog, max. 184 digital (standard configuration)
Number of stations per bus segment	max. 31 (RS-485 standard)
Number of repeaters between Master and Slave	max. 3
Supported I/O modules	all FB remote I/O modules
Bus length	max. 1200 m (FOL, 38.4 kBd), max. 1200 m (copper cable, 38.4 kBd)
FOL (fiber optic link)	additional hardware required
Addressing	via configuration software
MODBUS address	standard compliant (factory standard setting: 126)
Service bus address	max. 119 , redundancy address = base + 128 (automatic)
HART communication	via service bus
Redundancy	system dependent
Internal bus	
Connection	backplane bus
Redundancy	via front connector
Indicators/settings	
LED indication	LED green (power supply): On = operating, fast flash = cold start LED red (collective alarm): On = internal fault, flashing = no Modbus RTU connection LED yellow (operating mode): flashing 1 (1:1 ratio) = active, normal operation; flashing 2 (7:1 ratio) = active, simulation
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013
Conformity	
Electromagnetic compatibility	NE 21
Degree of protection	IEC 60529
Fieldbus standard	IEC 61158-2
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-78
Ambient conditions	
Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	via backplane
Mass	approx. 750 g
Dimensions	57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EU-type examination certificate	Presafe 19 ATEX 14058U
Marking	Ex db eb q [ib] IIC Gb
Directive conformity	

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 287562_eng.pdf

Technical Data

Directive 2014/34/EU	EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals	
ATEX approval	Presafe 19 ATEX 14058U
IECEx approval	IECEx PRE 19.0013U
Approved for	Ex db eb q [ib] IIC Gb
General information	
System information	The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information	

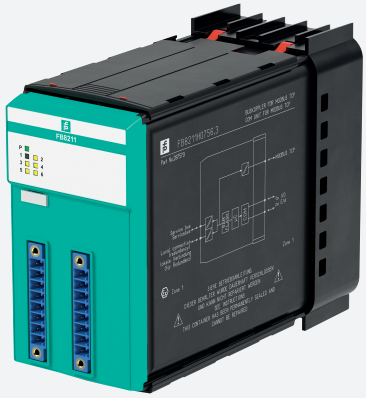
Assembly



Accessories

	DTM LB/FB	DTM collection
	FB9224*	Field Unit
	FB9225*	Redundancy Field Unit
	FB9248*	Field Unit

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 287562_eng.pdf



Com Unit for MODBUS TCP

FB8211H0756.3

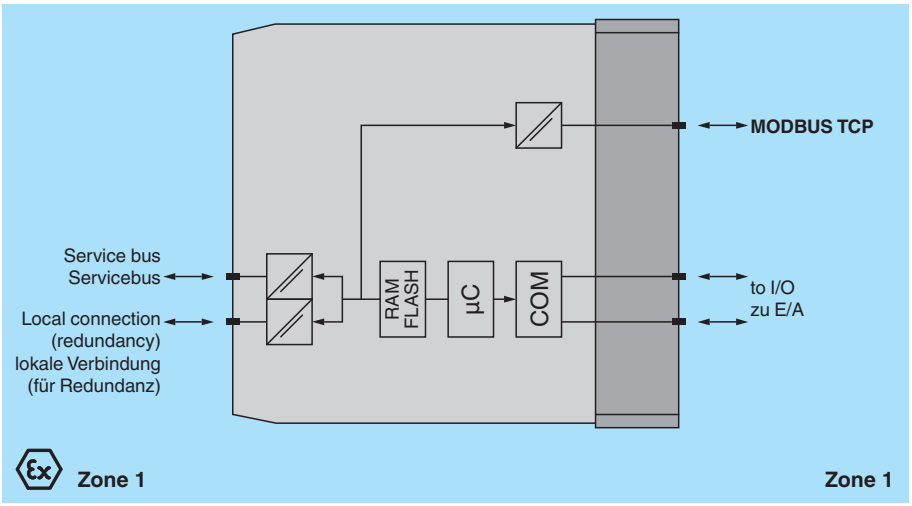
- Interface between the I/O modules and the PCS/PLC
- Com unit for 80 analog or 184 digital channels
- Communication via MODBUS TCP
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- HART communication via MODBUS TCP
- Configuration via FDT 1.2 DTM
- Non-volatile memory for configuration and parameter settings
- Self configuration in redundant systems
- Permanently self-monitoring
- Outputs drive to safe state in case of failures

Com Unit for MODBUS TCP

Function

The MODBUS TCP com unit forms the interface between the I/O modules on the backplane and the process control system.
It supports all single width and dual width I/O modules. Thereby signals from NAMUR sensors, mechanical contacts, high-power solenoid drivers, power relays, sounders, and alarm LEDs are transported to the higher-level bus system.
The com unit can be easily configured via DTM and supports redundancy as well as HART.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	5 V DC , only in connection with the power supplies FB92**
Power dissipation		2 W
Power consumption		2.5 W
Fieldbus connection		
Fieldbus type		MODBUS TCP
Ethernet Interface		
Connection type		wired to Ex e terminals via backplane

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 287579_eng.pdf

Technical Data

Transfer rate	10 MBit/s
Station connection	directly to PCS or PLC or via hubs or switches
Bus length	max. 100 m (Ethernet standard)
Addressing	IP address assigned via Ethernet
Ethernet address	IP V4 address (factory standard setting: 0.0.0.0, auto IP, DHCP)
Number of channels per station	max. 80 analog, max. 184 digital
Supported I/O modules	all FB remote I/O modules
HART communication	via Ethernet
Internal bus	
Connection	backplane bus
Redundancy	via left front connector
Service interface	
Connection	via right front connector in connection with service adapter SERV8001
Indicators/settings	
LED indication	LED green (power supply): On = operating, fast flash = cold start LED red (collective alarm): On = internal fault, flashing = no Modbus TCP connection LED yellow (operating mode): flashing 1 (1:1 ratio) = active, normal operation; flashing 2 (7:1 ratio) = active, simulation
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013
Conformity	
Electromagnetic compatibility	NE 21
Degree of protection	IEC 60529
Fieldbus standard	IEEE 802.3
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-78
Ambient conditions	
Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	via backplane
Mass	approx. 750 g
Dimensions	57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EU-type examination certificate	Presafe 19 ATEX 14058U
Marking	Ex db eb q [ib] IIC Gb
Directive conformity	
Directive 2014/34/EU	EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals	
ATEX approval	Presafe 19 ATEX 14058U

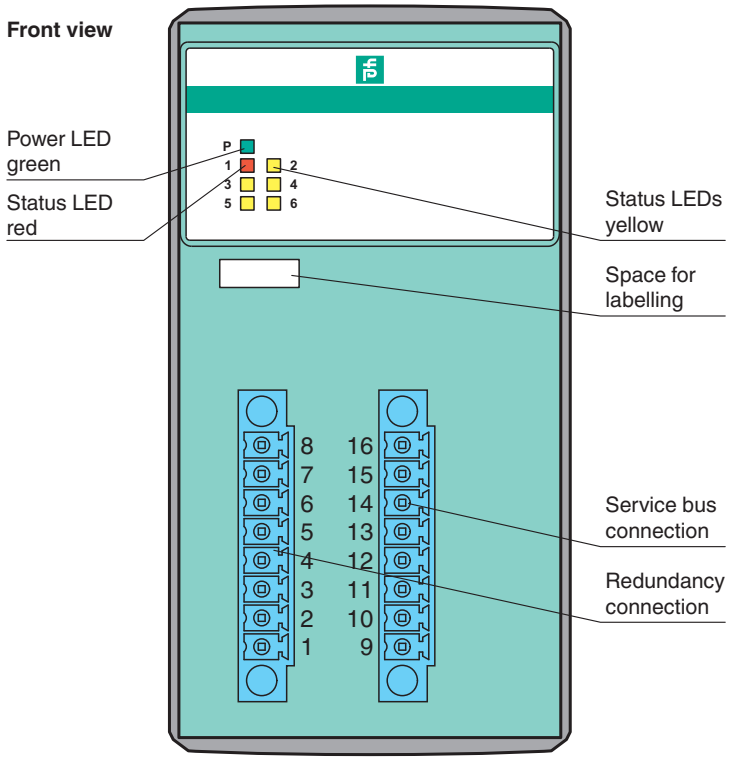
Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 287579_eng.pdf

Technical Data

IECEx approval		IECEx PRE 19.0013U
Approved for		Ex db eb q [ib] IIC Gb
General information		
System information		The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



Accessories

	DTM LB/FB	DTM collection

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 287579_eng.pdf

Relay output

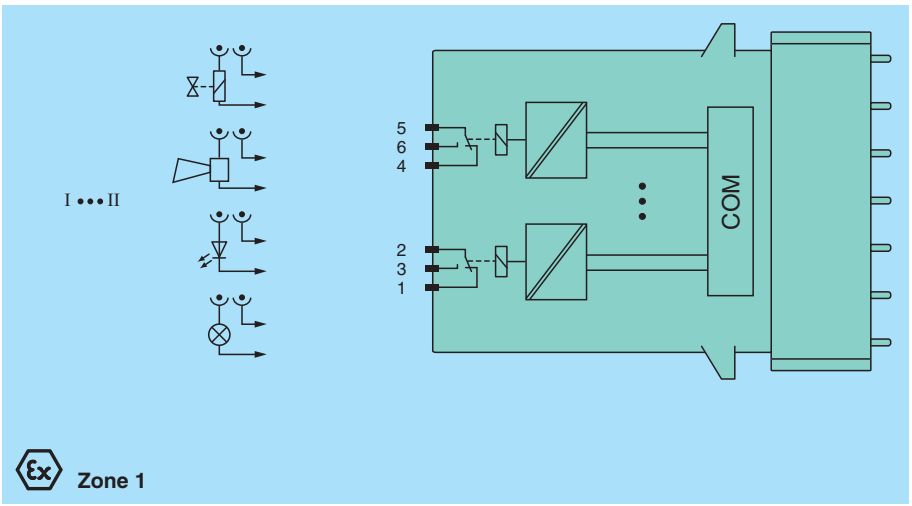
FB6301B150

- 2-channel
- Outputs wired to Ex e terminals
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog

Function

The device features 2 independent channels.
The device can be used to switch solenoids, sounders, or lamps.
The device can perform general switching operations, such as switching auxiliary power circuits.
The outputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		1
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		0.65 W
Power consumption		0.65 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Output		
Connection		wire ends 1 (white), 2 (brown), 3 (green), 4 (yellow), 5 (grey), 6 (pink)

Release date: 2022-06-29 Date of issue: 2022-06-29 Filename: 542256_eng.pdf

Technical Data

Minimum load	1 V , 1 mA
Relay	
Switching voltage	24 V DC / 230 V AC
Switching current	1 A DC / AC resistive load
Switching power	30 W , 230 VA resistive load
Electrical life	0.5 Mio. cycles
Response time	20 ms (depending on bus cycle time)
Contact Material	AgPd gold plated
Watchdog	within 0.5 s the device goes in safe state, e.g. after loss of communication
Indicators/settings	
LED indication	LED green: supply LED yellow: signal (status)
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1
Low voltage	
Directive 2006/95/EC	EN 61010-1
Conformity	
Electromagnetic compatibility	NE 21
Degree of protection	IEC 60529
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-78
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	wire ends or shielded cable tail wiring connection: separately covered Ex e terminals required
Mass	approx. 350 g
Dimensions	28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EU-type examination certificate	PTB 97 ATEX 1074 U
Marking	⟨Ex⟩ II 2 G Ex d IIC Gb
Galvanic isolation	
Output/power supply, internal bus	safe electrical isolation acc. to EN 61010-1
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals	
Marine approval	
Bureau Veritas Marine	22449/B0 BV
General information	

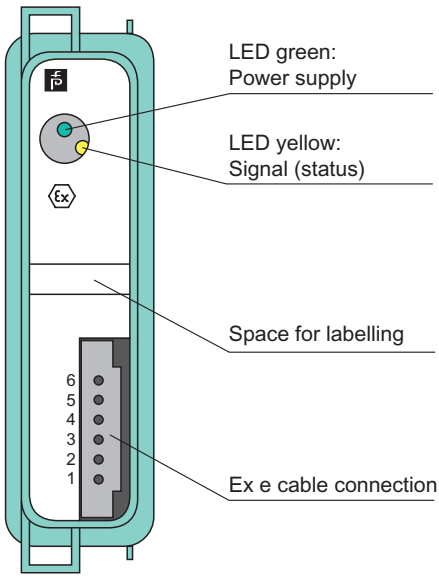
Release date: 2022-06-29 Date of issue: 2022-06-29 Filename: 542256_eng.pdf

Technical Data

System information		The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



Release date: 2022-06-29 Date of issue: 2022-06-29 Filename: 542256_eng.pdf

Relay output

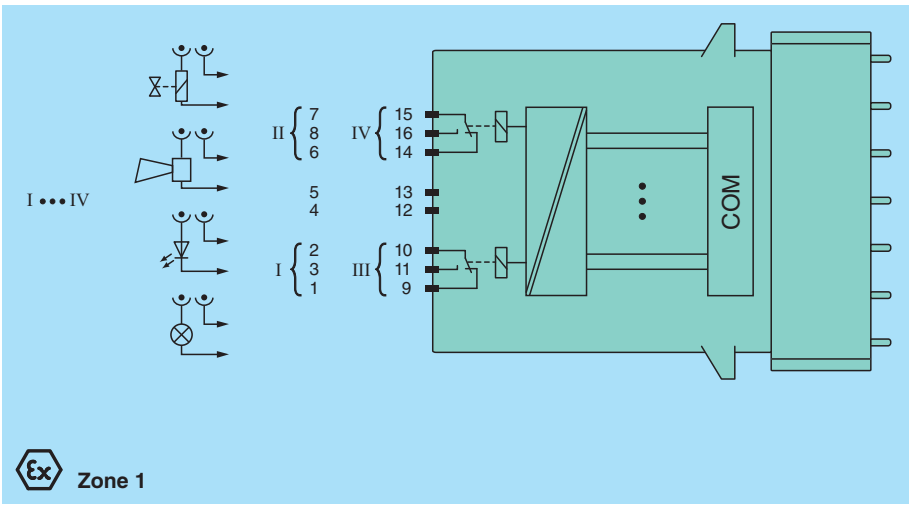
FB6305B200

- 4-channel
- Outputs wired to Ex e terminals
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog

Function

The device features 4 independent channels.
The device can be used to switch solenoids, sounders, or lamps.
The device can perform general switching operations, such as switching auxiliary power circuits.
The outputs are galvanically isolated from the bus and the power supply.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power dissipation		1.05 W
Power consumption		1.05 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Digital output		
Number of channels		4

Release date: 2022-06-29 Date of issue: 2022-06-29 Filename: 542271_eng.pdf

Technical Data

Field device interface		
Connection		Relay output
Connection		wire ends 1/9 (white), 2/10 (brown), 3/11 (green), 4/12 (yellow), 5/13 (grey), 6/14 (pink), 7/15 (blue), 8/16 (red)
Relay		
Switching voltage		DC: 30 V AC: 230 V
Switching current		1 A DC / AC resistive load
Switch power		30 W , AC: 250 VA
Minimum load		1 V 1 A
Electrical life		0.1 mio. cycles
Contact Material		AgPd gold plated
Response time		20 ms (depending on bus cycle time)
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Indicators/settings		
LED indication		LED green: supply LED red: communication fault
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1
Low voltage		
Directive 2006/95/EC		EN 61010-1
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-25 ... 85 °C (-13 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		wire ends or shielded cable tail wiring connection: separately covered Ex e terminals required
Mass		approx. 750 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 97 ATEX 1074 U
Marking		⟨Ex⟩ II 2 G Ex d IIC Gb
Galvanic isolation		
Output/power supply, internal bus		safe electrical isolation acc. to EN 61010-1
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006

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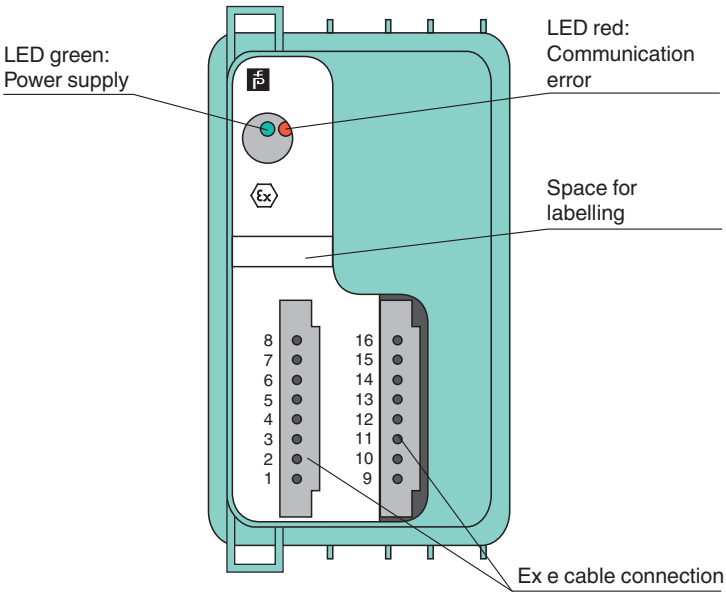
Technical Data

International approvals		
Marine approval		
Bureau Veritas Marine		22449/B0 BV
General information		
System information		The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



Accessories

	FB9224*	Field Unit
	FB9225*	Redundancy Field Unit
	FB9248*	Field Unit

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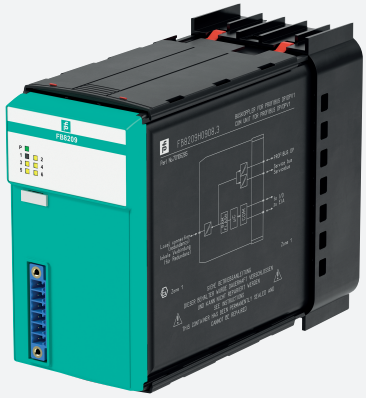


Unicom Com Unit for PROFIBUS DP/DP-V1

FB8209H0908.3

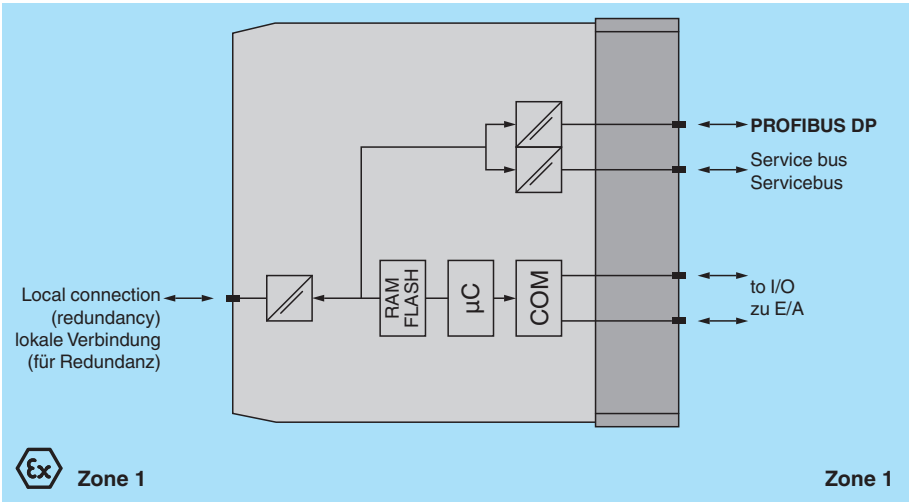
- Interface between the I/O modules and the PCS/PLC
- Com unit for 80 analog or 184 digital channels
- Communication via PROFIBUS DP
- Installation in suitable enclosures in Zone 1
- HART communication via PROFIBUS DP V1 or service bus
- Configuration via FDT 1.2 DTM
- Configuration in run (CiR) for any PCS
- Non-volatile memory for configuration and parameter settings
- Self configuration in redundant systems
- Permanently self-monitoring
- Outputs drive to safe state in case of failures

Unicom Com Unit for PROFIBUS DP/DP-V1

Function

The PROFIBUS com unit forms the interface between the I/O modules on the backplane and the process control system.
It supports all single width and dual width I/O modules. Thereby signals from NAMUR sensors, mechanical contacts, high-power solenoid drivers, power relays, sounders, and alarm LEDs are transported to the higher-level bus system.
The com unit can be easily configured via DTM and supports redundancy as well as HART.
Configuration in Run (CiR) enables configuration of a running system without a PROFIBUS restart, even in non-redundant systems.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	5 V DC , only in connection with the power supplies FB92**
Power dissipation		1.8 W
Power consumption		1.8 W
Fieldbus connection		
Fieldbus type		PROFIBUS DP/DP-V1

Release date: 2023-12-06 Date of issue: 2023-12-06 Filename: 70106285_eng.pdf

Technical Data

PROFIBUS DP		
Connection		wired to Ex e terminals via backplane
Baud rate		up to 1.5 MBit/s
Protocol		PROFIBUS DP/DP V1 read/write services
Number of stations per bus line		max. 125 (PROFIBUS), max. 119 (service bus)
Cyclic process data		240 bytes input and (simultaneously) 240 bytes output
Number of stations per bus segment		max. 31 (RS-485 standard)
Number of repeaters between Master and Slave		max. 3
Supported I/O modules		all FB remote I/O modules
Configuration (240 bytes I/O)		Standard: 80 analog, 184 digital Universal 2I2O: 48 analog, 184 digital Universal 4I4O: 60 analog, 120 digital
Bus length		max. 1000 m (FOL, 1.5 MBaud), max. 1000 m (copper cable, 187.5 kBd), max. 200 m (copper cable, 1.5 MBd)
Addressing		via configuration software
PROFIBUS address		0 ... 126 (factory standard setting: 126)
GSE file		PFV61710.gsd/gse
HART communication		via PROFIBUS or service bus
Internal bus		
Connection		backplane bus
Redundancy		via front connector
Indicators/settings		
LED indication		LED green (power supply): On = operating, fast flash = cold start, slow flash = HCIR loading active LED red (collective alarm): On = internal fault, flashing = no PROFIBUS connection LED yellow (operating mode): flashing 1 (1:1 ratio) = active, normal operation; flashing 2 (7:1 ratio) = active, simulation
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Fieldbus standard		IEC 61158-2
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		via backplane
Mass		approx. 750 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)

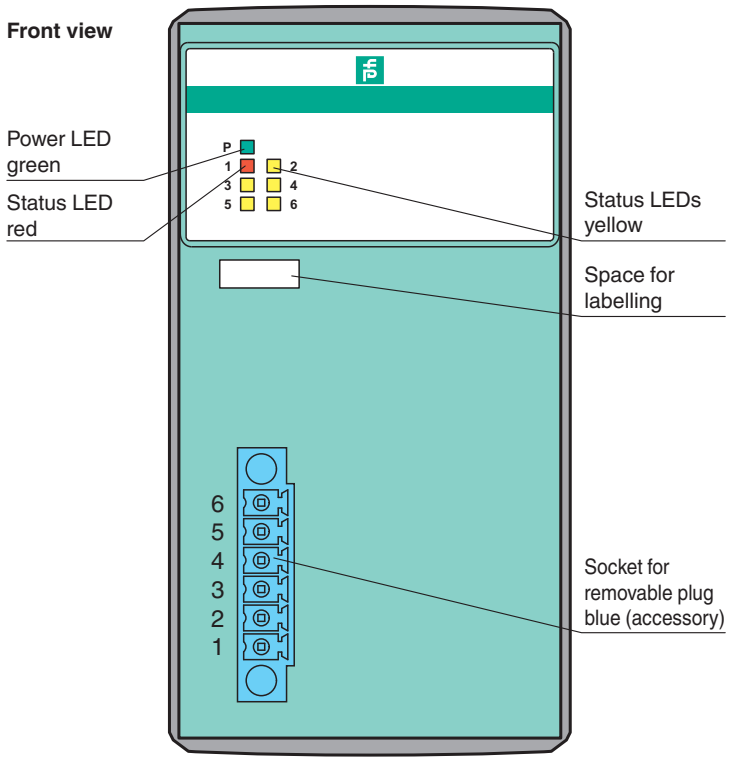
Release date: 2023-12-06 Date of issue: 2023-12-06 Filename: 70106285_eng.pdf

