

# AS-i 3.0 PROFIBUS Gateways with integrated Safety Monitor

## AS-i 3.0 Gateways with integrated Safety Monitor

### 2 AS-i Masters, 1 PROFIBUS Slave

#### Up to 32 release circuits

- up to 6 CAT4, SIL 3 safe output circuits on the Monitor safe relays or fast electronic safe outputs
- up to 32 independent AS-i outputs  
Multiple safe AS-i outputs possible via a single AS-i address

#### 1 AS-i Safety Monitor for 2 AS-i networks

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

#### preset Ethernet diagnostic interface

#### Safe Link via Ethernet diagnostic interface

#### Applications up to category 4/PLe/SIL 3

#### Chip card for storage of configuration data



BWU2635, BWU3275



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 AS-i networks, number of AS-i Master <sup>(1)</sup>	1 power supply, 1 gateway for 2 AS-i networks, inexpensive power supplies <sup>(2)</sup>	Diagnostic and configuration interface <sup>(3)</sup>	Power-Boost <sup>(4)</sup>	Article no.
	Safety PRO-FIBUS	max. 62 x 2 channels, max. 1922 in max. configuration	6 release circuits; 6 x fast electronic safe outputs	max. 32, max. 992 in max. configuration	Safe Link	2 AS-i networks, 2 AS-i masters	yes, max. 4A/ AS-i network	Ethernet diagnostic	yes	<b>BWU3275</b>
	Safety PRO-FIBUS	max. 62 x 2 channels, max. 1922 in max. configuration	6 release circuits; 6 x fast electronic safe outputs	max. 32, max. 992 in max. configuration	Safe Link	2 AS-i networks, 2 AS-i masters	yes, max. 4A/ AS-i network	Ethernet diagnostic	no	<b>BWU2635</b>

(1) **Number of AS-i networks, number of AS-i Master: Safety devices:**

"Double Master": 2 AS-i networks, 2 AS-i Masters.

(2) **1 power supply, 1 gateway for 2 AS-i networks, inexpensive power supplies:**

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

(3) **Diagnostic and configuration interface**

"Ethernet diagnostic": Access to AS-i master and safety monitor via Bihl+Wiedemann proprietary software over Ethernet diagnostics interface. **GSD file for the Gateway is built into the web server.**

(4) **PowerBoost:**

Ruggedized power supply for stable supply of load-dependent currents on AS-i

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Article no.	BWU2635	BWU3275
<b>Interface</b>		
PROFIBUS interface	according to IEC 61158 / IEC 61784-1	
Baud rates	9,6 Kbaud up to 12 000 Kbaud, automatic recognition	
DP functions	imaging of the AS-i slaves as I/O data of the PROFIBUS complete diagnosis and configuration via the PROFIBUS DP	
Diagnostic and configuration interface	Ethernet 10 MBit	Ethernet 100 MBit
Card slot	chip card for storage of configuration data	
<b>AS-i</b>		
AS-i specification	3.0	
Cycle time	150 $\mu$ s * (number of slaves + 2)	
Operating voltage	30 V <sub>DC</sub> (20 ... 31,6 V) (PELV voltage)	
AS-i 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	menu, indication of slave addresses and error messages in plain text	
LED power (green)	power ON	
LED PROFIBUS (green)	PROFIBUS communication active	
LED config error (red)	configuration error	
LED U AS-i (green)	AS-i voltage o.k.	
LED AS-i active (green)	AS-i 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 ... SI6 (yellow)	state of inputs: off: open on: closed	
LEDs SO1 ... SO6 (yellow)	state of outputs: off: open on: closed	
<b>UL-specifications (UL508)</b>		
External protection	an isolated source with a secondary open circuit voltage of $\leq 30$ V <sub>DC</sub> 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 61000-6-2 EN 61000-6-4 EN 62061, SIL 3 EN 61508, SIL 3 EN ISO 13849-1, performance-level e	
<b>Environment</b>		
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	
Maximum tolerable shock and vibration stress	according EN 61131-2	
Voltage of insulation	$\geq 500$ V	
Weight	800 g	

<sup>(1)</sup> **AS-i Power24V**

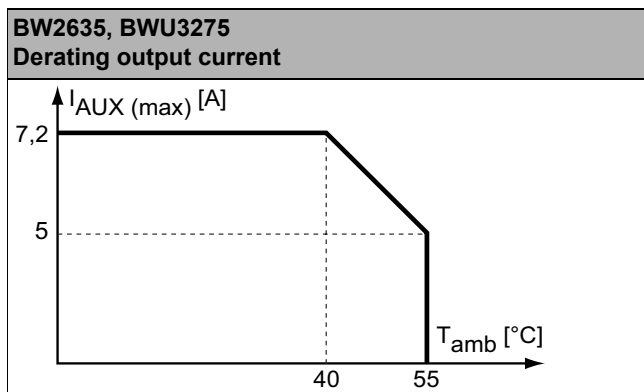
The device can be operated directly on a 24 V (PELV) power supply. The gateway has been optimized with integrated data coupling coils and adjustable self-resetting fuses for safe use of powerful 24 V power supplies.

