

ASi-3 Sercos Gateways with integrated Safety Monitor

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Safety on Sercos and Safe Link in one device

- up to 456 Devices

Safely monitoring safety drives with Safety on Sercos

2 / 1 ASi master, Sercos slave

- switch integrated

Up to 64 release circuits

- up to 6 release circuits SIL 3, cat. 4 on the monitor

Safe ASi outputs are supported

- up to 64 independent ASi outputs
Multiple safe ASi outputs possible via a single ASi address

Safe speed and standstill monitoring

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⁾	Art. no.
	Safety, Sercos	max. 62 x 2 channels, max. 1922 in max. configuration	6 release circuits; 6 x electronic safe outputs	max. 64, max. 1984 in max. configuration	CIP Safety over Sercos + Safe Link	2 ASi networks, 2 ASi masters	yes, max. 4 A/ASi network	Ethernet diagnostic	BWU3160
	Safety, Sercos	max. 62 x 2 channels, max. 1922 in max. configuration	4 release circuits; 2 x relay, 2 x electronic safe outputs	max. 32, max. 992 in max. configuration	Safe Link	2 ASi networks, 1 ASi master	yes, max. 4 A/ASi network	Ethernet diagnostic	BWU2588

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

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

"Optional ASi Safety coupling circuit": 2 ASi networks, 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). Operation with short cable lengths with standard 24 V power supply possible.

(3) **Diagnostic and configuration interface**

"Ethernet diagnostic": Access to ASi Master and Safety Monitor with Bihl+Wiedemann software by using the Ethernet diagnostic interface.

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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Article no.	BWU2588	BWU3160
Interface		
Ethernet interface	2 x RJ-45: 100MBaud, 2-Port-Switch, Sercos III	
Baud rates	100 MBaud	
Card slot	chip card for storage of configuration data	
ASi		
ASi specification	3.0	
Cycle time	150 μ s * (number of slaves + 2)	
Operating voltage	30 V (20 ... 31.6 V)	
ASi Power24V capability ⁽¹⁾	yes	
AUX		
Operating voltage	24 V _{DC} (19,2 ... 28,8 V)	
Max current consumption	1 A	7,2 A
Display		
LCD	indication of slave addresses and error messages in plain text	
LED power (green)	power on	
LED Sercos (green)	Sercos communication active	
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 addresses programming enabled	
LED prj mode (yellow)	configuration mode active	
LED AUX (green)	auxiliary power	
LEDs 1.Y1, 1.Y2, 2.Y1, 2.Y2 (EDM/Start) (yellow)	state of inputs: LED off:open LED on:closed	–
LEDs K1 ... K4 (green)	state of outputs: LED off: open LED on: closed	–
LEDs SI1 ... SI6 (yellow)	–	state of inputs: LED off:open LED on:closed
LEDs SO1 ... SO6 (yellow)	–	state of inputs: LED off:open LED 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	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, PLe	

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Article no.	BWU2588	BWU3160
Environment		
Operating altitude	2000 m	
Ambient temperature	0 °C ... +55 °C	
Storage temperature	-25 °C ... +85 °C	
Pollution degree	2	
Housing	stainless steel, for DIN rail mounting	
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.

Article no.	BWU2588	BWU3160
Safety monitor		
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 ⁽²⁾
Speed monitors for local inputs	–	3 to 6 axes up to 400 Hz ⁽³⁾
Connection		
Connection	COMBICON	
Length of connector cable	I/O: max. 15 m ⁽⁴⁾	unlimited ⁽⁴⁾
Input		
Inputs Safety, SIL3, cat. 4	–	3 x 2 channels ⁽⁵⁾
Inputs digital, EDM	4	up to 6 standard inputs ⁽⁵⁾
Switching current	30 mA (T = 100 µs), continuously 4 mA at 24 V	15 mA (T = 100 µs), continuously 4 mA at 24 V
Power supply	out of ASi	
Output		
Number of release circuits on the monitor	4	6
Outputs	relay outputs (output circuits 1 and 2) max. contact load ⁽¹⁾ : 3 A _{AC-15} at 30 V, 3 A _{DC-13} at 30 V	–
	semiconductor outputs (output circuits 3 and 4): max. contact load: 0,5 A _{DC-13} at 30 V	semiconductor output max. contact load: 1,2 A _{DC-13} at 30 V, $\Sigma = 7,2$ A in sum ⁽⁶⁾
Power supply (semiconductor outputs)	out of AUX	
Test pulse (semiconductor outputs)	if output is on: minimum interval between 2 test pulses: 250 ms (as from Safety Version 4.3); maximum pulse width 1,5 ms	if output is on: minimum interval between 2 test pulses: 250 ms; maximum pulse width 1 ms

(1) Protection via external fuse, max. 4 A semi time-lag.