Technical Data

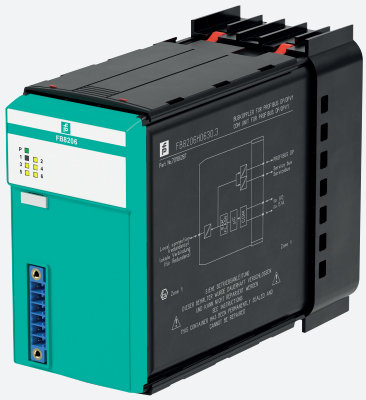
Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14058U
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14058U
IECEx approval		IECEx PRE 19.0013U
Approved for		Ex db eb q [ib] IIC Gb
General information		
System information		The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



Release date: 2023-12-06 Date of issue: 2023-12-06 Filename: 70106285_eng.pdf



EasyCom Com Unit for PROFIBUS DP/DP-V1

FB8206H0630.3

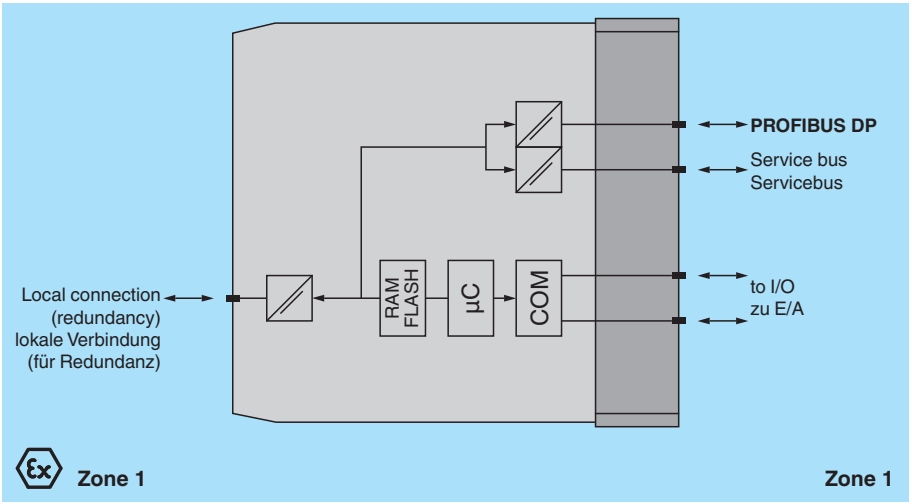
- Interface between the I/O modules and the PCS/PLC
- Com unit for 80 analog or 184 digital channels
- Communication via PROFIBUS DP
- Installation in suitable enclosures in Zone 1
- HART communication via PROFIBUS DP V1 or service bus
- Configuration via FDT 1.2 DTM
- Configuration in run (CiR) for any PCS
- Non-volatile memory for configuration and parameter settings
- Self configuration in redundant systems
- Permanently self-monitoring
- Outputs drive to safe state in case of failures

EasyCom Com Unit for PROFIBUS DP/DP-V1

Function

The PROFIBUS com unit forms the interface between the I/O modules on the backplane and the process control system.
It supports all single width and dual width I/O modules. Thereby signals from NAMUR sensors, mechanical contacts, high-power solenoid drivers, power relays, sounders, and alarm LEDs are transported to the higher-level bus system.
The com unit can be easily configured via DTM and supports redundancy as well as HART.
Configuration in Run (CiR) enables configuration of a running system without a PROFIBUS restart, even in non-redundant systems.

Connection



Technical Data

Slots		
Occupied slots		2
Supply		
Connection		backplane bus
Rated voltage	U_r	5 V DC , only in connection with the power supplies FB92**
Power dissipation		1.8 W
Power consumption		1.8 W
Fieldbus connection		
Fieldbus type		PROFIBUS DP/DP-V1

Release date: 2023-12-06 Date of issue: 2023-12-06 Filename: 70106287_eng.pdf

Technical Data

PROFIBUS DP		
Connection		wired to Ex e terminals via backplane
Baud rate		up to 1.5 MBit/s
Protocol		PROFIBUS DP/DP V1 read/write services
Number of stations per bus line		max. 125 (PROFIBUS), max. 119 (service bus)
Cyclic process data		240 bytes input and (simultaneously) 240 bytes output
Number of stations per bus segment		max. 31 (RS-485 standard)
Number of repeaters between Master and Slave		max. 3
Supported I/O modules		all FB remote I/O modules
Configuration (240 bytes I/O)		Standard: 80 analog, 184 digital Universal 2I2O: 48 analog, 184 digital Universal 4I4O: 60 analog, 120 digital
Bus length		max. 1000 m (FOL, 1.5 MBaud), max. 1000 m (copper cable, 187.5 kBd), max. 200 m (copper cable, 1.5 MBd)
Addressing		via configuration software
PROFIBUS address		0 ... 126 (factory standard setting: 126)
GSE file		PFV61711.gsd/gse
HART communication		via PROFIBUS or service bus
Internal bus		
Connection		backplane bus
Redundancy		via front connector
Indicators/settings		
LED indication		LED green (power supply): On = operating, fast flash = cold start, slow flash = HCIR loading active LED red (collective alarm): On = internal fault, flashing = no PROFIBUS connection LED yellow (operating mode): flashing 1 (1:1 ratio) = active, normal operation; flashing 2 (7:1 ratio) = active, simulation
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Fieldbus standard		IEC 61158-2
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		via backplane
Mass		approx. 750 g
Dimensions		57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)

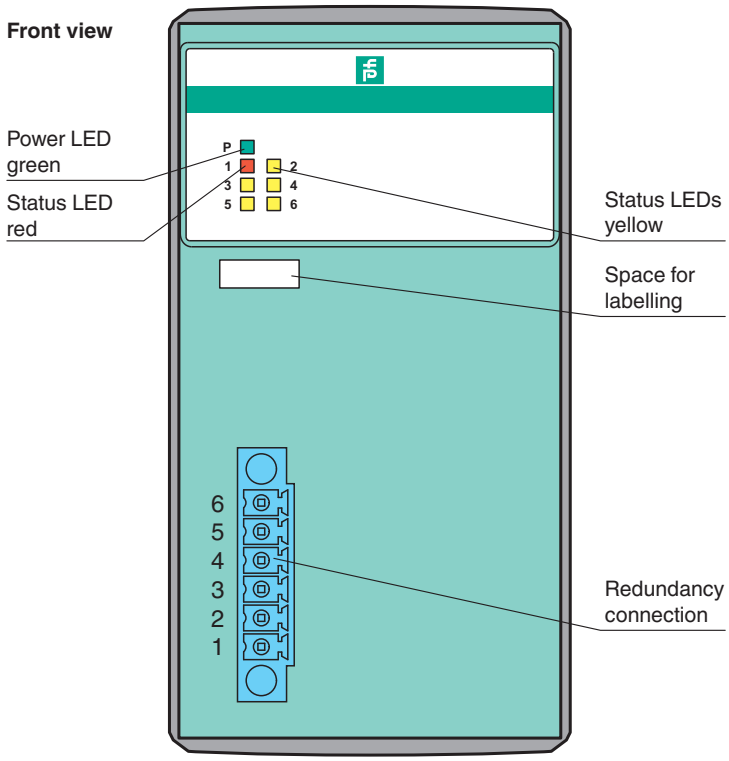
Release date: 2023-12-06 Date of issue: 2023-12-06 Filename: 70106287_eng.pdf

Technical Data

Data for application in connection with hazardous areas		
EU-type examination certificate		Presafe 19 ATEX 14058U
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015+A1:2018 EN 60079-11:2012
International approvals		
ATEX approval		Presafe 19 ATEX 14058U
IECEx approval		IECEx PRE 19.0013U
Approved for		Ex db eb q [ib] IIC Gb
General information		
System information		The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view

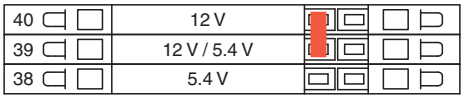


Release date: 2023-12-06 Date of issue: 2023-12-06 Filename: 70106287_eng.pdf

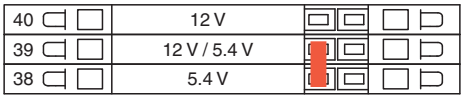
Connection Assignment

Power Supply Selection of Bus Coupler / Gateway

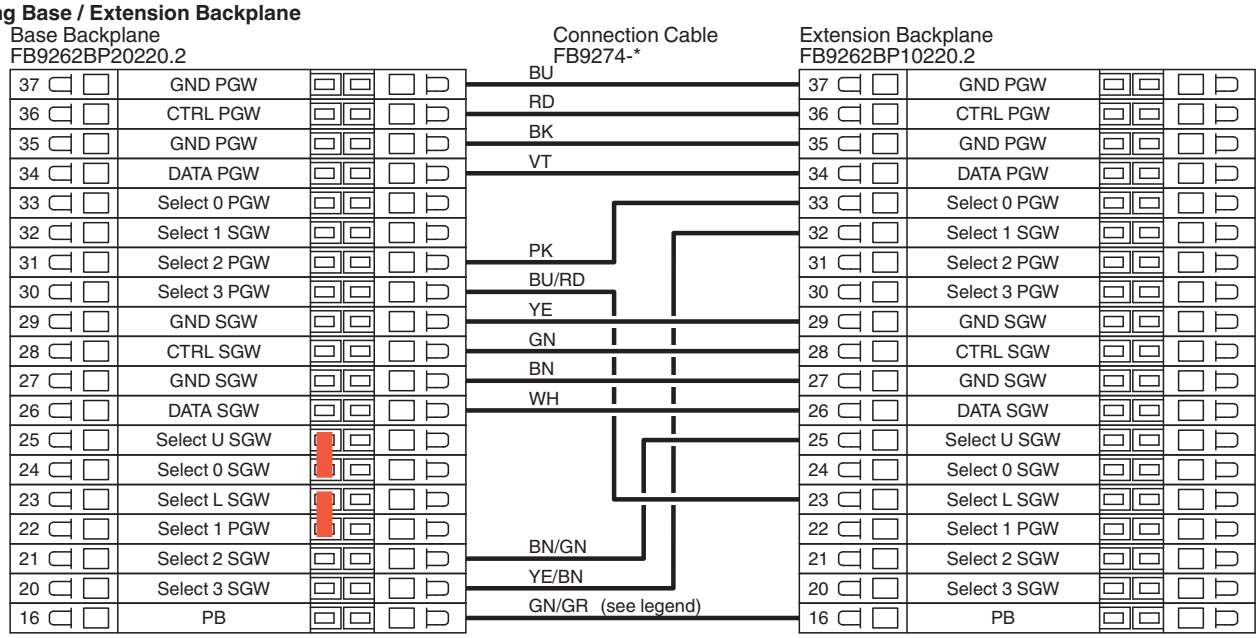
Jumper Settings for using the Gateway FB822*, FB823*



Jumper Settings for using the Bus Coupler FB8205 – FB8211

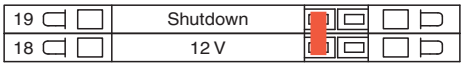


Wiring Base / Extension Backplane

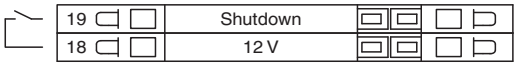


Wiring Emergency Shutdown

No Shutdown

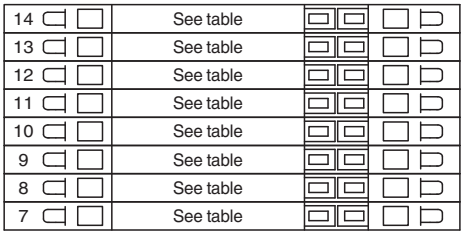


Shutdown

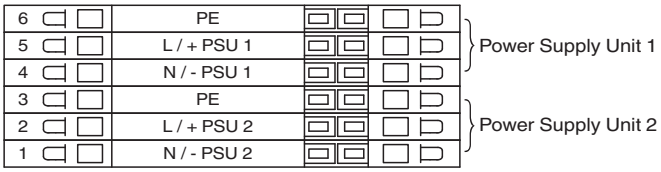


Fieldbus and Servicebus Connection

In Brackets: Connection for Ethernet / Modbus TCP FB8211* Bus Coupler



Power Connection



Protective Bonding

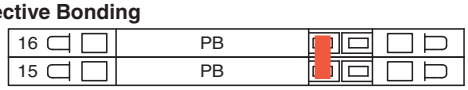


Table: Fieldbus and Servicebus Connection

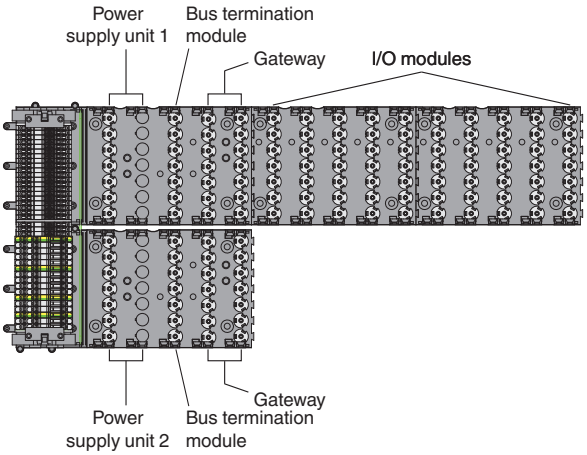
Terminal	Gateway	Profibus	Modbus TCP	Modbus RTU	Servicebus
14	P_GW	Fieldbus B	TX+ ←	Fieldbus A	-----
13	P_GW	Fieldbus A	TX- ←	Fieldbus B	-----
12	P_GW	-----	RX+ →	-----	Servicebus A
11	P_GW	-----	RX- →	-----	Servicebus B
10	S_GW	Fieldbus B	TX+ ←	Fieldbus A	-----
9	S_GW	Fieldbus A	TX- ←	Fieldbus B	-----
8	S_GW	-----	RX+ →	-----	Servicebus A
7	S_GW	-----	RX- →	-----	Servicebus B

Legend

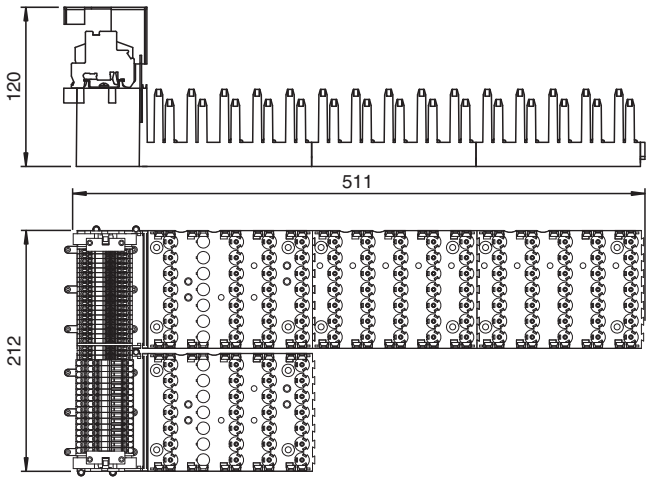
PGW:	Primary Gateway
SGW:	Secondary Gateway
PSU:	Power Supply Unit
GN/GR:	Green heat-shrinkable tube at the end of a grey stranded conductor

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70119393_eng.pdf

Connection Assignment



Dimensions



Technical Data

Slots		
Bus coupler		2
Bus termination		2
Supply		2
I/O modules (single width)		max. 10
I/O modules (dual width)		max. 5
Supply		
Maximum safe voltage U_m		60 V DC (SELV/PELV) / 253 V AC, depending on power supply
Input voltage range	U	18 ... 32 V DC (SELV/PELV) / 95 ... 253 V AC; depends on power supply
Redundancy		yes
Fieldbus connection		
Fieldbus type		PROFIBUS, PROFINET, MODBUS RTU or MODBUS TCP
Redundancy		yes
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Degree of protection		EN 60529
Ambient conditions		

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70119393_eng.pdf

Technical Data

Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Mechanical specifications	
Degree of protection	IP30
Mass	approx. 2133 g , without modules
Dimensions	(W x H x D) 511 x 212 x 120 mm , without modules
Data for application in connection with hazardous areas	
EU-type examination certificate	BVS 11 ATEX E 041 X
Marking	⟨Ex⟩ II 2 G Ex d e m IIC T4
Directive conformity	
Directive 2014/34/EU	EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-7:2015+A1:2018 EN 60079-18:2015+A1:2017
International approvals	
IECEx approval	BVS 11.0019X
Approved for	International: Ex db eb mb IIC T4 Gb ; Ex db eb IIC T4 Gb
INMETRO approval	Brazil: TÜV 14.1598X
Marine approval	
Bureau Veritas Marine	22449/C0 BV
General information	
Supplementary information	

Accessories

	**FB9210-T6*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9211-T6*-*-***-**-*-Y***	Field Unit, Stainless Steel

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70119393_eng.pdf

Product Versions

Backplane combination possibilities

Type FB9262BP* backplanes can be used together as base and extension backplanes in the following combinations:

		Extension			
		FB9262BP10220.2	FB9262BP20220.2	FB9262BP24110.2	FB9262BP24200.2
Base	FB9262BP10220.2	–	–	–	–
	FB9262BP20220.2	X	X	–	–
	FB9262BP24110.2	–	–	–	–
	FB9262BP24200.2	–	–	–	X

Universal Backplane

FB9262BP20220.2

- Universal backplane
- Max. 20 slots for I/O modules
- Redundancy (field bus and power supply)
- Installation in Zone 1
- For PROFIBUS, PROFINET, MODBUS RTU or MODBUS TCP

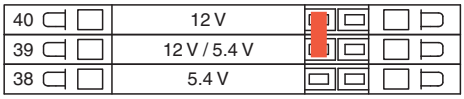
Function

The universal backplane can be used as base and extension backplane.
The backplane provides slots for a redundant gateway, and a redundant power supply.
It provides 20 slots for I/O modules. The I/O modules can be plugged anywhere on each slot.

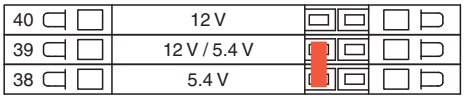
Connection Assignment

Power Supply Selection of Bus Coupler / Gateway

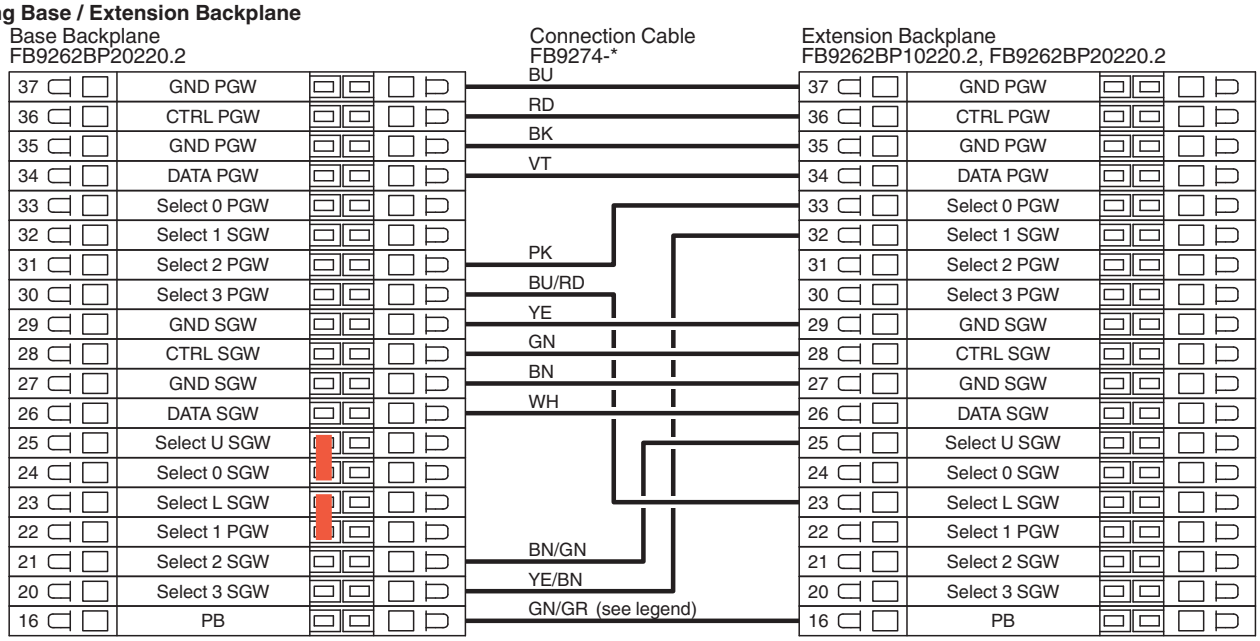
Jumper Settings for using the Gateway FB822*, FB823*



Jumper Settings for using the Bus Coupler FB8205 – FB8211

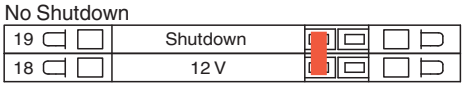


Wiring Base / Extension Backplane

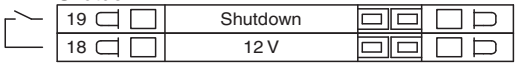


Wiring Emergency Shutdown

No Shutdown

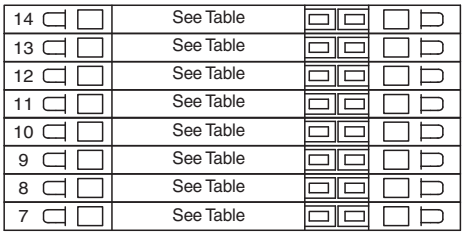


Shutdown

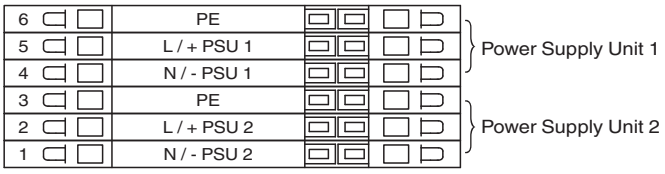


Fieldbus and Servicebus Connection

In Brackets: Connection for Ethernet / Modbus TCP FB8211* Bus Coupler



Power Connection



Protective Bonding

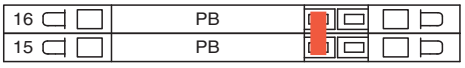


Table: Fieldbus and Servicebus Connection

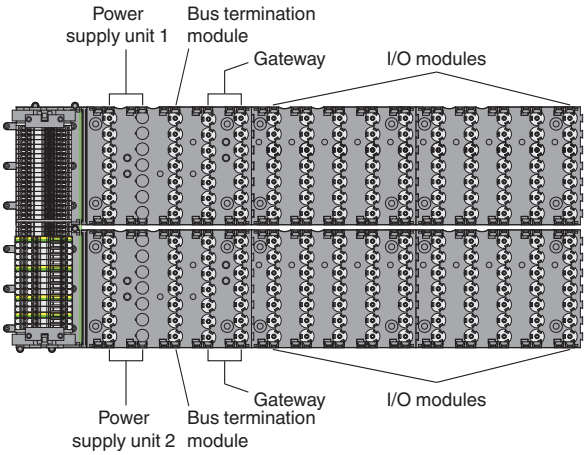
Terminal	Gateway	Profibus	Modbus TCP	Modbus RTU	Servicebus
14	P_GW	Fieldbus B	TX+ ←	Fieldbus A	-----
13	P_GW	Fieldbus A	TX- ←	Fieldbus B	-----
12	P_GW	-----	RX+ →	-----	Servicebus A
11	P_GW	-----	RX- →	-----	Servicebus B
10	S_GW	Fieldbus B	TX+ ←	Fieldbus A	-----
9	S_GW	Fieldbus A	TX- ←	Fieldbus B	-----
8	S_GW	-----	RX+ →	-----	Servicebus A
7	S_GW	-----	RX- →	-----	Servicebus B

