

# AS-i 3.0 EtherNet/IP + Modbus TCP-Gateways with integrated Safety Monitor

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### 2 / 1 AS-i Master, EtherNet/IP + Modbus TCP-Slave (1)

- switch integrated

### up to 16 release circuits

- 4 release circuits SIL 3, cat. 4 on the Monitor  
2 x relay + 2 x fast electronic safe outputs

### Safe AS-i outputs are supported

- up to 16 independent AS-i outputs  
Multiple safe AS-i outputs possible via a single AS-i address



(figure similar)

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

### Chip card for storage of configuration data

### AS-i Power24V capable

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



(1) Modbus TCP from Ident.no.: 13076 (see lateral label).

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 (1)	1 power supply, 1 gateway for 2 AS-i networks, inexpensive power supplies (2)	Diagnostic and configuration interface (3)	Art. no.
	Safety, EtherNet/IP + Modbus TCP	max. 62 x 2 channels	4 release circuits; 2 x relay, 2 x fast electronic safe outputs	max. 16	–	2 AS-i networks, 2 AS-i Masters	yes, max. 4 A/AS-i network	Ethernet fieldbus + RS 232	<b>BWU2267</b>
	Safety, EtherNet/IP + Modbus TCP	max. 62 x 2 channels	4 release circuits; 2 x relay, 2 x fast electronic safe outputs	max. 16	–	2 AS-i networks, 2 AS-i Masters	no, max. 8 A/AS-i network, redundant supply	Ethernet fieldbus + RS 232	<b>BWU2317</b>
	Safety, EtherNet/IP + Modbus TCP	max. 62 x 2 channels	4 release circuits; 2 x relay, 2 x fast electronic safe outputs	max. 16	–	2 AS-i networks, 1 AS-i Masters	no, max. 8 A/AS-i network, redundant supply	Ethernet fieldbus + RS 232	<b>BWU2273</b>

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

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

"Optional AS-i Safety coupling circuit": 2 AS-i networks, 1 AS-i Master.

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

"yes, max. 4 A/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). Operation with short cable lengths with standard 24 V power supply possible.

"no, max. 8 A/AS-i network, redundant supply": 1 power supply per AS-i network. Gateway is powered in normal operation from one of the two AS-i power supplies. Should one AS-i power supply fail, switching to the other AS-i power supply allows all the diagnostics functions to be maintained and the unaffected AS-i network continues to operate.

(3) **Diagnostic and configuration interface**

"Ethernet fieldbus + RS 232": Access to AS-i Master and Safety Monitor with Bihl+Wiedemann software by using the Ethernet fieldbus interface or by using an adapter cable via RS 232 interface.

(EDS file for the Gateway is built into the web server)

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<b>Article no.</b>	<b>BWU2267 / BWU2273 / BWU2317</b>
<b>Interface</b>	
Ethernet interface	RJ-45: 10/100 MBaud EtherNet + Modbus TCP according to IEEE 802.3, switch integrated
Baud rates	10/100 MBaud
<b>AS-i</b>	
Cycle time	150 $\mu$ s * (number of slaves + 2)
Operating voltage	AS-i voltage 30 V DC
<b>Display</b>	
LCD	indication of slave addresses and error messages in plain text
LED power	power on
LED net	Ethernet network active
LED config error	configuration error
LED U AS-i	AS-i voltage o.k.
LED AS-i active	AS-i normal operation active
LED prg enable	automatic addresses programming enabled
LED prj mode	configuration mode active
LED AUX	auxiliary power
LEDs 1.Y1, 1.Y2, 2.Y1, 2.Y2 (EDM/Start)	state of inputs: LED off: open LED on: closed
LEDs K1 ... K4	state of outputs: LED off: open LED on: closed
<b>UL-specifications (UL508)</b>	
External protection	an isolated source with a secondary open circuit voltage of $\leq 30$ 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.
cTÜVus	the devices • BWU2267 • BWU2273 • BWU2317 from Bihl + Wiedemann GmbH were safety certified by TÜV Rheinland of North America, Inc. according to UL-standards and meet the safety requirements for the North American market.
Standards	EN 60529 EN 61000-6-2 EN 61000-6-4 EN 62061, SIL 3 EN 61508, SIL 3 EN ISO 13849-1, PLe
<b>Environment</b>	
Operating altitude	2000 m
Ambient temperature	0 °C ... +55 °C
Storage temperature	-25 °C ... +85 °C
Housing	stainless steel, for DIN rail mounting
Protection category	IP20
Maximum tolerable shock and vibration stress	according to EN 61131-2
Voltage of insulation	$\geq 500$ V
Weight	800 g
Dimensions (W / H / D in mm)	109 / 120 96

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<b>Article no.</b>	<b>BWU2267 / BWU2273 / BWU2317</b>
<b>Safety monitor</b>	
Start delay	< 10 ms
Max. turn-off time	< 40 ms
Card slot	chip card for storage of configuration data
<b>Connection</b>	
Connection	COMBICON
Length of connector cable	I/O: max. 15 m <sup>(1)</sup>
<b>Input</b>	
Inputs digital, EDM	4
Switching current	statical 4 mA at 24 V, dynamic 30 mA at 24 V (T=100 µs)
Power supply	out of AS-i
<b>Output</b>	
Number of release circuits on the monitor	4
Outputs	relay outputs (output circuits 1 and 2) max. contact load <sup>(2)</sup> : 3 A <sub>AC-15</sub> at 30 V, 3 A <sub>DC-13</sub> at 30 V
	semiconductor outputs (output circuits 3 and 4): max. contact load: 0,5 A <sub>DC-13</sub> at 30 V
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

(1) loop resistance ≤ 150 Ω

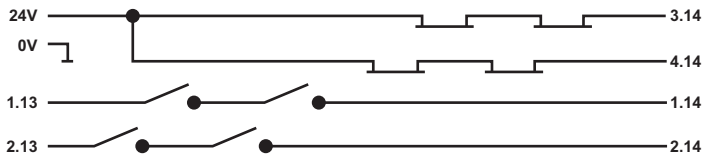
(2) Protection via external fuse, max. 4 A semi time-lag.

