

# ASi-3 PROFINET Gateways with integrated Safety Monitor

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2 / 1 ASi-3 Master, PROFINET device

Up to 32 release circuits

- up to 6 safe output circuits 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

1 Safety Monitor for 2 ASi networks

- Operation using a single Monitor configuration!  
Monitor processes safety nodes on two ASi networks
- Coupling between the two networks superfluous

Safe speed and standstill monitoring

Applications up to category 4/PLe/SIL 3

Chip card for storage of configuration data



(Figure similar)



Figure	Fieldbus 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	Safe Link	3 x 2 channels	6 release circuits; 6 x electronic safe outputs	max. 62 x 2 channels, max. 1922 in max. configuration	max. 32, max. 992 in max. configuration	2 ASi networks, 2 ASi-3 Masters	no, max. 8 A/ ASi network, redundant supply	Ethernet fieldbus; Ethernet diagnostics	<b>BWU3080</b>

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

"Single Master": 1 ASi network, 1 ASi-3 Master.

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

(2) **Integrated decoupling, ASi current measurement in the gateway**

"yes, max. 4 A/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.

"no, max. 8 A/ASi network, redundant supply": 1 power supply per ASi network. Gateway is powered in normal operation from one of the two ASi power supplies. Should one ASi power supply fail, switching to the other ASi power supply allows all the diagnostics functions to be maintained and the unaffected ASi network continues to operate.

(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.

"Ethernet fieldbus + RS 232": Access to ASi master and safety monitor via Bihl+Wiedemann proprietary software over Ethernet fieldbus interface or RS 232 interface and adapter cable.

The latest version of the device description file of the gateway is available in the "Downloads" section of the respective device.

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<b>Article no.</b>	<b>BWU3080</b>
<b>Fieldbus Interface</b>	
Type	PROFINET; 2 x RJ-45, integrated 2-Port-Switch, IRT capability
Conformance Class	Class B integrated switch complies with Class C (IRT capability)
Baud rates	10/100 MBaud
Function	PROFINET IO Device Media Redundancy Protocol (MRP) Shared Device
Card slot	Chip card for storage of configuration data
<b>Diagnostic Interface</b>	
Type	Ethernet; RJ-45 acc. to IEEE 802.3
<b>ASi</b>	
ASi specification	3.0
Cycle time	150 $\mu$ s * (number of nodes + 2)
Operating voltage	30 V <sub>DC</sub> (20 ... 31,6 V) (PELV voltage)
ASi Power24V capability <sup>(1)</sup>	no
<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 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 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 (yellow)	auxiliary power
LEDs 1.Y1, 1.Y2, 2.Y1, 2.Y2 (EDM/Start) (yellow)	–
LEDs K1 ... K4 (green)	–
LEDs SI1 ... SI6 (yellow)	state of inputs: off: open on: closed
LEDs SO1 ... SO6 (yellow)	state of outputs: off: open on: closed
<b>UL-specifications (UL508)</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.

# ASi-3 PROFINET Gateways with integrated Safety Monitor

<b>Article no.</b>	<b>BWU3080</b>
<b>Ambient</b>	
Applied standards	EN 60529 EN 61000-6-2 EN 61000-6-4 EN 62061, SIL 3 EN 61508, SIL 3 EN ISO 13849-1, Performance-Level e
Ambient temperature	0 °C ... +55 °C
Storage temperature	-25 °C ... +85 °C
Operating altitude	max. 2000 m
Housing	stainless steel, for DIN-rail mounting
Protection category	IP20
Tolerable loading referring to impacts and vibrations	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.

<b>Article no.</b>	<b>BWU3080</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>
<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
<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.

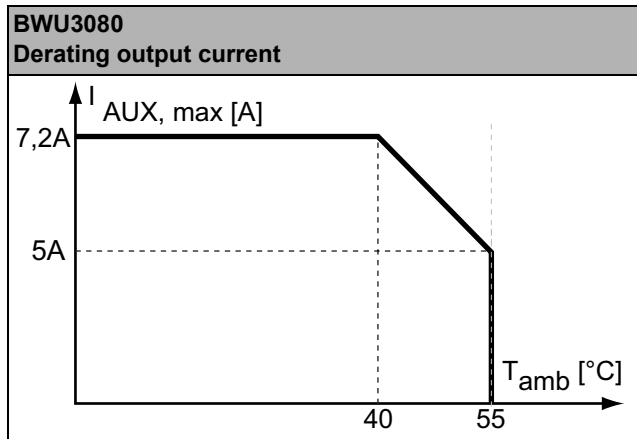
<sup>(2)</sup> connection only at terminals SO1 ... SO6 configured as standard inputs (see "Variations of terminal configuration for BWU3080")

<sup>(3)</sup> loop resistance ≤ 150 Ω

<sup>(4)</sup> see "Variations of terminal configuration for BWU3080"

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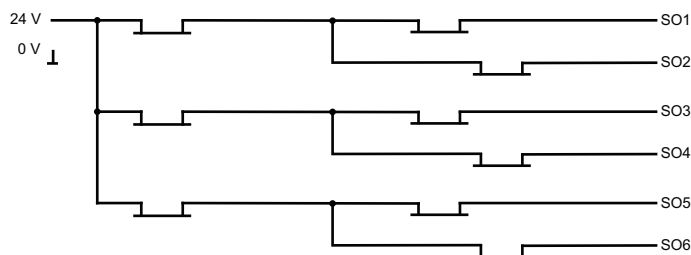
(5)



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)
BWU3080	-	•	-

	BWU3080
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 BWU3080



# ASi-3 PROFINET Gateways with integrated Safety Monitor

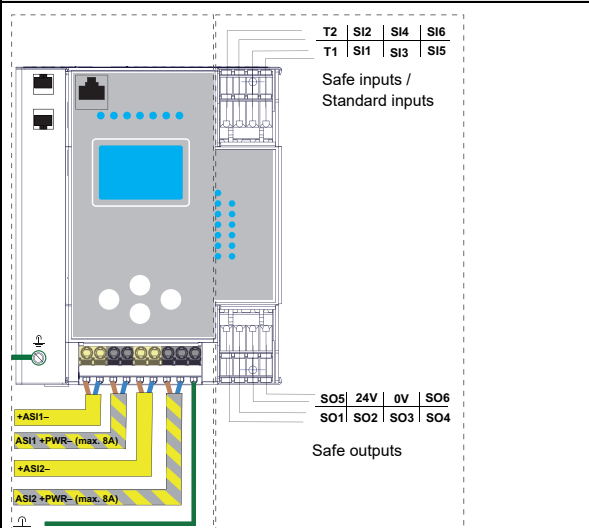
## Variations of terminal configuration for BWU3080

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 ≤100 mA

## Connections: Gateway + Safety Monitor:

BWU3080	Connection	Description	
 <p>Safe inputs / Standard inputs</p> <p>Safe outputs</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	
	ASI1 +PWR-, ASI2 +PWR-	Power supply for Gateway and ASi networks	

## Accessories:

- Safe contact expander, 1 or 2 independent channels (art. no. BWU2548 / BWU2539)
- PROFINET Master Simulator (art. no. BW3057)
- 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))