

# ASi-5 Self-configuring I/O Module, IP67, M12

## ASi-5 digital I/O modules with self-configuring connections

Sensors and actuators can be connected in any combination, 2 signals per M12 connection possible

Optional assignment of a fixed configuration of inputs and outputs possible via software

Up to 16 digital inputs, depending on configuration

Up to 16 digital outputs, depending on configuration


ASi-5 – Great data bandwidth, short cycle times

Compatible with ASi modules of all ASi generations



(figure similar)



| Figure  | Inputs digital                       | Outputs digital                                   | M12 connection <sup>(1)</sup> | Input voltage (sensor supply) <sup>(2)</sup> | Output voltage (actuator supply) <sup>(3)</sup> | ASi connection <sup>(4)</sup> | ASi address <sup>(5)</sup> | Max. output current | Art. no.       |
|---|--------------------------------------|---|-------------------------------|--|---|-------------------------------|----------------------------|---------------------|----------------|
|  | up to 16, depending on configuration | up to 16 x electronic, depending on configuration | Y/mixed                       | out of AUX                                   | out of AUX                                      | ASi profile cable             | 1 ASi-5 address            | 1 A                 | <b>BWU4408</b> |

(1) **M12 wiring:**

**Single wiring:** 1 input or output per connection.

**Y wiring:** 2 inputs or outputs per connection.

**Mixed wiring:** 1 input and 1 output per connection.

(2) **Input voltage (sensor supply):** inputs are supplied by ASi or by AUX (auxiliary 24 V power). If supplied by ASi, inputs shall not be connected to earth or to external potential.

(3) **Output voltage (actuator supply):** outputs are supplied by ASi or by AUX (auxiliary 24 V power). If supplied by ASi, outputs shall not be connected to earth or to external potential

(4) **ASi connection:** the connection to ASi as well to AUX (auxiliary 24 V power) is made via yellow resp. black ASi profile cable with piercing technology or via M12 socket (in IP20 via clamps).

(5) **ASi address:** AB address (max. 62 ASi nodes with extended address allocation per ASi circuit), 2 AB addresses (max. 31 ASi-3 modules with 2 AB addresses), single address (max. 31 single nodes with standard address allocation per ASi circuit) ASi-5 address (max. 62 ASi-5 nodes per ASi circuit), mixed use allowed (upon request, ASi modules are available with specific ASi profiles).

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|  |              |   |
|--|--------------|---|
| <b>Article No.</b>                                       |              | <b>BWU4408</b>  |
| <b>General data</b>                                      |              |   |
| Device type  |              | input / output  |
| <b>Connection</b>  |              |   |
| ASi/AUX connection                                       |              | profile cable and piercing technology   |
| Periphery connection                                     |              | M12, Y or mixed wiring, freely selectable for each M12 connection   |
| Length of connector cable                                |              | unlimited <sup>(1)</sup>  |
| <b>ASi</b>   |              |   |
| Address  |              | 1 ASi-5 address   |
| As of ASi specification                                  |              | ASi-5   |
| Operating voltage  |              | 30 V (18 ... 31.6 V)  |
| Max. current consumption                                 |              | 70 mA   |
| Max. current consumption without sensor/ actuator supply |              | 70 mA   |
| <b>AUX</b>   |              |   |
| Operating voltage  |              | 24 V (18 ... 30 V)  |
| Max. current consumption                                 |              | 6 A   |
| <b>Input</b>   |              |   |
| Number   |              | up to 16, depending on configuration  |
| Power supply   |              | out of AUX  |
| Sensor supply  |              | short-circuit and overload protected according to EN 61131-2  |
| Power supply of attached sensors                         | up to +25 °C | 0.3 A per sensor supply/pin 1,<br>$\Sigma(\text{In})$ 1.5 A <sup>(2)</sup><br>$\Sigma(\text{In/Out})$ 5.5 A       |
|  | at +45 °C    | 0.3 A per sensor supply/pin 1,<br>$\Sigma(\text{In})$ 1.5 A <sup>(2)</sup> ,<br>$\Sigma(\text{In/Out})$ 4.5 A     |
|  | at +55 °C    | 0.23 A per sensor supply/pin 1,<br>$\Sigma(\text{In})$ 1.2 A <sup>(2)</sup> ,<br>$\Sigma(\text{In/Out})$ 3.2 A    |
|  | at +70 °C    | 0.125 A per sensor supply/pin 1,<br>$\Sigma(\text{In})$ 0.75 A <sup>(2)</sup> ,<br>$\Sigma(\text{In/Out})$ 1.25 A |
| Switching threshold                                      |              | U < 5 V (low)<br>U > 15 V (high)  |