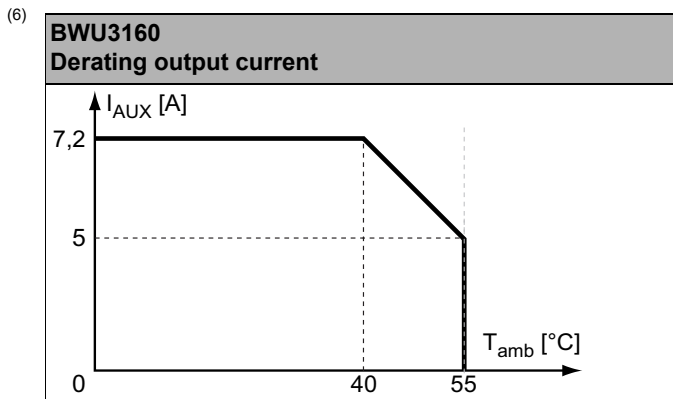
(2) connection at all SI or SO terminals possible.

(3) connection only at terminals SO1 ... SO6 configured as standard inputs (see "Variations of terminal configuration for BWU3160")

(4) loop resistance ≤150 Ω

(5) see "Variations of terminal configuration for BWU3160"

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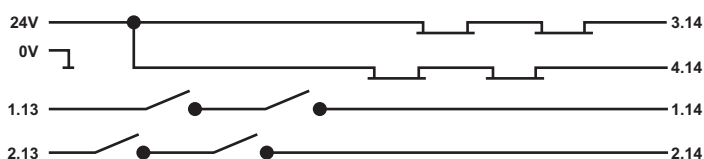


Article no.	Operating current		
	master power supply, approx 300 mA out of ASi network	master power supply, max. 300 mA out of ASi circuit 1 (approx. 70 mA ... 300 mA), max. 300 mA out of ASi circuit 2 (approx. 70 mA ... 300 mA); in sum max. 370 mA	Version „1 Gateway, 1 power supply for 2 ASi circuits“, ca. 350 mA (PELV voltage)
BWU2588	-	-	•
BWU3160	-	-	•

	BWU2588	BWU3160
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 circuits“: only 1 gateway + 1 ASi power supply is needed for both 2 ASi circuits	-	•

