

AS-i 3.0 EtherCAT Gateways with integrated Safety Monitor

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2 / 1 AS-i Master, EtherCAT Slave

1 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



(Figure similar)

Up to 16 release circuits

- 4 CAT4, SIL 3 safe output circuits on the Monitor
2 x relays and 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

Applications up to category 4/PLe/SIL 3

Chip card for storage of configuration data



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⁾	Article no.
	Safety EtherCAT	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	RS 232	BWU2281
	Safety EtherCAT	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 Master	yes, max. 4 A/ AS-i network	RS 232	BWU2338

⁽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.

⁽³⁾ **Diagnostic and configuration interface**

"RS 232": Access to AS-i master and safety monitor via Bihl+Wiedemann proprietary software over RS 232 interface and adapter cable.

The latest version of the device description file of the gateway is available in the "Downloads" section of the respective device.

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Article no.	BWU2281	BWU2338
Interface		
EtherCAT	RJ-45 acc. IEEE 802.3	
Baud rates	100 MBd	
Card slot	chip card for storage of configuration data	
AS-i		
AS-i specification	3.0	
Cycle time	150 μ s * (number of slaves + 2)	
Operating voltage	30 V _{DC} (20 ... 31,6 V) (PELV voltage)	
AS-i Power24V capability ⁽¹⁾	yes	
Display		
LCD	indication of slave addresses and error messages in plain text	
LED status (green)	EtherCAT communication active	
LED power (green)	power on	
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 (yellow)	auxiliary power	
4 x LED EDM/Start (yellow)	state of inputs: off: open on: close	
4 x LED outputs(green)	state of outputs: off: open on: close	
UL-specifications (UL508)		
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.	
cTÜV _{us}	the devices • BWU2281 • BWU2338 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.	
Applied Norms	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 e	
Environment		
Operating altitude	max. 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 EN 6131-2	
Voltage of insulation	\geq 500 V	
Weight	800 g	
Dimensions (B / H / T in mm)	100 / 120 / 96	

⁽¹⁾ **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.

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Article no.	BWU2281	BWU2338
Safety monitor		
Start delay	< 10 ms	
Max. turn-off time	< 40 ms	
Antivalent switches for local inputs	-	
Standstill monitors for local inputs	-	
Speed monitors for local inputs	-	
Connection		
Connection	COMBICON	
Length of connector cable	I/O: max. 15 m	
Input		
Inputs Safety, SIL3, Kat. 4	-	
Inputs digital, EDM	4	
Switching current	30 mA (T = 100 µs), continuously 4 mA at 24 V	
Power supply	out of AS-i	
Tolerated test pulse	-	
Output		
Number of release circuits on the monitor	4	
Outputs	relay outputs (output circuits 1 and 2) max. contact load ⁽¹⁾ : 3 A AC-15 at 30 V, 3 A DC-13 at 30 V	
	semiconductor outputs (output circuits 3 and 4) max. contact load: 0,5 A DC-13 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) Protection via external fuse, max. 4 A semi time-lag.

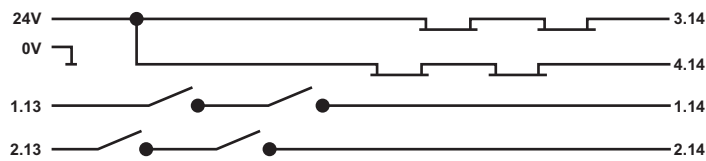
Article no.	Operating current		
	Master power supply, ca. 300 mA out of AS-i circuits	Master power supply, max. 300 mA out of AS-i circuit 1 (approx. 70 mA ... 300 mA), max. 300 mA out of AS-i circuit 2 (approx. 70 mA ... 300 mA); in sum max. 370 mA	Version „1 gateway, 1 power supply, for 2 AS-i networks“, approx. 300 mA (PELV voltage)
BWU2281	-	•	-
BWU2338	•	-	-

	BWU2281	BWU2338
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	•	-

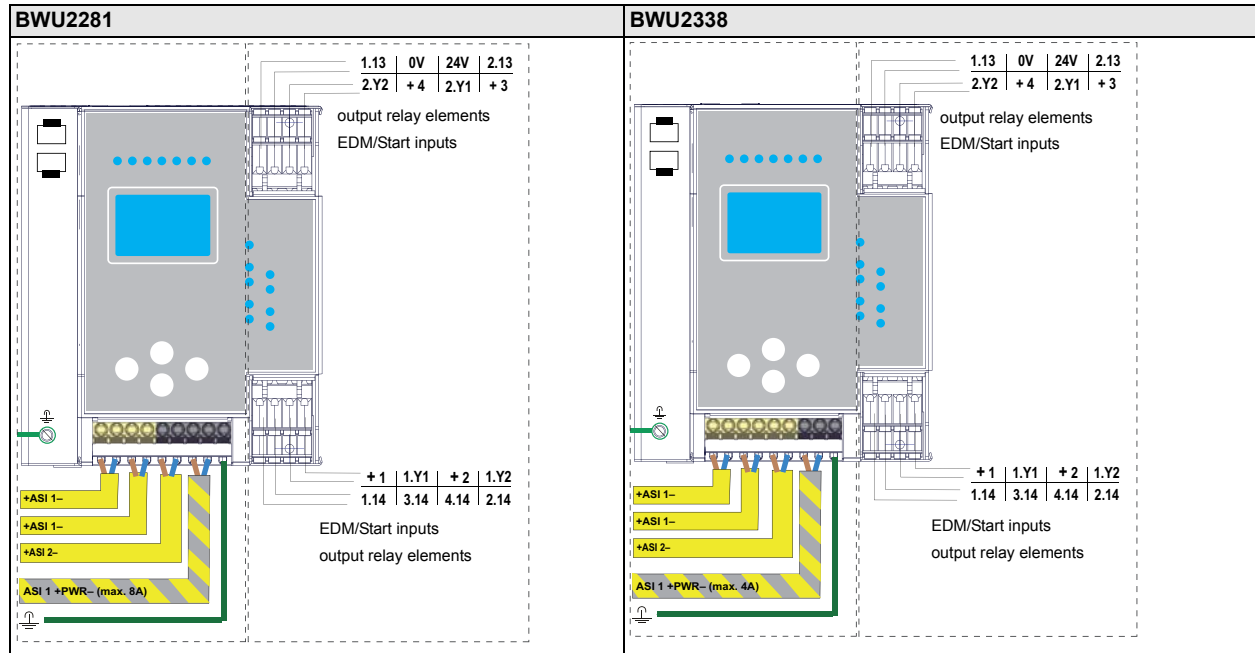
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Safety outputs block diagram

BWU2281, BWU2338:



Connections: Gateway + Safety Monitor:



Accessories:

- Safe contact expander, 1 or 2 independent channels (art. no. BWU2548 / BWU2539)
- Software ASIMON 3 G2 and AS-i Control Tools (art. no. BW2501)
- 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)