CE   c(UL)us   ASi   Spec. 3.0   PROFI NET®
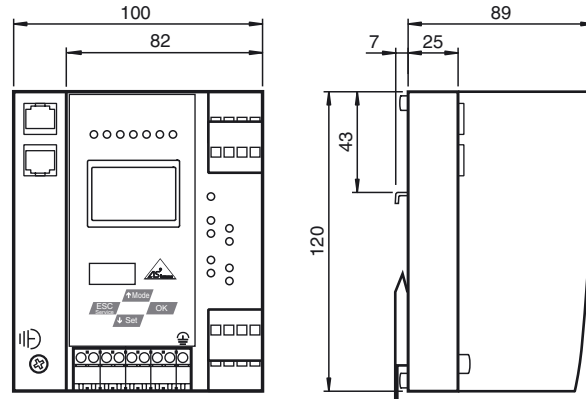
Model number

VBG-PN-K30-DMD-S16

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

Features

- 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

Dimensions

Electrical connection
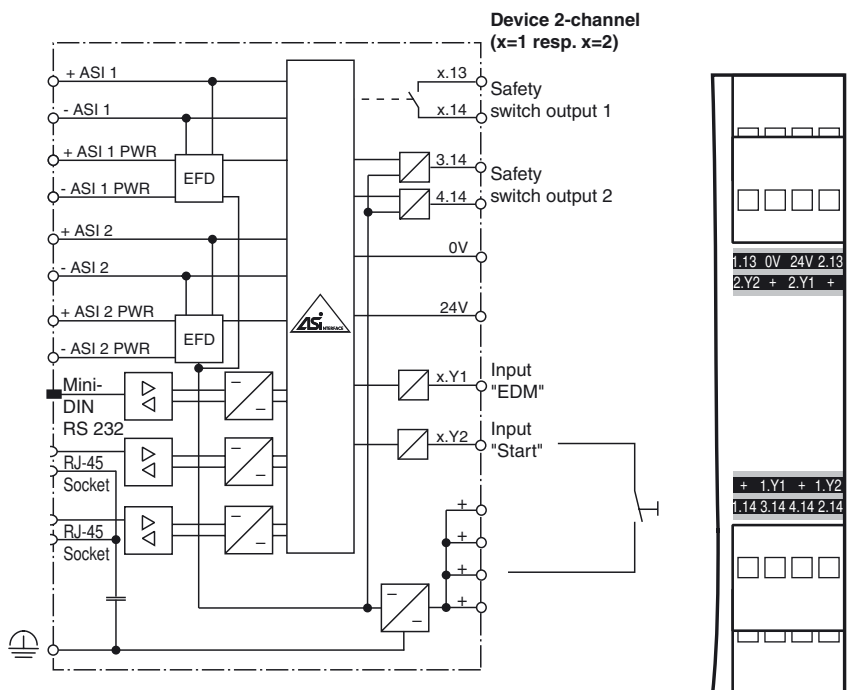
Indicating / Operating means
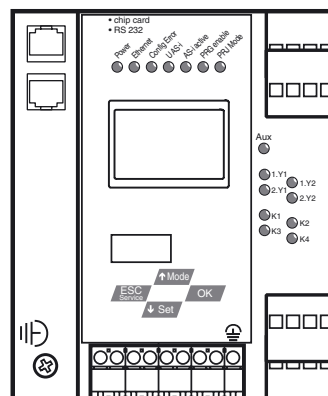
Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Technical data

General specifications

AS-Interface specification		V3.0
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}

Connection

PROFINET	RJ-45
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

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

Compliance with standards and directives

Directive conformity	

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 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.

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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Machinery Directive 2006/42/EC	EN 61508:2001, EN ISO 13849-1:2008, EN 62061:2005
EMC Directive 2004/108/EC	EN 61000-6-2:2005, EN 61000-6-4:2007
Standard conformity	
Noise immunity	EN 50295:1999 , EN 61000-6-2:2005
Emitted interference	EN 61000-6-4:2007
AS-Interface	EN 50295:1999
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)

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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