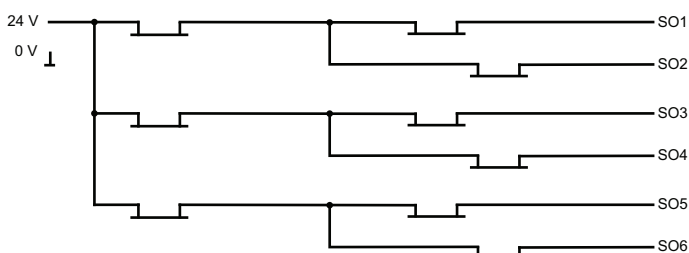
Safety outputs block diagram

BWU2588



Safety outputs block diagram

BWU3160



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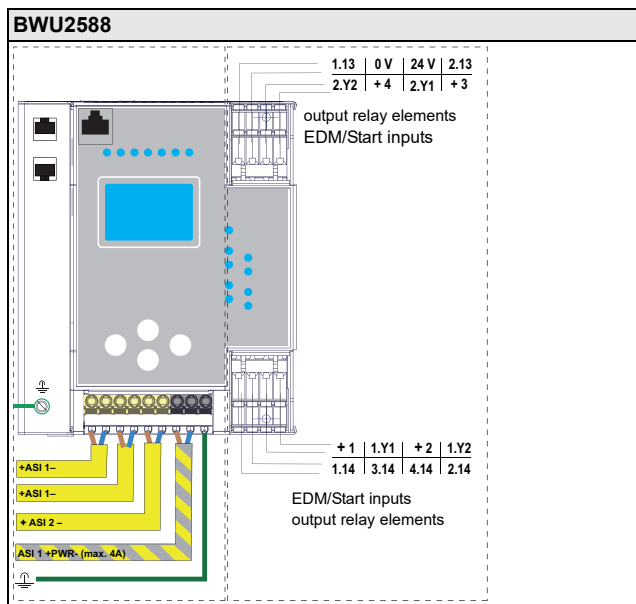
Variations of terminal configuration for BWU3160

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⁾
SI1,2	–	•	•	•	•
SI3,4	–	•	•	•	•
SI5,6	–	•	•	•	•
SO1,2 ⁽²⁾	•	•	•	–	•
SO3,4 ⁽²⁾	•	•	•	–	•
SO5,6 ⁽²⁾	•	•	•	–	•

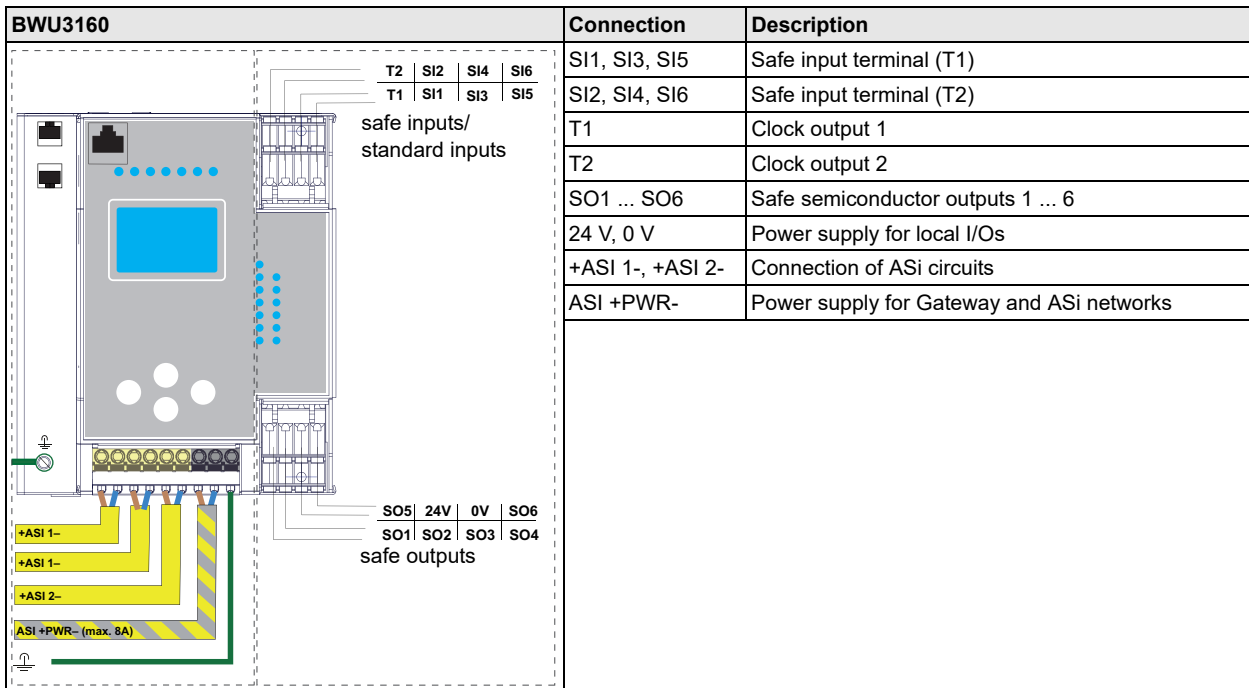
(1) Inputs may only be supplied by the same 24 V source as the device itself.

(2) If outputs are configured as inputs, the input current has to be limited by an external element at $\leq 100\text{mA}$ (slow-blow fuse).

Connections: Gateway + Safety Monitor:



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Accessories:

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