

AS-Interface Gateway/Safety Monitor

VBG-PB-K30-D-S

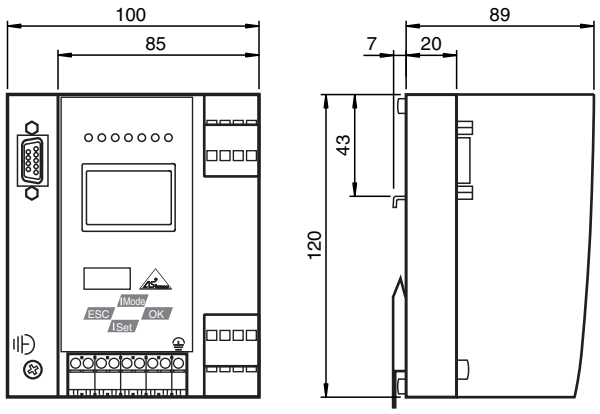
- Gateway and safety monitor in one housing
- Gateway compliant with AS-Interface specification 3.0
- Connection to PROFIBUS DP
- AS-Interface safety monitor with extended range of functions
- Certified up to SIL 3 according to IEC 61508 and EN 62061 and up to PL_e according to EN 13849
- Memory card for configuration data
- Control of decentralized, secure outputs in the field
- 2-channel release circuit
- RS 232 diagnosis interface

Gateway with integrated Safety Monitor

Function

The VBG-PB-K30-D-S is an IP20-rated PROFIBUS gateway with an integral AS-Interface specification 3.0 safety monitor. The VBG-PB-K30-D-S has four inputs and four outputs. Two inputs are used for extended EDM device monitoring. The K30 model is particularly suitable for installation in a control cabinet.
The VBG-PB-K30-D-S is a combined full-specification AS-Interface PROFIBUS gateway and safety monitor. The product allows a gateway and a safety monitor to be used in a single device.
Two safety relays provide a safe interface to the connected consumers. The AS-Interface 3.0 PROFIBUS gateways are used to connect AS-I systems to a higher-level PROFIBUS. They act as a master for the AS-I segment and as a slave for the PROFIBUS.
The AS-I functions are made available on both a cyclic and acyclic basis through PROFIBUSDP V1. During cyclic data exchange, up to 32 bytes of I/O data (this amount is variable) are transferred as the digital data of an AS-I segment. In addition, analog values as well as the complete command set of the new AS-I specification can be transferred via PROFIBUS using a command interface. Monitoring of the AS-Interface data can be carried out online via PROFIBUS-DP V1 using the serial PROFIBUS master and the AS-I Control Tools.
Address assignment, the transfer of the desired configuration and the setting of the Profibus address and baud rate can all be performed using switches. Seven LEDs located on the front panel indicate the current status of the AS-Interface segment.
If the AS-Interface gateway has a graphical display, the commissioning of the AS-Interface circuit and testing of the connected peripherals can take place completely separately from the commissioning of PROFIBUS and the programming. Local operation using the graphical display and the four switches allows all the functions covered on the other AS-Interface masters by AS-i Control Tools software to be visualized on the display. An additional 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.

Dimensions



Technical Data

General specifications		
AS-Interface specification		V3.0
PLC-Functionality		activateable

