

## ASi-3 motor modules

### ASi-3 4I/4O modules for two 24 V motorized rollers

e.g.  
Interroll (EC200, EC300 or EC310) or  
RULMECA (RDR BL-2) or  
Rollex (type 840)

with 2 binary and 2 analog outputs

Mixed input/output slave

Speed setting of ASi parameter

Protection category IP67



(figure similar)



**Article no. BWU2398:** Control module for two 24 V motorized rollers Interroll (EC200, EC300) or Rollex (type 840)

**Article no. BWU2575:** Control module for two 24 V motorized rollers Interroll (EC310) or RULMECA (RDR BL-2)

**Article no. BWU2765:** Control module for two 24 V motorized rollers Interroll (EC310) or RULMECA (RDR BL-2)

**Article no. BWU2958:** Control module for two 24 V motorized rollers Interroll (EC310) or RULMECA (RDR BL-2), ASi via M12

| Article no.              | BWU2958  | BWU2398  | BWU2575  | BWU2765 |
|--------------------------|--|--|--|---------|
| <b>General data</b>      |  |  |  |         |
| Motorized rollers        | up to<br>2 x Interroll (EC310) or<br>2 x RULMECA<br>(RDR BL-2) | 2 x Interroll<br>(EC200, EC300) or<br>2 x Rollex (Typ 840) | 2 x Interroll (EC310) or<br>2 x RULMECA (RDR BL-2) |         |
| <b>Connection</b>        |  |  |  |         |
| ASi/AUX connection       | M12 <sup>(1)</sup>   | profile cable and piercing                                 |  |         |
| Periphery connection     | M12  |  |  |         |
| <b>ASi</b>               |  |  |  |         |
| Profile                  | S-7.A.7, ID1 = 7 (fixed)                                       |  |  |         |
| Address                  | AB slave   |  |  |         |
| Required Master profile  | ≥M4  |  |  |         |
| As of ASi specification  | 3.0  |  |  |         |
| Operating voltage        | 30 V (18 ... 31.6 V)   |  |  |         |
| Max. current consumption | 200 mA   |  |  |         |
| <b>AUX</b>               |  |  |  |         |
| Voltage                  | 24 V (18 ... 30 V)   |  |  |         |
| Max. current consumption | 4 A  | 6 A continuously, 11 A peak                                |  |         |

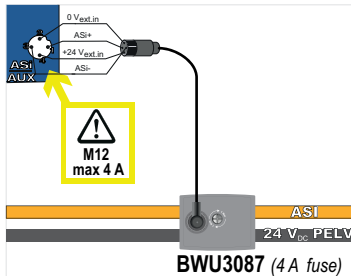
| Article no.                                  | BWU2958   | BWU2398   | BWU2575   | BWU2765 |
|--|---|---|---|---------|
| <b>Input</b>                                 |   |   |   |         |
| Number                                       | 2 x sensor inputs +<br>2 x motor fault inputs                     |   |   |         |
| Power supply                                 | sensor inputs: out of AUX<br>motor fault inputs:<br>out of AUX    | sensor inputs: out of ASi<br>motor fault inputs: out of AUX |   |         |
| Power supply of attached sensors             | 120 mA  |   |   |         |
| Switching threshold                          | U <sub>in</sub> < 5 V (low)<br>U <sub>in</sub> > 10 V (high)      |   |   |         |
| <b>Output</b>                                |   |   |   |         |
| Number (digital)                             | 2   |   |   |         |
| Number (analog)                              | 2 (depending)   |   |   |         |
| Power supply                                 | out of AUX (galvanic separation)                                  |   |   |         |
| Overload voltage tolerated by reaction (AUX) | 35 V-resistant<br>brake resistor compatible                       |   |   |         |
| Max. output current                          | 10 mA per output  |   |   |         |
| Supply of motors                             | out of AUX  |   |   |         |
|  | per motor:<br>3 A continuously,<br>Σ(motor) ≤ 4 A                 | per motor: 3 A continuously                                 |   |         |
| Line protection fuse                         | no <sup>(2)</sup>   | no <sup>(6)</sup>   | yes, separately for each motor, 3,5 AT, at 7 A (200%) release between 1 s and 120 s, fuse UL certified <sup>(8)</sup> |         |
| <b>Display</b>                               |   |   |   |         |
| LED ASI (green)                              | on: ASi voltage on<br>off: no ASi voltage                         |   |   |         |
| LED FLT/FAULT (red)                          | on: no data exchange<br>flashing: peripheral fault <sup>(3)</sup> |   | on: no data exchange<br>flashing: peripheral fault <sup>(3)</sup>   |         |
| LED AUX (green)                              | on: 24 V DC AUX<br>off: no 24 V DC AUX                            |   |   |         |
| LEDs I1, I2 (yellow)                         | state of inputs I1, I2  |   |   |         |
| LEDs M1, M2 (yellow)                         | state of outputs M1 (O1), M2 (O3)                                 |   |   |         |
| <b>Environment</b>                           |   |   |   |         |
| Applied standards                            | EN 61000-6-2<br>EN 61000-6-4<br>EN 60529                          |   |   |         |
| Passive safety (up to PLe/SIL 3)             | no <sup>(4)</sup>   | yes <sup>(7)</sup>  |   |         |
| Operating altitude                           | max. 2000 m   |   |   |         |
| Operating temperature                        | -30 °C ... +70 °C <sup>(5)</sup>                                  |   |   |         |
| Storage temperature                          | -25 °C ... +85 °C   |   |   |         |
| Housing                                      | plastic,<br>for screw mounting                                    | plastic, for DIN rail mounting                              |   |         |
| Protection category                          | IP67  |   |   |         |
| Isolation voltage                            | ≥ 500 V   |   |   |         |
| Weight                                       | 100 g   |   |   |         |
| Dimensions (W / H / D in mm)                 | 45 / 116,5 / 47,5   | 45 / 80 / 42  |   |         |

