

# ASi-5/ASi-3 PROFIsafe via PROFINET Gateway with integrated Safety Monitor

**ASi-5 – Great data bandwidth, short cycle times**

**Compatible with all ASi generations**

**2 ASi-5/ASi-3 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 64 independent ASi outputs  
Multiple safe ASi outputs possible via a single ASi address



(figure similar)

**PROFIsafe and Safe Link in one device**

**OPC UA server and integrated web server for simplified diagnostics**

**Safe speed and standstill monitoring**

**Applications up to category 4/PLe/SIL 3**

**Large chip card for storage of configuration and additional data**



Figure	Interface, fieldbus	Safety communication	Inputs Safety, SIL 3, cat. 4	Outputs Safety, SIL 3, cat. 4	ASi-5/ASi-3	Number of ASi networks, number of ASi Master <sup>(1)</sup>	Integrated de-coupling coils, ASi current measurement in the gateway <sup>(2)</sup>	Art. no.
	PROFINET, OPC UA	PROFIsafe (F-CPU) + Safe Link	3 x 2 channels	6 release circuits; 6 x electronic safe outputs	ASi-5 + ASi-3 compatible	2 ASi networks, 2 ASi-5/ASi-3 Masters	yes, optimized for 2 x UL certified 30 V/3 A power supplies with power limitation <100 W (BW4223). In combination 2 separate NEC Class 2 compliant ASi circuits are created.	<b>BWU3830</b>

<sup>(1)</sup> **Number of ASi networks, number of ASi Master**

**"Single Master"**: 1 ASi network, 1 ASi Master.

**"Double Master"**: 2 ASi networks, 2 ASi-5/ASi-3 Masters.

<sup>(2)</sup> **Integrated decoupling coils, ASi current measurement in the gateway:**

Data decoupling integrated in the gateway. Optimized for use with 2 x UL certified 30 V/3 A power supplies with power limitation <100 W (BW4223). In combination 2 separate NEC Class 2 compliant ASi circuits are created.

# ASi-5/ASi-3 PROFIsafe via PROFINET Gateway with integrated Safety Monitor

<b>Article no.</b>	<b>BWU3830</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
Safety communication	PROFIsafe via PROFINET + Safe Link
OPC UA interface	OPC UA server + web server
Function	PROFINET IO Device Media Redundancy Protocol (MRP) Shared Device
Card slot	Chip card (BW4785) for storage of configuration and additional data
<b>Diagnostic Interface</b>	
Type	Ethernet; RJ-45 according IEEE 802.3
Baud rate	10/100 MBaud half-duplex or full-duplex
Safety communication	Safe Link
OPC UA interface	OPC UA server + web server
<b>ASi</b>	
ASi specification	ASi-5 + ASi-3
Cycle time	<b>Cycle time ASi-5 (constant):</b> 1,27 ms for 384 bits input data + 384 bits output data <b>Cycle time ASi-3 (variable):</b> 150 $\mu$ s * (number of ASi-3 nodes + 2)
Operating voltage	30 V <sub>DC</sub> (20 ... 31,6 V) (PELV voltage)
Operating current	max. 350 mA master power supply
Current per ASi network	max 4 A, optimized for use with 2 x UL-certified 30 V/3 A power supplies with power limitation <100 W
ASi Power24V capability <sup>(1)</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	menu, indication of ASi addresses and error messages in plain text
LED power (green)	power on
LED PROFINET (green / red)	green: PROFINET communication active red: no PROFINET communication
LED config error (red)	configuration error
LED U ASi (green)	ASi voltage o.k.
LED ASi active (green)	ASi normal operation active
LED prg enable (green)	automatic address programming enabled
LED prj mode (yellow)	configuration mode active
LED AUX (green)	ASi power on and auxiliary power on
LEDs SI1 ... SI6 (yellow)	state of inputs: LED off: open LED on: closed
LEDs SO1 ... SO6 (yellow)	state of outputs: LED off: open LED on: closed
<b>UL-specifications (UL508)</b>	
External protection	An isolated voltage source with a PELV / SELV voltage $\leq$ 30 VDC must have internal or external current limiting.
In general	UL mark does not provide UL certification for any functional safety rating or aspects of the above devices.

