



## AS-Interface Gateway/Safety Monitor VBG-PNS-K30-DMD

- Gateway and safety monitor in one housing
- Gateway compliant with AS-Interface specification 3.0
- Connection to PROFINET IO
- 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<sub>e</sub> according to EN 13849
- Memory card for configuration data
- 2 AS-Interface networks
- 2 safe output relays and 2 safe electronic outputs
- PROFI-safe protocol for centralized and secure higher-level control

PROFINET Gateway, PROFIsafe for 2 AS-Interface networks



### Function

The VBG-PBS-K30-DMD is a PROFINET 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 PROFINET. It acts as a master for the AS-Interface segment and as a slave for the PROFINET. During cyclic data exchange, the digital 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 PROFINET 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. With the 4 switches, all functions can be controlled and visualized on the display.

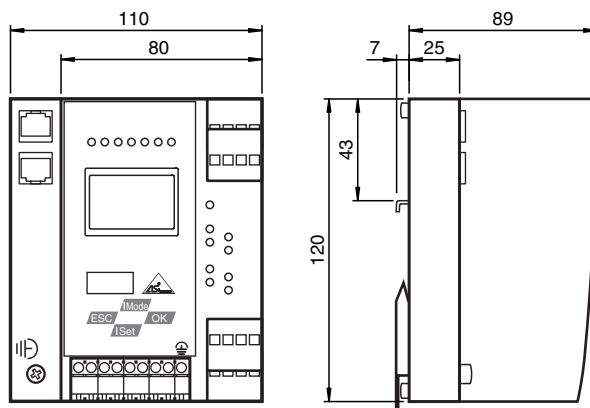
The device has a card slot for a memory card for the storage of configuration data.

An integrated Switch and 2 RJ-45 sockets allow the design of a line topology without the use of an external Switch.

An integrated webserver allows to administrate the device and The AS-interface network without additional hard and/or software via a browser interface.

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 occurs. Also communication with the superior field bus is not disturbed by the failure of a power supply.

### Dimensions



### Technical Data

#### General specifications

AS-Interface specification

V3.0

## 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
UL File Number		E223772 only from low voltage, limited energy source (SELV or PELV) or listed Class 2 source
<b>Functional safety related parameters</b>		
Safety Integrity Level (SIL)		SIL 3
Performance level (PL)		PL e
MTTF <sub>d</sub>		200 a
B <sub>10d</sub>		2 E+7
<b>Indicators/operating means</b>		
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 <sub>AUX</sub> ; LED green
LED EDM/Start		Input closed, 4x yellow LEDs
LED output circuit		Output circuit closed; 4 x green LEDs
Button		4
<b>Electrical specifications</b>		
Insulation voltage	U <sub>i</sub>	≥ 500 V
Rated operating voltage	U <sub>e</sub>	26.5 ... 31.6 V from AS-Interface; Output K3 and K4 24 V <sub>DC</sub>
Rated operating current	I <sub>e</sub>	≤ 300 mA off AS interface network 1 ≤ 300 mA off AS interface network 2 ≤ 370 mA in total
<b>Interface 1</b>		
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
<b>Interface 2</b>		
Interface type		RS 232, serial Diagnostic Interface
Transfer rate		19,2 kBit/s
<b>Interface 3</b>		
Interface type		Chip card slot
<b>Input</b>		
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)
<b>Output</b>		
Safety output		Output circuits 1 and 2: 2 potential-free contacts, max. contact load: 3 A <sub>DC-13</sub> at 30 V <sub>DC</sub> , 3 A <sub>AC-15</sub> at 30 V <sub>AC</sub> Output circuits 3 and 4: 2 PNP transistor outputs max. contact load: 0.5 A <sub>DC-13</sub> at 30 V <sub>DC</sub>
<b>Connection</b>		
PROFINET		RJ-45
AS-Interface		spring terminals, removable

Release date: 2021-09-27 Date of issue: 2021-09-27 Filename: 220393\_eng.pdf

## Technical Data

### 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

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  $\leq 30 V_{DC}$  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

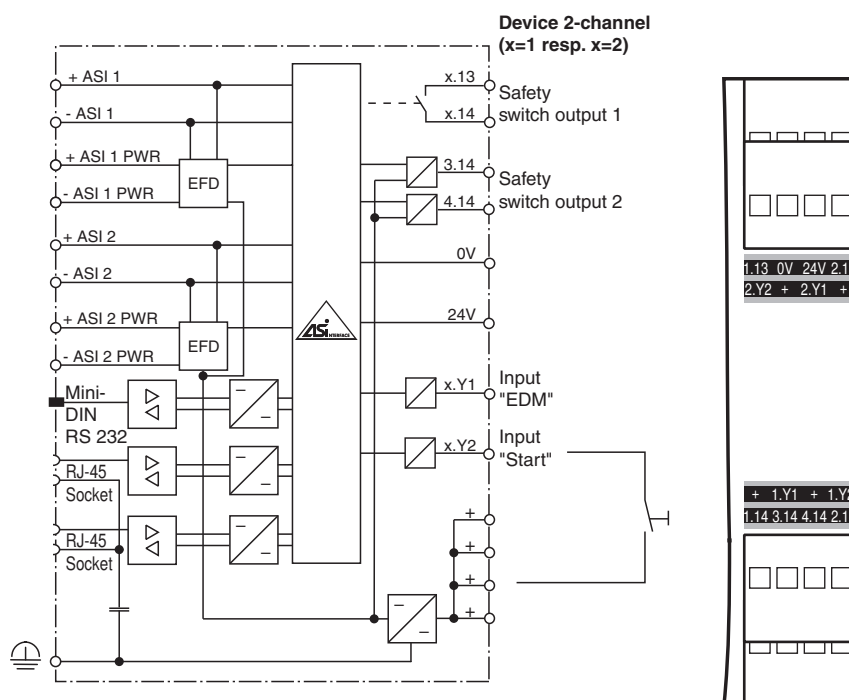
Mass

800 g

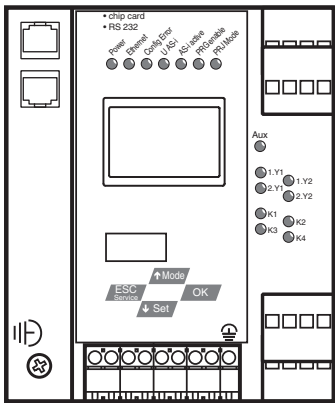
Construction type

Low profile housing , Stainless steel

## Connection






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

	<b>USB-0,8M-PVC ABG-SUBD9</b>	Interface converter USB/RS 232
	<b>VAZ-SW-SIMON+</b>	Software for configuration of K30 Master Monitors/K31 and KE4 Safety Monitors
	<b>VAZ-SIMON+-R2-1,8M-PS/2</b>	Interface cable for connecting the K30/K31 Safety Monitor to a PC