

ASi-3 Gateway, PROFIsafe via PROFINET, with integrated safety monitor



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PROFIsafe and Safe Link in one device

- up to 450 devices

2 Master, PROFINET-Slave

- ASi Safety input slaves report via PROFIsafe
- ASi Safety output slaves switch via PROFIsafe

Up to 64 release circuits

- up to 6 safe output circuits CAT4, SIL 3 on the monitor safe relays or electronic safe outputs

Safe ASi outputs are supported

- up to 32 independent ASi outputs
Multiple safe ASi outputs possible via a single ASi address

OPC UA-Server and integrated web server for easy diagnostics

Selection of Mode of Safe Operation

Safe speed and standstill monitoring


Applications up to category 4/PLe/SIL 3

Chip card for storage of configuration data



(Figure similar)



Figure	Field-bus Interface	Safety communication	Inputs Safety, SIL 3, cat. 4	Outputs Safety, SIL 3, cat. 4	Inputs safety, expandable to	Safety outputs, independent according to SIL 3, expandable to	Number of ASi networks, number of ASi Master ⁽¹⁾	Integrated decoupling, ASi current measurement in the gateway ⁽²⁾	Diagnostic and configuration interface ⁽³⁾	Article No.
	PROFINET	PROFIsafe (F-CPU)+ Safe Link	3 x 2 channels	6 release circuits; 6 x fast electronic outputs	max. 62 x 2 channels, max. 1922 in max. configuration	max. 64, max. 1984 in max. configuration	2 ASi networks, 2 ASi-3 Masters	yes, max. 4 A/ ASi network	Ethernet fieldbus; Ethernet diagnostics	BWU3823

⁽¹⁾ **Number of ASi networks, number of ASi Master**
"Double Master": 2 ASi networks, 2 ASi-3 Masters.

⁽²⁾ **Integrated decoupling, ASi current measurement in the gateway**
"yes, max. 4A/ASi network": Data decoupling integrated in the gateway. Cost-effective power for 2 ASi networks with 1 power supply (optionally supply of multiple Single Gateways by 1 power supply). Operation with short cable lengths with standard 24 V power supply possible.

⁽³⁾ **Diagnostic and configuration interface**
"Ethernet fieldbus + Ethernet diagnostic": Access to ASi master and safety monitor via Bihl+Wiedemann proprietary software over Ethernet diagnostics interface or Ethernet fieldbus interface.
The latest version of the device description file of the gateway with integrated safety monitor is available in the "Downloads" section of the respective device.

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Article no.	BWU3823
Fieldbus interface	
Type	PROFINET; 2 x RJ-45, integrated 2-Port-Switch IRT capability Conformance Class B, integrated switch complies with Conformance Class C (IRT capability)
Baud rates	10/100 MBaud
OPC UA interface	OPC UA server + web server
Function	<ul style="list-style-type: none"> • PROFINET IO Device • Media Redundancy Protocol (MRP) • Shared Device
Card slot	chip card (128 KB) for storage of configuration data
Ethernet interface	
Type	Ethernet; RJ-45 acc. to IEEE 802.3
Baud rates	10/100 MBaud half/full duplex
Safety communication	PROFIsafe via PROFINET + Safe Link
Safe coupling ⁽¹⁾	–
ASi	
ASi specification	3
Cycle time	150 µs * (number of nodes + 2)
Operating voltage	30 V _{DC} (20 ... 31,6 V) (PELV voltage)
Operating current	300 mA
ASi Power24V capability ⁽²⁾	yes
AUX	
Operating voltage	24 V _{DC} (19,2 ... 28,8 V)
Max current consumption	7,2 A
Display	
LCD	indication of slave addresses and error messages in plain text
LED PROFINET (green / red)	green: PROFINET communication active red: no PROFINET communication
LED power (green)	power on
LED config error (red)	configuration error
LED U ASi (green)	ASi voltage OK
LED ASi active (green)	ASi normal operation active
LED prg enable (green)	automatic addresses programming enabled
LED prj mode (yellow)	configuration mode active
LED AUX (green)	auxiliary power
LEDs SI1 ... SI6 (yellow)	state of inputs: off: open on: close
LEDs SO1 ... SO6 (yellow)	state of outputs: off: open on: close
UL-specifications (UL 61010-1, UL 61010-2-201)	
External protection	An isolated source with a secondary open circuit voltage of ≤30 V _{DC} has to be protected with a 3 A maximum over current. Over current protection is not required when a Class 2 source is employed.
In general	UL mark does not provide UL certification for any functional safety rating or aspects of the above devices.

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Article no.	BWU3823
Environment	
Applied standards	EN 60529 EN 62026-2 EN 61000-6-2 EN 61000-6-4 EN 62061, SIL 3 EN 61508, SIL 3 EN ISO 13849-1, Performance-Level e EN ISO 13849-2
Operating altitude	max. 2000 m
Ambient temperature	0 °C ... +55 °C
Storage temperature	-25 °C ... +85 °C
Housing	stainless steel, for DIN rail mounting
Protection category	IP20
Maximum tolerable shock and vibration stress	according EN 61131-2
Voltage of insulation	≥ 500 V
Weight	800 g
Dimensions (W / H / D in mm)	109 / 120 / 106

(1) Safe data exchange between safe protocols (e.g. CIP Safety, PROFIsafe etc.).

(2) **ASi Power24V**

The device can be operated directly on a 24 V (PELV) power supply. The gateway has been optimized with integrated data coupling coils and adjustable self-resetting fuses for safe use of powerful 24 V power supplies.