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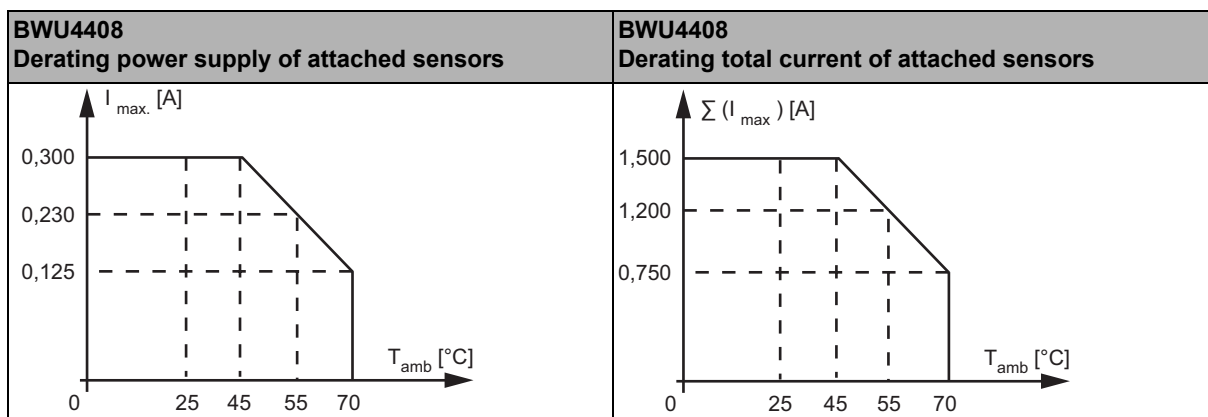
|                             |              |   |
|-----------------------------|--------------|---|
| <b>Article No.</b>          |              | <b>BWU4408</b>  |
| <b>Output</b>               |              |   |
| Number                      |              | up to 16 x electronic, depending on configuration   |
| Power supply                |              | out of AUX  |
| Output                      |              | short-circuit and overload protected according to EN 61131-2  |
| Max. output current         | up to +25 °C | 1000 mA per output,<br>$\Sigma(O1 \dots O4) 1000 \text{ mA} +$ ,<br>$\Sigma(O5 \dots O8) 1000 \text{ mA} +$<br>$\Sigma(O9 \dots O12) 1000 \text{ mA} +$<br>$\Sigma(O13 \dots O16) 1000 \text{ mA}^{(3)}$<br>$\Sigma(O1 \dots O16) 4000 \text{ mA}^{(3)}$  |
|                             | at +45 °C    | 750 mA per output,<br>$\Sigma(O1 \dots O4) 750 \text{ mA} +$ ,<br>$\Sigma(O5 \dots O8) 750 \text{ mA} +$<br>$\Sigma(O9 \dots O12) 750 \text{ mA} +$<br>$\Sigma(O13 \dots O16) 750 \text{ mA}^{(3)}$<br>$\Sigma(O1 \dots O16) 3000 \text{ mA}^{(3)}$   |
|                             | at +55 °C    | 500 mA per output,<br>$\Sigma(O1 \dots O4) 500 \text{ mA} +$ ,<br>$\Sigma(O5 \dots O8) 500 \text{ mA} +$<br>$\Sigma(O9 \dots O12) 500 \text{ mA} +$<br>$\Sigma(O13 \dots O16) 500 \text{ mA}^{(3)}$<br>$\Sigma(O1 \dots O16) 2000 \text{ mA}^{(3)}$   |
|                             | at +70 °C    | 500 mA per output,<br>$\Sigma(O1 \dots O16) 500 \text{ mA}^{(3)}$   |
| <b>Display</b>              |              |   |
| LED ASi (green)             |              | on: ASi voltage on<br>flashing: ASi voltage on, but peripheral fault <sup>(4)</sup> or address 0<br>off: no ASi voltage   |
| LED FLT/FAULT (red)         |              | on: ASi address 0 or ASi node offline<br>flashing: peripheral fault <sup>(4)</sup><br>off: ASi node online  |
| LED AUX (green)             |              | on: 24 V <sub>DC</sub> AUX<br>off: no 24 V <sub>DC</sub> AUX  |
| LEDs I/O1 ... I/On (yellow) |              | state of inputs I1 ... I16 <b>or</b> outputs O1 ... O16, depending on configuration<br>off: the corresponding input or output is turned off<br>yellow: the corresponding input or output is turned on<br>red flashing: output short circuit <sup>(4)</sup> at the corresponding output (display has priority over "overload sensor supply")<br>red (both LEDs): overload sensor supply <sup>(4)</sup> on (at least) one input of the M12 connection (if there is a simultaneous "output short circuit", the indicator "red flashing" on the corresponding LED has priority) |

