

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

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

**Compatible with all ASi generations**

**Safety Monitor supports ASi-5 Safety and ASi-3 Safety**

**2 ASi-5/ASi-3 Master, PROFINET device**

**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

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

**Safe speed and standstill monitoring**


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

**Chip card for storage of configuration and additional data**



(Figure similar)



Figure	Fieldbus Interface <sup>(1)</sup>	Safety communication	Inputs Safety, SIL 3, cat. 4	Outputs Safety, SIL 3, cat. 4	ASi-5/ASi-3	ASi Safety	Number of ASi networks, number of ASi Master <sup>(2)</sup>	Integrated decoupling, ASi current measurement in the gateway <sup>(3)</sup>	Article No.
	PROFINET, OPC UA	Safe Link	3 x 2 channels	6 release circuits; 6 x electronic safe outputs	ASi-5 + ASi-3 compatible	ASi-5 Safety + ASi-3 Safety compatible	2 ASi networks, 2 ASi-5/ASi-3 masters	yes, max. 4A/ ASi network	<b>BWU3952</b>

**(1) Fieldbus interface**

Communication interface between fieldbus and gateway: interfaces for standardized fieldbus systems in industrial automation.  
**PROFINET ASi gateway:** interface for a PROFINET fieldbus  
**OPC UA server:** interface for the OPC UA communication.

**(2) Number of ASi networks, number of ASi Master**

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

**(3) 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.

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

<b>Article no.</b>	<b>BWU3952</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
OPC UA interface	OPC UA server + web server
Safety Communication	Safe Link
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	PROFINET; RJ-45 acc. to IEEE 802.3
Baud rate	10/100 MBaud half-duplex or full-duplex
OPC UA interface	OPC UA server + web server
Safety communication	Safe Link
<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)
ASi Safety	ASi-5 Safety + ASi-3 Safety compatible
Operating voltage	30 V <sub>DC</sub> (20 ... 31,6 V) (PELV voltage)
Operating current	max. 300 mA
Current per ASi network	max. 4 A
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	indication of ASi 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)	ASi power on and auxiliary power on
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 (UL508)</b>	
External protection	An isolated voltage source with a PELV/SELV voltage $\leq$ 30 V <sub>DC</sub> 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 PROFINET Gateway with integrated Safety Monitor

Article no.	BWU3952
<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	-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
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) ASi Power24V**

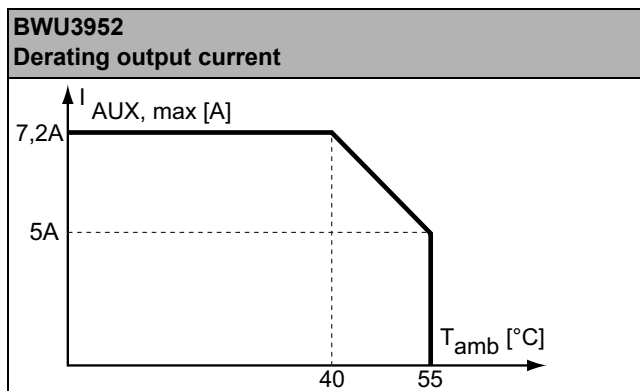
The device can be operated directly on a 24 V (PELV) power supply. The gateway has been optimized with integrated data coupling coils and adjustable self-resetting fuses for safe use of powerful 24 V power supplies.

Article no.	BWU3952
<b>Safety monitor</b>	
ASi Safety	ASi-5 Safety + ASi-3 Safety compatible
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>
Selection of Mode of Safe Operation	yes
<b>Connection</b>	
Connection	Push-in terminals
Length of connector cable	unlimited <sup>(3)</sup>
<b>Input</b>	
Inputs Safety	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, $\Sigma = 7,2$ 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

<sup>(1)</sup> connection at all SI or SO terminals possible.

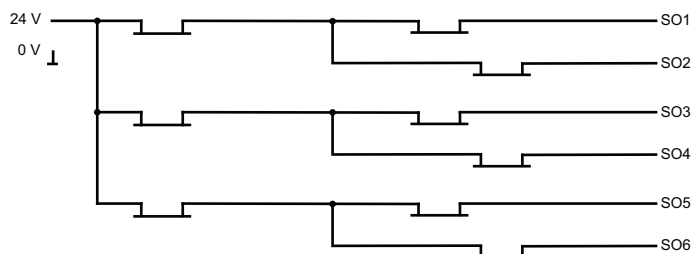
# ASi-5/ASi-3 PROFINET Gateway with integrated Safety Monitor

- (2) connection only at terminals SO1 ... SO6 configured as standard inputs (see "Variations of terminal configuration for BWU3952")
- (3) loop resistance  $\leq 150 \Omega$
- (4) see "Variations of terminal configuration for BWU3952"
- (5)



	BWU3952
Data decoupling integrated in the gateway	•
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 BWU3952



## Variations of terminal configuration for BWU3952

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 must be supplied from the same 24 V voltage source connected to the supply terminals of the local safe I/Os of the device.

<sup>(2)</sup> If outputs are configured as inputs, the input current has to be limited by an external element at  $\leq 100mA$

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

## Connections: Gateway + Safety Monitor:

BWU3952	Connection	Description	
<p>The diagram shows the terminal block connections for the BWU3952 gateway. It is divided into 'Safe inputs / Standard inputs' and 'Safe outputs'. The top section shows terminals for T1, T2, SI1-SI6. The bottom section shows terminals for SO1-SO6, 24V, 0V, and +ASI connections.</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 for storage of configuration and additional data, memory capacity  $\geq 16$  GB (art. no. BW4785)
- Bihl+Wiedemann Safety Suite - Safety Software for Configuration, Diagnostics and Commissioning (art. no. BW2916)
- Power supplies, e.g.: 30 V power supply, 4 A, 1 phase (art. no. BW4218), 30 V power supply, 8 A, 1 phase (art. no. BW4219), 30 V power supply, 8 A, 3 phases (art. no. BW4220), 30 V Power Supply, 16 A, 1 phase (art. no. BW4221), 30 V Power Supply, 16 A, 3 phases (art. no. BW4222) (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))
- PROFINET Master Simulators Licenses (art. no. BW4754, BW4755)