Legend

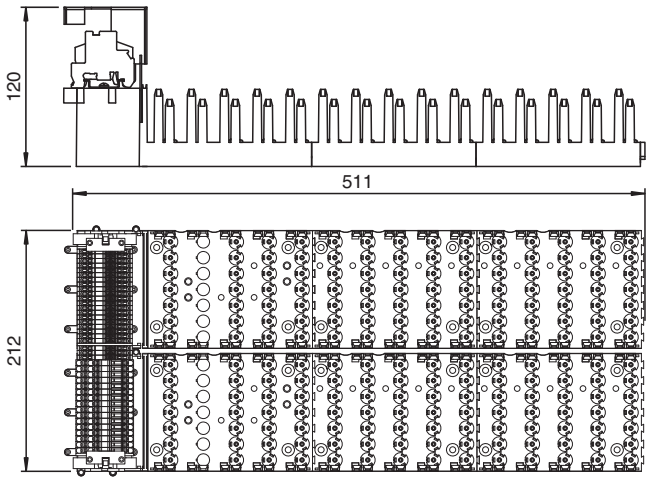
PGW: Primary Gateway
SGW: Secondary Gateway
PSU: Power Supply Unit
GN/GR: Green heat-shrinkable tube at the end of a grey stranded conductor

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70119395_eng.pdf

Connection Assignment



Dimensions



Technical Data

Slots		
Bus coupler		2
Bus termination		2
Supply		2
I/O modules (single width)		max. 20
I/O modules (dual width)		max. 10
Supply		
Maximum safe voltage U_m		60 V DC (SELV/PELV) / 253 V AC, depending on power supply
Input voltage range	U	18 ... 32 V DC (SELV/PELV) / 95 ... 253 V AC; depends on power supply
Redundancy		yes
Fieldbus connection		
Fieldbus type		PROFIBUS, PROFINET, MODBUS RTU or MODBUS TCP
Redundancy		yes
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Degree of protection		EN 60529
Ambient conditions		

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70119395_eng.pdf

Technical Data

Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Mechanical specifications	
Degree of protection	IP30
Mass	approx. 2133 g , without modules
Dimensions	(W x H x D) 511 x 212 x 120 mm , without modules
Data for application in connection with hazardous areas	
EU-type examination certificate	BVS 11 ATEX E 041 X
Marking	⟨Ex⟩ II 2 G Ex d e m IIC T4
Directive conformity	
Directive 2014/34/EU	EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-7:2015+A1:2018 EN 60079-18:2015+A1:2017
International approvals	
IECEx approval	BVS 11.0019X
Approved for	International: Ex db eb mb IIC T4 Gb ; Ex db eb IIC T4 Gb
INMETRO approval	Brazil: TÜV 14.1598X
Marine approval	
Bureau Veritas Marine	22449/C0 BV
General information	
Supplementary information	

Accessories

	**FB9241-T7*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9240-T7*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9261-TX*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9220-T6*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9221-T6*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9241-T8*-*-***-**-*-Y***	Field Unit, Stainless Steel

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70119395_eng.pdf

Product Versions

Backplane combination possibilities

Type FB9262BP* backplanes can be used together as base and extension backplanes in the following combinations:

		Extension			
		FB9262BP10220.2	FB9262BP20220.2	FB9262BP24110.2	FB9262BP24200.2
Base	FB9262BP10220.2	–	–	–	–
	FB9262BP20220.2	X	X	–	–
	FB9262BP24110.2	–	–	–	–
	FB9262BP24200.2	–	–	–	X

Base Backplane

FB9262BP24110.2

- Base backplane for FB system
- Max. 24 slots for I/O modules
- Installation in Zone 1
- For PROFIBUS, MODBUS RTU or MODBUS TCP

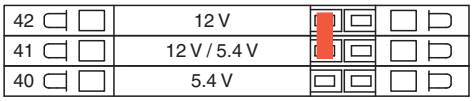
Function

The backplane serves as base backplane and provides 24 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.
The backplane is not suitable for redundant applications.

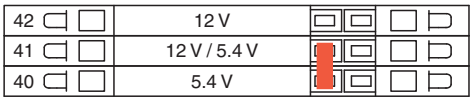
Connection Assignment

Power Supply Selection of Bus Coupler / Gateway

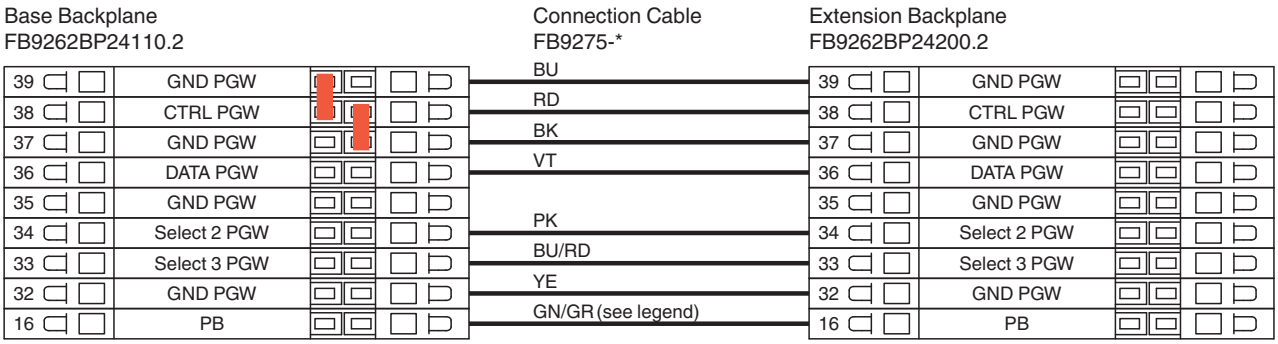
Jumper Settings for using the Gateway FB822* FB823*



Jumper Settings for using the Bus Coupler FB8205 – FB8211

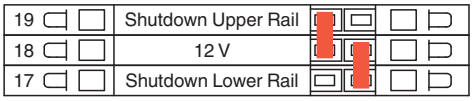


Wiring Base / Extension Backplane

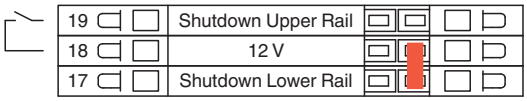


Wiring Emergency Shutdown

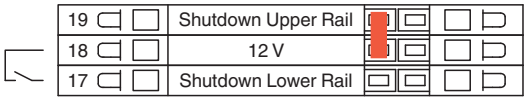
No Shutdown



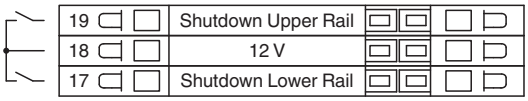
Shutdown Upper Rail



Shutdown Lower Rail



Shutdown both Rails



Fieldbus and Servicebus Connection

In Brackets: Connection for Ethernet / Modbus TCP FB8211* Bus Coupler

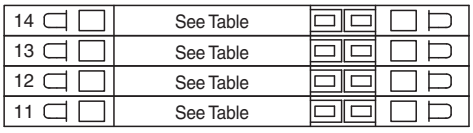
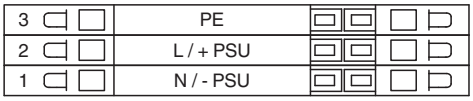


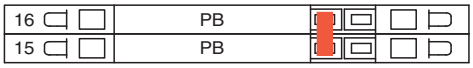
Table: Fieldbus and Servicebus Connection

Terminal	Gateway	Profibus	Modbus TCP	Modbus RTU	Servicebus
14	P_GW	Fieldbus B	TX+ ←	Fieldbus A	-----
13	P_GW	Fieldbus A	TX- ←	Fieldbus B	-----
12	P_GW	-----	RX+ →	-----	Servicebus A
11	P_GW	-----	RX- →	-----	Servicebus B

Power Connection



Protective Bonding

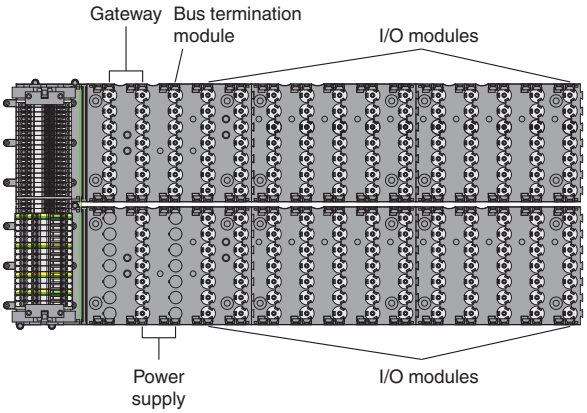


Legend

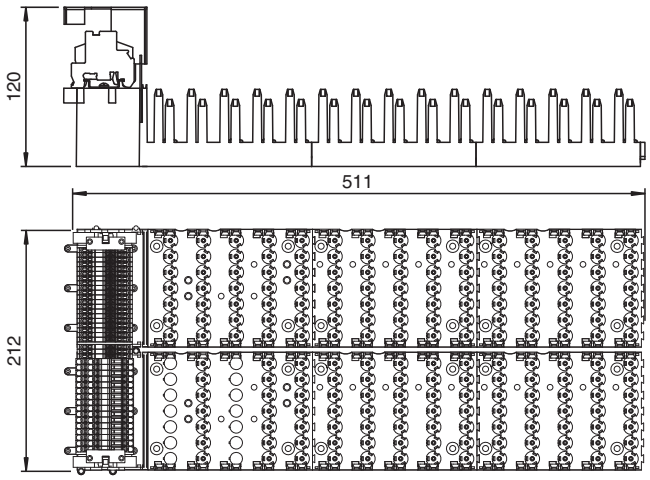
PGW:	Primary Gateway
SGW:	Secondary Gateway
PSU:	Power Supply Unit
GN/GR:	Green heat-shrinkable tube at the end of a grey stranded conductor

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70119397_eng.pdf

Connection Assignment



Dimensions



Technical Data

Slots		
Bus coupler		1
Bus termination		1
Supply		1
I/O modules (single width)		max. 24
I/O modules (dual width)		max. 12
Supply		
Maximum safe voltage U_m		60 V DC (SELV/PELV) / 253 V AC, depending on power supply
Input voltage range	U	18 ... 32 V DC (SELV/PELV) / 95 ... 253 V AC; depends on power supply
Redundancy		yes
Fieldbus connection		
Fieldbus type		PROFIBUS, MODBUS RTU or MODBUS TCP
Redundancy		yes
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Degree of protection		EN 60529
Ambient conditions		

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70119397_eng.pdf

Technical Data

Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Mechanical specifications	
Degree of protection	IP30
Mass	approx. 2687 kg , without modules
Dimensions	(W x H x D) 511 x 212 x 120 mm , without modules
Data for application in connection with hazardous areas	
EU-type examination certificate	BVS 11 ATEX E 041 X
Marking	⟨Ex⟩ II 2G Ex db eb mb IIC T4 Gb
Directive conformity	
Directive 2014/34/EU	EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-7:2015+A1:2018 EN 60079-18:2015+A1:2017
International approvals	
IECEx approval	BVS 11.0019X
Approved for	International: Ex db eb mb IIC T4 Gb ; Ex db eb IIC T4 Gb
INMETRO approval	Brazil: TÜV 14.1598X
Marine approval	
Bureau Veritas Marine	22449/C0 BV
General information	
Supplementary information	

Accessories

	**FB9248-T7*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9260-TX*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9248-T8*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9224-T6*-*-***-**-*-Y***	Field Unit, Stainless Steel

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Product Versions

Backplane combination possibilities

Type FB9262BP* backplanes can be used together as base and extension backplanes in the following combinations:

		Extension			
		FB9262BP10220.2	FB9262BP20220.2	FB9262BP24110.2	FB9262BP24200.2
Base	FB9262BP10220.2	–	–	–	–
	FB9262BP20220.2	X	X	–	–
	FB9262BP24110.2	–	–	–	–
	FB9262BP24200.2	–	–	–	X

Extension Backplane

FB9262BP24200.2

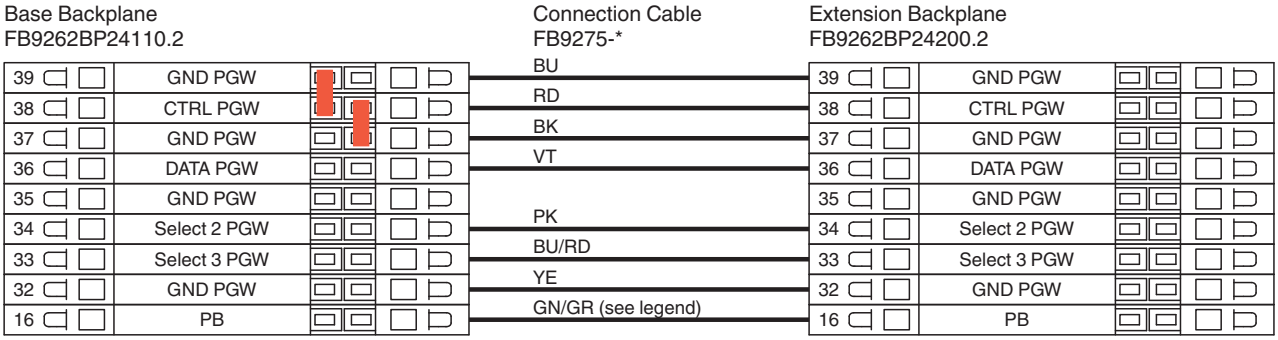
- Extension backplane for FB system
- Max. 24 slots for I/O modules
- Installation in Zone 1
- For PROFIBUS, PROFINET, MODBUS RTU or MODBUS TCP

Function

The backplane serves as an extension backplane for the base backplane FB9262BP24110.1.
The backplane provides 24 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.

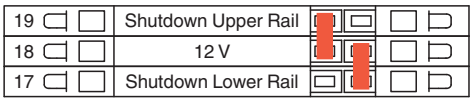
Connection Assignment

Wiring Base / Extension Backplane

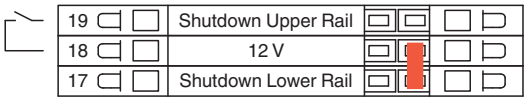


Wiring Emergency Shutdown

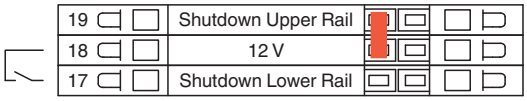
No Shutdown



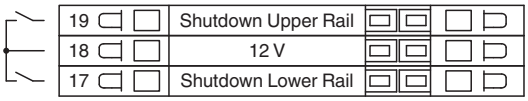
Shutdown Upper Rail



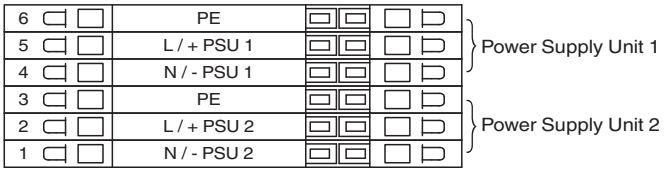
Shutdown Lower Rail



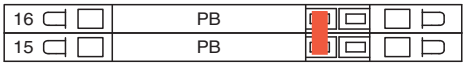
Shutdown both Rails



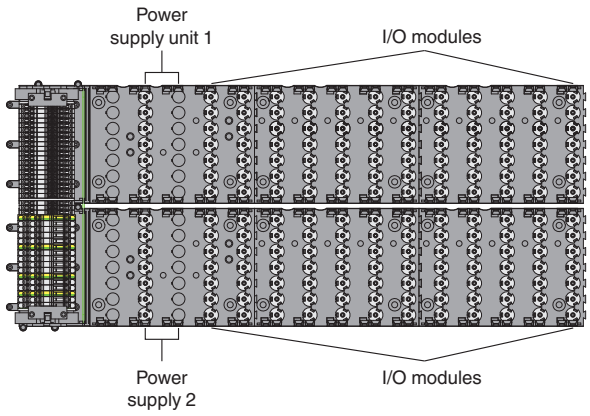
Power Connection



Protective Bonding



Legend	
PGW:	Primary Gateway
SGW:	Secondary Gateway
PSU:	Power Supply Unit
GN/GR:	Green heat-shrinkable tube at the end of a grey stranded conductor



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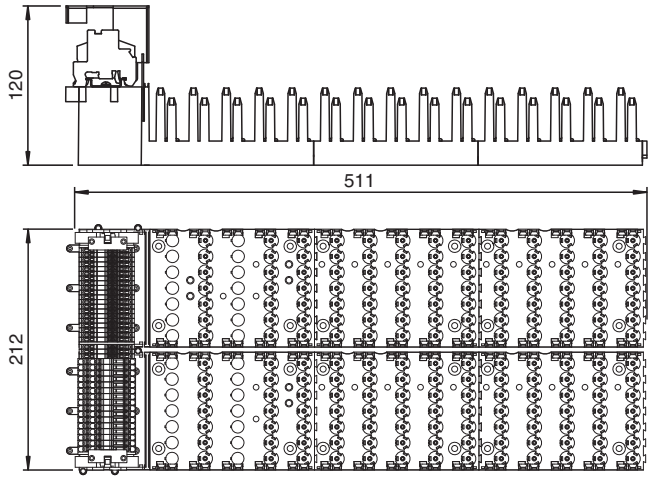
Dimensions



Technical Data

Slots		
Bus coupler		0
Bus termination		0
Supply		2
I/O modules (single width)		max. 24
I/O modules (dual width)		max. 12
Supply		
Maximum safe voltage U_m		60 V DC (SELV/PELV) / 253 V AC, depending on power supply
Input voltage range	U	18 ... 32 V DC (SELV/PELV) / 95 ... 253 V AC; depends on power supply
Redundancy		yes
Fieldbus connection		
Fieldbus type		PROFIBUS, PROFINET, MODBUS RTU or MODBUS TCP
Redundancy		yes
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Degree of protection		EN 60529
Ambient conditions		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Mechanical specifications		
Degree of protection		IP30
Mass		approx. 2713 kg , without modules
Dimensions		(W x H x D) 511 x 212 x 120 mm , without modules
Data for application in connection with hazardous areas		
EU-type examination certificate		BVS 11 ATEX E 041 X
Marking		Ⓔx II 2 G Ex d e m IIC T4
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-7:2015+A1:2018 EN 60079-18:2015+A1:2017

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Technical Data

International approvals	
IECEx approval	BVS 11.0019X
Approved for	International: Ex db eb mb IIC T4 Gb ; Ex db eb IIC T4 Gb
INMETRO approval	Brazil: TÜV 14.1598X
Marine approval	
Bureau Veritas Marine	22449/C0 BV
General information	
Supplementary information	

Accessories

	**FB9248-T8*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9260-TX*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9248-T7*-*-***-**-*-Y***	Field Unit, Stainless Steel

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Product Versions

Backplane combination possibilities

Type FB9262BP* backplanes can be used together as base and extension backplanes in the following combinations:

		Extension			
		FB9262BP10220.2	FB9262BP20220.2	FB9262BP24110.2	FB9262BP24200.2
Base	FB9262BP10220.2	–	–	–	–
	FB9262BP20220.2	X	X	–	–
	FB9262BP24110.2	–	–	–	–
	FB9262BP24200.2	–	–	–	X

Redundant Backplane

FB9272BP00110.2

- Redundant backplane for FB system
- 1 redundant com unit
- 1 power supply
- 1 bus termination module
- Installation in Zone 1
- For PROFIBUS, MODBUS RTU or MODBUS TCP

Function

With this redundant backplane the combination of base backplane FB9262BP24110.X and extension backplane FB9262BP24200.X is extended with a redundant com unit.