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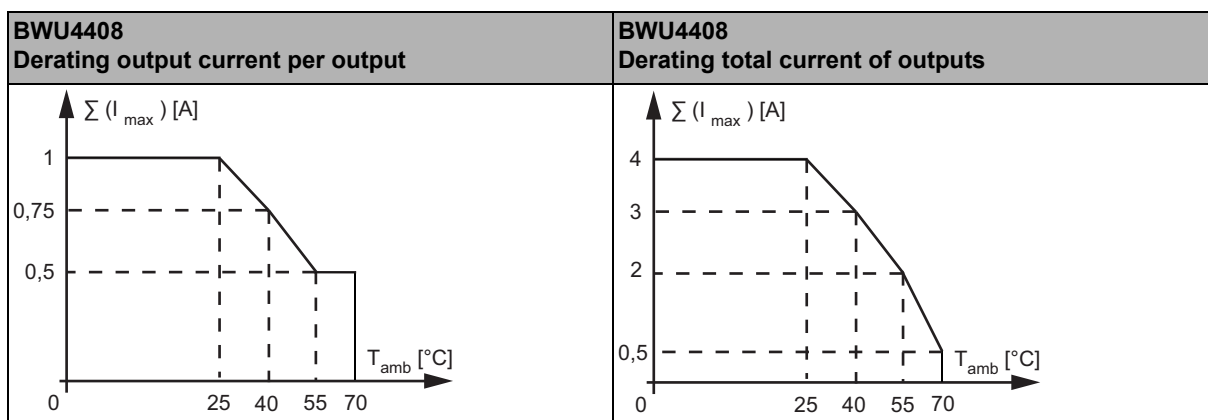
|  |  |
|--|--|
| <b>Article No.</b>   | <b>BWU4408</b>   |
| <b>Environment</b>   |  |
| Applied standards  | EN 61000-6-2<br>EN 61000-6-3<br>EN 61131-2<br>EN 60529                 |
| It can be used with a switched AUX cable, which is passively safe up to SIL3/PLe | yes <sup>(5)</sup>   |
| Operating altitude   | max. 2000 m  |
| Ambient temperature  | -30 °C ... +55 °C<br>(up to max. +70 °C) <sup>(2)</sup> <sup>(6)</sup> |
| Storage temperature  | -25 °C ... +85 °C  |
| Housing  | plastic, for DIN rail mounting or<br>for screw mounting <sup>(7)</sup> |
| Pollution degree   | 2  |
| Protection category  | IP67   |
| Tolerable loading referring to humidity  | according to EN 61131-2  |
| Max. tolerable shock load  | 30g, 11 ms, acc. EN 61131-2  |
| Max. tolerable vibration stress  | 5 ... 8 Hz 50 mm <sub>pp</sub> /8 ... 500 Hz 6g, acc. EN 61131-2       |
| Insulation voltage   | ≥ 500 V  |
| Weight   | 200 g  |
| Dimensions (W / H / D) in mm   | 60 / 152 / 34  |

(1) Loop resistance ≤ 150 Ω

(2)



(3)