(1) **Line protection:**

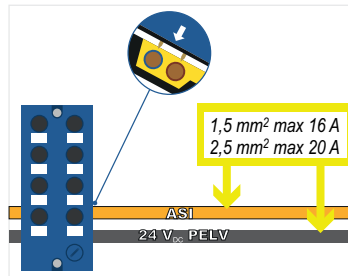
If the module is supplied via a M12 connection with A or B coding, it may only be used with a current load of max. 4 A per pin in acc. with IEC 61076-2-101 and IEC 61076-2-109. A fused tap is recommended. There is no such limitation for modules supplied via piercing contacts.

**Connection to ASi and AUX**

**via M12**

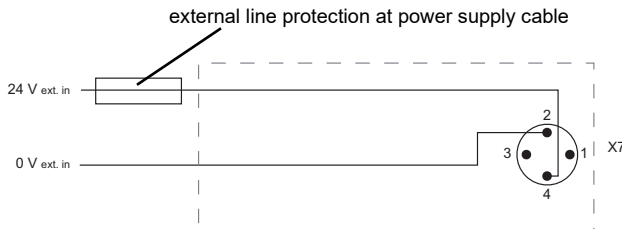


**via piercing contacts**



(2) The motor module is designed to supply the 24 V directly to the motor. At high currents or surges as they occur for example at braking, the module will not be damaged.

The cable protection should be realized outside the motor module with additional measures.



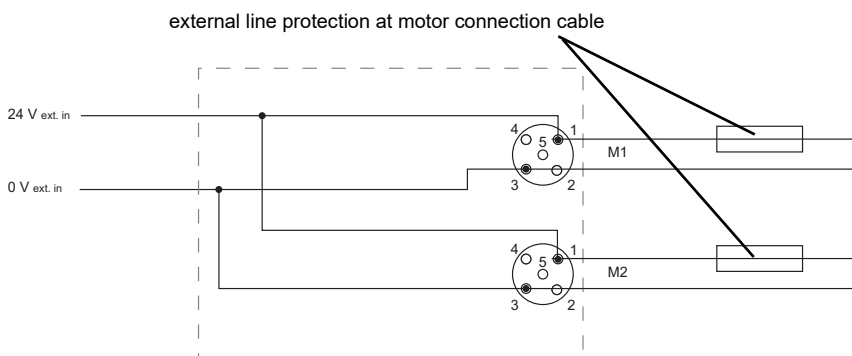
(3) see table „Peripheral fault indication“

(4) Exclusion of errors for the connection of the two ASi and AUX potentials cannot be assumed in the module. It is not possible to achieve passive safety for the application with this module.

(5) Temperature range up to -30°C from Ident.No. ≥16386 (BWU2958); Ident.No. ≥16387 (BWU2398); Ident.No. ≥16385 (BWU2575); Ident.No. ≥16384 (BWU2765).

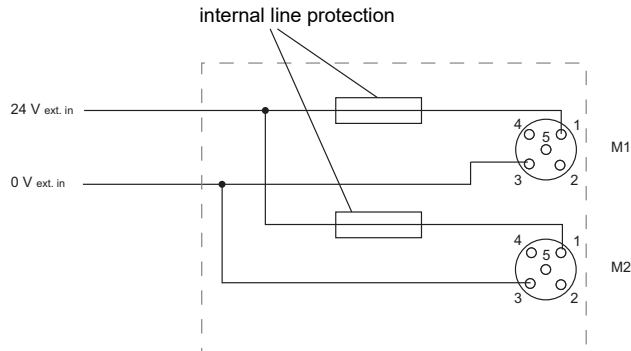
(6) The motor module is designed to supply the 24 V directly to the motor. At high currents or surges as they occur for example at braking, the module will not be damaged.

