

# ASi-5/ASi-3 PROFIsafe via PROFINET Gateway with integrated Safety Monitor



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

**Compatible with all ASi generations**

**PROFIsafe and Safe Link in one device**

- up to 450 devices

**1 ASi-5/ASi-3 Master, PROFINET device**

- ASi Safety input nodes report via PROFIsafe
- ASi Safety output nodes switch via PROFIsafe

**Up to 64 release circuits**

- up to 6 safe output circuits CAT4, SIL 3 on the Monitor safe 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 server and integrated web server for simplified diagnostics**

**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 (1) | 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 (2) | Integrated decoupling, ASi current measurement in the gateway (3) | Diagnostic and configuration interface (4) | Article No.    |
|---|------------------------|-------------------------------|------------------------------|---|--|---|--|---|--|----------------|
|  | PROFINET, OPC UA       | PROFIsafe (F-CPU) + Safe Link | 3 x 2 channels               | 6 release circuits; 6 x electronic safe outputs | max. 31 x 2 channels, 1891 in max. configuration | max. 64, 1984 in max. configuration                           | 1 ASi network, 1 ASi-5/ASi-3 master              | yes, max. 4A/ASi network  | Ethernet fieldbus; Ethernet diagnostics    | <b>BWU3862</b> |

- Fieldbus interface**  
Communication interface between fieldbus and gateway: interfaces for standardized fieldbus systems in industrial automation.  
**PROFINET ASi gateway:** interface for a PROFINET fieldbus  
**OPC UA server:** interface for the OPC UA communication
- Number of ASi networks, number of ASi Master**  
"Single Master": 1 ASi network, 1 ASi-5/ASi-3 Master.
- Integrated decoupling, ASi current measurement in the gateway**  
"yes, max. 4A/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.
- 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 with integrated safety monitor is available in the "Downloads" section of the respective device.**

## ASi-5/ASi-3 PROFIsafe via PROFINET Gateway with integrated Safety Monitor

|  |   |
|--|---|
| <b>Article no.</b>                     | <b>BWU3862</b>  |
| <b>Fieldbus Interface</b>              |   |
| Type                                   | PROFINET;<br>2 x RJ-45,integrated 2-Port-Switch IRT capability<br>Conformance Class B, integrated switch complies with Conformance Class C (IRT capability)                       |
| Baud rates                             | 10/100 MBaud  |
| OPC UA interface                       | OPC UA server + web server  |
| Safety Communication                   | PROFIsafe (F-CPU) + Safe Link   |
| Variably configurable Assembly Objects | yes   |
| Function                               | PROFINET IO Device<br>Media Redundancy Protocol (MRP)<br>Shared Device  |
| Card slot                              | chip card (BW4055) for storage of configuration data  |
| <b>Diagnostic Interface</b>            |   |
| Type                                   | Ethernet;<br>RJ-45 acc. to IEEE 802.3   |
| Baud rates                             | 10/100 MBaud half-/full duplex  |
| OPC UA interface                       | OPC UA server + web server  |
| Safety Communication                   | PROFIsafe (F-CPU) + Safe Link   |
| <b>ASi</b>                             |   |
| ASi specification                      | ASi-5 + ASi-3   |
| Cycle time                             | <b>Cycle time ASi-5 (constant):</b><br>1,27 ms for 384 bits input data + 384 bits output data<br><b>Cycle time ASi-3 (variable):</b><br>150 $\mu$ s * (number of ASi-3 nodes + 2) |
| Operating voltage                      | 30 V <sub>DC</sub> (20 ... 31,6 V) (PELV voltage)   |
| 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 PROFINET (green / red)             | green: PROFINET communication active<br>red: no PROFINET communication  |
| LED power (green)                      | power on  |
| 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 address programming enabled   |
| LED prj mode (yellow)                  | configuration mode active   |
| LED AUX (green)                        | ASi power on and auxiliary power on   |
| LEDs SI1 ... SI6 (yellow)              | state of inputs:<br>off: open<br>on: close  |
| LEDs SO1 ... SO6 (yellow)              | state of outputs:<br>off: open<br>on: close   |
| <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 PROFIsafe via PROFINET Gateway with integrated Safety Monitor

| Article no.                                  | BWU3862   |
|--|---|
| <b>Environment</b>                           |   |
| Applied standards                            | EN 60529<br>EN 62026-2<br>EN 61000-6-2<br>EN 61000-6-4<br>EN 62061, SIL 3<br>EN 61508, SIL 3<br>EN ISO 13849-1, Performance-Level e<br>EN ISO 13849-2 |
| Operating altitude                           | max. 2000 m   |
| Ambient temperature                          | -25 °C ... +55 °C (no condensation permitted)   |
| Storage temperature                          | -25 °C ... +85 °C   |
| Housing                                      | stainless steel, for DIN rail mounting  |
| Pollution degree                             | 2   |
| Protection category                          | IP20  |
| Maximum tolerable shock and vibration stress | according EN 61131-2  |
| Voltage of insulation                        | ≥ 500 V   |
| Weight                                       | 800 g   |
| Dimensions (W / H / D in mm)                 | 109 / 120 / 106   |

<sup>(1)</sup> **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.                               | BWU3862   |
|---|---|
| <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                             | 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<br>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:<br>minimum interval between 2 test pulses: 250 ms; maximum pulse width 1 ms                      |