Connection Assignment

Power Connection

Redundanz-Backplane FB9272BP00110.2

3	PE
2	L / + PSU
1	N / - PSU
15	PB
16	PB

Power Supply Selection of Bus Coupler / Gateway

Redundant backplane FB9272BP00110.2

Jumper Settings for using the Gateway FB822*, FB823*

32	12 V
31	12 V / 5.4 V
30	5.4 V

Jumper Settings for using the Bus Coupler FB8205 – FB8211

32	12 V
31	12 V / 5.4 V
30	5.4 V

Wiring Base/Extension Backplane

Base backplane FB9262BP24110.1		Connection cable FB9275-*	Extension backplane FB9262BP24200.1	
39	GND PGW	BU	39	GND PGW
38	CTRL PGW	RD	38	CTRL PGW
37	GND PGW	BK	37	GND PGW
36	DATA PGW	VT	36	DATA PGW
35	GND PGW		35	GND PGW
34	Select 2 PGW	PK	34	Select 2 PGW
33	Select 3 PGW	BU/RD	33	Select 3 PGW
32	GND PGW	YE	32	GND PGW

Wiring Base/Redundant backplane

Base backplane FB9262BP24110.x		Connection cable FB9271-*	Redundant backplane FB9272BP00110.x	
31	Select 1 SGW	PK	23	Select 1 SGW
30	Select 0 SGW	BU	22	Select 0 SGW
29	GND		21	
28	CTRL SGW	GN	20	CTRL SGW
27	GND	BN	28	GND
26	DAT SGW	WH	18	DAT SGW
25	GND	YE	29	GND
24	PGS	BN/YE	17	PGS
23	5.4 V	BN/GN	30	5.4 V
22	12 V	BU/RD	32	12 V
21	GND			
20	GND			
12	Servicebus B (RX+ →) P_GW	BK	12	B SBUS
11	Servicebus A (RX- →) P_GW	VT	11	A SBUS
15	PB	GN/GR	15	PB

Wiring Extension/Redundant backplane

Extension backplane FB9262BP24200.x		Connection cable FB9273-*	Redundant backplane FB9272BP00110.x	
35	GND	BN	26	GND
31	Select 2 SGW	BU	27	GND
30	Select 3 SGW	PK	24	Select 2 SGW
29	GND	YE	25	Select 3 SGW
28	CTRL SGW	GN	21	CTRL SGW
27	GND			
26	DATA SGW	WH	19	DAT SGW

Protective Bonding

15	PB	GN/GR	15	PB

Legend

PGW: Primary Gateway
SGW: Secondary Gateway
PSU: Power Supply Unit

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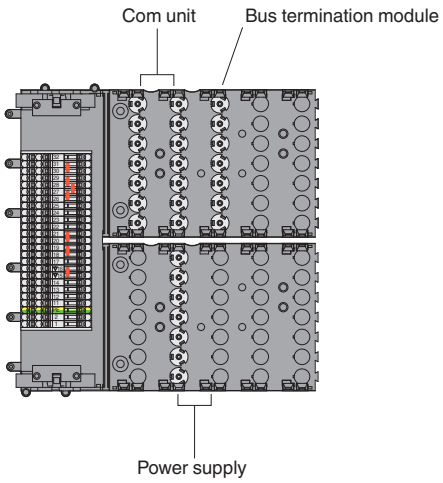
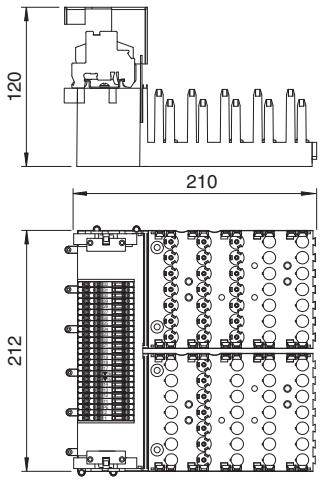
Connection Assignment



Dimensions



Technical Data

Slots		
Bus coupler		1
Bus termination		1
Supply		1
Supply		
Maximum safe voltage U_m		60 V DC (SELV/PELV) / 253 V AC, depending on power supply
Input voltage range	U	18 ... 32 V DC (SELV/PELV) / 95 ... 253 V AC; depends on power supply
Redundancy		yes
Fieldbus connection		
Fieldbus type		PROFIBUS, MODBUS RTU or MODBUS TCP
Redundancy		yes
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Degree of protection		EN 60529
Ambient conditions		
Ambient temperature		-20 ... 65 °C (-4 ... 149 °F)
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18

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Technical Data

Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Mechanical specifications		
Degree of protection		IP30
Mass		approx. 2713 kg , without modules
Dimensions		(W x H x D) 210 x 212 x 120 mm , without modules
Data for application in connection with hazardous areas		
EU-type examination certificate		BVS 11 ATEX E 041 X
Marking		Ⓔx II 2 G Ex d e m IIC T4
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-7:2015+A1:2018 EN 60079-18:2015+A1:2017
International approvals		
IECEx approval		BVS 11.0019X
Approved for		International: Ex db eb mb IIC T4 ; Ex db eb IIC T4
INMETRO approval		Brazil: TÜV 14.1598X
General information		
Supplementary information		

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Gateway for PROFINET

FB8222B.1.EL

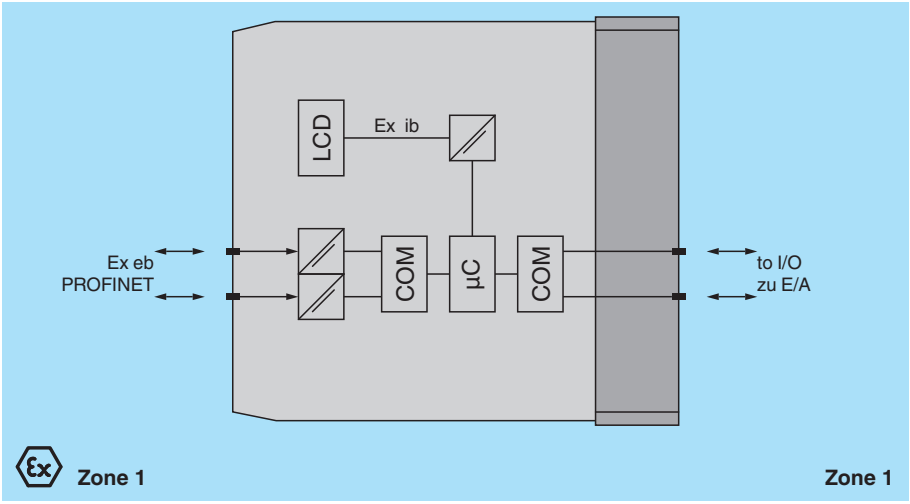
- Communication via PROFINET
- Installation in suitable enclosures in Zone 1
- Interface between the I/O modules and the PCS/PLC
- Non-volatile memory for configuration and parameter settings
- Permanently self-monitoring
- MRP and S2 redundancy
- HART communication via HART-IP
- Shared Device und Dynamic Reconfiguration

Gateway for PROFINET

Function

The PROFINET gateway is the interface between the I/O modules on the backplane and the control system.
HART communication is via PROFINET or HART-IP.
In addition to the input/output data of the I/O modules, the HART auxiliary variables can also be accessed in the process image.

Connection



Technical Data

Supply		
Connection		backplane bus
Nominal voltage		12 V DC , only in connection with the power supplies FB92**
Power dissipation		4.24 W
Power consumption		4.24 W
Fieldbus connection		
Fieldbus type		PROFINET
Ethernet Interface		
Connection type		M12 , via front connector
Transfer rate		10BASE-T, 100BASE-TX 100 MBit/s
Station connection		directly to PCS or PLC or via hubs or switches
Cable type		SFTP in accordance with ISO/IEC 11801 for Cat 5e or better

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Technical Data

Bus length		max. 100 m per link
Addressing		DHCP or fixed IP address
Ethernet address		IP V4 address (factory standard setting: 0.0.0.0, auto IP, DHCP)
Supported I/O modules		FB1x01*…FB1x03*, FB1x08*, FB1x09*, FB2x01*...FB2x17*, FB3x01*…FB3x06*, FB4x01*, FB4x02*, FB4x04*…FB4x06*, FB5x01*, FB5x02*, FB5x04*…FB5x06*, FB6x01*, FB6x05*, FB6x06*, FB6x08*, FB6x10*…FB6x17*, FB7x04
PROFINET conformance class		CC B
Internal bus		
Connection		backplane bus
Galvanic isolation		
Ethernet/other circuits		basic insulation according to IEC/EN 61010-1, rated insulation voltage 32 V DC (SELV/PELV)
RS 485 interface/other circuits		basic insulation according to IEC/EN 61010-1, rated insulation voltage 50 V DC
Insulation voltage		1500 V AC acc. to IEEE 802.3u
Electrical isolation		
Power supply, internal bus/other circuits		basic insulation according to IEC/EN 61010-1, rated insulation voltage 30 V DC
Indicators/settings		
LED indication		See below in the front view
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-25 ... 85 °C (-13 ... 185 °F)
Relative humidity		95 % non-condensing
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Degree of protection		IP20 (module) , a separate housing is required acc. to the system description
Connection		via backplane
Mass		approx. 965 g
Dimensions		57 x 107 x 151 mm
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 19 ATEX 2007 U
Marking		⟨Ex⟩ II 2G Ex db eb ib q IIC Gb
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015 EN 60079-11:2012
International approvals		
ATEX approval		
ATEX certificate		PTB 19 ATEX 2007 U

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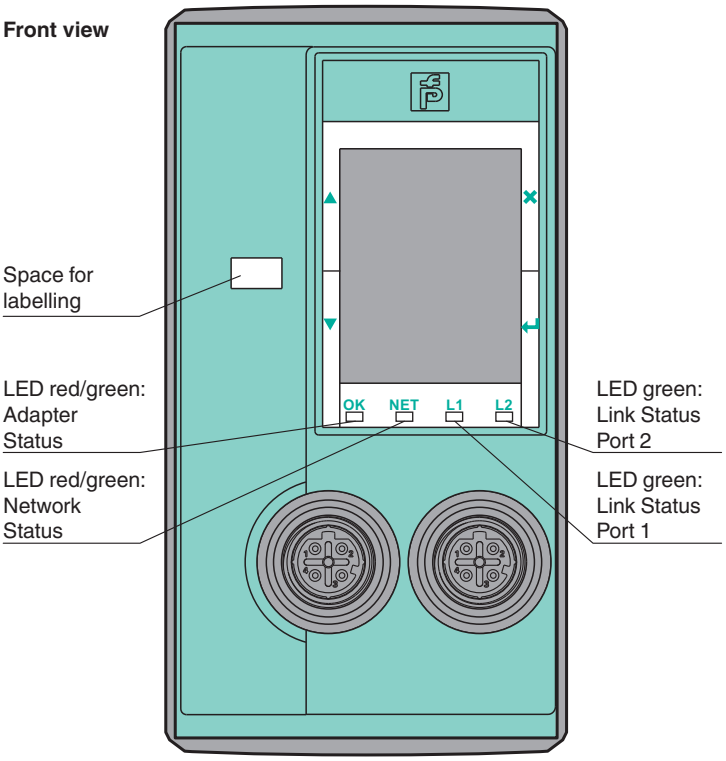
Technical Data

IECEx approval		
IECEx certificate		IECEx PTB 19.0025U
IECEx marking		Ex db eb ib q IIC Gb
General information		
System information		The module may be installed only in the associated backplanes FB9262BP*.2 in Zone 1, Zone 2, or outside the hazardous area. Observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



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Base Backplane

FB9262BP24110.R

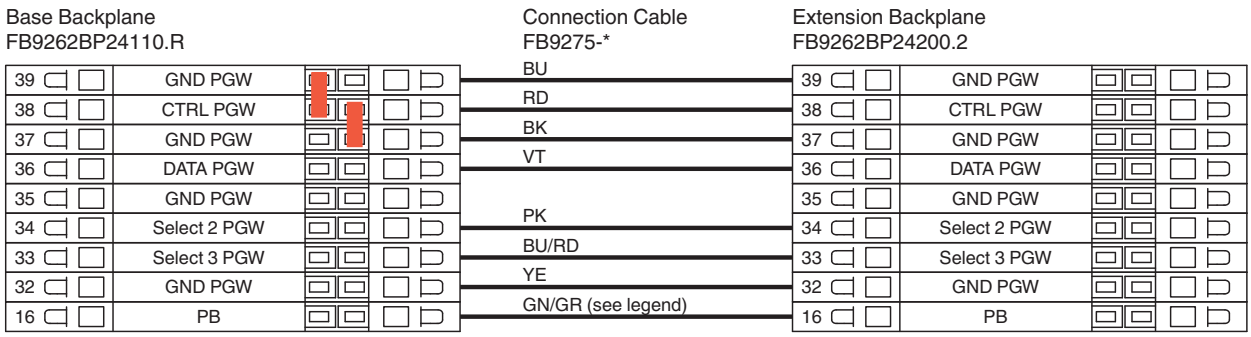
- Base backplane for FB system
- Max. 24 slots for I/O modules
- Installation in Zone 1
- For PROFIBUS, MODBUS RTU or MODBUS TCP

Function

The backplane serves as base backplane and provides 24 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.

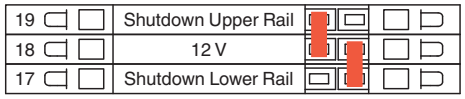
Connection Assignment

Wiring Base / Extension Backplane

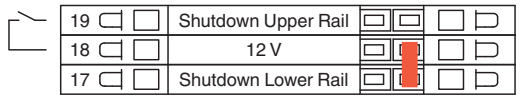


Wiring Emergency Shutdown

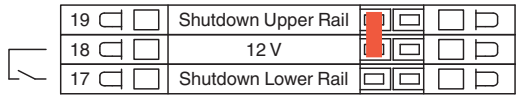
No Shutdown



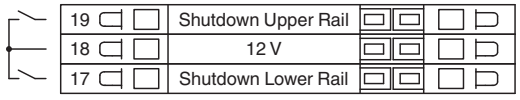
Shutdown Upper Rail



Shutdown Lower Rail

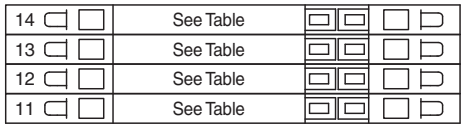


Shutdown both Rails

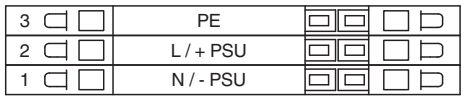


Fieldbus and Servicebus Connection

In Brackets: Connection for Ethernet / Modbus TCP FB8211* Bus Coupler



Power Connection



Protective Bonding

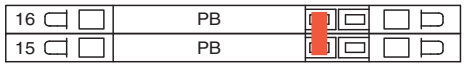


Table: Fieldbus and Servicebus Connection

Terminal	Profibus	Modbus TCP	Modbus RTU	Servicebus
14	Fieldbus B	TX+ ←	Fieldbus A	-----
13	Fieldbus A	TX- ←	Fieldbus B	-----
12	-----	RX+ →	-----	Servicebus A
11	-----	RX- →	-----	Servicebus B

Legend

PGW:	Primary Gateway
SGW:	Secondary Gateway
PSU:	Power Supply Unit
GN/GR:	Green heat-shrinkable tube at the end of a grey stranded conductor

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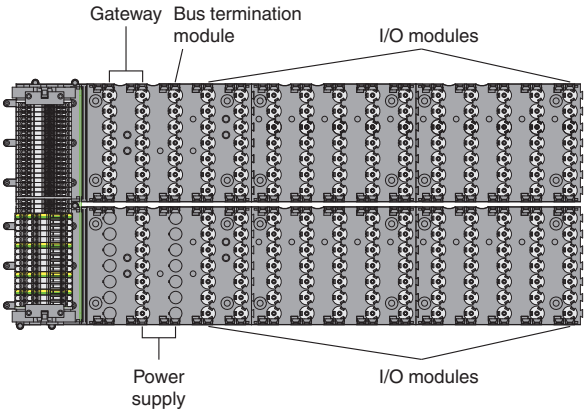
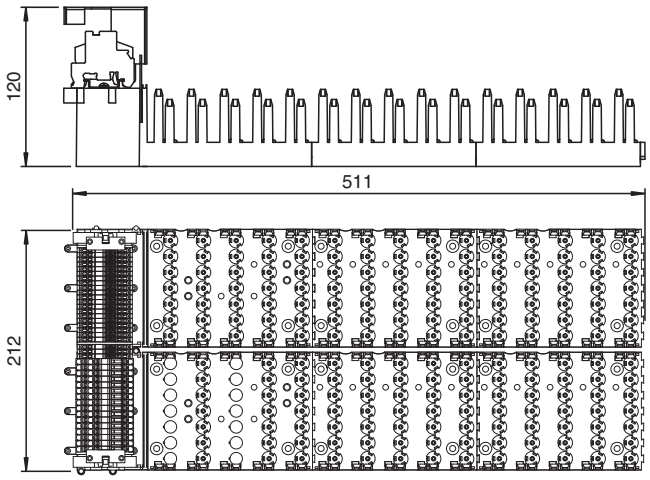
Connection Assignment



Dimensions



Technical Data

Slots		
Bus coupler		1
Bus termination		1
Supply		1
I/O modules (single width)		max. 24
I/O modules (dual width)		max. 12
Supply		
Maximum safe voltage U_m		60 V DC (SELV/PELV) / 253 V AC, depending on power supply
Input voltage range	U	18 ... 32 V DC (SELV/PELV) / 95 ... 253 V AC; depends on power supply
Redundancy		yes
Fieldbus connection		
Fieldbus type		PROFIBUS, MODBUS RTU or MODBUS TCP
Redundancy		yes
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Degree of protection		EN 60529
Ambient conditions		

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70141259_eng.pdf

Technical Data

Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Mechanical specifications	
Degree of protection	IP30
Mass	approx. 2687 kg , without modules
Dimensions	(W x H x D) 511 x 212 x 120 mm , without modules
Data for application in connection with hazardous areas	
EU-type examination certificate	BVS 11 ATEX E 041 X
Marking	⟨Ex⟩ II 2G Ex db eb mb IIC T4 Gb
Directive conformity	
Directive 2014/34/EU	EN IEC 60079-0:2018+AC:2020 EN 60079-1:2014 EN 60079-7:2015+A1:2018 EN 60079-18:2015+A1:2017
International approvals	
IECEx approval	BVS 11.0019X
Approved for	International: Ex db eb mb IIC T4 Gb ; Ex db eb IIC T4 Gb
INMETRO approval	Brazil: TÜV 14.1598X
Marine approval	
Bureau Veritas Marine	22449/C0 BV
General information	
Supplementary information	

Accessories

	**FB9248-T7*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9260-TX*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9248-T8*-*-***-**-*-Y***	Field Unit, Stainless Steel
	**FB9224-T6*-*-***-**-*-Y***	Field Unit, Stainless Steel

Release date: 2023-06-20 Date of issue: 2023-06-20 Filename: 70141259_eng.pdf

Relay output

FB6301*

- 2-channel
- Outputs wired to Ex e terminals
- Installation in suitable enclosures in Zone 1 or Zone 21
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog
- Module can be exchanged under voltage (hot swap)

Function

The device features 2 independent channels.
The device can be used to switch solenoids, sounders, or lamps.
The device can perform general switching operations, such as switching auxiliary power circuits.
The outputs are galvanically isolated from the bus and the power supply.

Technical Data

Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power consumption		0.65 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Output		
Number of channels		2
Connection		wire ends 1 (white), 2 (brown), 3 (green), 4 (yellow), 5 (grey), 6 (pink)
Minimum load		1 V , 1 mA
Relay		
Switching voltage		24 V DC / 230 V AC
Switching current		1 A DC / AC resistive load
Switching power		30 W , 230 VA resistive load
Electrical life		0.5 Mio. cycles
Response time		20 ms (depending on bus cycle time)
Contact Material		AgPd gold plated
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Indicators/settings		
LED indicator		LED green: supply LED yellow: signal (status)
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1
Low voltage		
Directive 2006/95/EC		EN 61010-1
Conformity		

Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t34934_eng.pdf

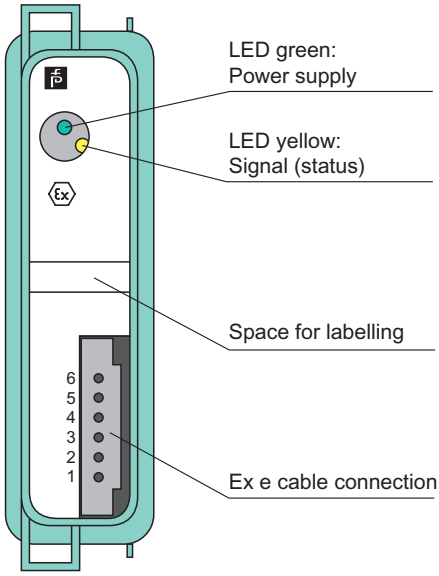
Technical Data

Electromagnetic compatibility	NE 21
Degree of protection	IEC 60529
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-56
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 50 m/s^2, number of shock directions 6, number of shocks per direction 100
Vibration resistance	frequency range 5 ... 500 Hz, amplitude 5 ... 13.2 Hz ± 1.5 mm, 13.2 ... 100 Hz 1g, sweep rate 1 octave/min, duration 10 sweeps 5 Hz - 100 Hz - 5 Hz
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	wire ends or shielded cable tail wiring connection: separately covered Ex e terminals required
Mass	approx. 350 g
Dimensions	28 x 107 x 132 mm (1.1 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EC-Type Examination Certificate	PTB 97 ATEX 1074 U
Group, category, type of protection	⟨Ex⟩ II 2 G Ex d IIC Gb
Galvanic isolation	
Output/power supply, internal bus	safe electrical isolation acc. to EN 61010-1
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals	
ATEX approval	BVS 11 ATEX E 093X
EAC approval	Russia: RU C-IT.MIII06.B.00129
Marine approval	
Lloyd Register	15/20021
DNV GL Marine	TAA0000034
American Bureau of Shipping	T1450280/UN
Bureau Veritas Marine	22449/B0 BV
General information	
System information	The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information	

Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t34934_eng.pdf

Assembly

Front view



Relay output

FB6305*

- 4-channel
- Outputs wired to Ex e terminals
- Installation in suitable enclosures in Zone 1 or Zone 21
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog
- Module can be exchanged under voltage (hot swap)

Function

The device features 4 independent channels.
The device can be used to switch solenoids, sounders, or lamps.
The device can perform general switching operations, such as switching auxiliary power circuits.
The outputs are galvanically isolated from the bus and the power supply.

Technical Data

Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies FB92**
Power consumption		1.2 W
Internal bus		
Connection		backplane bus
Interface		manufacturer-specific bus to standard com unit
Output		
Number of channels		4
Connection		wire ends 1/9 (white), 2/10 (brown), 3/11 (green), 4/12 (yellow), 5/13 (grey), 6/14 (pink), 7/15 (blue), 8/16 (red)
Minimum load		1 V , 1 mA
Relay		
Switching voltage		DC: 30 V , AC: 230 V
Switching current		1 A DC / AC resistive load
Switching power		30 W , AC: 250 VA
Electrical life		0.1 mio. cycles
Response time		20 ms (depending on bus cycle time)
Contact Material		AgPd gold plated
Watchdog		within 0.5 s the device goes in safe state, e.g. after loss of communication
Indicators/settings		
LED indicator		LED green: supply LED red: communication fault
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1
Low voltage		
Directive 2006/95/EC		EN 61010-1

Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t34935_eng.pdf

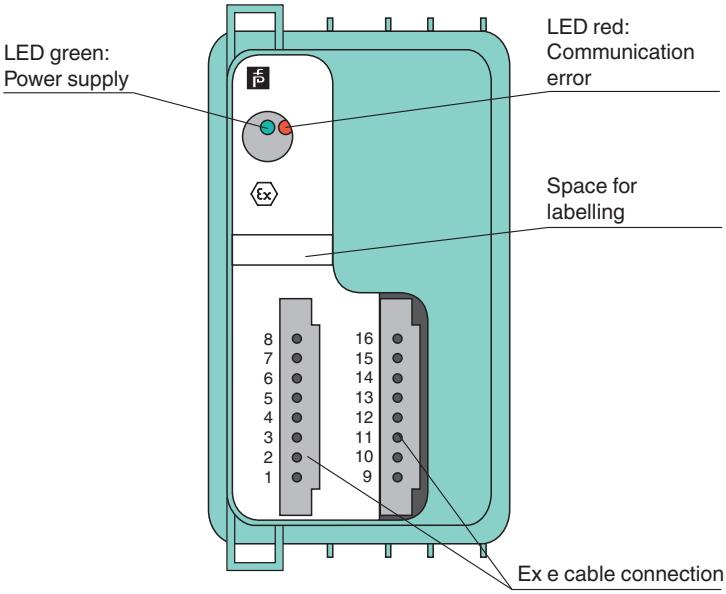
Technical Data

Conformity	
Electromagnetic compatibility	NE 21
Degree of protection	IEC 60529
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-56
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 50 m/s², number of shock directions 6, number of shocks per direction 100
Vibration resistance	frequency range 5 ... 500 Hz, amplitude 5 ... 13.2 Hz ± 1.5 mm, 13.2 ... 100 Hz 1g, sweep rate 1 octave/min, duration 10 sweeps 5 Hz - 100 Hz - 5 Hz
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	wire ends or shielded cable tail wiring connection: separately covered Ex e terminals required
Mass	approx. 750 g
Dimensions	57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EC-Type Examination Certificate	PTB 97 ATEX 1074 U
Group, category, type of protection	⟨Ex⟩ II 2 G Ex d IIC Gb
Galvanic isolation	
Output/power supply, internal bus	safe electrical isolation acc. to EN 61010-1
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals	
ATEX approval	BVS 11 ATEX E 093X
EAC approval	Russia: RU C-IT.MIII06.B.00129
Marine approval	
Lloyd Register	15/20021
DNV GL Marine	TAA0000034
American Bureau of Shipping	T1450280/UN
Bureau Veritas Marine	22449/B0 BV
General information	
System information	The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information	

Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t34935_eng.pdf

Assembly

Front view



Accessories

	FB9224*	Field Unit
	FB9225*	
	FB9248*	

Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t34935_eng.pdf

Com Unit for PROFIBUS DP/DP-V1

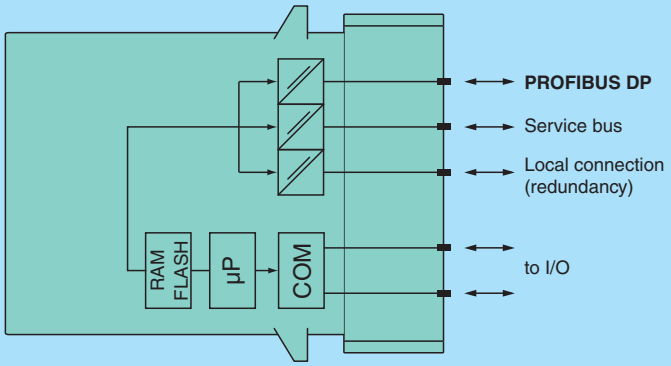
FB8205*

- Interface between the I/O modules and the PCS/PLC
- Com unit for 80 analog or 184 digital channels
- Communication via PROFIBUS DP
- Module can be exchanged under voltage (hot swap)
- Installation in suitable enclosures in Zone 1
- HART communication via PROFIBUS DP V1 or service bus
- Configuration via FDT 1.2 DTM
- Non-volatile memory for configuration and parameter settings
- Self configuration in redundant systems
- Permanently self-monitoring
- Outputs drive to safe state in case of failures

Function

The PROFIBUS com unit forms the interface between the I/O modules on the backplane and the process control system.
It supports all single width and dual width I/O modules. Thereby signals from NAMUR sensors, mechanical contacts, high-power solenoid drivers, power relays, sounders, and alarm LEDs are transported to the higher-level bus system.
The com unit can be easily configured via DTM and supports redundancy as well as HART.

