

AS-i 3.0 PROFIBUS Gateway with integrated Safety Monitor

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1 AS-i 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 16 release circuits

- up to 4CAT4, SIL 3 safe output circuits on the Monitor
2 x safe relays + 2 x fast electronic safe outputs

Safe AS-i outputs are supported

- 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 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, PROFIBUS | 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 | no, max. 8 A/ AS-i network, redundant supply | RS 232 | BW2277 |

¹ **Number of AS-i networks, number of AS-i Master: Safety devices:**
"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:**
"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**
"RS 232": Access to AS-i master and safety monitor via Bihl+Wiedemann proprietary software over RS 232 interface and adapter cable.

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

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| | |
|--|---|
| Article no. | BW2277 |
| 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 specification | 3.0 |
| AS-i cycle time | 150 μ s * (number of slaves + 2) |
| Operating voltage | AS-i voltage 30 V _{DC} |
| AUX | |
| Operating voltage | 24 V _{DC} (19,2 ... 28,8 V) |
| Max current consumption | 1 A |
| Display | |
| LCD | menu, indication of slave addresses and error messages in plain text |
| LED power (green) | power ON |
| LED PROFIBUS (green) | PROFIBUS communication active |
| 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 (green) | auxiliary power |
| LEDs 1.Y1, 1.Y2, 2.Y1, 2.Y2 (EDM/Start) (yellow) | state of inputs: off: open on: closed |
| LEDs K1 ... K4 (green) | state of outputs: off: open on: closed |
| Environment | |
| Applied standards | EN 60529 EN 61000-6-2 EN 61000-6-4 EN 62061, SIL 3 EN 61508, SIL 3 EN ISO 13849-1, PL e |
| 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 | \geq 500 V |
| Weight | 800 g |
| Dimensions (W / H / D in mm) | 100 / 120 / 96 |

AS-i 3.0 PROFIBUS Gateway with integrated Safety Monitor

| | |
|---|--|
| Article no. | BW2277 |
| 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 |
| Input | |
| Inputs digital, EDM | 4 |
| Switching current | 30 mA (T = 100 µs), continuously 4 mA at 24 V |
| 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 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 |

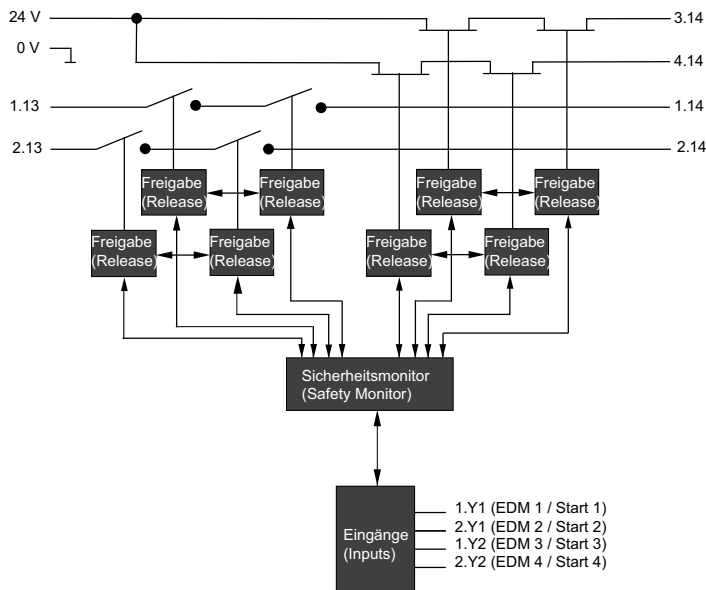
¹ Protection via external fuse, max. 4 A semi time-lag.

| Article No. | Operating current | | |
|---------------|--|---|---|
| | master power supply, 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) |
| BW2277 | • | – | – |

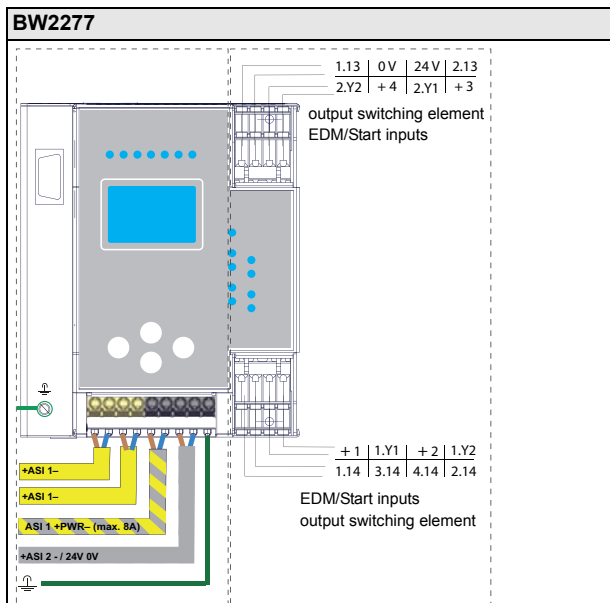
| | BW2277 |
|--|---------------|
| Redundant power supply out of AS-i: all fundamental functions of the device remain available even in case of power failure in one of the two AS-i networks | • |
| Current measurement of the AS-i circuits | – |
| Self-resetting adjustable fuses | – |
| AS-i earth fault 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 BW2277



Connections: Gateway + Safety Monitor



Accessories:

- Safe contact expander, 1 or 2 independent channels (art. no. BWU2548 / BWU2539)
- Bihl+Wiedemann Suite - Safety Software for Configuration, Diagnostics and Programming (art. no. BW2916)
- PROFIBUS DP Master Simulator (art. no. BW1257)
- 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)