

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

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

**Compatible with all ASi generations**

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

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

**Safety on Sercos and Safe Link in one device**

- up to 456 Devices

**Safely monitoring safety drives with Safety on Sercos**

**2 ASi-5/ASi-3 masters, Sercos device**

- switch integrated

**Up to 64 release circuits**

- up to 6 release circuits SIL 3, cat. 4 on the monitor 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 interface and REST API for IIoT applications**

**Integrated web server for simple diagnostics and maintenance**

**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	Interface, field-bus <sup>(1)</sup>	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 <sup>(2)</sup>	Integrated decoupling, ASi current measurement in the gateway <sup>(3)</sup>	Diagnostic and configuration interface <sup>(4)</sup>	Art. no.
	Sercos, OPC UA	Schneider drives via Sercos + 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. 64, max. 1984 in max. configuration	2 ASi networks, 2 ASi-5/ASi-3 masters	yes, max. 4 A/ASi network	Ethernet diagnostic	<b>BWU3861</b>

(1) **Fieldbus interface**

Communication interface between fieldbus and gateway: interfaces for standardized fieldbus systems in industrial automation.

**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.

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- (3) **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.
- (4) **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>BWU3861</b>
<b>Fieldbus Interface</b>	
Type	Sercos; 2 x RJ-45: 100MBaud, 2-Port-Switch, Sercos III
Baud rates	100 MBaud
IT interface	OPC UA server, webserver, REST API
Card slot	chip card (BW4055) for storage of configuration data
<b>Diagnostic Interface</b>	
Type	Ethernet; RJ-45 acc. to IEEE 802.3
IT interface	OPC UA server, webserver, REST API
Safety communication	safe Schneider drives over Sercos + 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)
Operating voltage	30 V <sub>DC</sub> (20 ... 31,6 V)
Operating current	300 mA
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 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)	ASi voltage and auxiliary power applied
LEDs SI1 ... SI6 (yellow)	state of inputs: LED off:open LED on:closed
LEDs SO1 ... SO6 (yellow)	state of outputs: LED off:open LED on:closed
<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 Sercos Gateway with integrated Safety Monitor

<b>Article no.</b>	<b>BWU3861</b>
<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, PL <sub>e</sub>
Operating altitude	2000 m
Ambient temperature	-25 °C ... +55 °C (no condensation permitted)
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>BWU3861</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	Push-in terminals
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, Σ = 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

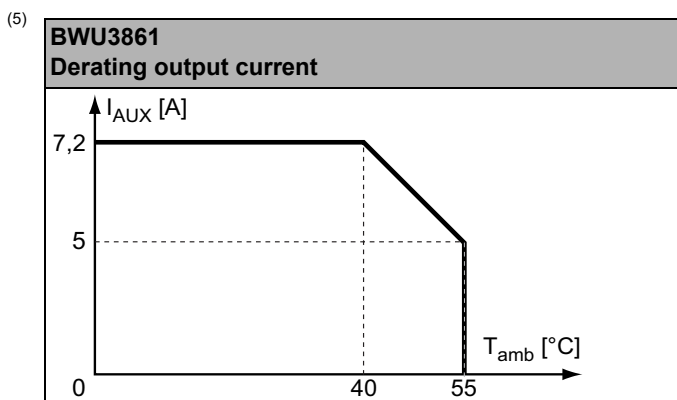
<sup>(1)</sup> connection at all SI or SO terminals possible.

<sup>(2)</sup> connection only at terminals SO1 ... SO6 configured as standard inputs (see "Variations of terminal configuration for BWU3861")

<sup>(3)</sup> loop resistance ≤150 Ω

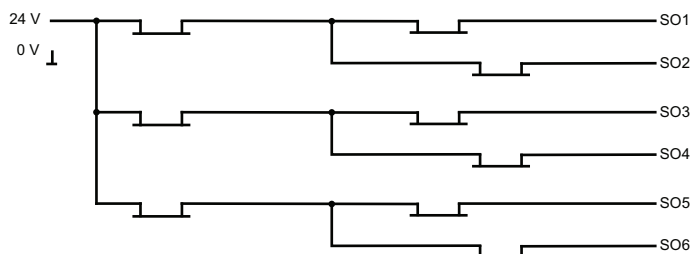
<sup>(4)</sup> see "Variations of terminal configuration for BWU3861"

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



	<b>BWU3861</b>
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 BWU3861



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## Variations of terminal configuration for BWU3861

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>	•	•	•	–	•

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

(2) 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:

BWU3861	Connection	Description	
<p>safe inputs/ standard inputs</p> <p>safe outputs</p> <p>+ASI 1- +ASI 1- +ASI 2- ASI +PWR- (max. 8A)</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-, +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, 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))