Connection



Technical Data

Supply		
Connection		backplane bus
Rated voltage	U_r	5 V DC , only in connection with the power supplies FB92**
Power consumption		2 W
Fieldbus interface		
Fieldbus type		PROFIBUS DP/DP-V1
PROFIBUS DP		
Connection		wired to Ex e terminals via backplane
Baud rate		up to 1.5 MBit/s

Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t34943_eng.pdf

Technical Data

Protocol	PROFIBUS DP/DP V1 read/write services
Number of stations per bus line	max. 125 (PROFIBUS), max. 119 (service bus)
Cyclic process data	240 bytes in total, either input or output data
Number of stations per bus segment	max. 31 (RS-485 standard)
Number of repeaters between Master and Slave	max. 3
Supported I/O modules	all FB remote I/O modules
Bus length	max. 1000 m (FOL, 1.5 MBaud), max. 1000 m (copper cable, 187.5 kBd), max. 200 m (copper cable, 1.5 MBd)
Addressing	via configuration software
PROFIBUS address	0 ... 126 (factory standard setting: 126)
GSE file	CGV61710.gsd/gse
HART communication	via PROFIBUS or service bus
Internal bus	
Connection	backplane bus
Redundancy	via front connector
Indicators/settings	
LED indicator	LED green (power supply): On = operating, fast flash = cold start, slow flash = HCIR loading active LED red (collective alarm): On = internal fault, flashing = no PROFIBUS connection LED yellow (operating mode): flashing 1 (1:1 ratio) = active, normal operation; flashing 2 (7:1 ratio) = active, simulation
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1
Conformity	
Electromagnetic compatibility	NE 21
Degree of protection	IEC 60529
Fieldbus standard	IEC 61158-2
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-56
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	via backplane
Mass	approx. 750 g
Dimensions	57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EU-Type Examination Certificate	PTB 97 ATEX 1074 U
Marking	⟨Ex⟩ II 2(1) G Ex d [ia Ga] IIC Gb
Directive conformity	

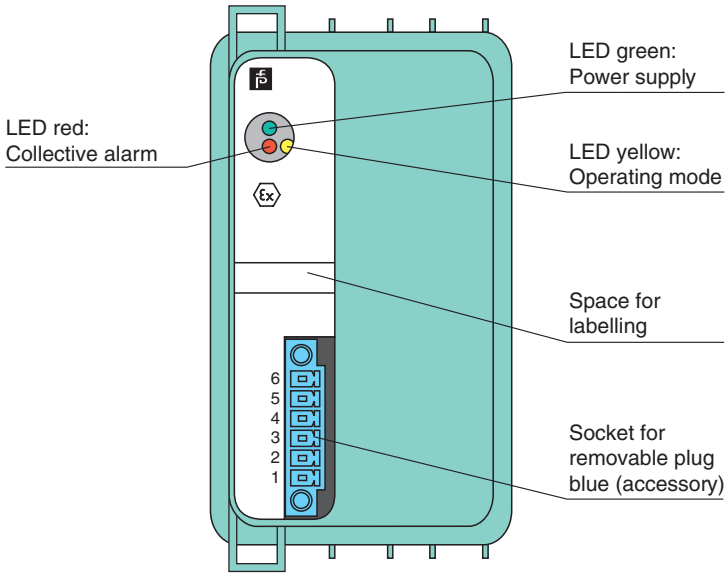
Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t34943_eng.pdf

Technical Data

Directive 2014/34/EU	EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals	
ATEX approval	PTB 97 ATEX 1075
EAC approval	Russia: RU C-IT.MIII06.B.00129
Marine approval	
Lloyd Register	15/20021
DNV GL Marine	TAA0000034
American Bureau of Shipping	T1450280/UN
Bureau Veritas Marine	22449/B0 BV
General information	
System information	The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information	

Assembly

Front view



Accessories

	DTM LB/FB	
	FB9224*	Field Unit
	FB9225*	
	FB9248*	

Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t34943_eng.pdf

EasyCom Com Unit for PROFIBUS DP/DP-V1

FB8206*

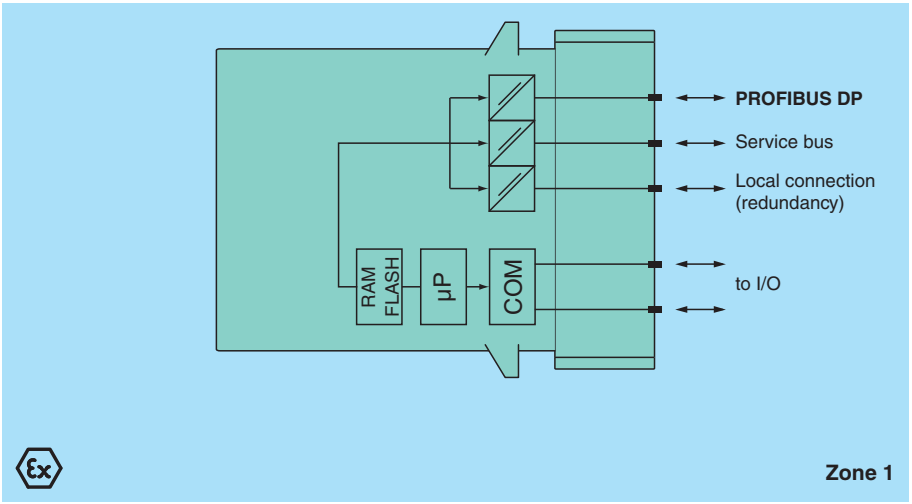
- Interface between the I/O modules and the PCS/PLC
- Com unit for 80 analog or 184 digital channels
- Communication via PROFIBUS DP
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- HART communication via PROFIBUS DP V1 or service bus
- Configuration via GSD parameters from the control system
- Non-volatile memory for configuration and parameter settings
- Self configuration in redundant systems
- Permanently self-monitoring
- Outputs drive to safe state in case of failures

EasyCom Com Unit for PROFIBUS DP/DP-V1

Function

The PROFIBUS com unit forms the interface between the I/O modules on the backplane and the process control system.
It supports all single width and dual width I/O modules. Thereby signals from NAMUR sensors, mechanical contacts, high-power solenoid drivers, power relays, sounders, and alarm LEDs are transported to the higher-level bus system.
The com unit can be easily configured via DTM and supports redundancy as well as HART.

Connection



Technical Data

Supply		
Connection		backplane bus
Rated voltage	U_r	5 V DC , only in connection with the power supplies FB92**
Power consumption		2 W
Fieldbus interface		
Fieldbus type		PROFIBUS DP/DP-V1
PROFIBUS DP		
Connection		wired to Ex e terminals via backplane
Baud rate		up to 1.5 MBit/s

Release date: 2020-09-03 Date of issue: 2020-09-03 Filename: t34944_eng.pdf

Technical Data

Protocol	PROFIBUS DP/DP V1 read/write services
Number of stations per bus line	max. 125 (PROFIBUS), max. 119 (service bus)
Cyclic process data	240 bytes input and (simultaneously) 240 bytes output
Number of stations per bus segment	max. 31 (RS-485 standard)
Number of repeaters between Master and Slave	max. 3
Supported I/O modules	all FB remote I/O modules
Bus length	max. 1000 m (FOL, 1.5 MBaud), max. 1000 m (copper cable, 187.5 kBd), max. 200 m (copper cable, 1.5 MBd)
Addressing	via configuration software
PROFIBUS address	0 ... 126 (factory standard setting: 126)
GSE file	CGV61711.gsd/gse
HART communication	via PROFIBUS or service bus
Internal bus	
Connection	backplane bus
Redundancy	via front connector
Indicators/settings	
LED indicator	LED green (power supply): On = operating, fast flash = cold start LED red (collective alarm): On = internal fault, flashing = no PROFIBUS connection LED yellow (operating mode): flashing 1 (1:1 ratio) = active, normal operation; flashing 2 (7:1 ratio) = active, simulation
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1
Conformity	
Electromagnetic compatibility	NE 21
Degree of protection	IEC 60529
Fieldbus standard	IEC 61158-2
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-56
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	via backplane
Mass	approx. 750 g
Dimensions	57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EU-Type Examination Certificate	PTB 97 ATEX 1074 U
Marking	⟨Ex⟩ II 2(1) G Ex d [ia Ga] IIC Gb
Directive conformity	

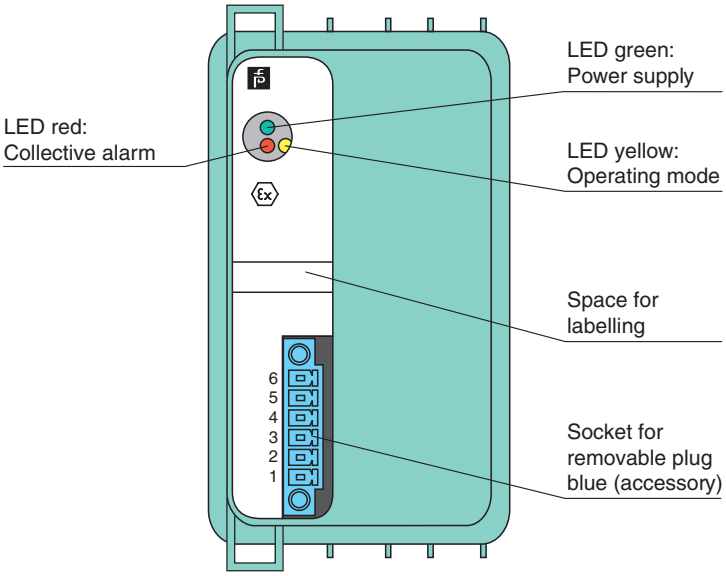
Release date: 2020-09-03 Date of issue: 2020-09-03 Filename: t34944_eng.pdf

Technical Data

Directive 2014/34/EU	EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals	
EAC approval	Russia: RU C-IT.MIII06.B.00129
Marine approval	
Lloyd Register	15/20021
DNV GL Marine	TAA0000034
American Bureau of Shipping	T1450280/UN
Bureau Veritas Marine	22449/B0 BV
General information	
System information	The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information	

Assembly

Front view



Accessories

	DTM LB/FB	
	FB9224*	Field Unit
	FB9225*	
	FB9248*	

Release date: 2020-09-03 Date of issue: 2020-09-03 Filename: t34944_eng.pdf

Com Unit for MODBUS RTU

FB8207*

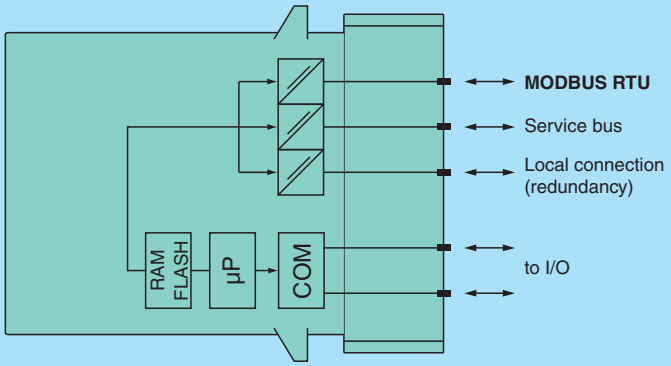
- Interface between the I/O modules and the PCS/PLC
- Com unit for 80 analog or 184 digital channels
- Communication via MODBUS RTU
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- HART communication via service bus
- Configuration via FDT 1.2 DTM
- Non-volatile memory for configuration and parameter settings
- Self configuration in redundant systems
- Permanently self-monitoring
- Outputs drive to safe state in case of failures

Com Unit for MODBUS RTU

Function

The MODBUS RTU com unit forms the interface between the I/O modules on the backplane and the process control system.
It supports all single width and dual width I/O modules. Thereby signals from NAMUR sensors, mechanical contacts, high-power solenoid drivers, power relays, sounders, and alarm LEDs are transported to the higher-level bus system.
The com unit can be easily configured via DTM and supports redundancy as well as HART.

Connection



Technical Data

Supply		
Connection		backplane bus
Rated voltage	U_r	5 V DC , only in connection with the power supplies FB92**
Power consumption		2 W
Fieldbus interface		
Fieldbus type		MODBUS RTU
MODBUS RTU		
Connection		wired to Ex e terminals via backplane
Baud rate		max. 38.4 kBit/s

Technical Data

Number of stations per bus line	max. 245 (MODBUS), max. 119 (service bus)
Number of channels per station	max. 80 analog, max. 184 digital (standard configuration)
Number of stations per bus segment	max. 31 (RS-485 standard)
Number of repeaters between Master and Slave	max. 3
Supported I/O modules	all FB remote I/O modules
Bus length	max. 1200 m (FOL, 38.4 kBd), max. 1200 m (copper cable, 38.4 kBd)
FOL (fiber optic link)	additional hardware required
Addressing	via configuration software
MODBUS address	standard compliant (factory standard setting: 126)
Service bus address	max. 119 , redundancy address = base + 128 (automatic)
HART communication	via service bus
Redundancy	system dependent
Internal bus	
Connection	backplane bus
Redundancy	via front connector
Indicators/settings	
LED indicator	LED green (power supply): On = operating, fast flash = cold start LED red (collective alarm): On = internal fault, flashing = no Modbus RTU connection LED yellow (operating mode): flashing 1 (1:1 ratio) = active, normal operation; flashing 2 (7:1 ratio) = active, simulation
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1
Conformity	
Electromagnetic compatibility	NE 21
Degree of protection	IEC 60529
Fieldbus standard	IEC 61158-2
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-56
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	via backplane
Mass	approx. 750 g
Dimensions	57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EU-Type Examination Certificate	PTB 97 ATEX 1074 U
Marking	Ⓔx II 2(1) G Ex d [ia Ga] IIC Gb
Directive conformity	

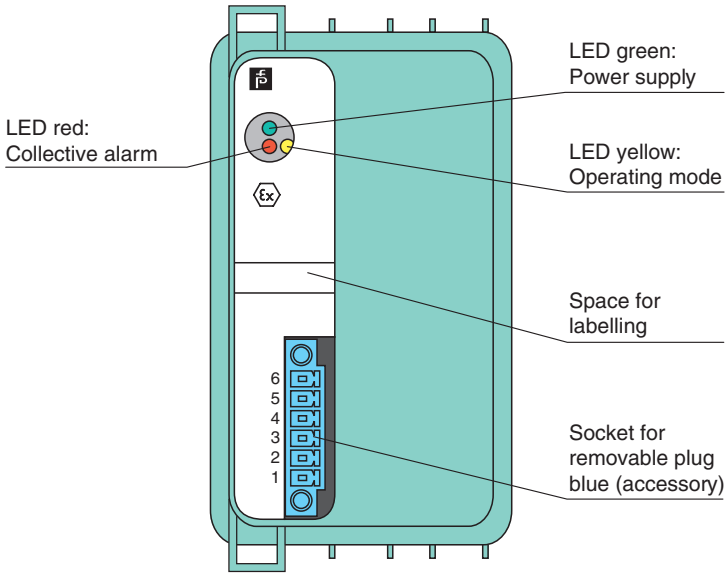
Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t41360_eng.pdf

Technical Data

Directive 2014/34/EU		EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals		
ATEX approval		PTB 97 ATEX 1075
EAC approval		Russia: RU C-IT.MIII06.B.00129
Marine approval		
Lloyd Register		15/20021
DNV GL Marine		TAA0000034
American Bureau of Shipping		T1450280/UN
Bureau Veritas Marine		22449/B0 BV
General information		
System information		The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



Accessories

	DTM LB/FB	
	FB9224*	Field Unit
	FB9225*	
	FB9248*	

Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t41360_eng.pdf

Com Unit for FOUNDATION Fieldbus Modular I/O

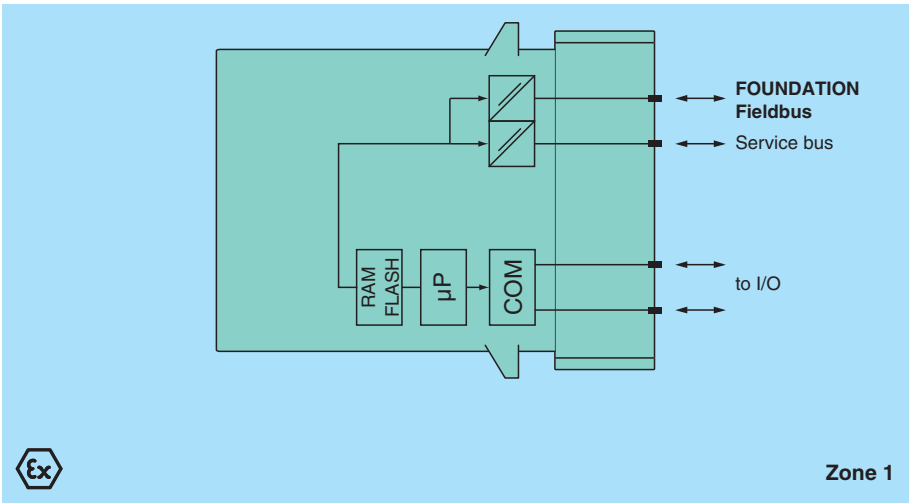
FB8210*

- Interface between the I/O modules and the PCS/PLC
- Com unit for 20 analog or 40 digital channels
- Communication via FOUNDATION Fieldbus H1
- HART communication via service bus
- Configured via the process control system
- Non-volatile memory for configuration and parameter settings
- Quick communication set-up
- Permanently self-monitoring
- Outputs drive to safe state in case of failures
- Supports multichannel I/O modules
- Installation in suitable enclosures in Zone 1 or Zone 21
- Module can be exchanged under voltage (hot swap)
- Installation in suitable enclosures in Zone 1

Function

The FOUNDATION Fieldbus com unit forms the interface between the I/O modules on the backplane and the process control system.
It supports only dual width I/O modules. Thereby signals from NAMUR sensors, mechanical contacts, high-power solenoid drivers, power relays, sounders, and alarm LEDs are transported to the higher-level bus system.
The com unit can be easily configured via DTM and supports HART.

Connection



Technical Data

Supply		
Connection		backplane bus
Rated voltage	U_r	5 V DC , only in connection with the power supplies FB92**
Power consumption		2 W
Auxiliary energy		24 V DC Trunk load 20 mA
Fieldbus interface		

Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t42294_eng.pdf

Technical Data

Fieldbus type	FOUNDATION Fieldbus H1
FOUNDATION Fieldbus	
Connection	wired to Ex e terminals via backplane
Baud rate	31.25 kBit/s , MBP
Protocol	H1 to IEC 1158-2
Station connection	directly at the trunk or via spur protector
Number of stations per bus line	1 or 2, depending on the required response times
Number of channels per station	max. 20 analog, max. 40 digital
Supported I/O modules	5 slots, to be filled with (combinations possible): 1*08 digital input, 8-channel, NAMUR 3*05 analog input, 4-channel, 20 mA (HART via service bus) 4*05 analog output, 4-channel, 20 mA (HART via service bus) 5204 Pt100 RTD input, 4-channel 5205 thermocouple input, 4-channel 6305 relay output, 4-channel, 230 V 6306 relay output, 8-channel, 24 V 6*08 digital output, 8-channel, Ex i 6210-6215 digital output, 4-channel, Ex i power * = variable (2=IS, 3=Ex e)
Bus length	max. 1900 m (must not be exceeded by the sum of all trunk and spur lines)
Spur length	max. 120 m (depending on the number of field devices. Modular I/O station = 1 field device)
Addressing	via PCS (software)
Internal bus	
Connection	backplane bus
Indicators/settings	
LED indicator	LED green (power supply): On = operating, fast flash = cold start LED red (collective alarm): On = internal fault, flashing = no fieldbus LED yellow (operating mode): Flashing = active
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1
Conformity	
Electromagnetic compatibility	NE 21
Degree of protection	IEC 60529
Fieldbus standard	IEC 61158-2
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-56
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	via backplane
Mass	approx. 750 g
Dimensions	57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EU-Type Examination Certificate	PTB 97 ATEX 1074 U

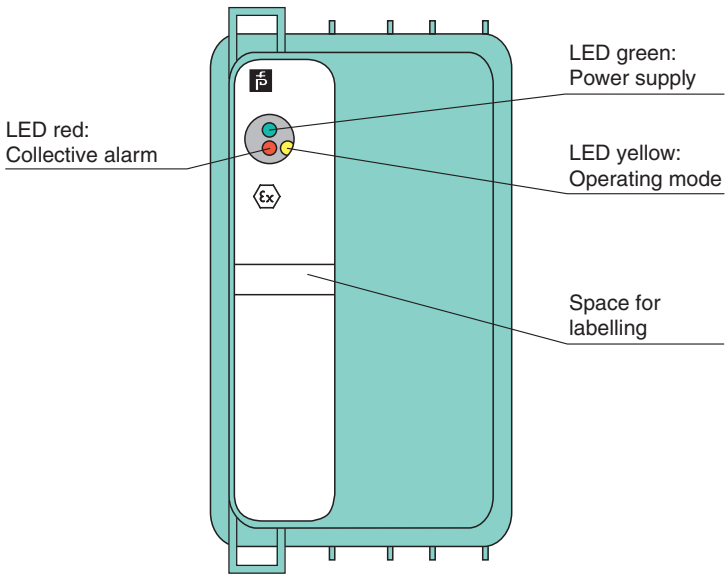
Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t42294_eng.pdf

Technical Data

Marking		⟨Ex⟩ II 2 G Ex d IIC Gb
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals		
ATEX approval		PTB 97 ATEX 1075
EAC approval		Russia: RU C-IT.MIII06.B.00129
Marine approval		
Lloyd Register		15/20021
DNV GL Marine		TAA0000034
American Bureau of Shipping		T1450280/UN
Bureau Veritas Marine		22449/B0 BV
General information		
System information		The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information		

Assembly

Front view



Accessories

	DTM LB/FB	
	FB9224*	Field Unit
	FB9225*	
	FB9248*	

Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t42294_eng.pdf

Com Unit for MODBUS TCP

FB8211*

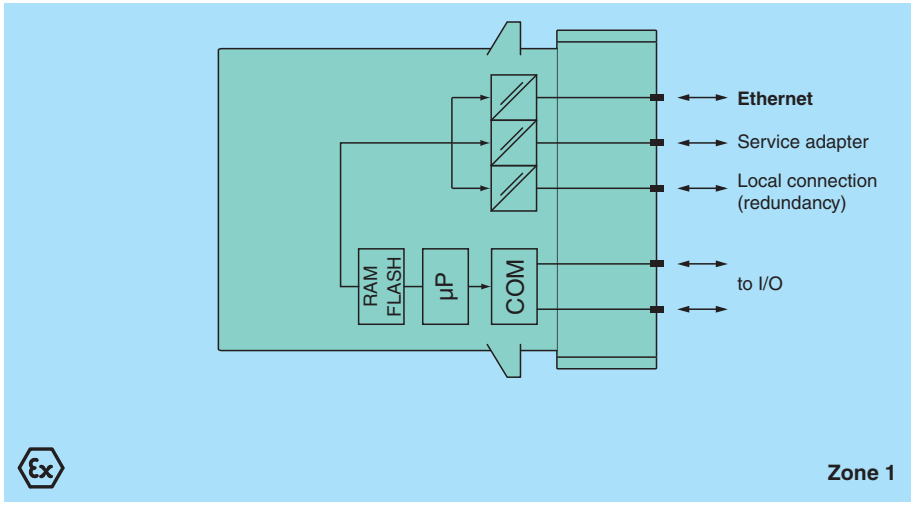
- Interface between the I/O modules and the PCS/PLC
- Communication via MODBUS TCP
- Installation in suitable enclosures in Zone 1
- Module can be exchanged under voltage (hot swap)
- Com unit for 80 analog or 184 digital channels
- HART communication via MODBUS TCP
- Configuration via FDT 1.2 DTM
- Non-volatile memory for configuration and parameter settings
- Self configuration in redundant systems
- Permanently self-monitoring
- Outputs drive to safe state in case of failures

Com Unit for MODBUS TCP

Function

The MODBUS TCP com unit forms the interface between the I/O modules on the backplane and the process control system.
It supports all single width and dual width I/O modules. Thereby signals from NAMUR sensors, mechanical contacts, high-power solenoid drivers, power relays, sounders, and alarm LEDs are transported to the higher-level bus system.
The com unit can be easily configured via DTM and supports redundancy as well as HART.