# ASi-5/ASi-3 PROFI-safe via PROFINET Gateway with integrated Safety Monitor

<b>Article no.</b>	<b>BWU3830</b>
<b>Environment</b>	
Standards	EN 62026-2 EN 60529 EN 61000-6-2 EN 61000-6-4 EN 61131-2 EN 61326-3-1 EN 50581 EN 62061, SIL 3 EN 61508, SIL 3 EN ISO 13849-1, Performance-Level e EN ISO 13849-2
Operating altitude	2000 m
Ambient temperature	-25 °C ... +55 °C (no condensation permitted)
Storage temperature	-25 °C ... +85 °C
Housing	stainless steel, for DIN rail mounting
Pollution Degree	2
Protection category	IP20
Tolerable loading referring to humidity	according to EN 61131-2
Maximum tolerable shock and vibration stress	according to EN 61131-2
Voltage of insulation	≥500 V
Weight	800 g
Dimensions (W / H / D in mm)	109 / 120 / 106

(1) **ASi Power24V**

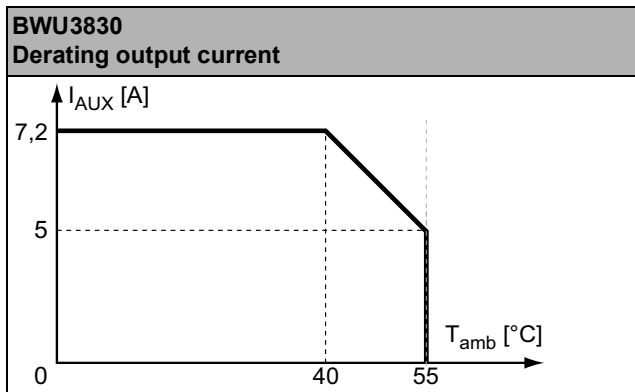
The device can be operated directly on a 24 V (PELV) power supply. The gateway has been optimized with integrated data coupling coils and adjustable self-resetting fuses for safe use of powerful 24 V power supplies.

<b>Article no.</b>	<b>BWU3830</b>
<b>Safety monitor</b>	
Start delay	< 10 ms
Max. turn-off time	< 40 ms
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>
Selection of Mode of Safe Operation	yes
<b>Connection</b>	
Connection	COMBICON
Length of connector cable	unlimited <sup>(3)</sup>
<b>Input</b>	
Inputs Safety, SIL3, cat. 4	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
Sensor supply	short-circuit and overload protected according to EN 61131-2

# ASi-5/ASi-3 PROFIsafe via PROFINET Gateway with integrated Safety Monitor

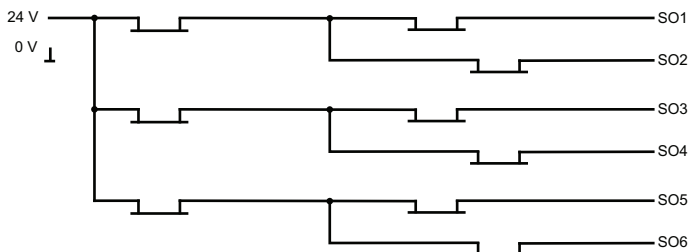
<b>Article no.</b>	<b>BWU3830</b>
<b>Output</b>	
Number of release circuits on the monitor	6
Outputs	semiconductor output max. contact load: 1,2 A <sub>DC-13</sub> at 30 V, $\Sigma = 7,2$ A in sum <sup>(5)</sup>
Power supply (semiconductor outputs)	out of AUX
Output	short-circuit and overload protected according to EN 61131-2
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 BWU3830")  
 (3) loop resistance  $\leq 150 \Omega$   
 (4) see "Variations of terminal configuration for BWU3830"  
 (5)



	<b>BWU3830</b>
Current measurement of the ASi circuits	•
Self-resetting adjustable fuses	•
ASi earth fault monitor distinguishes between ASi cable and sensor cable	•
Optimized for use with 2 x UL-certified 30 V/3 A power supplies with power limitation <100 W	•

## Safety outputs block diagram BWU3830:



# ASi-5/ASi-3 PROFIsafe via PROFINET Gateway with integrated Safety Monitor

## Variations of terminal configuration for BWU3830

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>	•	•	•	–	•

(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 ≤ 100 mA.

## Connections: Gateway + Safety Monitor:

BWU3830	Connection	Description	
	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	
	24 V, 0 V	Power supply for local I/Os	
	+ASi 1-, +ASi 2-	Connection of ASi circuits	
	ASi 1 +PWR- ASi 2 +PWR-	Power supply for Gateway and ASi networks	

## Accessories:

- Safe contact expander, 1 or 2 independent channels (art. no. BWU2548 / BWU2539)
- Chip card for storage of configuration and additional data (art. no. BW4785)
- Bihl+Wiedemann Suite - Safety Software for Configuration, Diagnostics and Commissioning (art. no. BW2916)
- 30 V Power Supply, 100 W (art. no. BW4223) (for further power supply units visit [www.bihl-wiedemann.de/en/products/accessories/power-supplies](http://www.bihl-wiedemann.de/en/products/accessories/power-supplies))