

# 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-Device

- ASi Safety input nodes report via PROFIsafe
- ASi Safety output nodes 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 interface and REST API for IIoT applications

### Integrated web server for simple diagnostics and maintenance

### 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 <sup>(1)</sup>	Integrated decoupling, ASi current measurement in the gateway <sup>(2)</sup>	Diagnostic and configuration interface <sup>(3)</sup>	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	<b>BWU3823</b>

(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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<b>Article no.</b>	<b>BWU3823</b>
<b>Fieldbus interface</b>	
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
IT interface	OPC UA server, web server, REST API
Function	<ul style="list-style-type: none"> <li>• PROFINET IO Device</li> <li>• Media Redundancy Protocol (MRP)</li> <li>• Shared Device</li> </ul>
Card slot	chip card (128 KB) for storage of configuration data
<b>Ethernet interface</b>	
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 <sup>(1)</sup>	–
<b>ASi</b>	
ASi specification	3
Cycle time	150 $\mu$ s * (number of nodes + 2)
Operating voltage	30 V <sub>DC</sub> (20 ... 31,6 V) (PELV voltage)
Operating current	300 mA
ASi Power24V capability <sup>(2)</sup>	yes
<b>AUX</b>	
Operating voltage	24 V <sub>DC</sub> (19,2 ... 28,8 V)
Max current consumption	7,2 A
<b>Display</b>	
LCD	indication of 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
<b>UL-specifications (UL 61010-1, UL 61010-2-201)</b>	
External protection	An isolated source with a secondary open circuit voltage of $\leq 30$ V <sub>DC</sub> 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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<b>Article no.</b>	<b>BWU3823</b>
<b>Environment</b>	
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.

<b>Article no.</b>	<b>BWU3823</b>
<b>Safety monitor</b>	
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 <sup>(1)</sup>
Speed monitors for local inputs	3 to 6 axes up to 400 Hz <sup>(2)</sup>
<b>Connection</b>	
Connection	COMBICON
Length of connector cable	unlimited <sup>(3)</sup>
<b>Input</b>	
Inputs Safety CAT4, SIL3	3 x 2 channels <sup>(4)</sup>
Inputs digital, EDM	up to 6 standard inputs <sup>(4)</sup>
Switching current	15 mA (T = 100 µs), continuously 4 mA at 24 V
Power supply	out of AUX
<b>Output</b>	
Number of release circuits on the monitor	6
Outputs	semiconductor output, max. contact load: 1,2 A <sub>DC-13</sub> at 30 V, Σ= 7,2 A in sum <sup>(5)</sup>
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.

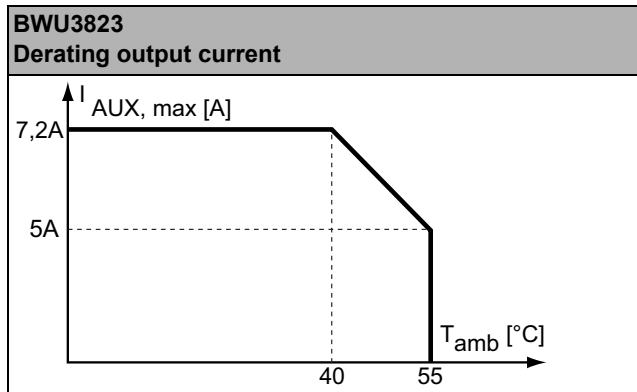
(2) connection only at terminals SO1 ... SO6 configured as standard inputs (see „Variations of terminal configuration for BWU3823“)

(3) loop resistance ≤ 150 Ω

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

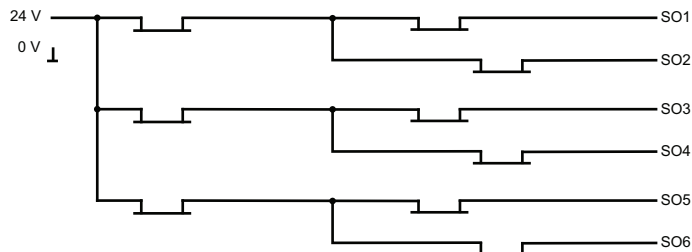
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(5)



	<b>BWU3823</b>
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 <sup>(1)</sup>	Safe antivalent input <sup>(1)</sup>	Safe electronic input <sup>(1)</sup>	Standard input <sup>(1)</sup>
SI1,2	–	•	•	•	•
SI3,4	–	•	•	•	•
SI5,6	–	•	•	•	•
SO1,2 <sup>(2)</sup>	•	•	•	–	•
SO3,4 <sup>(2)</sup>	•	•	•	–	•
SO5,6 <sup>(2)</sup>	•	•	•	–	•

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

<sup>(2)</sup> 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 several sections:         <ul style="list-style-type: none"> <li><b>Safe inputs / Standard inputs:</b> A 24-pin terminal block with columns for T2 (SI2, SI4, SI6), T1 (SI1, SI3, SI5), and a central column for standard inputs.</li> <li><b>Safe outputs:</b> A 6-pin terminal block with columns for SO5 (24V, 0V, SO6) and SO1 (SO1, SO2, SO3, SO4).</li> <li><b>Power and ASI connections:</b> A 4-pin terminal block for +ASI 1-, +ASI 1-, +ASI 2-, and ASI +PWR- (max. 8A).</li> </ul> </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](http://www.bihl-wiedemann.de/en/products/accessories/power-supplies))
- PROFINET Master simulator Plus (art. no. BW3057)