Connection



Technical Data

Supply		
Connection		backplane bus
Rated voltage	U_r	5 V DC , only in connection with the power supplies FB92**
Power consumption		2.5 W
Fieldbus interface		
Fieldbus type		MODBUS TCP
Ethernet Interface		
Connection type		wired to Ex e terminals via backplane
Transfer rate		10 MBit/s

Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t159199_eng.pdf

Technical Data

Station connection	directly to PCS or PLC or via hubs or switches
Bus length	max. 100 m (Ethernet standard)
Addressing	IP address assigned via Ethernet
Ethernet address	IP V4 address (factory standard setting: 0.0.0.0, auto IP, DHCP)
Number of channels per station	max. 80 analog, max. 184 digital
Supported I/O modules	all FB remote I/O modules
HART communication	via Ethernet
Internal bus	
Connection	backplane bus
Redundancy	via left front connector
Service interface	
Connection	via right front connector in connection with service adapter SERV8001
Indicators/settings	
LED indication	LED green (power supply): On = operating, fast flash = cold start LED red (collective alarm): On = internal fault, flashing = no Modbus TCP connection LED yellow (operating mode): flashing 1 (1:1 ratio) = active, normal operation; flashing 2 (7:1 ratio) = active, simulation
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1
Conformity	
Electromagnetic compatibility	NE 21
Degree of protection	IEC 60529
Fieldbus standard	IEEE 802.3
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-56
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	95 % non-condensing
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Degree of protection	IP20 (module) , a separate housing is required acc. to the system description
Connection	via backplane
Mass	approx. 750 g
Dimensions	57 x 107 x 132 mm (2.2 x 4.2 x 5.2 inch)
Data for application in connection with hazardous areas	
EU-Type Examination Certificate	PTB 97 ATEX 1074 U
Marking	⟨Ex⟩ II 2 G Ex d [ib] IIC Gb
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007 EN 60079-26:2007 EN 61241-11:2006
International approvals	
EAC approval	Russia: RU C-IT.MIII06.B.00129
Marine approval	

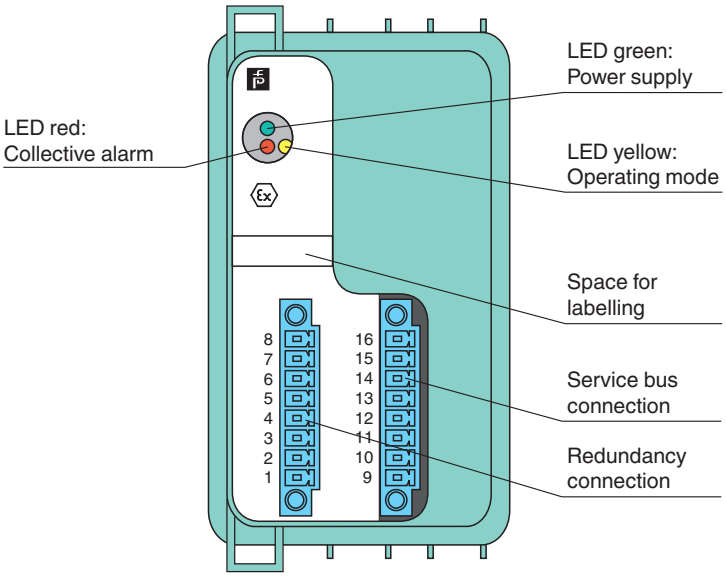
Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t159199_eng.pdf

Technical Data

Lloyd Register	15/20021
DNV GL Marine	TAA0000034
American Bureau of Shipping	T1450280/UN
General information	
System information	The module has to be mounted in appropriate backplanes (FB92**) in Zone 1, 2, or outside hazardous areas. Observe the corresponding EC-type examination certificate.
Supplementary information	

Assembly

Front view



Accessories

	DTM LB/FB

Release date: 2020-04-30 Date of issue: 2020-04-30 Filename: t159199_eng.pdf

FB Remote I/O Field Unit

FB9211-T6*-*-***-**-*-Y*

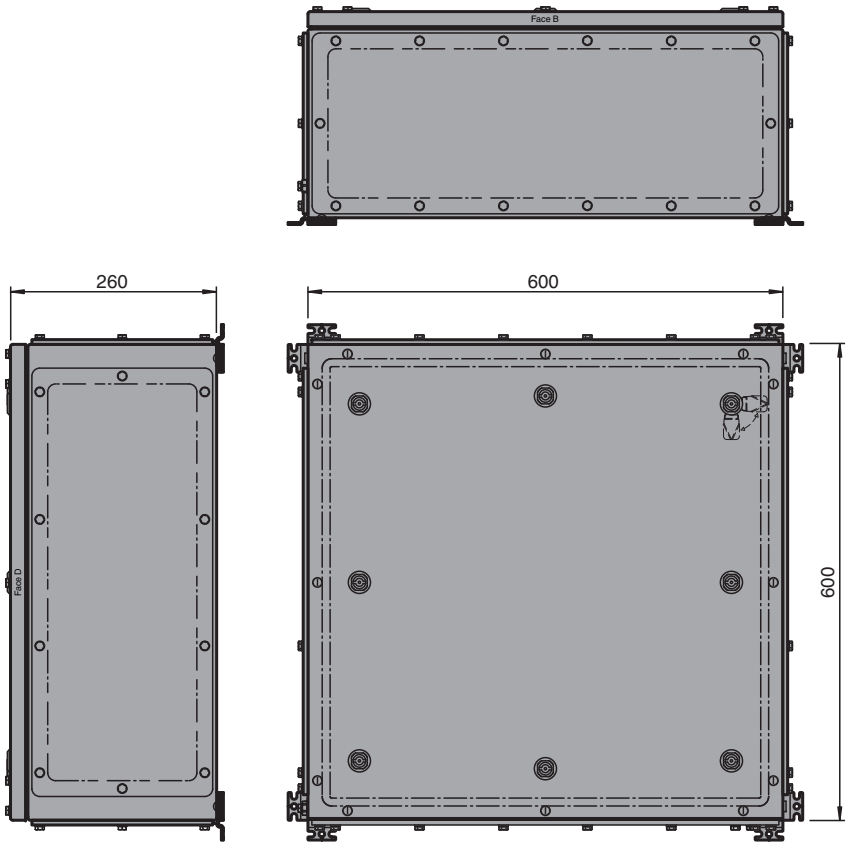
- Preconfigured enclosures for engineered FB systems
- Installation in Zone 1 and Zone 21
- Installation in Zone 2 and Zone 22
- Max. 10 slots for I/O modules
- Impact resistance enclosure, IP66
- Redundancy (field bus and power supply)
- For PROFIBUS DP, PROFIBUS DP V1, MODBUS RTU and MODBUS TCP
- Image is generic for this device type and may deviate from the specific variant

Field Unit, Stainless Steel

Function

This field unit is designed to meet the requirements of the most demanding hazardous area and industrial environmental applications.
Brushed stainless steel 316L provides high corrosion and impact resistance at a very wide temperature range.
It is equipped with a base backplane which allows redundancy in gateway and power supply.
It provides 10 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.
The fieldbus and power supply are equipped with redundant connections.

Dimensions



Technical Data

General specifications		
Installed components		1x backplane FB9262BP10220.x
Slots		
Bus coupler		2
Bus termination		2
Supply		2
I/O modules (single width)		max. 10
I/O modules (dual width)		max. 5
Supply		
Connection		screw terminals, max. 10 mm^2
Rated voltage	U_r	24 V DC/115 V AC/230 V AC , depends on power supply
Redundancy		yes
Fieldbus connection		
Fieldbus type		PROFIBUS DP/DP-V1, MODBUS RTU, or MODBUS TCP , depends on bus coupler
Connection		spring terminal, max. 2.5 mm^2
Redundancy		yes
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61439-1:2012 (J.9.2.2 b) , EN 61439-2:2012
Conformity		
Degree of protection		EN 60529
Impact resistance		EN 60079-0

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196786_eng.pdf

Technical Data

Ambient conditions	
Ambient temperature	-20 ... 40 °C (-4 ... 104 °F) further on request
Storage temperature	-25 ... 70 °C (-13 ... 158 °F)
Relative humidity	< 75 % (annual mean) < 95 % (30 d/year), no moisture condensation
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Impact resistance	7J
Mechanical specifications	
Enclosure cover	hinged door with quarter-turn key locks
Cover seal	foamed silicone
Degree of protection	IP66
Cable entry face B	
M16 quantity	54
M16 series	Cable Glands, Plastic
M16 type	CG.PIDS1.M16.*
M16 clamping range	4 ... 8 mm
M16 info	field signals
M20 quantity	7
M20 series	Cable Glands, Plastic
M20 type	CG.PEDS1.M20.*
M20 clamping range	6 ... 12 mm
M20 info	Fieldbus
M25 quantity	4
M25 series	Cable Glands, Plastic
M25 type	CG.PEDS1.M25.*
M25 clamping range	10 ... 18 mm
M25 info	Power Supply
Terminal assembly	
Number of horizontal rails	1
Usable length per horizontal rail	470 mm
Terminal type	max. 90 spring terminal or screw terminal
Material	
Enclosure	1.5 mm AISI 316L, (1.4404) stainless steel
Finish	brushed
Cable gland	Polyamide (PA)
Seal	housing: foamed silicone cable gland: chloroprene
Mass	approx. 25 kg , without modules
Dimensions	
External dimension (A)	600 mm
External dimension (B)	600 mm
External dimension (C)	260 mm
Mounting	4 Mounting bracket for wall mounting included in the scope of delivery
Grounding	M8 internal/external brass nickel-plated grounding bolt
Data for application in connection with hazardous areas	
EU-type examination certificate	PTB 97 ATEX 1075 X
Marking	Ⓔx II 2(1)G Ex db eb ia mb q [ia Ga/ib] IIC T4 Gb Ⓔx II 2(1)D Ex tb [ia Da/ib] IIIC T130°C Db
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2018 , EN 60079-1:2014 , EN 60079-5:2015 , EN 60079-7:2015 , EN 60079-11:2012 , EN 60079-18:2015 , EN 60079-31:2014
General information	

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196786_eng.pdf

FB Remote I/O Field Unit

FB9221-T6*-*-***-**-*-Y*

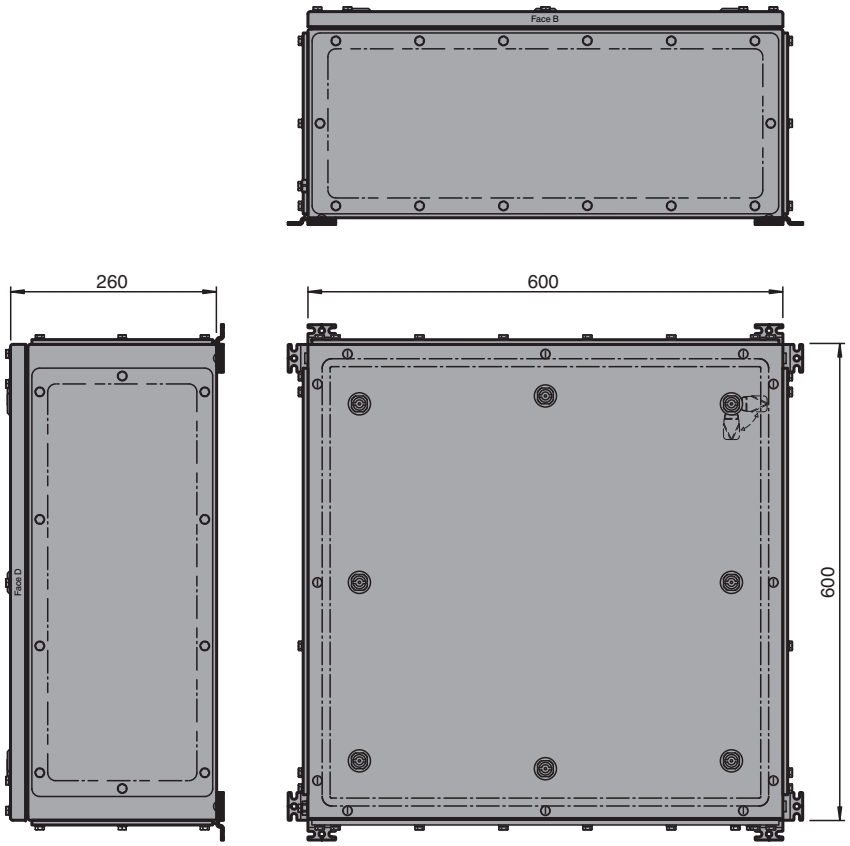
- Preconfigured enclosures for engineered FB systems
- Installation in Zone 1 and Zone 21
- Installation in Zone 2 and Zone 22
- Max. 20 slots for I/O modules
- Impact resistance enclosure, IP66
- Redundancy (field bus and power supply)
- For PROFIBUS DP, PROFIBUS DP V1, MODBUS RTU and MODBUS TCP
- Image is generic for this device type and may deviate from the specific variant

Field Unit, Stainless Steel

Function

This field unit is designed to meet the requirements of the most demanding hazardous area and industrial environmental applications.
Brushed stainless steel 316L provides high corrosion and impact resistance at a very wide temperature range.
It is equipped with a base backplane which allows redundancy in gateway and power supply.
It provides 20 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.
The fieldbus and power supply are equipped with redundant connections.

Dimensions



Technical Data

General specifications		
Installed components		1x backplane FB9262BP20220.x
Slots		
Bus coupler		2
Bus termination		2
Supply		2
I/O modules (single width)		max. 20
I/O modules (dual width)		max. 10
Supply		
Connection		screw terminals, max. 10 mm^2
Rated voltage	U_r	24 V DC/115 V AC/230 V AC , depends on power supply
Redundancy		yes
Fieldbus connection		
Fieldbus type		PROFIBUS DP/DP-V1, MODBUS RTU, or MODBUS TCP , depends on bus coupler
Connection		spring terminal, max. 2.5 mm^2
Redundancy		yes
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61439-1:2012 (J.9.2.2 b) , EN 61439-2:2012
Conformity		
Degree of protection		EN 60529
Impact resistance		EN 60079-0

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196787_eng.pdf

Technical Data

Ambient conditions	
Ambient temperature	-20 ... 40 °C (-4 ... 104 °F) further on request
Storage temperature	-25 ... 70 °C (-13 ... 158 °F)
Relative humidity	< 75 % (annual mean) < 95 % (30 d/year), no moisture condensation
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Impact resistance	7J
Mechanical specifications	
Enclosure cover	hinged door with quarter-turn key locks
Cover seal	foamed silicone
Degree of protection	IP66
Cable entry face B	
M16 quantity	90
M16 series	Cable Glands, Plastic
M16 type	CG.PIDS1.M16.*
M16 clamping range	4 ... 8 mm
M16 info	field signals
M20 quantity	6
M20 series	Cable Glands, Plastic
M20 type	CG.PEDS1.M20.*
M20 clamping range	6 ... 12 mm
M20 info	Fieldbus
M25 quantity	4
M25 series	Cable Glands, Plastic
M25 type	CG.PEDS1.M25.*
M25 clamping range	10 ... 18 mm
M25 info	Power Supply
Terminal assembly	
Number of horizontal rails	1
Usable length per horizontal rail	470 mm
Terminal type	max. 90 spring terminal or screw terminal
Material	
Enclosure	1.5 mm AISI 316L, (1.4404) stainless steel
Finish	brushed
Cable gland	Polyamide (PA)
Seal	housing: foamed silicone cable gland: chloroprene
Mass	approx. 32 kg , without modules
Dimensions	
External dimension (A)	600 mm
External dimension (B)	600 mm
External dimension (C)	260 mm
Mounting	4 Mounting bracket for wall mounting included in the scope of delivery
Grounding	M8 internal/external brass nickel-plated grounding bolt
Data for application in connection with hazardous areas	
EU-type examination certificate	PTB 97 ATEX 1075 X
Marking	Ⓔx II 2(1)G Ex db eb ia mb q [ia Ga/ib] IIC T4 Gb Ⓔx II 2(1)D Ex tb [ia Da/ib] IIIC T130°C Db
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2018 , EN 60079-1:2014 , EN 60079-5:2015 , EN 60079-7:2015 , EN 60079-11:2012 , EN 60079-18:2015 , EN 60079-31:2014
General information	

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196787_eng.pdf

FB Remote I/O Field Unit

FB9241-T7*-*-***-**-*-Y*

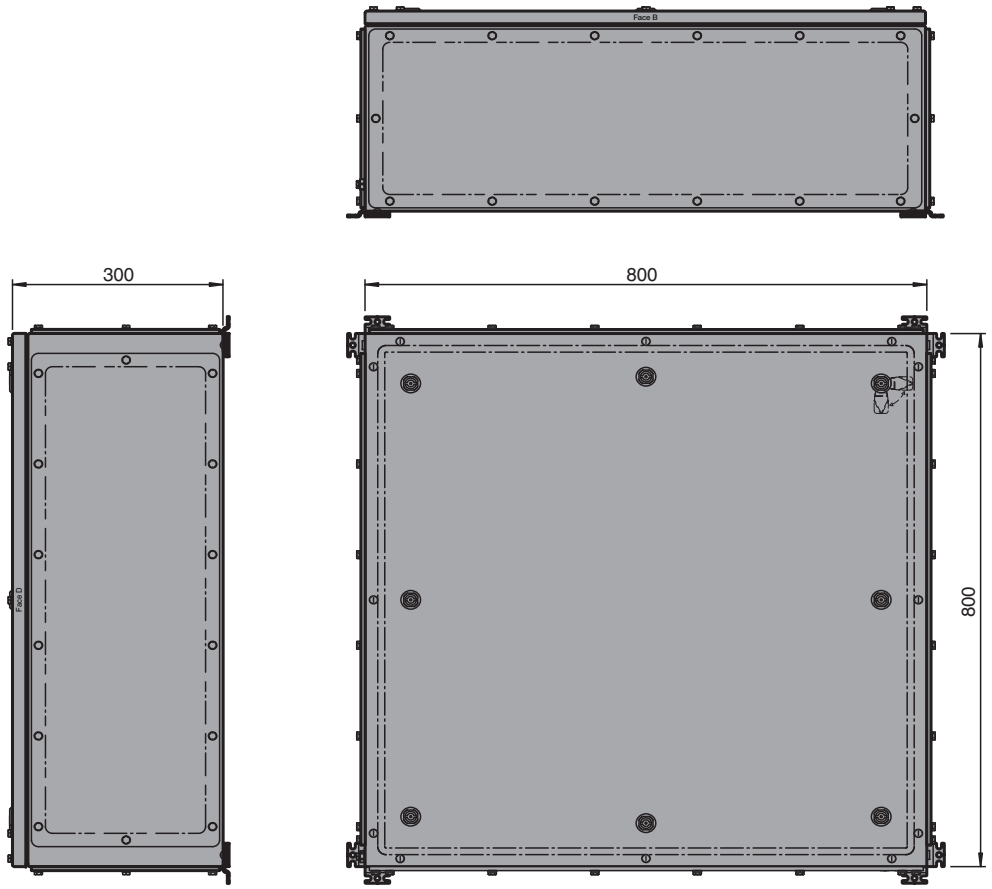
- Preconfigured enclosures for engineered FB systems
- Installation in Zone 1 and Zone 21
- Installation in Zone 2 and Zone 22
- Max. 40 slots for I/O modules
- Impact resistance enclosure, IP66
- Redundancy (field bus and power supply)
- For PROFIBUS DP, PROFIBUS DP V1, MODBUS RTU and MODBUS TCP
- Image is generic for this device type and may deviate from the specific variant

Field Unit, Stainless Steel

Function

This field unit is designed to meet the requirements of the most demanding hazardous area and industrial environmental applications.
Brushed stainless steel 316L provides high corrosion and impact resistance at a very wide temperature range.
It is equipped with a base- and an extension backplane which allows redundancy in gateway and power supply.
It provides 40 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.
The fieldbus and power supply are equipped with redundant connections.