Release date: 2020-06-02 Date of issue: 2020-06-02 Filename: 202305_eng.pdf

Technical Data

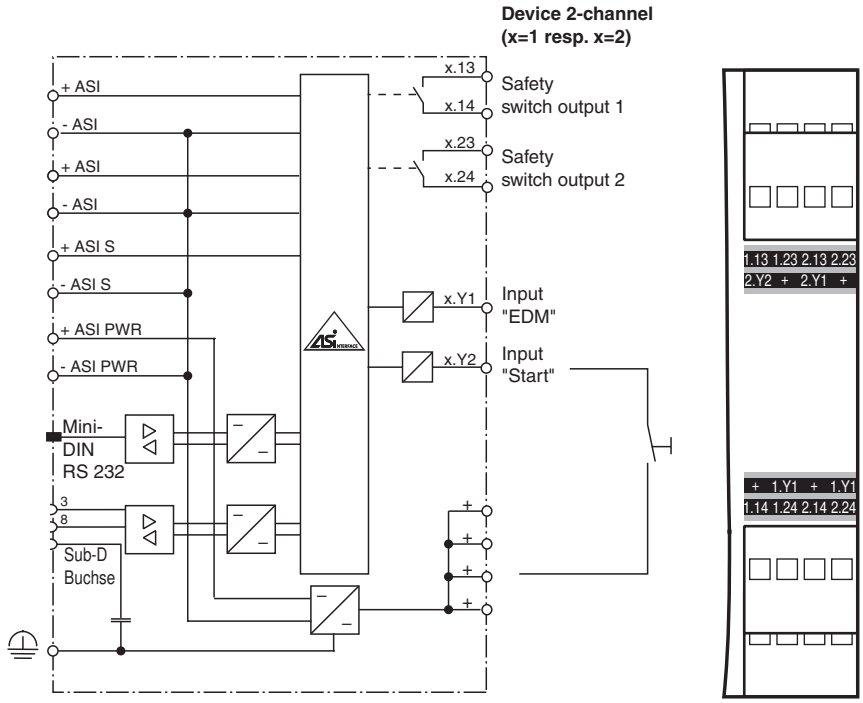
Duplicate address detection		from AS-Interface slaves
Earth fault detection	EFD	integrated
EMC monitoring		integrated
Diagnostics function		Extended function via display
Switch-on delay		< 10 s
Response delay		< 40 ms
UL File Number		E223772 only from low voltage, limited energy source (SELV or PELV) 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
Switch SET		Selection and setting of a slave address
OK button		Mode selection traditional-graphical/confirmation
Button MODE		Mode selection PRJ-operation/save configuration/cursor
ESC button		Mode selection traditional-graphical/cancel
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 from AS-Interface
Interface 1		
Interface type		RS-485
Protocol		PROFIBUS DP V1
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		2 EDM inputs: Inputs for external device monitoring circuits 1 and 2 (protection control) 2 Start inputs: Output circuits 1 and 2: Static switching current 4 mA at 24 V, dynamic 30 mA at 24 V (T=100 µs)
Output		
Safety output		2 x 2 output switch elements: Output circuits 1 and 2 max. contact loading: 3 A DC-13 at 30 V DC, 3 A AC-15 at 30 V AC
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		

Release date: 2020-06-02 Date of issue: 2020-06-02 Filename: 202305_eng.pdf

Technical Data

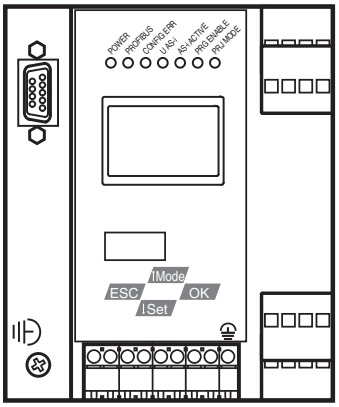
Electromagnetic compatibility	EN 61000-6-2:2005, EN 61000-6-4:2007
Degree of protection	EN 60529:2000
Fieldbus standard	PROFIBUS according to DIN 19245 Part 3
AS-Interface	EN 62026-2:2013
Shock resistance	EN 61131-2:2004
Standards	EN 61000-6-2:2005, EN 61000-6-4:2007 EN 954-1:1996 (up to Kategorie 4), IEC 61508:2001 and EN 62061:2005 (up to SIL3) EN 13849:2008 (PL e)
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.
Ambient conditions	
Ambient temperature	0 ... 55 °C (32 ... 131 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Mechanical specifications	
Degree of protection	IP20
Connection	screw terminals
Mass	800 g
Construction type	Low profile housing , Stainless steel

Connection



Release date: 2020-06-02 Date of issue: 2020-06-02 Filename: 202305_eng.pdf

Assembly



Accessories

	**USB-0,8M-PVC ABG-SUBD9**	Interface converter USB/RS 232
	**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
	**VAZ-PB-DB9-W**	PROFIBUS Sub-D Connector with switchable terminal resistance

Release date: 2020-06-02 Date of issue: 2020-06-02 Filename: 202305_eng.pdf

Connection

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.

Release date: 2020-06-02 Date of issue: 2020-06-02 Filename: 202305_eng.pdf