Article no.	Operating current		
	master power supply, approx 300 mA out of AS-i network	master power supply, max. 300 mA out of AS-i circuit 1 (approx. 70 mA ... 300 mA), max. 300 mA out of AS-i circuit 2 (approx. 70 mA ... 300 mA); in sum max. 370 mA	Version „1 Gateway, 1 power supply for 2 AS-i circuits“, ca. 350 mA (PELV voltage)
BWU2267	-	-	•
BWU2273	•	-	-
BWU2317	-	•	-

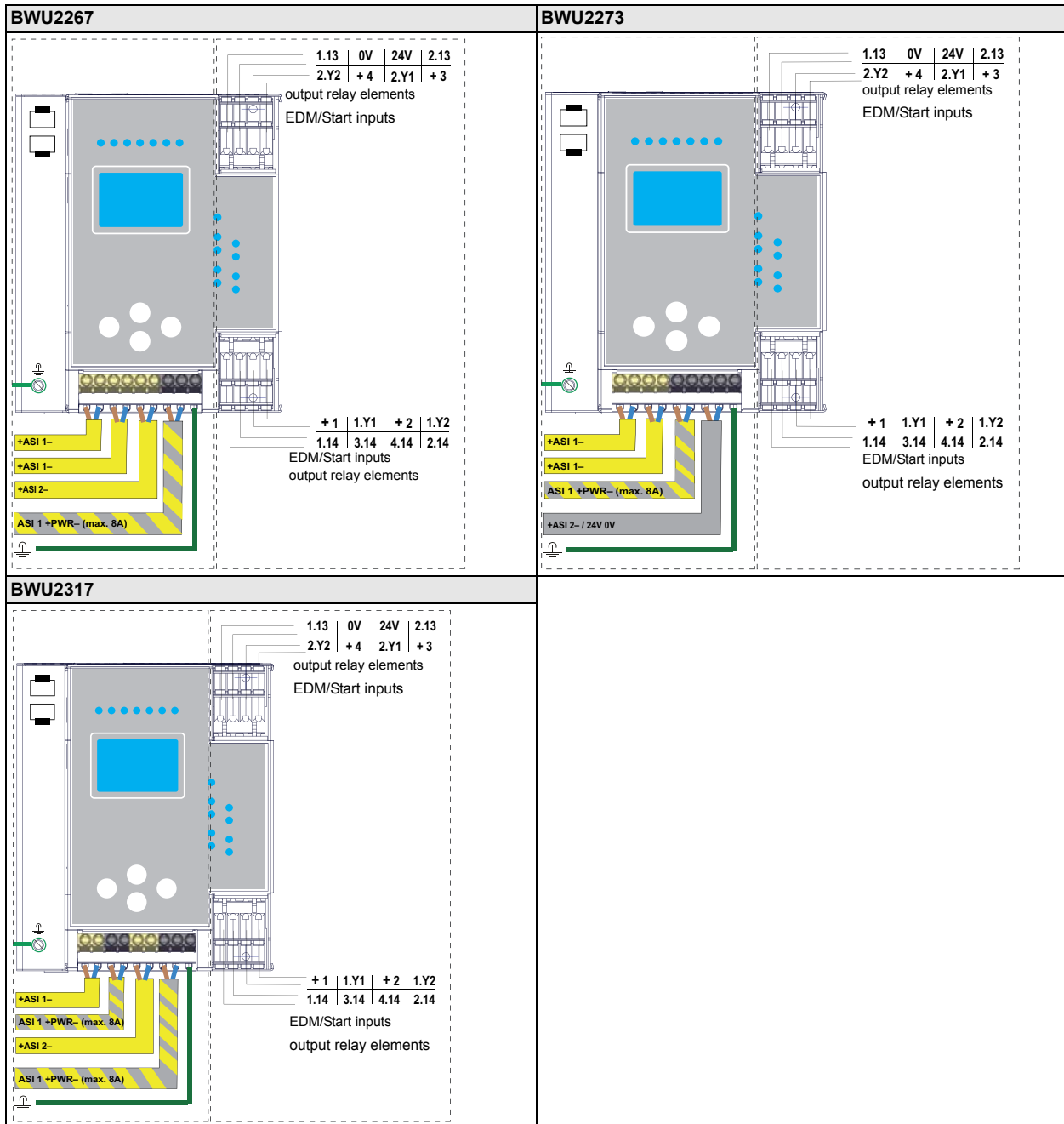
	BWU2273 / BWU2317	BWU2267
Redundant power supply out of AS-i: all fundamental functions of the device remain available even in case of power failure in one of the two AS-i networks	•	-
Current measurement of the AS-i circuits	-	•
Self-resetting adjustable fuses	-	•
AS-i earth fault monitor distinguishes 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	-	•

# AS-i 3.0 EtherNet/IP + Modbus TCP-Gateways with integrated Safety Monitor

## Safety outputs block diagram BWU2267, BWU2273, BWU2317:



## Connections: Gateway + Safety Monitor:



## Accessories:

- Safe contact expander, 1 or 2 independent channels (art. no. BWU2548 / BWU2539)
- ASIMON 3 G2 and AS-i Control Tools with serial cable for AS-i Master/Monitors in Stainless Steel (art. no. BW2071)
- AS-i Power Supply 4 A (art. no. BW1649) / AS-i Power Supply 8 A (art. no. BW1997)