

# ASi-5/ASi-3 CIP Safety over Sercos Gateway with integrated Safety Monitor

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

**Compatible with all ASi generations**

**ASi-5/ASi-3 CIP Safety over Sercos Gateway with integrated Safety Monitor**

**ASi-5 master and ASi-3 master in one device**

**CIP Safety over Sercos and Safe Link in one device**

- up to 450 Devices

**CIP Safety originator integrated**

**2 ASi master, Sercos slave**

- switch integrated

**Up to 64 release circuits**

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

**Selection of Mode of Safe Operation**

**Significantly improved reaction times**

**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 <sup>(1)</sup>	1 power supply, 1 gateway for 2 ASi networks, inexpensive power supplies <sup>(2)</sup>	Diagnostic and configuration interface <sup>(3)</sup>	Art. no.
	Safety, Sercos, ASi-5/ASi-3	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	<b>BWU3860</b>

<sup>(1)</sup> **Number of ASi networks, number of ASi Master**  
"Double Master": 2 ASi networks, 2 ASi Masters.

<sup>(2)</sup> **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.

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<sup>(3)</sup> **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.

<b>Article no.</b>	<b>BWU3860</b>
<b>Interface</b>	
Ethernet interface	2 x RJ-45: 100MBaud, 2-Port-Switch, Sercos III
Baud rates	100 MBaud
CIP Safety originator	up to 32 instances
Card slot	chip card (512 KB) for storage of configuration data
<b>ASi</b>	
ASi specification	ASi-3 + ASi-5
Cycle time	<b>Cycle time ASi-3 (variable):</b> 150 µs * (number of ASi-3 slaves + 2) <b>Cycle time ASi-5 (constant):</b> 1,27 ms for 384 bits input data + 384 bits output data
Operating voltage	30 V (20 ... 31.6 V)
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 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 and ASi voltage applied
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
<b>UL-specifications (UL508)</b>	
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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<b>Article no.</b>	<b>BWU3860</b>
<b>Environment</b>	
Operating altitude	max. 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.

<b>Article no.</b>	<b>BWU3860</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

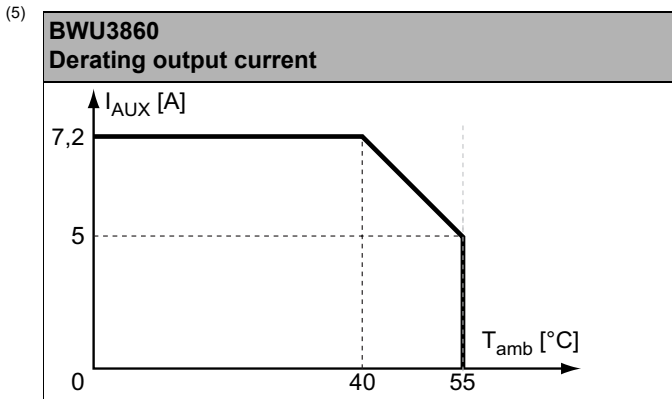
<sup>(1)</sup> connection at all SI or SO terminals possible.

<sup>(2)</sup> connection only at terminals SO1 ... SO6 configured as standard inputs (see "Variations of terminal configuration for BWU3860")

<sup>(3)</sup> loop resistance ≤150 Ω

<sup>(4)</sup> see "Variations of terminal configuration for BWU3860"

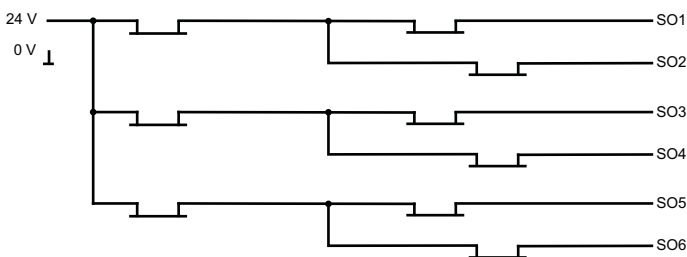
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Article no.	Operating current		
	master power supply, approx 300 mA out of ASi network	master power supply, max. 300 mA out of ASi circuit 1 (approx. 70 mA ... 300 mA), max. 300 mA out of ASi circuit 2 (approx. 70 mA ... 300 mA); in sum max. 370 mA	Version „1 Gateway, 1 power supply for 2 ASi circuits“, ca. 350 mA (PELV voltage)
BWU3860	-	-	•

	BWU3860
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 BWU3860



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## Variations of terminal configuration for BWU3860

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 ≤ 100mA (slow-blow fuse).

## Connections: Gateway + Safety Monitor:

BWU3860	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 +PWR-	Power supply for Gateway and ASi networks	

## Accessories:

- Safe contact expander, 1 or 2 independent channels (art. no. BWU2548 / BWU2539)
- Chip card, memory capacity 512 kB (art. no. BW4055)
- Bihl+Wiedemann Safety Suite - Safety Software for Configuration, Diagnostics and Commissioning (art. no. BW2916)
- Power supplies, e.g.: 30 V power supply, 4 A, 3 phases (art. no. BW1927), 30 V power supply, 8 A, 3 phases (art. no. BW1676) (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))