Article no.	BWU3823
Safety monitor	
Start delay	< 10 s
Max. turn-off time	< 40 s
Antivalent switches for local inputs	yes
Standstill monitors for local inputs	6 axes up to 50 Hz ⁽¹⁾
Speed monitors for local inputs	3 to 6 axes up to 400 Hz ⁽²⁾
Connection	
Connection	COMBICON
Length of connector cable	unlimited ⁽³⁾
Input	
Inputs Safety CAT4, SIL3	3 x 2 channels ⁽⁴⁾
Inputs digital, EDM	up to 6 standard inputs ⁽⁴⁾
Switching current	15 mA (T = 100 µs), continuously 4 mA at 24 V
Power supply	out of AUX
Output	
Number of release circuits on the monitor	6
Outputs	semiconductor output, max. contact load: 1,2 A _{DC-13} at 30 V, Σ= 7,2 A in sum ⁽⁵⁾
Power supply (semiconductor outputs)	out of AUX
Test pulse (semiconductor outputs)	if output is on: minimum interval between 2 test pulses: 250 ms; maximum pulse width 1 ms

(1) connection at all SI or SO terminals possible.

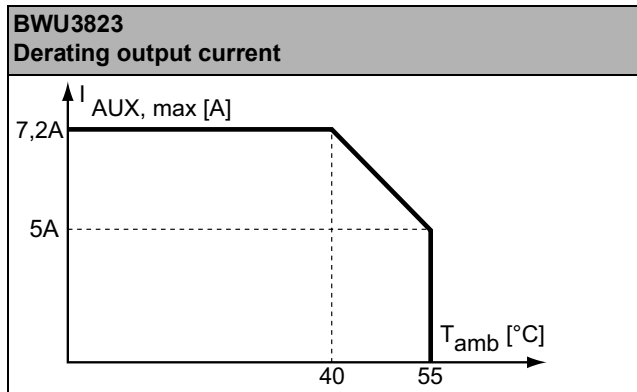
(2) connection only at terminals SO1 ... SO6 configured as standard inputs (see „Variations of terminal configuration for BWU3823“)

(3) loop resistance ≤ 150 Ω

(4) see „Variations of terminal configuration for BWU3823“

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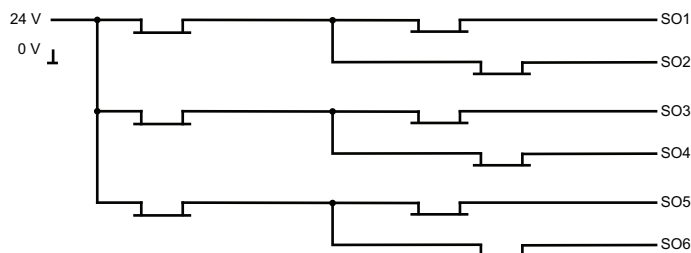
(5)



Article no.	Operating current		
	Master power supply, ca. 300 mA out of ASi circuits	Master power supply, max. 300 mA out of ASi circuit 1 (approx. 70 mA ... 300 mA), max. 300 mA out of ASi circuit 2 (approx. 70 mA ... 300 mA); in sum max. 370 mA	Cost-effective power for 2 ASi networks with 1 power supply, approx. 300 mA (PELV voltage)
BWU3823	-	-	•

	BWU3823
Data decoupling integrated in the gateway	•
Redundant power supply out of ASi: all fundamental functions of the device remain available even in case of power failure in one of the two ASi networks	-
Current measurement of the ASi circuits	•
Self-resetting adjustable fuses	•
ASi earth fault monitor distinguishes between ASi cable and sensor cable	•
Cost-effective power for 2 ASi networks with 1 power supply	•

Safety outputs block diagram BWU3823



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Variations of terminal configuration for BWU3823

Terminal	Safe output	Safe input for mechanical contacts in combination with T1, T2 ⁽¹⁾	Safe antivalent input ⁽¹⁾	Safe electronic input ⁽¹⁾	Standard input ⁽¹⁾
SI1,2	–	•	•	•	•
SI3,4	–	•	•	•	•
SI5,6	–	•	•	•	•
SO1,2 ⁽²⁾	•	•	•	–	•
SO3,4 ⁽²⁾	•	•	•	–	•
SO5,6 ⁽²⁾	•	•	•	–	•

⁽¹⁾ Inputs may only be supplied by the same 24 V source as the device itself.

⁽²⁾ If outputs are configured as inputs, the input current has to be limited by an external element at ≤ 100mA

Connections: Gateway + Safety Monitor:

BWU3823	Connection	Description
<p>The diagram shows the terminal block layout for the BWU3823. It is divided into 'Safe inputs / Standard inputs' and 'Safe outputs'. The top section includes terminals T1, T2, SI1-SI6. The bottom section includes terminals SO1-SO6, 24V, 0V, +ASI 1-, +ASI 1+, +ASI 2-, and ASI +PWR- (max. 8A).</p>	SI1, SI3, SI5	Safe input terminal (T1)
	SI2, SI4, SI6	Safe input terminal (T2)
	T1	Clock output 1
	T2	Clock output 2
	SO1 ... SO6	Safe semiconductor outputs 1 ... 6
	24V, 0V	Power supply for local I/Os
	+ASI 1-, +ASI 2-	Connection of ASi circuits
	ASI +PWR-	Power supply for Gateway and ASi networks

Accessories:

- Safe contact expander, 1 or 2 independent channels (art. no. BWU2548 / BWU2539)
- Chip card, memory capacity 128 KB (art. no. BW2222)
- Bihl+Wiedemann Suite - Safety Software for Configuration, Diagnostics and Commissioning (art. no. BW2916)
- Power supplies, e.g.: ASi power supply, 4 A (art. no. BW1649), ASi power supply, 8 A (art. no. BW1997) (further power supply units can be found at www.bihl-wiedemann.de/en/products/accessories/power-supplies)
- PROFINET Master simulator Plus (art. no. BW3057)