Dimensions



Technical Data

General specifications		
Installed components		2x backplane FB9262BP20220.x
Slots		
Bus coupler		2
Bus termination		2
Supply		4
I/O modules (single width)		max. 40
I/O modules (dual width)		max. 20
Supply		
Connection		screw terminals, max. 10 mm^2
Rated voltage	U_r	24 V DC/115 V AC/230 V AC , depends on power supply
Redundancy		yes
Fieldbus connection		
Fieldbus type		PROFIBUS DP/DP-V1, MODBUS RTU, or MODBUS TCP , depends on bus coupler
Connection		spring terminal, max. 2.5 mm^2
Redundancy		yes
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61439-1:2012 (J.9.2.2 b) , EN 61439-2:2012
Conformity		
Degree of protection		EN 60529
Impact resistance		EN 60079-0

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196788_eng.pdf

Technical Data

Ambient conditions	
Ambient temperature	-20 ... 40 °C (-4 ... 104 °F) further on request
Storage temperature	-25 ... 70 °C (-13 ... 158 °F)
Relative humidity	< 75 % (annual mean) < 95 % (30 d/year), no moisture condensation
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Impact resistance	7J
Mechanical specifications	
Enclosure cover	hinged door with quarter-turn key locks
Cover seal	foamed silicone
Degree of protection	IP66
Cable entry face B	
M16 quantity	192
M16 series	Cable Glands, Plastic
M16 type	CG.PIDS1.M16.*
M16 clamping range	4 ... 8 mm
M16 info	field signals
M20 quantity	6
M20 series	Cable Glands, Plastic
M20 type	CG.PEDS1.M20.*
M20 clamping range	6 ... 12 mm
M20 info	Fieldbus
M25 quantity	4
M25 series	Cable Glands, Plastic
M25 type	CG.PEDS1.M25.*
M25 clamping range	10 ... 18 mm
M25 info	Power Supply
Material	
Enclosure	1.5 mm AISI 316L, (1.4404) stainless steel
Finish	brushed
Cable gland	Polyamide (PA)
Seal	housing: foamed silicone cable gland: chloroprene
Mass	approx. 50 kg , without modules
Dimensions	
External dimension (A)	800 mm
External dimension (B)	800 mm
External dimension (C)	300 mm
Mounting	4 Mounting bracket for wall mounting included in the scope of delivery
Grounding	M8 internal/external brass nickel-plated grounding bolt
Data for application in connection with hazardous areas	
EU-type examination certificate	PTB 97 ATEX 1075 X
Marking	Ⓔx II 2(1)G Ex db eb ia mb q [ia Ga/ib] IIC T4 Gb Ⓔx II 2(1)D Ex tb [ia Da/ib] IIIC T130°C Db
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2018 , EN 60079-1:2014 , EN 60079-5:2015 , EN 60079-7:2015 , EN 60079-11:2012 , EN 60079-18:2015 , EN 60079-31:2014
General information	
Ordering information	This device will be delivered completely configured and assembled ready for use. For configuration details please contact Customer Service.
Supplementary information	

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196788_eng.pdf

FB Remote I/O Field Unit

FB9241-T8*-*-***-**-*-Y*

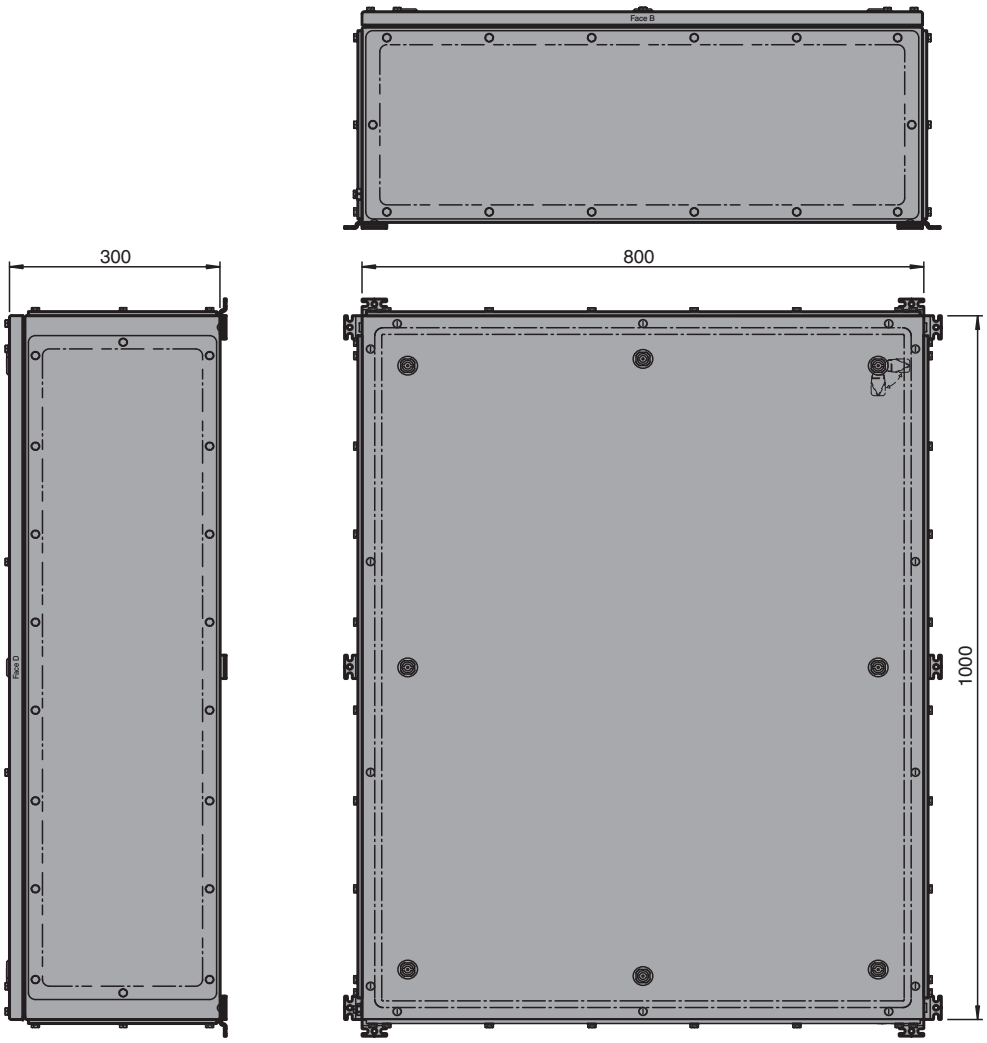
- Preconfigured enclosures for engineered FB systems
- Installation in Zone 1 and Zone 21
- Installation in Zone 2 and Zone 22
- Max. 40 slots for I/O modules
- Impact resistance enclosure, IP66
- Redundancy (field bus and power supply)
- For PROFIBUS DP, PROFIBUS DP V1, MODBUS RTU and MODBUS TCP
- Image is generic for this device type and may deviate from the specific variant

Field Unit, Stainless Steel

Function

This field unit is designed to meet the requirements of the most demanding hazardous area and industrial environmental applications.
Brushed stainless steel 316L provides high corrosion and impact resistance at a very wide temperature range.
It is equipped with a base- and an extension backplane which allows redundancy in gateway and power supply.
It provides 40 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.
The fieldbus and power supply are equipped with redundant connections.

Dimensions



Technical Data

General specifications	
Installed components	2x backplane FB9262BP20220.x
Slots	
Bus coupler	2
Bus termination	2
Supply	4
I/O modules (single width)	max. 40
I/O modules (dual width)	max. 20

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Technical Data

Supply		
Connection		screw terminals, max. 10 mm²
Rated voltage	U_r	24 V DC/115 V AC/230 V AC , depends on power supply
Redundancy		yes
Fieldbus connection		
Fieldbus type		PROFIBUS DP/DP-V1, MODBUS RTU, or MODBUS TCP , depends on bus coupler
Connection		spring terminal, max. 2.5 mm²
Redundancy		yes
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61439-1:2012 (J.9.2.2 b) , EN 61439-2:2012
Conformity		
Degree of protection		EN 60529
Impact resistance		EN 60079-0
Ambient conditions		
Ambient temperature		-20 ... 40 °C (-4 ... 104 °F) further on request
Storage temperature		-25 ... 70 °C (-13 ... 158 °F)
Relative humidity		< 75 % (annual mean) < 95 % (30 d/year), no moisture condensation
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Impact resistance		7J
Mechanical specifications		
Enclosure cover		hinged door with quarter-turn key locks
Cover seal		foamed silicone
Degree of protection		IP66
Cable entry face B		
M16 quantity		192
M16 series		Cable Glands, Plastic
M16 type		CG.PIDS1.M16.*
M16 clamping range		4 ... 8 mm
M16 info		field signals
M20 quantity		6
M20 series		Cable Glands, Plastic
M20 type		CG.PEDS1.M20.*
M20 clamping range		6 ... 12 mm
M20 info		Fieldbus
M25 quantity		4
M25 series		Cable Glands, Plastic
M25 type		CG.PEDS1.M25.*
M25 clamping range		10 ... 18 mm
M25 info		Power Supply
Terminal assembly		
Number of horizontal rails		4
Usable length per horizontal rail		250 mm
Terminal type		max. 192 spring terminal or screw terminal
Material		
Enclosure		1.5 mm AISI 316L, (1.4404) stainless steel
Finish		brushed
Cable gland		Polyamide (PA)
Seal		housing: foamed silicone cable gland: chloroprene

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Technical Data

Mass		approx. 75 kg , without modules
Dimensions		
External dimension (A)		1000 mm
External dimension (B)		800 mm
External dimension (C)		300 mm
Mounting		4 Mounting bracket for wall mounting included in the scope of delivery
Grounding		M8 internal/external brass nickel-plated grounding bolt
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 97 ATEX 1075 X
Marking		Ⓔx II 2(1)G Ex db eb ia mb q [ia Ga/ib] IIC T4 Gb Ⓔx II 2(1)D Ex tb [ia Da/ib] IIIC T130°C Db
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN 60079-1:2014 , EN 60079-5:2015 , EN 60079-7:2015 , EN 60079-11:2012 , EN 60079-18:2015 , EN 60079-31:2014
General information		
Ordering information		This device will be delivered completely configured and assembled ready for use. For configuration details please contact Customer Service.
Supplementary information		

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196789_eng.pdf

FB Remote I/O Field Unit

FB9210-T6*-*-***-**-*-Y*

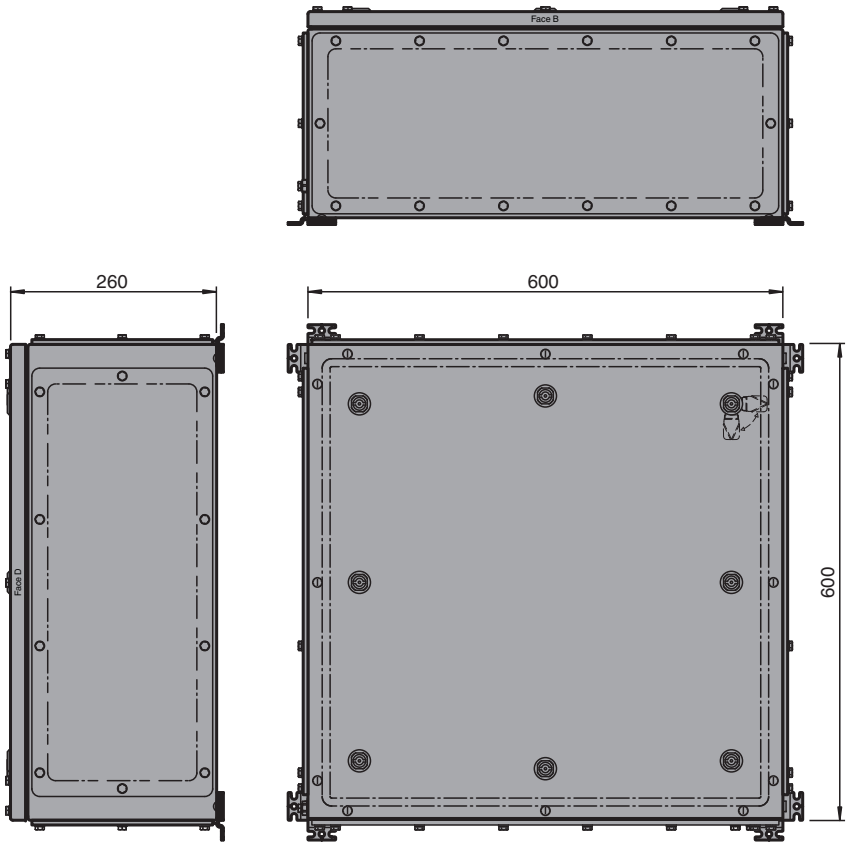
- Preconfigured enclosures for engineered FB systems
- Installation in Zone 1 and Zone 21
- Installation in Zone 2 and Zone 22
- Max. 10 slots for I/O modules
- Impact resistance enclosure, IP66
- For PROFIBUS DP, PROFIBUS DP V1, MODBUS RTU and MODBUS TCP
- Image is generic for this device type and may deviate from the specific variant

Field Unit, Stainless Steel

Function

This field unit is designed to meet the requirements of the most demanding hazardous area and industrial environmental applications.
Brushed stainless steel 316L provides high corrosion and impact resistance at a very wide temperature range.
It is equipped with a base backplane.
It provides 10 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.
The fieldbus and power supply are equipped with non-redundant connections.

Dimensions



Technical Data

General specifications		
Installed components		1x backplane FB9262BP10220.x
Slots		
Bus coupler		1
Bus termination		1
Supply		1
I/O modules (single width)		max. 10
I/O modules (dual width)		max. 5
Supply		
Connection		screw terminals, max. 10 mm^2
Rated voltage	U_r	24 V DC/115 V AC/230 V AC , depends on power supply
Redundancy		possible
Fieldbus connection		
Fieldbus type		PROFIBUS DP/DP-V1, MODBUS RTU, or MODBUS TCP , depends on bus coupler
Connection		spring terminal, max. 2.5 mm^2
Redundancy		no
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61439-1:2012 (J.9.2.2 b) , EN 61439-2:2012
Conformity		
Degree of protection		EN 60529
Impact resistance		EN 60079-0

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Technical Data

Ambient conditions	
Ambient temperature	-20 ... 40 °C (-4 ... 104 °F) further on request
Storage temperature	-25 ... 70 °C (-13 ... 158 °F)
Relative humidity	< 75 % (annual mean) < 95 % (30 d/year), no moisture condensation
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Impact resistance	7J
Mechanical specifications	
Enclosure cover	hinged door with quarter-turn key locks
Cover seal	foamed silicone
Degree of protection	IP66
Cable entry face B	
M16 quantity	65
M16 series	Cable Glands, Plastic
M16 type	CG.PIDS1.M16.*
M16 clamping range	4 ... 8 mm
M16 info	field signals
M20 quantity	4
M20 series	Cable Glands, Plastic
M20 type	CG.PEDS1.M20.*
M20 clamping range	6 ... 12 mm
M20 info	Fieldbus
M25 quantity	2
M25 series	Cable Glands, Plastic
M25 type	CG.PEDS1.M25.*
M25 clamping range	10 ... 18 mm
M25 info	Power Supply
Terminal assembly	
Number of horizontal rails	1
Usable length per horizontal rail	470 mm
Terminal type	max. 90 spring terminal or screw terminal
Material	
Enclosure	1.5 mm AISI 316L, (1.4404) stainless steel
Finish	brushed
Cable gland	Polyamide (PA)
Seal	housing: foamed silicone cable gland: chloroprene
Mass	approx. 25 kg , without modules
Dimensions	
External dimension (A)	600 mm
External dimension (B)	600 mm
External dimension (C)	260 mm
Mounting	4 Mounting bracket for wall mounting included in the scope of delivery
Grounding	M8 internal/external brass nickel-plated grounding bolt
Data for application in connection with hazardous areas	
EU-type examination certificate	PTB 97 ATEX 1075 X
Marking	Ⓔx II 2(1)G Ex db eb ia mb q [ia Ga/ib] IIC T4 Gb Ⓔx II 2(1)D Ex tb [ia Da/ib] IIIC T130°C Db
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2018 , EN 60079-1:2014 , EN 60079-5:2015 , EN 60079-7:2015 , EN 60079-11:2012 , EN 60079-18:2015 , EN 60079-31:2014
General information	

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196791_eng.pdf

FB Remote I/O Field Unit

FB9220-T6*-*-***-**-*-Y*

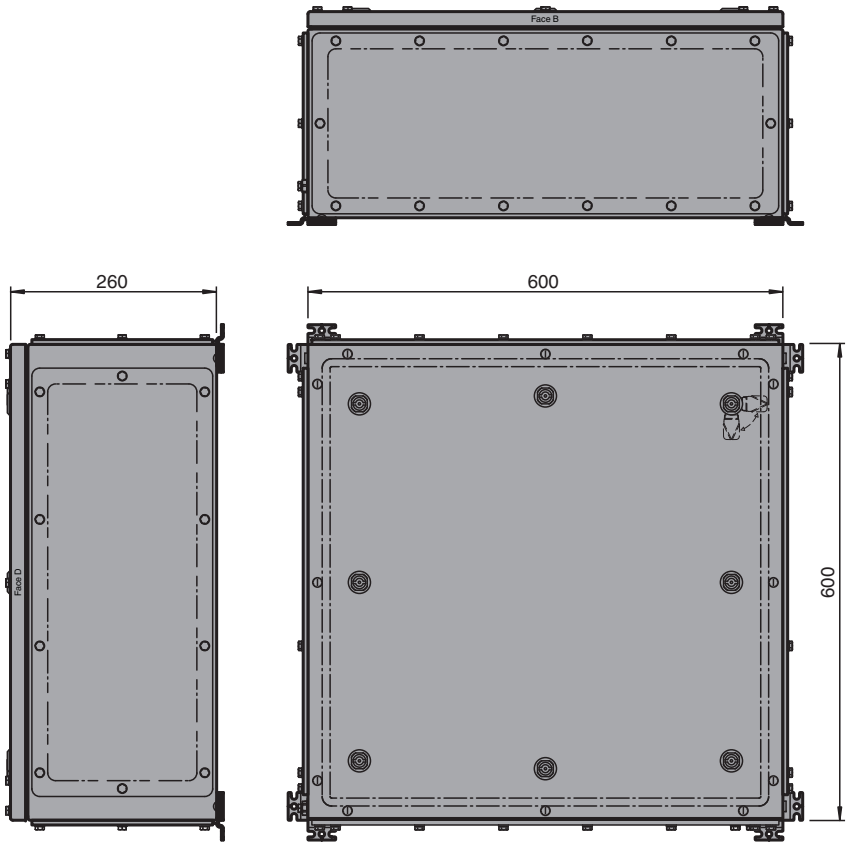
- Preconfigured enclosures for engineered FB systems
- Installation in Zone 1 and Zone 21
- Installation in Zone 2 and Zone 22
- Max. 20 slots for I/O modules
- Impact resistance enclosure, IP66
- For PROFIBUS DP, PROFIBUS DP V1, MODBUS RTU and MODBUS TCP
- Image is generic for this device type and may deviate from the specific variant

Field Unit, Stainless Steel

Function

This field unit is designed to meet the requirements of the most demanding hazardous area and industrial environmental applications.
Brushed stainless steel 316L provides high corrosion and impact resistance at a very wide temperature range.
It is equipped with a base backplane.
It provides 20 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.
The fieldbus and power supply are equipped with non-redundant connections.

Dimensions



Technical Data

General specifications		
Installed components		1x backplane FB9262BP20220.x
Slots		
Bus coupler		1
Bus termination		1
Supply		1
I/O modules (single width)		max. 20
I/O modules (dual width)		max. 10
Supply		
Connection		screw terminals, max. 10 mm^2
Rated voltage	U_r	24 V DC/115 V AC/230 V AC , depends on power supply
Redundancy		possible
Fieldbus connection		
Fieldbus type		PROFIBUS DP/DP-V1, MODBUS RTU, or MODBUS TCP , depends on bus coupler
Connection		spring terminal, max. 2.5 mm^2
Redundancy		no
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61439-1:2012 (J.9.2.2 b) , EN 61439-2:2012
Conformity		
Degree of protection		EN 60529
Impact resistance		EN 60079-0

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196792_eng.pdf

Technical Data

Ambient conditions	
Ambient temperature	-20 ... 40 °C (-4 ... 104 °F) further on request
Storage temperature	-25 ... 70 °C (-13 ... 158 °F)
Relative humidity	< 75 % (annual mean) < 95 % (30 d/year), no moisture condensation
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Impact resistance	7J
Mechanical specifications	
Enclosure cover	hinged door with quarter-turn key locks
Cover seal	foamed silicone
Degree of protection	IP66
Cable entry face B	
M16 quantity	90
M16 series	Cable Glands, Plastic
M16 type	CG.PIDS1.M16.*
M16 clamping range	4 ... 8 mm
M16 info	field signals
M20 quantity	4
M20 series	Cable Glands, Plastic
M20 type	CG.PEDS1.M20.*
M20 clamping range	6 ... 12 mm
M20 info	Fieldbus
M25 quantity	2
M25 series	Cable Glands, Plastic
M25 type	CG.PEDS1.M25.*
M25 clamping range	10 ... 18 mm
M25 info	Power Supply
Terminal assembly	
Number of horizontal rails	1
Usable length per horizontal rail	470 mm
Terminal type	max. 90 spring terminal or screw terminal
Material	
Enclosure	1.5 mm AISI 316L, (1.4404) stainless steel
Finish	brushed
Cable gland	Polyamide (PA)
Seal	housing: foamed silicone cable gland: chloroprene
Mass	approx. 32 kg , without modules
Dimensions	
External dimension (A)	600 mm
External dimension (B)	600 mm
External dimension (C)	260 mm
Mounting	4 Mounting bracket for wall mounting included in the scope of delivery
Grounding	M8 internal/external brass nickel-plated grounding bolt
Data for application in connection with hazardous areas	
EU-type examination certificate	PTB 97 ATEX 1075 X
Marking	Ⓔx II 2(1)G Ex db eb ia mb q [ia Ga/ib] IIC T4 Gb Ⓔx II 2(1)D Ex tb [ia Da/ib] IIIC T130°C Db
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2018 , EN 60079-1:2014 , EN 60079-5:2015 , EN 60079-7:2015 , EN 60079-11:2012 , EN 60079-18:2015 , EN 60079-31:2014
General information	

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196792_eng.pdf

FB Remote I/O Field Unit

FB9240-T7*-*-***-**-*-Y*

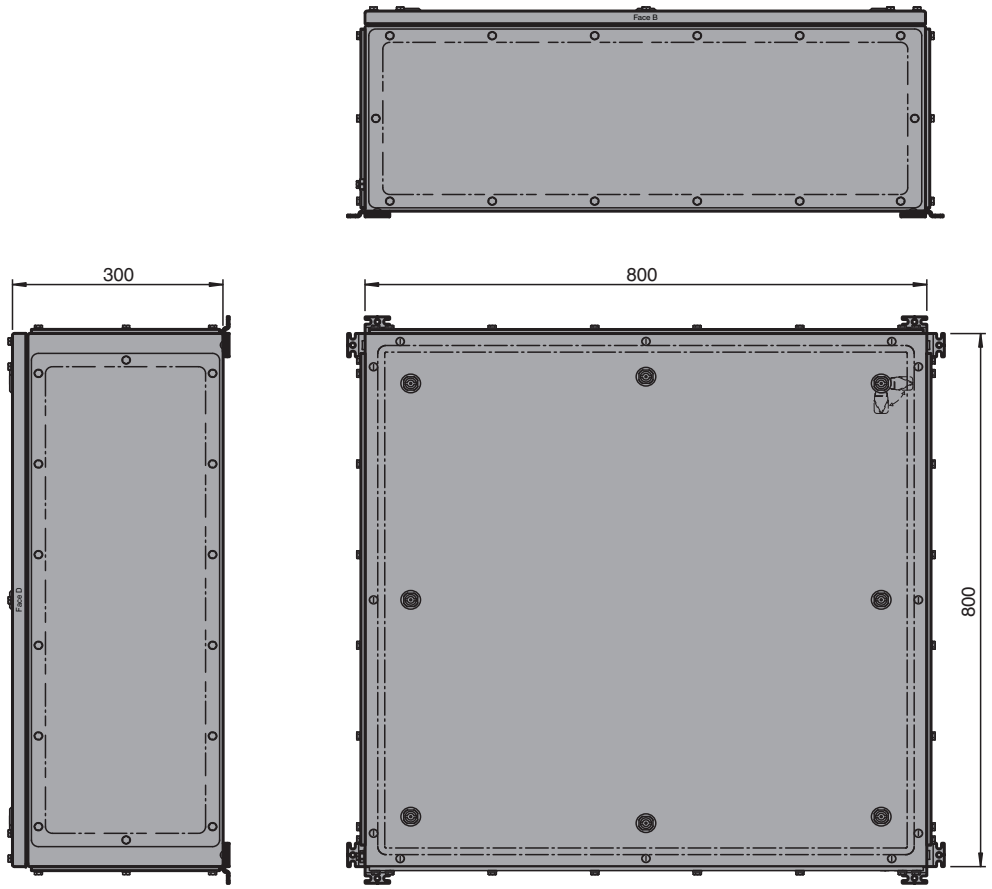
- Preconfigured enclosures for engineered FB systems
- Installation in Zone 1 and Zone 21
- Installation in Zone 2 and Zone 22
- Max. 40 slots for I/O modules
- Impact resistance enclosure, IP66
- For PROFIBUS DP, PROFIBUS DP V1, MODBUS RTU and MODBUS TCP
- Image is generic for this device type and may deviate from the specific variant

Field Unit, Stainless Steel

Function

This field unit is designed to meet the requirements of the most demanding hazardous area and industrial environmental applications.
Brushed stainless steel 316L provides high corrosion and impact resistance at a very wide temperature range.
It is equipped with a base backplane.
It provides 40 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.
The fieldbus and power supply are equipped with non-redundant connections.

