

AS-i 3.0 PROFIBUS Gateways with integrated Safety Monitor

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2 / 1 Master, PROFIBUS Slave

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

Up to 32 release circuits

- 4 / 2 CAT4, SIL 3 safe output circuits on the Monitor
two sets of safe relays, two sets of fast electronic safe outputs resp.,
two sets of safe relays

Safe AS-i outputs are supported

- up to 32 independent AS-i outputs
Multiple safe AS-i outputs possible via a single AS-i address

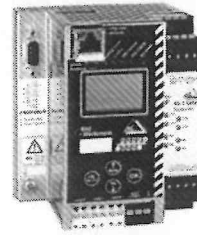
Monitor configuration can be, arbitrarily" large

- configuration blocks (previously 48)
Identical reaction time due to artificial limitation to 256 configura-
tion block

AS-i Power24V capable (BWU2602)¹

Applications up to category 4/PLe/SIL 3

Chip card for storage of configuration data



BWU2202 / **BWU2204**
BWU2206 / BWU2602



BWU2001 / BWU2002 /
BWU2003 / BWU2004 /
BWU2187 / BWU2188

Bernstsein AG

Art.-Nr. : 6073100089

Benennung: ASI MST PROFIBUS SMON

Original : 01

Mittl.-Nr. : 0089-13



| Article no. | BWU2001 / BWU2002 / BWU2003 / BWU2004 / BWU2187 / BWU2188 / BWU2202 / BWU2204 | BWU2206 / BWU2602 |
|-----------------------|--|-------------------|
| Interface | | |
| PROFIBUS interface | according to IEC 61 158 / IEC 61 784-1 | |
| 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 30V DC | |
| Safety monitor | | |
| Inputs | EDM inputs of external monitoring circuits or start inputs selectable, a total of 4 switching current statical 4mA at 24V, dynamic 30mA at 24V (T=100 µs) | |
| Release circuits | 16 | |
| Start delay | < 10 ms | |
| Max. turn-off time | < 40 ms | |
| Card slot | chip card for storage of configuration data | |
| Display | | |
| LCD | menu, indication of slave addresses and error messages in plaintext | |
| 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 | |

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|--|---|-------------------|
| UL-specifications (UL508) | | |
| External protection | an isolated source with a secondary open circuit voltage of $\leq 30V_{DC}$ with a 3A 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 •BWU2001 •BWU2002 •BWU2003 •BWU2004 •BWU2187 •BWU2188 •BWU2202 •BWU2204 •BWU2206 •BWU2602 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 61 000-6-2 EN 61 000-6-4 EN 62 061:2005, SIL 3 EN 61 508:2010, SIL 3 EN ISO 13 849-1:2008/AC:2009, performance-level e | |
| Environment | | |
| Operating temperature | 0°C ... +55°C | |
| Storage temperature | -25°C ... +85°C | |
| Housing | stainless steel | |
| Protection category IEC 60 529 | IP20 | |
| Maximum tolerable shock and vibration stress | according to EN 61 131-2 | |
| Voltage of insulation | $\geq 500V$ | |
| Dimensions (W / H / D in mm) | 120 / 100 / 96 | 100 / 120 / 106 |
| Weight | 800 g | |

| Article No. | BWU2001 / BWU2002 / BWU2003 / BWU2004 / BWU2202 / BWU2204 / BWU2602 | BWU2187 / BWU2188 / BWU2206 |
|--------------------------------------|---|---|
| Safety monitor | | |
| Number of release circuits in device | 4 | 2 |
| Outputs | relay outputs (output circuits 1 and 2) max. contact load: 3A AC-15 at 30V, 3A DC-13 at 30V semiconductor outputs (output circuits 3 and 4) max. contact load: 0,5A DC-13 at 30V | relay outputs (output circuits 1 and 2), each 2 current paths max. contact load: 3A AC-15 at 30V, 3A DC-13 at 30V |
| Display | | |
| LED AUX | auxiliary power | — |
| 4 x LED EDM/Start | state of inputs: LED off: open LED on: closed | — |
| 4 x LED output circuit | state of outputs: LED off: open LED on: closed | — |

