

ASi-3 PROFINET-Gateways with integrated Safety Monitor

ASi-3 PROFINET Gateways with integrated Safety Monitor

1 ASi-3 Master, 1 PROFINET device

Up to 31 release circuits

- up to 6 safe output circuits on the Monitor electronic safe outputs
- up to 31 independent ASi outputs
Multiple safe ASi outputs possible via a single ASi address

1 Safety Monitor for 1 ASi network

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

Safe Link via PROFINET fieldbus interface

Applications up to category 4/PLe/SIL 3

Chip card for storage of configuration data



(Figure similar)



Figure	Type	Inputs safety, expandable to	Outputs Safety, SIL 3, cat. 4	Safety outputs, independent according to SIL 3, expandable to	Safety communication	Number of ASi networks, number of ASi Master ⁽¹⁾	1 power supply, 1 gateway for 2 ASi networks, inexpensive power supplies ⁽²⁾	Diagnostic and configuration interface ⁽³⁾	Power-Boost ⁽⁴⁾	Article No.
	Safety, PROFINET	max. 31 x 2 channels, max. 1891 in max. configuration	6 release circuits; 6 x electronic safe outputs	max. 31, max. 991 in max. configuration	Safe Link	1 ASi network, 1 ASi Master	yes, max. 4 A/ ASi network	Ethernet fieldbus + Ethernet diagnostic	yes	BWU3692

⁽¹⁾ **Number of ASi networks, number of ASi Master**
"Single Master": 1 ASi network, 1 ASi Master.

⁽²⁾ **1 power supply, 1 gateway for 2 ASi networks, inexpensive power supplies**
"yes, max. 4 A/ASi network": Cost-effective power for 2 ASi networks with 1 power supply (optionally supply of multiple Single Gateways by 1 power supply).

⁽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 is available in the "Downloads" section of the respective device..

⁽⁴⁾ Ruggedized power supply for stable supply of load-dependent currents on ASi.

ASi-3 PROFINET-Gateways with integrated Safety Monitor

Article no.	BWU3692
Interfaces	
PROFINET interface	2 x RJ-45, integrated 2-Port-Switch, IRT capability
Conformance Class	B
Baud rates	10/100 MBaud
Function	PROFINET IO Device Media Redundancy Protocol (MRP) Shared Device
Diagnostic and configuration interface	Ethernet fieldbus + Ethernet diagnostic
Card slot	Chip card for storage of configuration data
AUX	
Operating voltage	24 V _{DC} (19,2 ... 28,8 V)
Max current consumption	7,2 A
ASi	
ASi specification	3.0
Cycle time	150 µs * (number of slaves + 2)
Operating voltage	30 V _{DC} (20 ... 31,6 V) (PELV voltage)
ASi Power24V capability ⁽¹⁾	yes
Display	
LCD	indication of slave addresses and error messages in plain text
LED power (green)	power on
LED PROFINET (green)	green: PROFINET communication active red: PROFINET communication not active
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 ... SIn (green)	state of inputs: off: open on: closed
LEDs SO1 ... SOn (green)	state of outputs: off: open on: closed
UL-specifications (UL508)	
External protection	An isolated source with a secondary open circuit voltage of ≤ 30 V _{DC} with a 3 A maximum over current protection. 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.
Applied standards	EN60529 EN 61 000-6-2 EN 61 000-6-4 EN 62 061:2005, SIL 3 EN 61 508:2010, SIL 3 EN ISO 13 849-1:2008, Performance-Level e
Ambient	
Ambient temperature	0 °C ... +55 °C
Storage temperature	-25 °C ... +85 °C
Operating altitude	max. 5000 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 / 96

ASi-3 PROFINET-Gateways with integrated Safety Monitor

(1) ASi Power24V

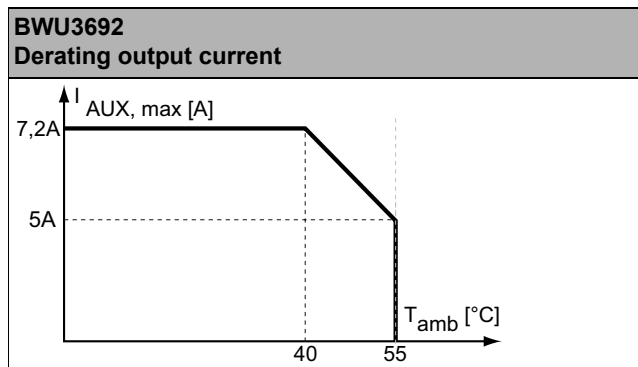
The device can be operated directly on a 24 V (PELV) power supply. The gateway has been optimized with integrated data coupling coils and adjustable self-resetting fuses for safe use of powerful 24 V power supplies.

Article no.	BWU3692
Safety Monitor	
Start delay	< 10 ms
Max. turn-off time	< 40 ms
Connection	
Connection	COMBICON
Length of connector cable	unlimited ⁽¹⁾
Input	
Inputs Safety, SIL3, cat. 4	3 x 2 channels ⁽²⁾
Inputs digital, EDM	up to 6 standard inputs ⁽²⁾
Switching current	statical 4 mA at 24 V, dynamic 15 mA at 24 V (T = 100 µs)
Power supply	out of AUX
Output	
Number of release circuits in device	6
Outputs	semiconductor output max. contact load: 1,2 A _{DC-13} at 30 V, Σ = 7,2 A in sum ⁽³⁾
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) loop resistance ≤ 150 Ω

(2) see "Variations of terminal connection BWU3692"

(3)

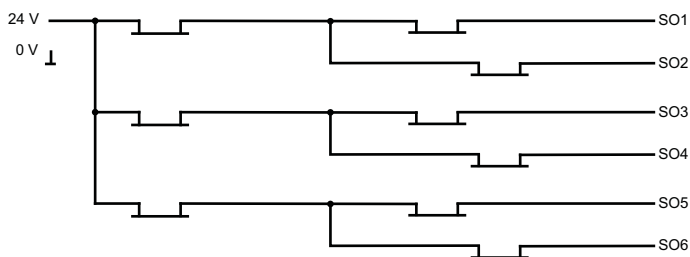


Article No.	Operating current		
	master power supply, approx 300mA out of ASi network	master power supply, max. 300mA out of ASi circuit 1 (approx. 70mA ... 300mA), max. 300mA out of ASi circuit 2 (approx. 70mA ... 300mA); in sum max. 370mA	Version „1 Gateway, 1 Power supply, for 2 ASi Networks“, approx. 300mA (PELV voltage)
BWU3692	-	-	•

ASi-3 PROFINET-Gateways with integrated Safety Monitor

	BWU3692
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	•
In Version „1 Gateway, 1 Power supply, for 2 ASi Networks“: only 1 Gateway + 1 ASi power supply for 2 ASi networks required	•

Block diagram of semiconductor outputs BWU3692



Variations of terminal connection BWU3692

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⁾
S1,2	–	•	•	•	•
S3,4	–	•	•	•	•
S5,6	–	•	•	•	•
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 ≤ 100 mA

ASi-3 PROFINET-Gateways with integrated Safety Monitor

Connections: Gateway + Safety Monitor

BWU3692	Connection	Description	
<p>Safe inputs / Standard inputs</p> <p>Safe outputs</p> <p>+ASI 1- +ASI 1- +ASI 1- ASI +PWR- (max. 4A)</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	
	24 V, 0 V	Power supply for local I/Os	
	+ASI 1-	Connection of ASi circuit	
	ASI +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 Programming (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)