AS-Interface Gateway/Safety Monitor

VBG-PN-K30-DMD-S16

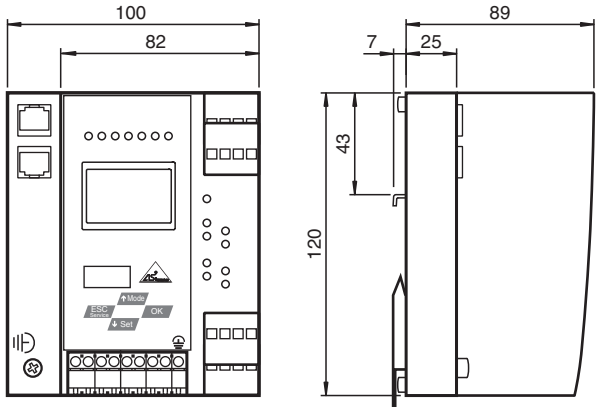
- Gateway compliant with AS-Interface specification 3.0
- AS-Interface safety monitor with extended range of functions
- Fulfills technical safety requirements up to SIL 3 / PL_e
- Memory card for configuration data
- 2 AS-Interface networks
- 2 safe output relays and 2 safe electronic outputs

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

Function

The VBG-PN-K30-DMD-S16 is a PROFINET gateway with an integrated safety monitor and a double master according to AS-Interface specification 3.0, with a protection class of IP20. The VBG-PN-K30-DMD-S16 has four inputs and four outputs. The four inputs are used either for extended EDM device monitoring or as start inputs. There are two sets of redundant outputs. Output circuits 1 and 2 are relay outputs and output circuits 3 and 4 are semiconductor outputs. The K30 model is particularly suitable for installation in a control cabinet.
The VBG-PB-K30-DMD-S16 is a combined full-specification AS-Interface PROFINET gateway and safety monitor. The product allows a gateway and a safety monitor to be replaced by a single device. Two safety relays provide a safe interface to the connected equipment. The AS-Interface 3.0 PROFINET gateways are used to connect AS-Interface systems to a higher-level PROFINET. They act as a double master for the AS-Interface segment and as a slave for the PROFINET.
The AS-Interface functions are made available on both a cyclic and acyclic basis via PROFINET. During cyclic data exchange, up to 32 bytes of I/O binary data (this amount is selectable) are transferred for each AS-Interface segment. In addition, analog values as well as the complete command set of the new AS-Interface specification can be transferred via PROFINET using a command interface.
Assigning an address, transferring the target configuration, and setting the PROFIBUS address and baud rate can all be performed using push buttons.
Seven LEDs located on the front panel indicate the current status of the AS-Interface segment. One LED shows the power supply via AUX. Eight additional LEDs indicate the status of the inputs and outputs. If the AS-Interface gateway has a graphics display, the commissioning of the AS-Interface circuit and testing of the connected peripherals can take place completely independent of the commissioning of PROFINET and the programming.
Local operation using the graphics display and the four push buttons 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 RS232 socket provides the option of being able to export data relating to the gateway, network and function directly from the gateway for extended local diagnostic purposes.

Dimensions



Technical Data

General specifications

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Technical Data

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 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 ETHERNET		PROFINET 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 ≤ 300 mA off AS interface network 2 ≤ 370 mA in total
Interface 1		
Interface type		PROFINET I / O device (IRT)
Physical		2 x RJ-45
Protocol		Media Redundancy Protocol (MRP)
Transfer rate		10 MBit/s / 100 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}

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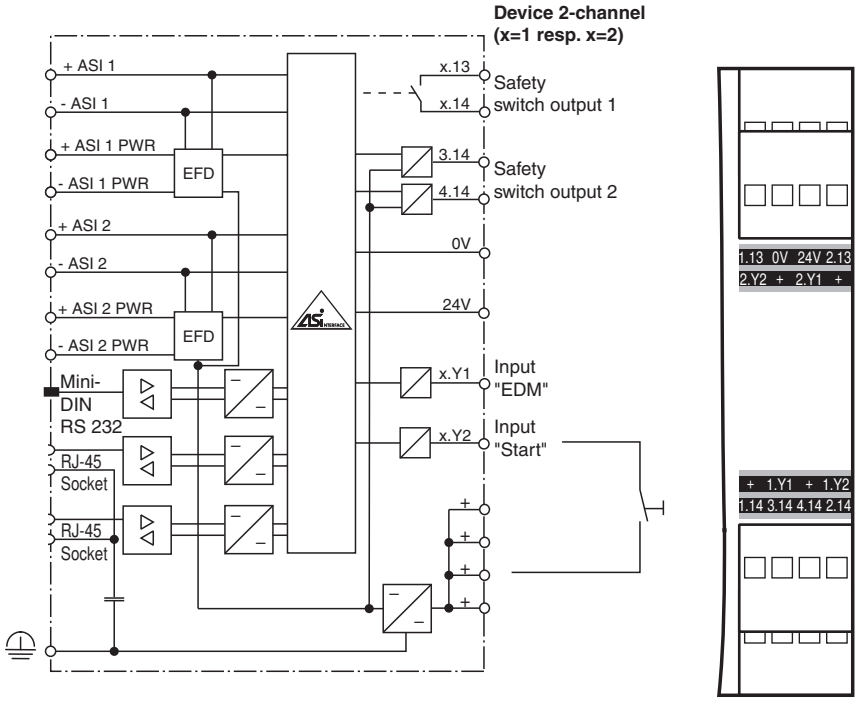
Technical Data

Connection	
PROFINET	RJ-45
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
Machinery Directive	
Directive 2006/42/EC	EN 61508:2001, EN ISO 13849-1:2008, EN 62061:2005
Standard conformity	
Degree of protection	EN 60529:2000
Electrical safety	EN ISO 13849-1:2006 (up to PL e), EN 61508:2001 and EN 62061:2005 (up to SIL3)
AS-Interface	EN 62026-2:2013
Noise immunity	EN 61000-6-4:2007 EN 61000-6-2:2005 EN 62026-2:2013
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
Material	
Housing	Stainless steel
Mass	800 g
Construction type	Low profile housing

Connection



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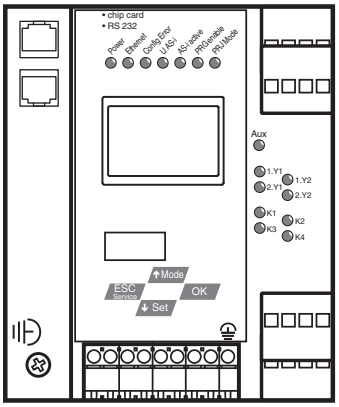
Indication



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.

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

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