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

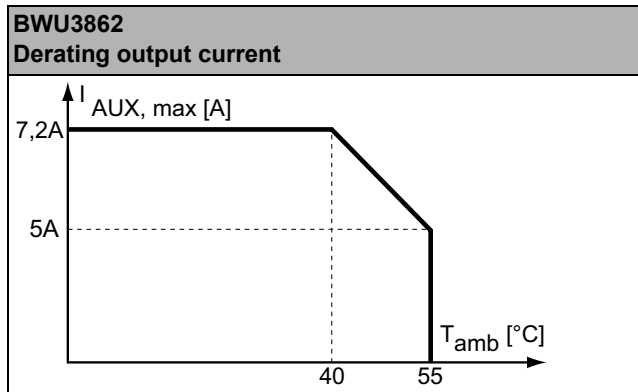
<sup>(2)</sup> connection only at terminals SO1 ... SO6 configured as standard inputs (see "Variations of terminal configuration for BWU3862")

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

<sup>(4)</sup> see "Variations of terminal configuration for BWU3862"

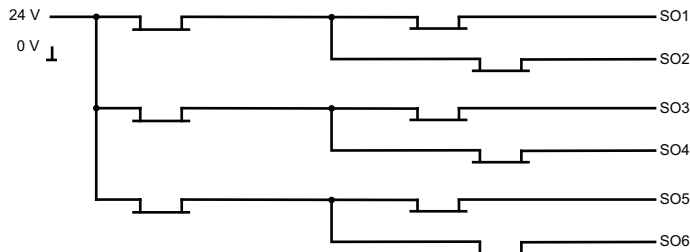
# ASi-5/ASi-3 PROFIsafe via PROFINET Gateway with integrated Safety Monitor

(5)



|   | BWU3862 |
|---|---------|
| Data decoupling integrated in the gateway   | •       |
| Redundant power supply out of ASi:<br>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 BWU3862



# ASi-5/ASi-3 PROFIsafe via PROFINET Gateway with integrated Safety Monitor

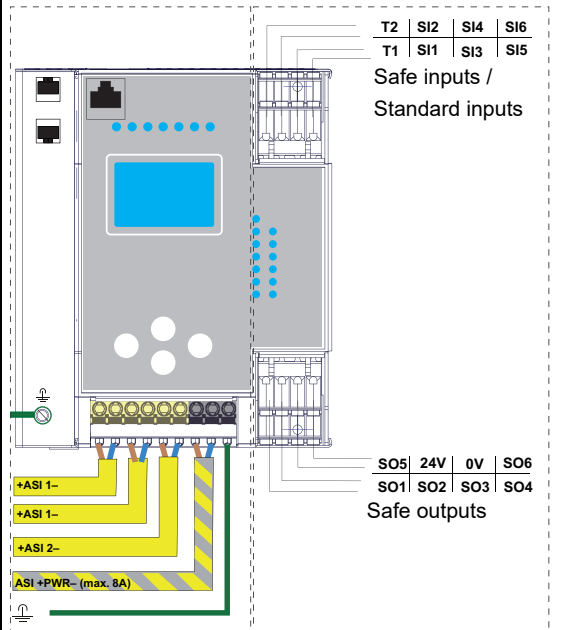
## Variations of terminal configuration for BWU3862

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

<sup>(2)</sup> If outputs are configured as inputs, the input current has to be limited by an external element at ≤ 100mA

## Connections: Gateway + Safety Monitor:

| BWU3674  | Connection                                | Description                        |     |     |    |     |     |     |     |     |    |     |     |     |     |     |               |                          |
|--|---|------------------------------------|-----|-----|----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|---------------|--------------------------|
|  <p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>T2</td><td>SI2</td><td>SI4</td><td>SI6</td></tr> <tr><td>T1</td><td>SI1</td><td>SI3</td><td>SI5</td></tr> </table>           Safe inputs /<br/>Standard inputs         </p> <p> <table border="1" style="display: inline-table; margin-right: 10px;"> <tr><td>SO5</td><td>24V</td><td>0V</td><td>SO6</td></tr> <tr><td>SO1</td><td>SO2</td><td>SO3</td><td>SO4</td></tr> </table>           Safe outputs         </p> <p>           +ASI 1-<br/>           +ASI 1-<br/>           +ASI 2-<br/>           ASI +PWR- (max. 8A)         </p> | T2  | SI2                                | SI4 | SI6 | T1 | SI1 | SI3 | SI5 | SO5 | 24V | 0V | SO6 | SO1 | SO2 | SO3 | SO4 | SI1, SI3, SI5 | Safe input terminal (T1) |
|  | T2  | SI2                                | SI4 | SI6 |    |     |     |     |     |     |    |     |     |     |     |     |               |                          |
|  | T1  | SI1                                | SI3 | SI5 |    |     |     |     |     |     |    |     |     |     |     |     |               |                          |
|  | SO5                                       | 24V                                | 0V  | SO6 |    |     |     |     |     |     |    |     |     |     |     |     |               |                          |
|  | SO1                                       | SO2                                | SO3 | SO4 |    |     |     |     |     |     |    |     |     |     |     |     |               |                          |
|  | 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                |                                    |     |     |    |     |     |     |     |     |    |     |     |     |     |     |               |                          |
| ASI +PWR-  | Power supply for Gateway and ASi networks |                                    |     |     |    |     |     |     |     |     |    |     |     |     |     |     |               |                          |

## Accessories:

- Safe Contact Expansion Module, 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))



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