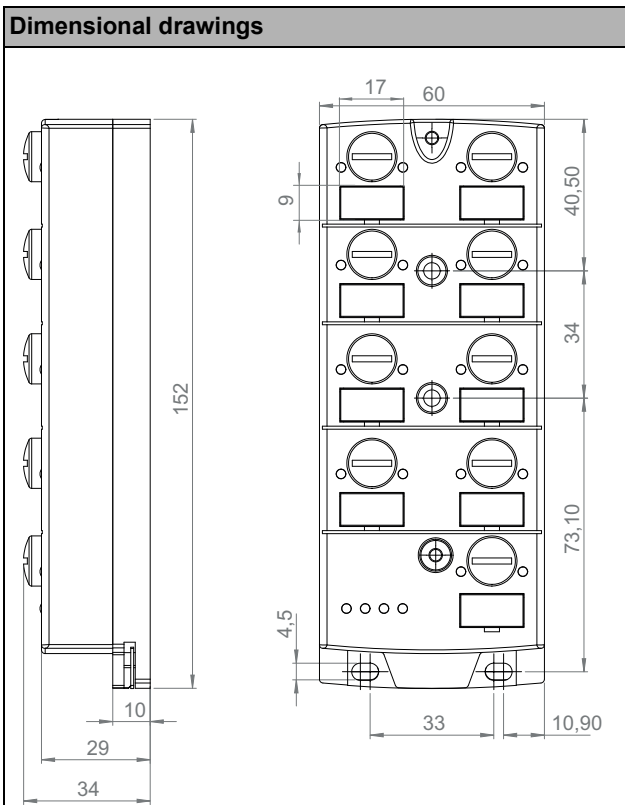
(4) See table "Peripheral fault indication"

(5) The module is suitable for use in paths with a passively safe-switched AUX cable, since an exclusion of errors can be assumed for the connection of the two ASi and AUX potentials.

(6) Maximum ambient operating temperature +55 °C according UL certificate for the use in the USA and Canada

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(7) Depending on substructure module (see accessories). The substructure module is not included in the scope of delivery.



| UL-specifications (UL508)<br>BWU4408 |   |
|--------------------------------------|---|
| 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.   |

| Article no. | Peripheral fault indication |                        |                     |
|-------------|-----------------------------|------------------------|---------------------|
|             | Overload sensor supply      | Output short circuited | AUX voltage missing |
| BWU4408     | •                           | •                      | •                   |

## Programming: ASi bit assignment

| Article no. | Byte | Bit   |     |     |     |     |     |     |    |
|-------------|------|-------|-----|-----|-----|-----|-----|-----|----|
|             |      | D7    | D6  | D5  | D4  | D3  | D2  | D1  | D0 |
|             |      | input |     |     |     |     |     |     |    |
| BWU4408     | 0    | I8    | I7  | I6  | I5  | I4  | I3  | I2  | I1 |
|             | 1    | I16   | I15 | I14 | I13 | I12 | I11 | I10 | I9 |

| Article no. | Byte | Bit    |     |     |     |     |     |     |    |
|-------------|------|--------|-----|-----|-----|-----|-----|-----|----|
|             |      | D7     | D6  | D5  | D4  | D3  | D2  | D1  | D0 |
|             |      | output |     |     |     |     |     |     |    |
| BWU4408     | 0    | O8     | O7  | O6  | O5  | O4  | O3  | O2  | O1 |
|             | 1    | O16    | O15 | O14 | O13 | O12 | O11 | O10 | O9 |

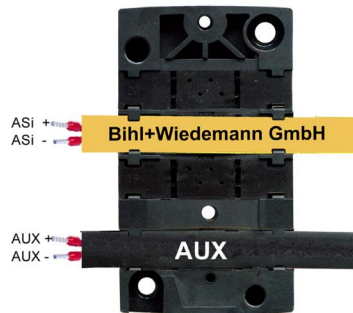
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## Pin assignment

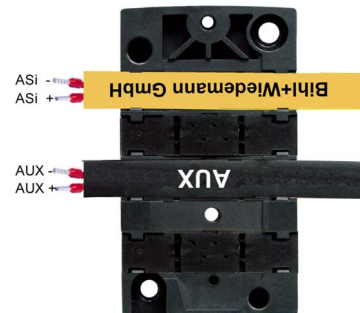
| Signal name             | Explanation  |
|-------------------------|--|
| I/Ox                    | either digital input x or digital output x                 |
| 24 V <sub>ext out</sub> | power supply, out of external voltage, positive pole (AUX) |
| 0 V <sub>ext out</sub>  | power supply, out of external voltage, negative pole (AUX) |
| ASi +, ASi -            | connection to ASi bus                                      |
| n.c. (not connected)    | not connected  |