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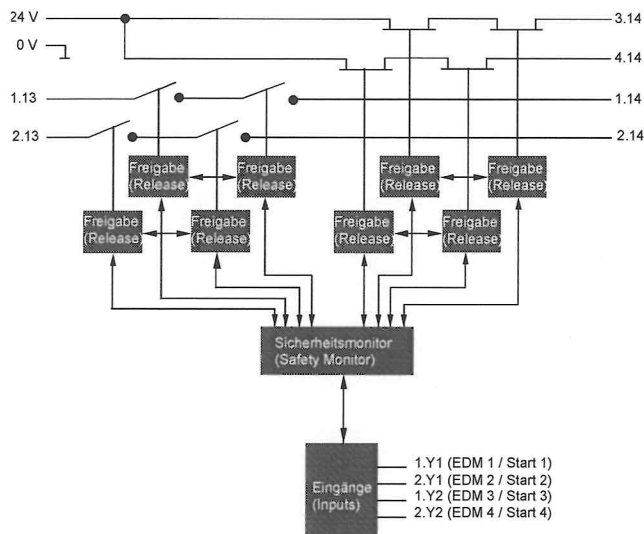
| Article No. | Diagnostics interface | AS-i Safety outputs are supported | Number of AS-i circuits Safety Monitor | Max. number of release circuits | Number of release circuits in device | Configuration blocks | Number of AS-i masters |
|----------------|-----------------------|-----------------------------------|--|---------------------------------|--|----------------------|---|
| BWU2001 | serial | yes | 2 | 16 | 4 release circuits SIL 3, cat. 4 in device; 2 x relays, 2 x fast electronic safe outputs | 256 Devices | 2 AS-i Master |
| BWU2002 | serial | yes | 2 | 16 | 4 release circuits SIL 3, cat. 4 in device; 2 x relays, 2 x fast electronic safe outputs | 256 Devices | 2 AS-i Master with integrated power supply decoupling |
| BWU2003 | serial | yes | 2 | 16 | 4 release circuits SIL 3, cat. 4 in device; 2 x relays, 2 x fast electronic safe outputs | 256 Devices | 1 AS-i Master |
| BWU2004 | serial | yes | 2 | 16 | 4 release circuits SIL 3, cat. 4 in device; 2 x relays, 2 x fast electronic safe outputs | 256 Devices | 1 AS-i Master with integrated power supply decoupling |
| BWU2187 | serial | yes | 2 | 16 | 2 release circuits SIL 3, cat. 4 in device; 2 x relays | 256 Devices | 1 AS-i Master |
| BWU2188 | serial | yes | 2 | 16 | 2 release circuits SIL 3, cat. 4 in device; 2 x relays | 256 Devices | 1 AS-i Master with integrated power supply decoupling |
| BWU2202 | Ethernet | yes | 2 | 16 | 4 release circuits SIL 3, cat. 4 in device; 2 x relays, 2 x fast electronic safe outputs | 256 Devices | 2 AS-i Master with integrated power supply decoupling |
| BWU2204 | Ethernet | yes | 2 | 16 | 4 release circuits SIL 3, cat. 4 in device; 2 x relays, 2 x fast electronic safe outputs | 256 Devices | 1 AS-i Master with integrated power supply decoupling |
| BWU2206 | Ethernet | yes | 2 | 16 | 2 release circuits SIL 3, cat. 4 in device; 2 x relays | 256 Devices | 1 AS-i Master with integrated power supply decoupling |
| BWU2602 | Ethernet SafeLink | yes | 2 | 16 | 4 release circuits SIL 3, cat. 4 in device; 2 x relays, 2 x fast electronic safe outputs | 256 Devices | 2 AS-i Master with integrated power supply decoupling |

| 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) |
| BWU2001 | - | • | - |
| BWU2002 | - | - | • |
| BWU2003 | • | - | - |
| BWU2004 | - | • | - |
| BWU2187 | • | - | - |
| BWU2188 | - | • | - |
| BWU2202 | - | - | • |
| BWU2204 | - | • | - |
| BWU2206 | - | • | - |
| BWU2602 | - | - | • |

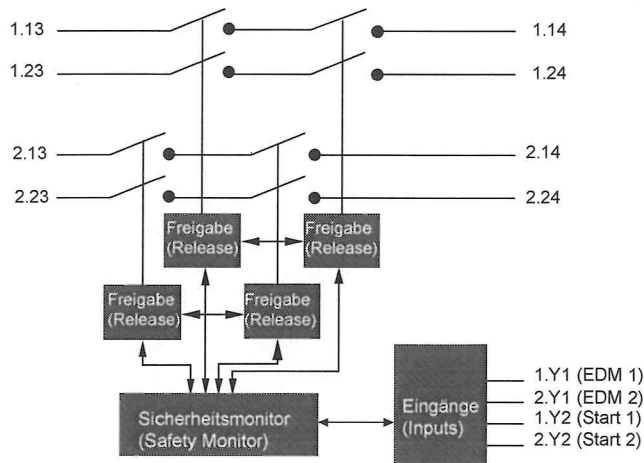
AS-i 3.0 PROFIBUS Gateways with integrated Safety Monitor

| Article no. | Full functional range of PROFIBUS gateways (without AS-i Safety) | | | | |
|----------------|--|---------|---------|---------|---------|
| | BWU1567 | BWU1568 | BWU1569 | BWU1777 | BWU1891 |
| BWU2001 | - | • | - | - | - |
| BWU2002 | - | - | • | • | - |
| BWU2003 | • | - | - | - | - |
| BWU2004 | - | - | - | - | • |
| BWU2187 | • | - | - | - | - |
| BWU2188 | - | - | - | - | • |
| BWU2202 | - | - | • | • | - |
| BWU2204 | - | - | - | - | • |
| BWU2206 | - | - | - | - | • |
| BWU2602 | - | - | • | • | - |

Safety Monitor block diagram BWU2001, BWU2002, BWU2003, BWU2004, BWU2202, **BWU2204**, BWU2602



