

AS-i 3.0 PROFIBUS Gateways with integrated Safety Monitor

Bihl
+ Wiedemann

AS-i 3.0 Gateways with integrated Safety Monitor

1 AS-i Master, PROFIBUS Slave

Up to 31 release circuits

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

Applications up to category 4/PLe/SIL 3



(Figure similar)

Chip card for storage of configuration data

AS-i Power24V capable

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



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, PROFIBUS	max. 31 x 2 channels, max. 1891 in max configuration	4 release circuits; 2 x relay, 2 x fast electronic safe outputs	max. 31, max. 991 in max. configuration	Safe Link	1 AS-i network, 1 AS-i master	yes, max. 4 A/AS-i network	Ethernet diagnostic	BWU2704

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. 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).

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, GSDML, ... file for the Gateway is built into the web server)

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Article no.	BWU2704
Interface	
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
AS-i	
AS-i cycle time	150 µs * (number of slaves + 2)
Operating voltage	AS-i voltage 30 V _{DC}
Display	
LCD	menu, indication of slave addresses and error messages in plain text
LED power	power ON
LED PROFIBUS	PROFIBUS master recognized
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: off: open on: closed
LEDs K1 ... K4	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 61000-6-2 EN 61000-6-4 EN 62061:2005/A1:2013 SIL 3 EN 61508:2010, SIL 3 EN ISO 13849-1:2008/AC:2009, performance-level e
Environment	
Operating temperature	0 °C ... +55 °C
Storage temperature	-25 °C ... +85 °C
Housing	stainless steel, for DIN rail mounting
Protection category (EN 60529)	IP20
Maximum tolerable shock and vibration stress	according EN 61131-2
Voltage of insulation	≥ 500 V
Weight	800g
Dimensions (W / H / D in mm)	100 / 120 / 96

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Article no.	BWU2704
Safety monitor	
Start delay	< 10 ms
Max. turn-off time	< 40 ms
Card slot	Chip card for storage of configuration data
Connection	
Connection	COMBICON
Length of connector cable	I/O: max. 15 m ¹
Input	
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
Output	
Number of release circuits on the monitor	4
Outputs	relay outputs (output circuits 1 and 2) max. contact load ² : 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 Loop resistance ≤ 150 Ω

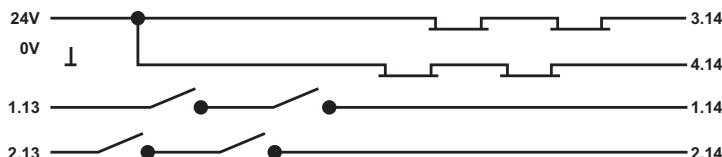
² Protection via external fuse, max. 4 A semi time-lag.

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 networks“, approx. 300 mA (PELV voltage)
BWU2704	-	-	•

BWU2704	
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

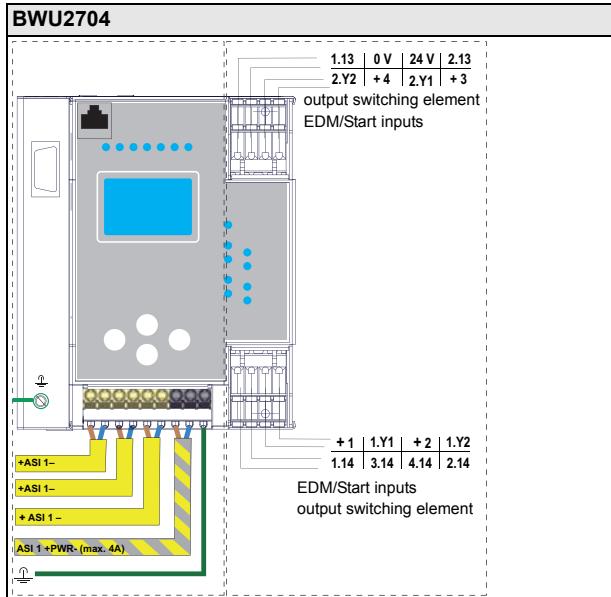
BWU2704



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...

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)
- PROFIBUS DP Master Simulator (art. no. BW1257)
- AS-i Power Supply 4 A (art. no. BW1649) / AS-i Power Supply 8 A (art. no. BW1997)