Spec. 3.0

Model number

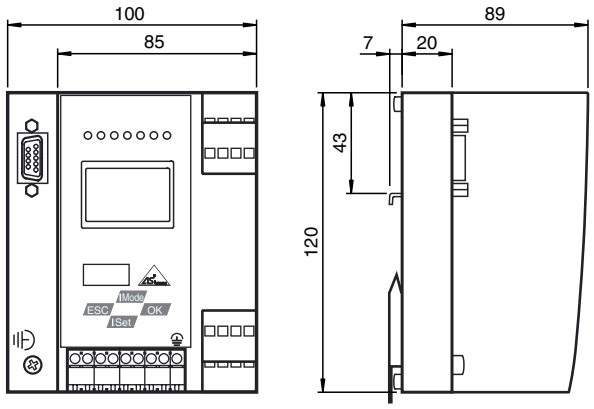
VBG-PB-K30-DMD-S16-C1

PROFIBUS Gateway with integrated Safety Monitor, double master for 2 AS-Interface networks

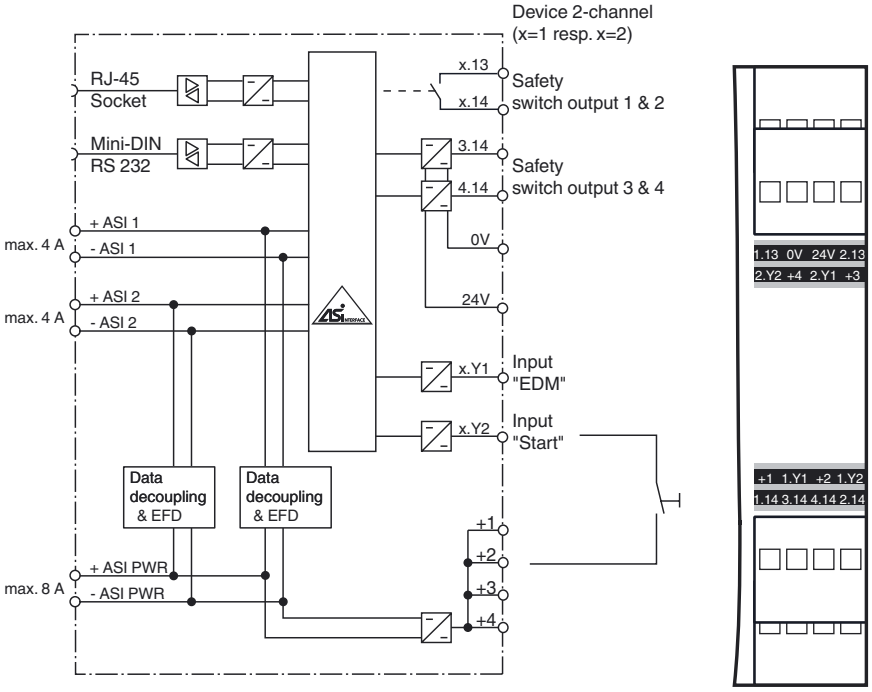
Features

- Gateway and safety monitor in one housing
- Connection to PROFIBUS DP
- 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
- Integrated data decoupling
- 2 safe output relays and 2 safe electronic outputs

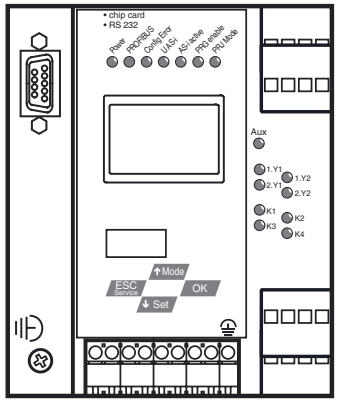
Dimensions



Electrical connection



Indicating / Operating means



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Technical data

General specifications		
AS-Interface specification		V3.0
PLC-Functionality		activateable
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
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		External device monitoring circuit inputs 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 ≤ 70 mA off AS interface network 2
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		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
Ambient conditions		
Ambient temperature		0 ... 55 °C (32 ... 131 °F)
Storage temperature		-25 ... 85 °C (-13 ... 185 °F)
Mechanical specifications		
Protection degree		IP20
Material		
Housing		Stainless steel
Mass		800 g
Construction type		Low profile housing , Stainless steel
Compliance with standards and directives		
Directive conformity		
EMC Directive 2004/108/EC		EN 61000-6-2:2005, EN 61000-6-4:2007
Standard conformity		
Electromagnetic compatibility		EN 61000-6-2:2005, EN 61000-6-4:2007

Function

The VBG-PB-K30-DMD-S16-C1 is an IP20-rated PROFIBUS gateway with an integral safety monitor and a double master according to AS-Interface specification 3.0. The VBG-PB-K30-DMD-S16-C1 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. Due to integrated decoupling coils, one switching power supply, for example the K24-STR-24...30VDC-10A, can supply 2 AS-Interface lines at the same time. The K30 model is particularly suitable for installation in a control cabinet.

The VBG-PB-K30-DMD-S16-C1 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 double 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 PROFIBUS-

DP 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. One LED shows the power supply via AUX. A further eight LEDs indicate the status of the inputs and outputs.

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.

Accessories

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

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

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AS-Interface	EN 50295:1999
Protection degree	EN 60529:2000
Shock and impact resistance	EN 61131-2:2004
Fieldbus standard	PROFIBUS according to DIN 19245 Part 3
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)

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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