Dimensions
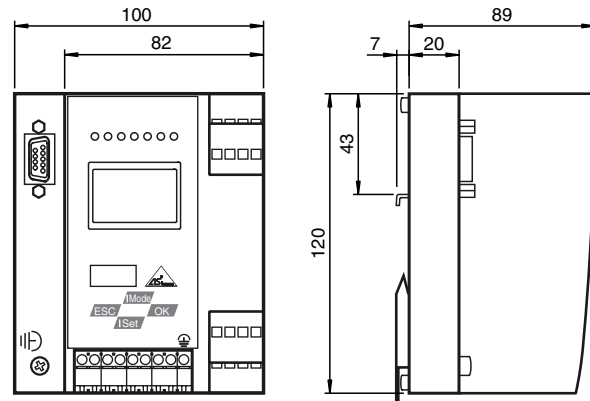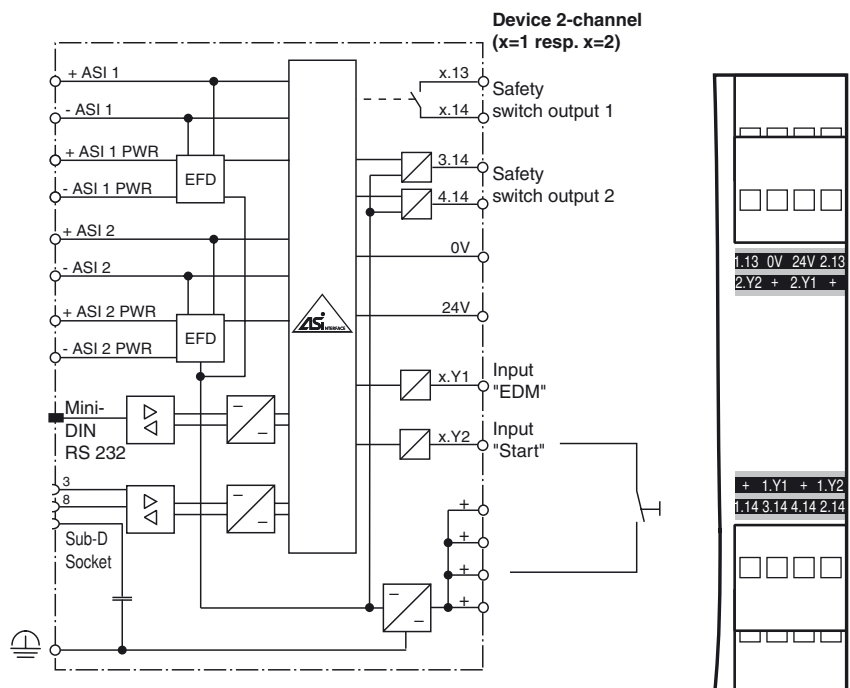

Electrical connection

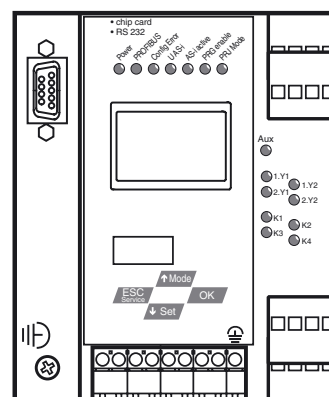**Device 2-channel (x=1 resp. x=2)**

Model number

VBG-PBS-K30-DMD

PROFIBUS Gateway, PROFIsafe for 2 AS-Interface networks

Features

- Gateway and safety monitor in one housing

- Gateway compliant with AS-Interface specification 3.0

- Connection to PROFIBUS DP

- AS-Interface safety monitor with extended range of functions

- Certified up to SIL 3 according to IEC 61508 and EN 62061 and up to PL_e according to EN 13849

- Memory card for configuration data

- 2 AS-Interface networks

- 2 safe output relays and 2 safe electronic outputs

- PROFIsafe protocol for centralized and secure higher-level control

Indicating / Operating means

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

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Technical data

General specifications

AS-Interface specification		V3.0
Duplicate address detection		from AS-Interface slaves
Earth fault detection	EFD	integrated
EMC monitoring		integrated
Diagnostics function		Extended function via display
Switch-on delay		< 10 s
UL File Number		E223772 only from low voltage, limited energy source (SELV or PELV) or listed Class 2 source

Functional safety related parameters

Safety Integrity Level (SIL)	SIL 3
Performance level (PL)	PL e
$MTTF_d$	200 a
B_{10d}	2 E+7

Indicators/operating means

Display	Illuminated graphical LC display for addressing and error messages
LED PROFIBUS	PROFIBUS master detected; LED green
LED AS-i ACTIVE	AS-Interface operation normal; LED green
LED CONFIG ERR	configuration error; LED red
LED PRG ENABLE	autom. programming; LED green
LED POWER	voltage ON; LED green
LED PRJ MODE	projecting mode active; LED yellow
LED U AS-i	AS-Interface voltage; LED green
LED AUX	ext. auxiliary voltage U_{AUX} ; LED green
LED EDM/Start	Input closed, 4x yellow LEDs
LED output circuit	Output circuit closed; 4 x green LEDs
Button	4