| Connections |                       |                                      |                         |       |                        |       |      |
|-------------|-----------------------|--------------------------------------|-------------------------|-------|------------------------|-------|------|
| Article no. | M12 conn.             | Marking                              | Pin1                    | Pin2  | Pin3                   | Pin4  | Pin5 |
| BWU4408     | X1                    | I/O1, I/O2                           | 24 V <sub>ext out</sub> | I/O2  | 0 V <sub>ext out</sub> | I/O1  | n.c. |
|             | X2                    | I/O3, I/O4                           | 24 V <sub>ext out</sub> | I/O4  | 0 V <sub>ext out</sub> | I/O3  | n.c. |
|             | X3                    | I/O5, I/O6                           | 24 V <sub>ext out</sub> | I/O6  | 0 V <sub>ext out</sub> | I/O5  | n.c. |
|             | X4                    | I/O7, I/O8                           | 24 V <sub>ext out</sub> | I/O8  | 0 V <sub>ext out</sub> | I/O7  | n.c. |
|             | X5                    | I/O9, I/O10                          | 24 V <sub>ext out</sub> | I/O10 | 0 V <sub>ext out</sub> | I/O9  | n.c. |
|             | X6                    | I/O11, I/O12                         | 24 V <sub>ext out</sub> | I/O12 | 0 V <sub>ext out</sub> | I/O11 | n.c. |
|             | X7                    | I/O13, I/O14                         | 24 V <sub>ext out</sub> | I/O14 | 0 V <sub>ext out</sub> | I/O13 | n.c. |
|             | X8                    | I/O15, I/O16                         | 24 V <sub>ext out</sub> | I/O16 | 0 V <sub>ext out</sub> | I/O15 | n.c. |
|             | ADDR (protection cap) | connection for ASi-5 addressing plug |                         |       |                        |       |      |

## Mounting according to cable direction

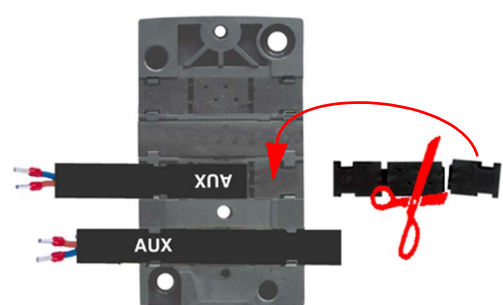
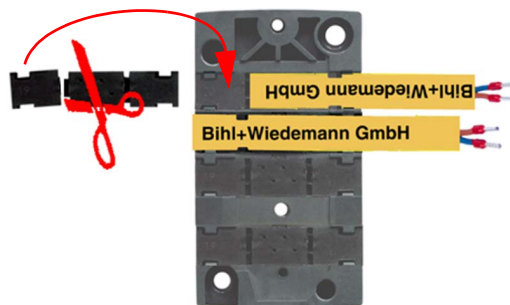
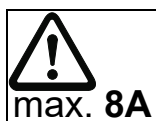


ordinary



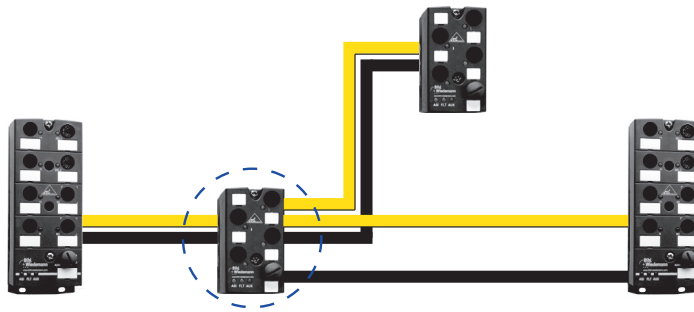
turned

## Line termination with sealing profiles / as junction



# ASi-5 Self-configuring I/O Module, IP67, M12

Use as profile cable branch



## Accessories:

- ASi substructure module (CNOMO) for 8 channel module in 60 mm housing, screw mounting (art. no. BWU2351)
- ASi substructure module (CNOMO) for 8 channel module in 60 mm housing, DIN rail mounting (art. no. BWU3516)
- Universal protection cap ASi-5/ASi-3 for M12 sockets, IP67 (art. no. BW4056)
- Sealing profile IP67 (IDC plug), 60 mm (art. no. BW3282)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4925)