

AS-i 3.0 CC-Link Gateway with integrated Safety Monitor

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1 Master, CC-Link Slave

Up to 31 release circuits

- up to 6 CAT4, SIL 3 safe output circuits on the Monitor
fast electronic safe outputs

Safe AS-i outputs are supported

- up to 31 independent AS-i outputs
Multiple safe AS-i outputs possible via a single AS-i address

Monitor configuration can be „arbitrarily“ large

- 256 devices
Identical reaction time due to artificial limitation to 256 devices

Safe speed and standstill monitoring

Applications up to category 4/PLe/SIL 3

Chip card for storage of configuration data



(Figure similar)



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 CC-Link	max. 31 x 2 channels, max. 1891 in max configuration	6 release circuits; 6 x fast electronic safe outputs	max. 31, max. 991 in max. configuration	Safe Link	1 AS-i network, 1 AS-i master	yes, max. 4A/ AS-i network	Ethernet diagnostic	BWU2833

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

"Single Master": 1 AS-i network, 1 AS-i Master.

(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.

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.	BWU2833
Interface	
CC-Link interface	according CC-Link specification
Baud rates	156 Kbps up to 10 MBps
Card slot	chip card for storage of configuration data
CC-Link	
Functions	imaging of the AS-i slaves as RW data on CC-Link. complete diagnosis and configuration via CC-Link
Type	remote device
Occupied stations	2-4 (depending on operating mode)
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
AUX	
Operating voltage	24 V _{DC} (19,2 ... 28,8 V)
Max current consumption	7,2 A
Display	
LCD	indication of slave addresses and error messages in plain text
LED power (green)	power on
LED cc-link (green)	CC-Link communication active
LED config error (red)	configuration error
LED U AS-i (green)	AS-i voltage OK
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
UL-specifications (UL508)	
External protection	An isolated source with a secondary open circuit voltage of ≤ 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.
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
Ambient	
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 61131-2
Voltage of insulation	≥ 500 V
Weight	800 g
Dimensions (W / H / D in mm)	100 / 120 / 106

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(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.

Article no.	BWU2833
Safety Monitor	
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 ⁽¹⁾
Speed monitors for local inputs	3 to 6 axes up to 400 Hz ⁽²⁾
Connection	
Connection	COMBICON
Length of connector cable	unlimited ⁽³⁾
Input	
Inputs Safety, SIL3, cat. 4	3 x 2 channels ⁽⁴⁾
Inputs digital, EDM	up to 6 standard inputs ⁽⁴⁾
Switching current	15 mA (T = 100 µs), continuously 4 mA at 24 V
Power supply	out of AUX
Tolerated test pulse	adjustable
Output	
Number of release circuits on the monitor	6
Outputs	semiconductor output max. contact load: 1,2 A _{DC-13} at 30 V, Σ = 7,2 A in sum ⁽⁵⁾
Power supply (semiconductor outputs)	out of AUX

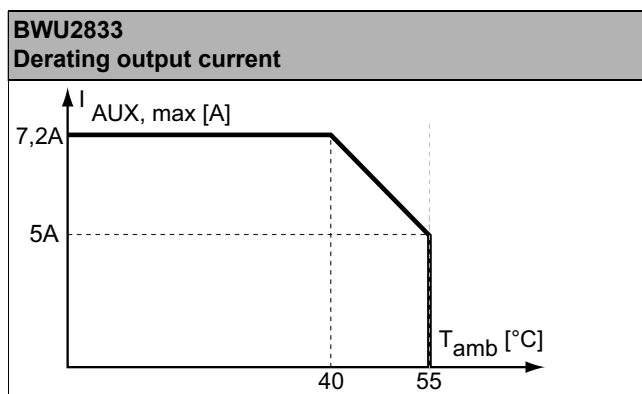
(1) connection at all SI or SO terminals possible.

(2) connection only at terminals SO1 ... SO6 configured as standard inputs (see "Variations of terminal configuration for BWU2833")

(3) loop resistance ≤ 150 Ω

(4) see "Variations of terminal configuration for BWU2833"

(5)



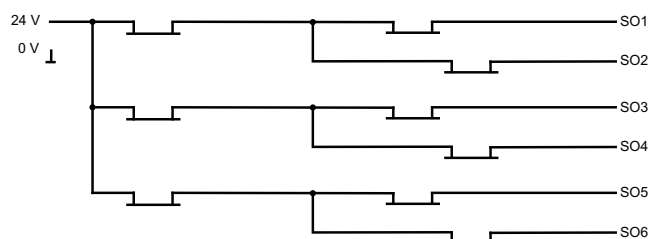
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Article no.	Operating current		
	Master power supply, ca. 300mA out of AS-i circuits	Master power supply, max. 300mA out of AS-i circuit 1 (approx. 70mA ... 300mA), max. 300mA out of AS-i circuit 2 (approx. 70mA ... 300mA); in sum max. 370mA	Version „1 gateway, 1 power supply, for 2 AS-i networks“, approx. 300mA (PELV voltage)
BWU2833	–	–	•

	BWU2833
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

BWU2833



Variations of terminal configuration for BWU2833

Terminal	Safe output	Safe input for mechanical contacts in combination with T1, T2 ⁽¹⁾	Safe antivalent input ⁽¹⁾	Safe electronic input ⁽¹⁾	Standard input ⁽¹⁾
SI1,2	–	•	•	•	•
SI3,4	–	•	•	•	•
SI5,6	–	•	•	•	•
SO1,2 ⁽²⁾	•	•	•	–	•
SO3,4 ⁽²⁾	•	•	•	–	•
SO5,6 ⁽²⁾	•	•	•	–	•

⁽¹⁾ Inputs may only be supplied by the same 24 V source as the device itself.

⁽²⁾ If outputs are configured as inputs, the input current has to be limited by an external element at $\leq 100\text{mA}$

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Connections: Gateway + Safety Monitor

BWU2833	Connection	Description	
<p>Safe inputs / Standard inputs</p> <p>Safe outputs</p> <p>+ASI 1- +ASI 1- +ASI 1- ASI +PWR- (max. 4A)</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-	Connection of AS-i circuit	
	ASI +PWR-	Power supply for Gateway and AS-i networks	

Connections: CC-Link

Signal	Color
1 DA	blue
2 DB	white
3 DG	yellow
4 SLD	n/a
5 F G	n/a

Accessories:

- Safe contact expander, 1 or 2 independent channels (art. no. BWU2548 / BWU2539)
- Bihl+Wiedemann Suite - Safety Software for Configuration, Diagnostics and Commissioning (art. no. BW2916)
- 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)