Dimensions



Technical Data

General specifications		
Installed components		2x backplane FB9262BP20220.x
Slots		
Bus coupler		1
Bus termination		1
Supply		2
I/O modules (single width)		max. 40
I/O modules (dual width)		max. 20
Supply		
Connection		screw terminals, max. 10 mm^2
Rated voltage	U_r	24 V DC/115 V AC/230 V AC , depends on power supply
Redundancy		possible
Fieldbus connection		
Fieldbus type		PROFIBUS DP/DP-V1, MODBUS RTU, or MODBUS TCP , depends on bus coupler
Connection		spring terminal, max. 2.5 mm^2
Redundancy		no
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61439-1:2012 (J.9.2.2 b) , EN 61439-2:2012
Conformity		
Degree of protection		EN 60529
Impact resistance		EN 60079-0

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196793_eng.pdf

Technical Data

Ambient conditions	
Ambient temperature	-20 ... 40 °C (-4 ... 104 °F) further on request
Storage temperature	-25 ... 70 °C (-13 ... 158 °F)
Relative humidity	< 75 % (annual mean) < 95 % (30 d/year), no moisture condensation
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Impact resistance	7J
Mechanical specifications	
Enclosure cover	hinged door with quarter-turn key locks
Cover seal	foamed silicone
Degree of protection	IP66
Cable entry face B	
M16 quantity	192
M16 series	Cable Glands, Plastic
M16 type	CG.PIDS1.M16.*
M16 clamping range	4 ... 8 mm
M16 info	field signals
M20 quantity	4
M20 series	Cable Glands, Plastic
M20 type	CG.PEDS1.M20.*
M20 clamping range	6 ... 12 mm
M20 info	Fieldbus
M25 quantity	2
M25 series	Cable Glands, Plastic
M25 type	CG.PEDS1.M25.*
M25 clamping range	10 ... 18 mm
M25 info	Power Supply
Material	
Enclosure	1.5 mm AISI 316L, (1.4404) stainless steel
Finish	brushed
Cable gland	Polyamide (PA)
Seal	housing: foamed silicone cable gland: chloroprene
Mass	approx. 50 kg , without modules
Dimensions	
External dimension (A)	800 mm
External dimension (B)	800 mm
External dimension (C)	300 mm
Mounting	4 Mounting bracket for wall mounting included in the scope of delivery
Grounding	M8 internal/external brass nickel-plated grounding bolt
Data for application in connection with hazardous areas	
EU-type examination certificate	PTB 97 ATEX 1075 X
Marking	Ⓔx II 2(1)G Ex db eb ia mb q [ia Ga/ib] IIC T4 Gb Ⓔx II 2(1)D Ex tb [ia Da/ib] IIIC T130°C Db
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2018 , EN 60079-1:2014 , EN 60079-5:2015 , EN 60079-7:2015 , EN 60079-11:2012 , EN 60079-18:2015 , EN 60079-31:2014
General information	
Ordering information	This device will be delivered completely configured and assembled ready for use. For configuration details please contact Customer Service.
Supplementary information	

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196793_eng.pdf

FB Remote I/O Field Unit

FB9224-T6*-*-***-**-*-Y*

- Preconfigured enclosures for engineered FB systems
- Installation in Zone 1 and Zone 21
- Installation in Zone 2 and Zone 22
- Max. 24 slots for I/O modules
- Impact resistance enclosure, IP66
- For PROFIBUS DP, PROFIBUS DP V1, MODBUS RTU and MODBUS TCP
- Image is generic for this device type and may deviate from the specific variant

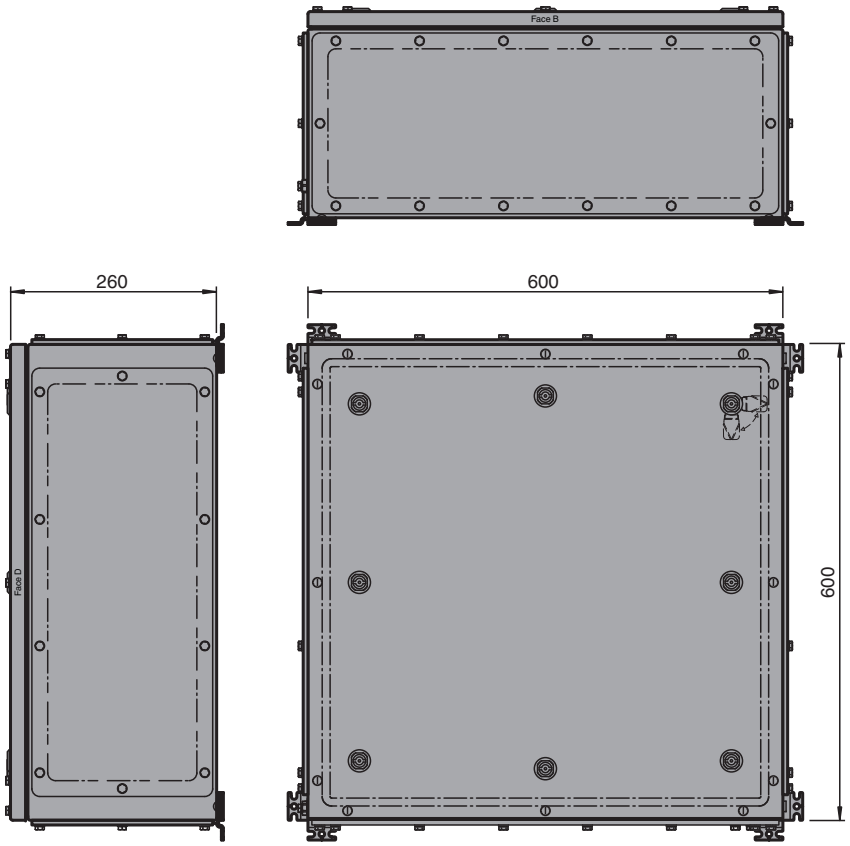
Field Unit, Stainless Steel

Function

This field unit is designed to meet the requirements of the most demanding hazardous area and industrial environmental applications.
Brushed stainless steel 316L provides high corrosion and impact resistance at a very wide temperature range.
It is equipped with a base backplane.
It provides 24 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.
The fieldbus and power supply are equipped with non-redundant connections.

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196794_eng.pdf

Dimensions



Technical Data

General specifications		
Installed components		1x backplane FB9262BP24110.x
Slots		
Bus coupler		1
Bus termination		1
Supply		1
I/O modules (single width)		max. 24
I/O modules (dual width)		max. 12
Supply		
Connection		screw terminals, max. 10 mm^2
Rated voltage	U_r	24 V DC/115 V AC/230 V AC , depends on power supply
Redundancy		no
Fieldbus connection		
Fieldbus type		PROFIBUS DP/DP-V1, MODBUS RTU, or MODBUS TCP , depends on bus coupler
Connection		spring terminal, max. 2.5 mm^2
Redundancy		no
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61439-1:2012 (J.9.2.2 b) , EN 61439-2:2012
Conformity		
Degree of protection		EN 60529
Impact resistance		EN 60079-0

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196794_eng.pdf

Technical Data

Ambient conditions	
Ambient temperature	-20 ... 40 °C (-4 ... 104 °F) further on request
Storage temperature	-25 ... 70 °C (-13 ... 158 °F)
Relative humidity	< 75 % (annual mean) < 95 % (30 d/year), no moisture condensation
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Impact resistance	7J
Mechanical specifications	
Enclosure cover	hinged door with quarter-turn key locks
Cover seal	foamed silicone
Degree of protection	IP66
Cable entry face B	
M16 quantity	90
M16 series	Cable Glands, Plastic
M16 type	CG.PIDS1.M16.*
M16 clamping range	4 ... 8 mm
M16 info	field signals
M20 quantity	4
M20 series	Cable Glands, Plastic
M20 type	CG.PEDS1.M20.*
M20 clamping range	6 ... 12 mm
M20 info	Fieldbus
M25 quantity	2
M25 series	Cable Glands, Plastic
M25 type	CG.PEDS1.M25.*
M25 clamping range	10 ... 18 mm
M25 info	Power Supply
Terminal assembly	
Number of horizontal rails	1
Usable length per horizontal rail	470 mm
Terminal type	max. 90 spring terminal or screw terminal
Material	
Enclosure	1.5 mm AISI 316L, (1.4404) stainless steel
Finish	brushed
Cable gland	Polyamide (PA)
Seal	housing: foamed silicone cable gland: chloroprene
Mass	approx. 32 kg , without modules
Dimensions	
External dimension (A)	600 mm
External dimension (B)	600 mm
External dimension (C)	260 mm
Mounting	4 Mounting bracket for wall mounting included in the scope of delivery
Grounding	M8 internal/external brass nickel-plated grounding bolt
Data for application in connection with hazardous areas	
EU-type examination certificate	PTB 97 ATEX 1075 X
Marking	Ⓔx II 2(1)G Ex db eb ia mb q [ia Ga/ib] IIC T4 Gb Ⓔx II 2(1)D Ex tb [ia Da/ib] IIIC T130°C Db
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2018 , EN 60079-1:2014 , EN 60079-5:2015 , EN 60079-7:2015 , EN 60079-11:2012 , EN 60079-18:2015 , EN 60079-31:2014
General information	

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196794_eng.pdf

FB Remote I/O Field Unit

FB9248-T7*-*-***-**-*-Y*

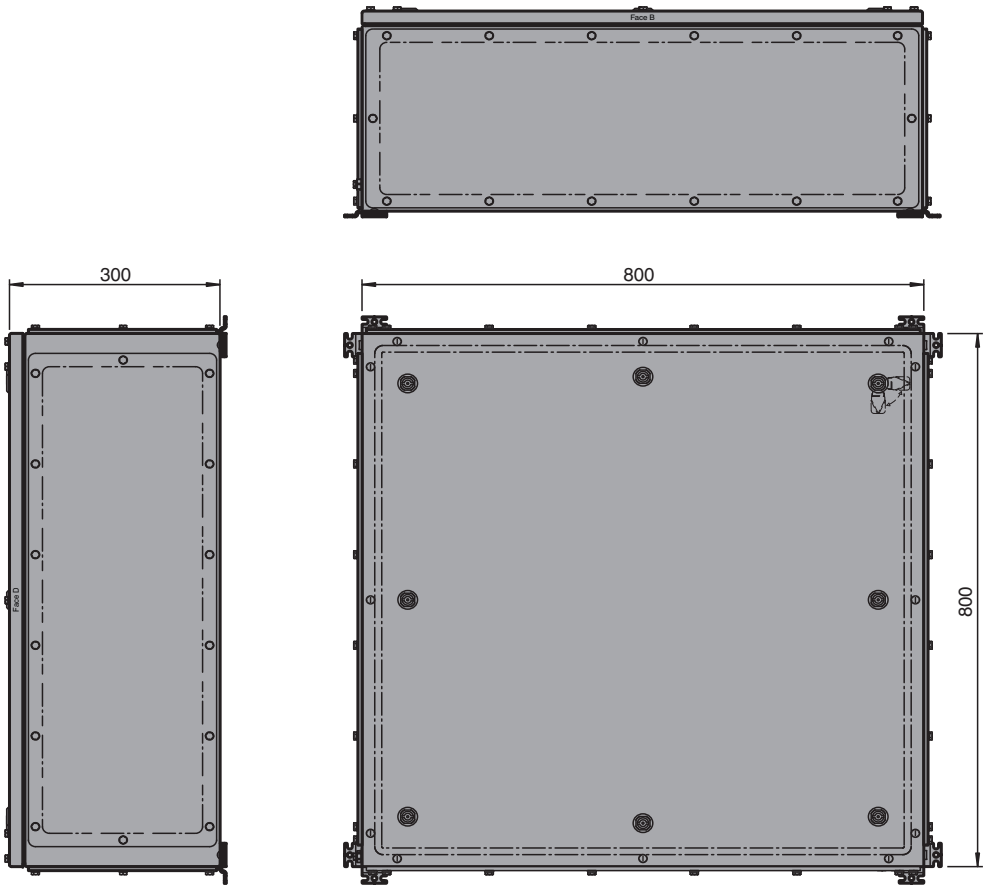
- Preconfigured enclosures for engineered FB systems
- Installation in Zone 1 and Zone 21
- Installation in Zone 2 and Zone 22
- Max. 48 slots for I/O modules
- Impact resistance enclosure, IP66
- For PROFIBUS DP, PROFIBUS DP V1, MODBUS RTU and MODBUS TCP
- Image is generic for this device type and may deviate from the specific variant

Field Unit, Stainless Steel

Function

This field unit is designed to meet the requirements of the most demanding hazardous area and industrial environmental applications.
Brushed stainless steel 316L provides high corrosion and impact resistance at a very wide temperature range.
It is equipped with a base- and an extension backplane.
It provides 48 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.
The fieldbus and power supply are equipped with non-redundant connections.

Dimensions



Technical Data

General specifications		
Installed components		backplane FB9262BP24110.x backplane FB9262BP24200.x
Slots		
Bus coupler		1
Bus termination		1
Supply		2
I/O modules (single width)		max. 48
I/O modules (dual width)		max. 24
Supply		
Connection		screw terminals, max. 10 mm^2
Rated voltage	U_r	24 V DC/115 V AC/230 V AC , depends on power supply
Redundancy		no
Fieldbus connection		
Fieldbus type		PROFIBUS DP/DP-V1, MODBUS RTU, or MODBUS TCP , depends on bus coupler
Connection		spring terminal, max. 2.5 mm^2
Redundancy		no
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61439-1:2012 (J.9.2.2 b) , EN 61439-2:2012
Conformity		
Degree of protection		EN 60529

Release date: 2022-07-13 Date of issue: 2022-07-13 Filename: t196795_eng.pdf

Technical Data

Impact resistance	EN 60079-0
Ambient conditions	
Ambient temperature	-20 ... 40 °C (-4 ... 104 °F) further on request
Storage temperature	-25 ... 70 °C (-13 ... 158 °F)
Relative humidity	< 75 % (annual mean) < 95 % (30 d/year), no moisture condensation
Shock resistance	shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Impact resistance	7J
Mechanical specifications	
Enclosure cover	hinged door with quarter-turn key locks
Cover seal	foamed silicone
Degree of protection	IP66
Cable entry face B	
M16 quantity	192
M16 series	Cable Glands, Plastic
M16 type	CG.PIDS1.M16.*
M16 clamping range	4 ... 8 mm
M16 info	field signals
M20 quantity	4
M20 series	Cable Glands, Plastic
M20 type	CG.PEDS1.M20.*
M20 clamping range	6 ... 12 mm
M20 info	Fieldbus
M25 quantity	2
M25 series	Cable Glands, Plastic
M25 type	CG.PEDS1.M25.*
M25 clamping range	10 ... 18 mm
M25 info	Power Supply
Material	
Enclosure	1.5 mm AISI 316L, (1.4404) stainless steel
Finish	brushed
Cable gland	Polyamide (PA)
Seal	housing: foamed silicone cable gland: chloroprene
Mass	approx. 50 kg , without modules
Dimensions	
External dimension (A)	800 mm
External dimension (B)	800 mm
External dimension (C)	300 mm
Mounting	4 Mounting bracket for wall mounting included in the scope of delivery
Grounding	M8 internal/external brass nickel-plated grounding bolt
Data for application in connection with hazardous areas	
EU-type examination certificate	PTB 97 ATEX 1075 X
Marking	Ⓔx II 2(1)G Ex db eb ia mb q [ia Ga/ib] IIC T4 Gb Ⓔx II 2(1)D Ex tb [ia Da/ib] IIIC T130°C Db
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2018 , EN 60079-1:2014 , EN 60079-5:2015 , EN 60079-7:2015 , EN 60079-11:2012 , EN 60079-18:2015 , EN 60079-31:2014
General information	
Ordering information	This device will be delivered completely configured and assembled ready for use. For configuration details please contact Customer Service.

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FB Remote I/O Field Unit

FB9248-T8*-*-***-**-*-Y*

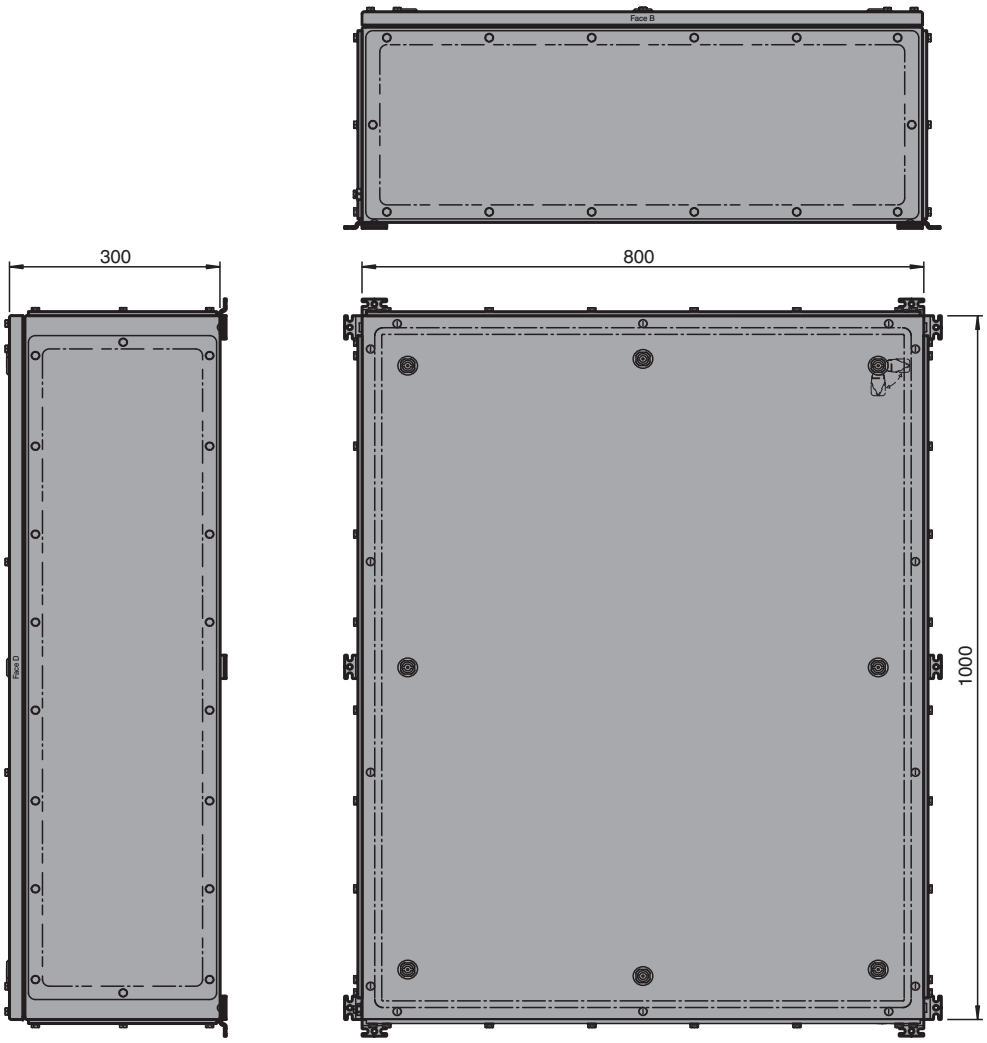
- Preconfigured enclosures for engineered FB systems
- Installation in Zone 1 and Zone 21
- Installation in Zone 2 and Zone 22
- Max. 48 slots for I/O modules
- Impact resistance enclosure, IP66
- For PROFIBUS DP, PROFIBUS DP V1, MODBUS RTU and MODBUS TCP
- Image is generic for this device type and may deviate from the specific variant

Field Unit, Stainless Steel

Function

This field unit is designed to meet the requirements of the most demanding hazardous area and industrial environmental applications.
Brushed stainless steel 316L provides high corrosion and impact resistance at a very wide temperature range.
It is equipped with a base- and an extension backplane.
It provides 48 slots for I/O modules.
The I/O modules can be plugged anywhere on each slot.
The fieldbus and power supply are equipped with non-redundant connections.

Dimensions



Technical Data

General specifications		
Installed components		backplane FB9262BP24110.x backplane FB9262BP24200.x
Slots		
Bus coupler		1
Bus termination		1
Supply		2
I/O modules (single width)		max. 48

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I/O modules (dual width)		max. 24
Supply		
Connection		screw terminals, max. 10 mm^2
Rated voltage	U_r	24 V DC/115 V AC/230 V AC , depends on power supply
Redundancy		no
Fieldbus connection		
Fieldbus type		PROFIBUS DP/DP-V1, MODBUS RTU, or MODBUS TCP , depends on bus coupler
Connection		spring terminal, max. 2.5 mm^2
Redundancy		no
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61439-1:2012 (J.9.2.2 b) , EN 61439-2:2012
Conformity		
Degree of protection		EN 60529
Impact resistance		EN 60079-0
Ambient conditions		
Ambient temperature		-20 ... 40 °C (-4 ... 104 °F) further on request
Storage temperature		-25 ... 70 °C (-13 ... 158 °F)
Relative humidity		< 75 % (annual mean) < 95 % (30 d/year), no moisture condensation
Shock resistance		shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Impact resistance		7J
Mechanical specifications		
Enclosure cover		hinged door with quarter-turn key locks
Cover seal		foamed silicone
Degree of protection		IP66
Cable entry face B		
M16 quantity		192
M16 series		Cable Glands, Plastic
M16 type		CG.PIDS1.M16.*
M16 clamping range		4 ... 8 mm
M16 info		field signals
M20 quantity		4
M20 series		Cable Glands, Plastic
M20 type		CG.PEDS1.M20.*
M20 clamping range		6 ... 12 mm
M20 info		Fieldbus
M25 quantity		2
M25 series		Cable Glands, Plastic
M25 type		CG.PEDS1.M25.*
M25 clamping range		10 ... 18 mm
M25 info		Power Supply
Terminal assembly		
Number of horizontal rails		4
Usable length per horizontal rail		250 mm
Terminal type		max. 192 spring terminal or screw terminal
Material		
Enclosure		1.5 mm AISI 316L, (1.4404) stainless steel
Finish		brushed
Cable gland		Polyamide (PA)

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Seal		housing: foamed silicone cable gland: chloroprene
Mass		approx. 75 kg , without modules
Dimensions		
External dimension (A)		1000 mm
External dimension (B)		800 mm
External dimension (C)		300 mm
Mounting		4 Mounting bracket for wall mounting included in the scope of delivery
Grounding		M8 internal/external brass nickel-plated grounding bolt
Data for application in connection with hazardous areas		
EU-type examination certificate		PTB 97 ATEX 1075 X
Marking		Ⓔx II 2(1)G Ex db eb ia mb q [ia Ga/ib] IIC T4 Gb Ⓔx II 2(1)D Ex tb [ia Da/ib] IIIC T130°C Db
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2018 , EN 60079-1:2014 , EN 60079-5:2015 , EN 60079-7:2015 , EN 60079-11:2012 , EN 60079-18:2015 , EN 60079-31:2014
General information		
Ordering information		This device will be delivered completely configured and assembled ready for use. For configuration details please contact Customer Service.
Supplementary information		

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