Electrical specifications

Insulation voltage	U_i	≥ 500 V
Rated operating voltage	U_e	26.5 ... 31.6 V from AS-Interface; Output K3 and K4 24 V $_{DC}$
Rated operating current	I_e	≤ 300 mA off AS interface network 1 ≤ 300 mA off AS interface network 2 ≤ 370 mA in total

Interface 1

Interface type	RS-485
Protocol	PROFIBUS according to DIN 19245 Part 3
Transfer rate	9.6 kBit/s / 12 MBit/s , Automatic baud rate detection

Interface 2

Interface type	RS 232, serial Diagnostic Interface
Transfer rate	19,2 kBit/s

Interface 3

Interface type	Chip card slot

Input

Number/Type	4 EDM/Start inputs: EDM: Inputs for the external device monitoring circuits Start: start inputs: Static switching current 4 mA at 24 V, dynamic 30 mA at 24 V (T=100 µs)

Output

Safety output	Output circuits 1 and 2: 2 potential-free contacts, max. contact load: 3 A_{DC-13} at 30 V_{DC}, 3 A_{AC-15} at 30 V_{AC} Output circuits 3 and 4: 2 PNP transistor outputs max. contact load: 0.5 A_{DC-13} at 30 V_{DC}

Connection

PROFIBUS	Sub-D interface
AS-Interface	spring terminals, removable

Directive conformity

Electromagnetic compatibility	
Directive 2014/30/EU	EN 62026-2:2013 EN 61000-6-2:2005, EN 61000-6-4:2007

Standard conformity

Electromagnetic compatibility	EN 61000-6-2:2005, EN 61000-6-4:2007
Degree of protection	EN 60529:2000
Fieldbus standard	PROFIBUS according to DIN 19245 Part 3
AS-Interface	EN 62026-2:2013
Shock resistance	EN 61131-2:2004
Standards	EN 61000-6-2:2005, EN 61000-6-4:2007 EN 954-1:1996 (up to Kategorie 4), IEC 61508:2001 and EN 62061:2005 (up to SIL3) EN 13849:2008 (PL e)

Ambient conditions

Ambient temperature	0 ... 55 °C (32 ... 131 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)

Function

The VBG-PBS-K30-DMD is a PROFIBUS gateway with a safety monitor controlled via PROFIsafe and a double master according to AS-Interface specification 3.0 with a degree of protection IP20.

The gateway has four inputs and four outputs. The four inputs are used either for extended EDM device monitoring or as start inputs. Two sets of two outputs act as relay outputs and switch output circuits 1 and 2 and, as semiconductor outputs, output circuits 3 and 4. The K30 model is particularly suitable for installation in a control cabinet.

The gateway is used to connect AS-Interface systems to a higher-level PROFIBUS. It acts as a master for the AS-Interface segment and as a slave for the PROFIBUS. During cyclic and acyclic data exchange, the AS-Interface functions are provided via PROFIBUS - DP V1. During cyclic data exchange the binary data of an AS-Interface segment is transferred. Analog values as well as the complete command set of the new AS-Interface specification are transferred via PROFIBUS using a command interface.

Configuration of the device can be performed using switches. Seven LED located on the front panel indicate the current status of the AS-Interface segment. One LED shows the power supply via AUX. A further eight LEDs indicate the status of the inputs and outputs.

With the graphical display, the commissioning of the AS-Interface circuits and testing of the connected peripherals can take place completely separately from the commissioning of the higher-level network and the programming. Four switches allow all the functions covered on the other AS-Interface masters by AS-i Control Tools software to be visualized on the display. An RS 232 socket provides a way of exporting data relating to the gateway, network and operation directly from the gateway for extended local diagnosis purposes.

The device has a card slot for a memory card for the storage of configuration data.

The redundant power supply guarantees that the double master remains in function and is diagnosticable, when a failure of a power supply unit in one of the two AS-interfaces circles occures. Also communication with the superior field bus is not disturbed by the failure of a power supply.

Accessories

USB-0,8M-PVC ABG-SUBD9
Interface converter USB/RS 232

VAZ-PB-DB9-W
PROFIBUS Sub-D Connector with switchable terminal resistance

VAZ-SW-SIMON+
Software for configuration of K30 Master Monitors/K31 and KE4 Safety Monitors

VAZ-SIMON+-R2-1,8M-PS/2
Interface cable for connecting the K30/K31 Safety Monitor to a PC

Mechanical specifications

Degree of protection	IP20
Mass	800 g
Construction type	Low profile housing , Stainless steel

Approvals and certificates

UL approval	An isolated source with a secondary open circuit voltage of ≤ 30 V_{DC} with a 3 A maximum over current protection. Over current protection is not required when a Class 2 source is employed. UL mark does not provide UL certification for any functional safety rating or aspects of the device.

Notes

In an AS-Interface network only one device can be operated earth fault detection. If there are many devices in an AS-Interface network, this can lead to the earth fault monitoring response threshold becoming less sensitive.

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