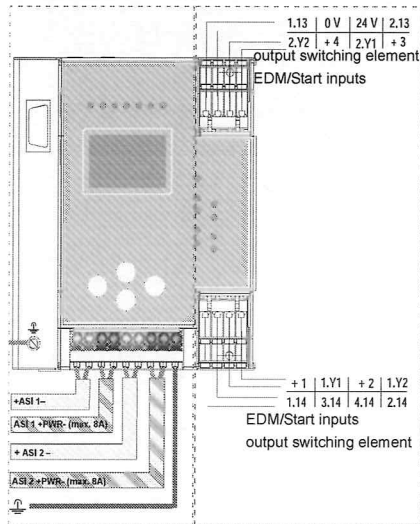
Safety Monitor block diagram BWU2187, BWU2188, BWU2206



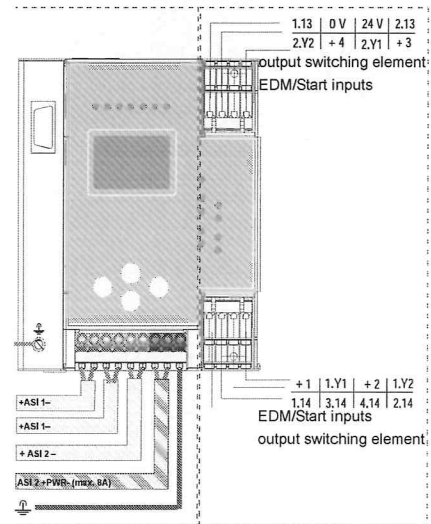
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Connections: Gateway + Safety Monitor

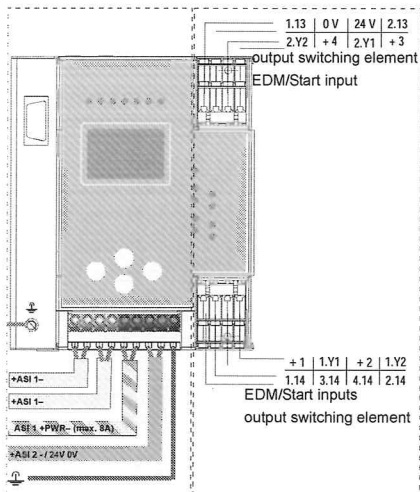
BWU2001



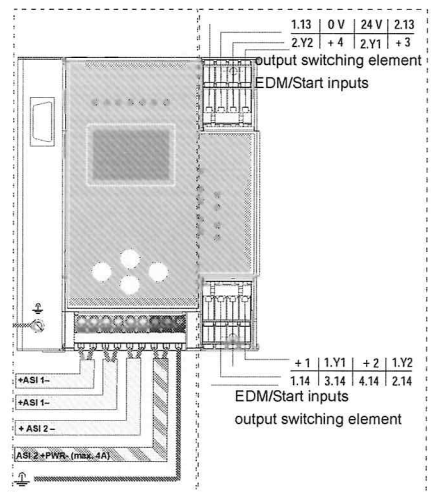
BWU2002, BWU2202, BWU2602



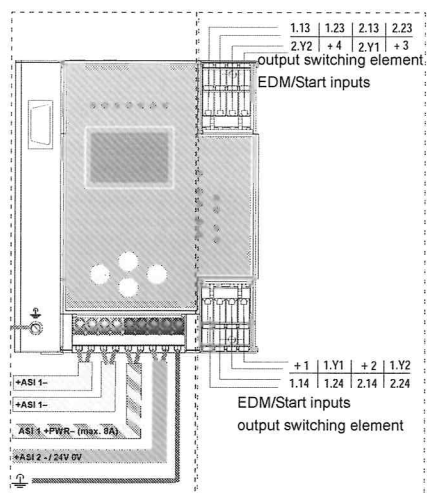
BWU2003



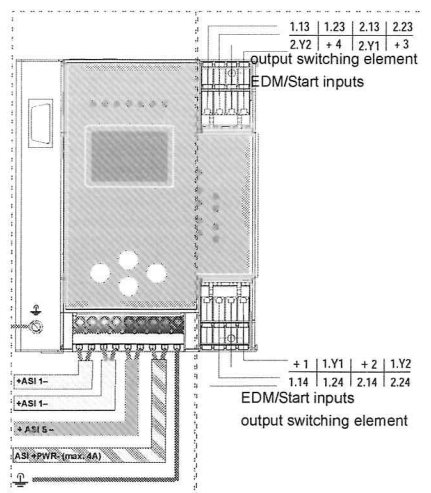
BWU2004, BWU2204



BWU2187



BWU2188, BWU2206



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¹ AS-i Power24V

The gateway BWU2602 is AS-i Power24V capable. That means, that this device can be operated directly on a 24V (PELV) power supply.

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 Masters/Monitors in stainless steel (art. no. BW2071)
- PROFIBUS DP Master Simulator (art. no. BW1257)
- AS-i Power Supply 4A (art. nr. BW1649) / AS-i Power Supply 8A (art. nr. BW1997)

For devices with Ethernet diagnostic interface:

- Software ASIMON 3 G2 and AS-i Control Tools (art. no. BW2501)

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