# AS-i 3.0 PROFIBUS Gateways with integrated Safety Monitor

<b>Article no.</b>	<b>BWU2635 / BWU3275</b>
<b>Safety monitor</b>	
Start delay	< 10ms
Max. turn-off time	< 40ms
<b>Connection</b>	
Connection	COMBICON
Length of connector cable	unlimited <sup>(1)</sup>
<b>Input</b>	
Inputs Safety, SIL3, Kat. 4	3 x 2 channels
Inputs digital, EDM	up to 6 standard inputs
Switching current	15 mA (T = 100 µs), continuously 4 mA at 24 V
Power supply	out of AUX
Tolerated test pulse	adjustable
<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>(2)</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

(1) loop resistance ≤ 150 Ω

(2)

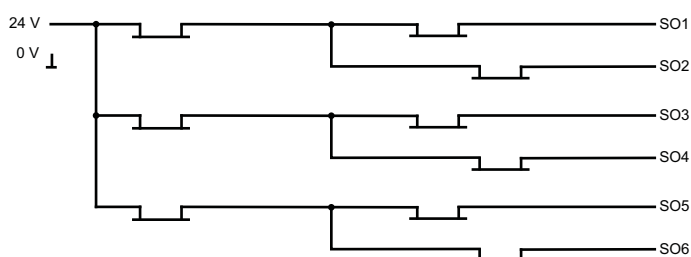


Article No.	Operating current		
	master power supply, approx 300mA out of AS-i network	master power supply, max. 300mA out of AS-i circuit 1 (approx. 70mA ... 300mA), max. 300mA out of AS-i circuit 2 (approx. 70mA ... 300mA); in sum max. 370mA	Version „1 gateway, 1 power supply, for 2 AS-i networks“, approx. 300mA (PELV voltage)
<b>BWU2635</b>	-	-	•
<b>BWU3275</b>	-	-	•

# AS-i 3.0 PROFIBUS Gateways with integrated Safety Monitor

	BWU2635 / BWU3275
Redundant power supply out of AS-i: all fundamental functions of the device remain available even in case of power failure in one of the two AS-i networks	–
Current measurement of the AS-i circuits	•
Self-resetting adjustable fuses	•
AS-i earth fault monitor distinguishes between AS-i cable and sensor cable	•
In version „1 gateway, 1 power supply for 2 AS-i circuits“: only 1 gateway + 1 AS-i power supply is needed for both 2 AS-i circuits	•

## Safety outputs block diagram BWU2635, BWU3275



## Variations of terminal configuration BWU2635, BWU3275

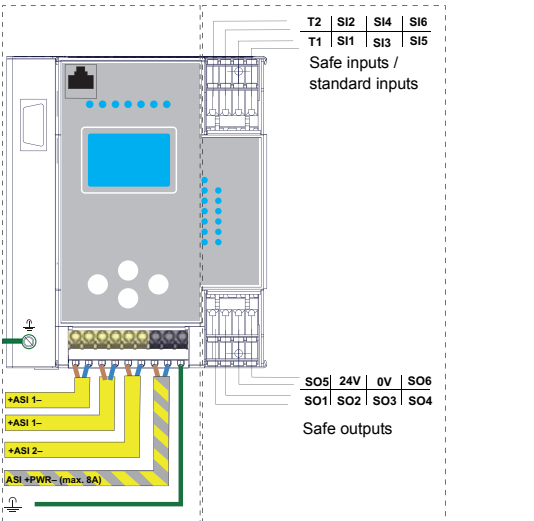
Terminal	Safe output	Safe input for mechanical contacts in combination with T1, T2 <sup>(1)</sup>	Safe antivalent input <sup>(1)</sup>	Safe electronic input <sup>(1)</sup>	Standard input <sup>(1)</sup>
SI1,2	–	•	•	•	•
SI3,4	–	•	•	•	•
SI5,6	–	•	•	•	•
SO1,2 <sup>(2)</sup>	•	•	•	–	•
SO3,4 <sup>(2)</sup>	•	•	•	–	•
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  $\leq 100$  mA

# AS-i 3.0 PROFIBUS Gateways with integrated Safety Monitor

## Connections: Gateway + Safety Monitor

BWU2822, BWU3275	Connection	Description
 <p>The diagram shows a terminal block with two main sections. The top section is labeled 'Safe inputs / standard inputs' and includes terminals T1, T2, SI1, SI2, SI3, SI4, SI5, and SI6. The bottom section is labeled 'Safe outputs' and includes terminals SO1, SO2, SO3, SO4, SO5, and SO6. Power supply connections are shown for 24V, 0V, +ASI 1-, +ASI 1+, +ASI 2-, and +ASI 2+. A note indicates '+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
	24V, 0V	Power supply for local I/Os
	+ASI 1-, +ASI 2-	Connection of AS-i circuits
	ASI +PWR-	Power supply for Gateway and AS-i networks

### Accessories:

- Safe contact expander, 1 or 2 independent channels (art. no. BWU2548 / BWU2539)
- Bihl+Wiedemann Suite - Safety Software for Configuration, Diagnostics and Programming (art. no. BW2916)
- PROFIBUS DP Master Simulator (art. no. BW1257)
- Power supplies, e.g.: AS-i power supply, 4 A (art. no. BW1649), AS-i power supply, 8 A (art. no. BW1997)  
(further power supply units can be found at [www.bihl-wiedemann.de/en/products/accessories/power-supplies](http://www.bihl-wiedemann.de/en/products/accessories/power-supplies))