The cable protection should be realized outside the motor module with additional measures.



(7) BWU2398 from Ident. No. 17311; BWU2575 from Ident. No. 17308; BWU2765 from Ident. No. 17309; Exclusion of errors for the connection of the two ASi and AUX potentials can be assumed in the module. Passive safety for the application can only be achieved if this is ensured for all components used.

(8) In the motor module UL approved fuses are placed before each of the motor supply connections. A short circuit in the motor causes this fuse to blow, protecting the connection cable between the module and motor. After blowing the fuse the module is no longer functional and needs to be replaced. The characteristics of the fuse must be checked against the motor data before using the module. The protection circuit in the module allows a very simple protection of the motor cables. The fuse for the cable protection is a slow-blow one; without short circuit the robust behavior of the module remains.



| Configuration analog-value O1/O3 |    |    |       |         |                             |
|----------------------------------|----|----|-------|---------|-----------------------------|
|                                  |    |    |       | BWU2398 | BWU2575 / BWU2765 / BWU2958 |
| P0                               | P1 | P2 | O1/O3 | Pin 5   | Pin 5                       |
| 0                                | 0  | 0  | 0     | 0 V     | 0 V                         |
|                                  |    |    | 1     | 2,42 V  | 2,3 V                       |
| 1                                | 0  | 0  | 0     | 0 V     | 0 V                         |
|                                  |    |    | 1     | 2,65 V  | 3,4 V                       |
| 0                                | 1  | 0  | 0     | 0 V     | 0 V                         |
|                                  |    |    | 1     | 2,90 V  | 4,5 V                       |
| 1                                | 1  | 0  | 0     | 0 V     | 0 V                         |
|                                  |    |    | 1     | 3,24 V  | 5,6 V                       |
| 0                                | 0  | 1  | 0     | 0 V     | 0 V                         |
|                                  |    |    | 1     | 3,70 V  | 6,7 V                       |
| 1                                | 0  | 1  | 0     | 0 V     | 0 V                         |
|                                  |    |    | 1     | 4,26 V  | 7,8 V                       |
| 0                                | 1  | 1  | 0     | 0 V     | 0 V                         |
|                                  |    |    | 1     | 4,98 V  | 8,9 V                       |
| 1                                | 1  | 1  | 0     | 0 V     | 0 V                         |
|                                  |    |    | 1     | 6 V     | 10 V                        |

| Bit assignment |    |                                |
|----------------|----|--------------------------------|
| Data bit       |    | Function                       |
| DI0            | I1 | Input I1                       |
| DI1            | I2 | Input I2                       |
| DI2            | I3 | State of (motor-fault) motor 1 |
| DI3            | I4 | State of(motor-fault) motor 2  |
| DO0            | O1 | Start/Stop motor 1             |
| DO1            | O2 | Direction of rotation motor 1  |
| DO2            | O3 | Start/Stop motor 2             |
| DO3            | O4 | Direction of rotation motor 2  |

| UL-specifications (UL508)<br>BWU2398, BWU2575, BWU2765, BWU2958 |   |
|---|---|
| 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 output             | AUX voltage missing | Overload sensor supply | at least 1 motor fuse is blown |
| BWU2398     | •                           | •                   | -                      | -                              |
| BWU2575     | •                           | •                   | -                      | -                              |
| BWU2765     | •                           | •                   | •                      | •                              |
| BWU2958     | •                           | •                   | -                      | -                              |

## Pin assignment

| Signal name                | Explanation   |
|----------------------------|---|
| Ix                         | Digital input x   |
| 24 V <sub>ext out</sub>    | Power supply, out of external voltage, positive pole (AUX, actuator supply) |
| 0 V <sub>ext out</sub>     | Power supply, out of external voltage, negative pole (AUX, actuator supply) |
| 24 V <sub>ext in</sub>     | Input voltage, positive pole (AUX+)   |
| 0 V <sub>ext in</sub>      | Input voltage, negative pole (AUX-)   |
| ASi +, ASi -               | connection to ASi bus   |
| 24 V <sub>out of ASi</sub> | Power supply, out of ASi, positive pole (sensor supply)                     |
| 0 V <sub>out of ASi</sub>  | Power supply, out of ASi, negative pole (sensor supply)                     |
| n.c.                       | not connected   |

| Connections        |                      |                                      |                            |                         |                           |                         |                 |
|--------------------|----------------------|--------------------------------------|----------------------------|-------------------------|---------------------------|-------------------------|-----------------|
| Article no.        | M12 connection       | Name                                 | Pin 1                      | Pin 2                   | Pin 3                     | Pin 4                   | Pin 5           |
| BWU2398<br>BWU2575 | X1                   | I1 (Input 1)                         | 24 V <sub>out of ASi</sub> | I1                      | 0 V <sub>out of ASi</sub> | I1                      | n.c.            |
|                    | X2                   | I2 (Input 2)                         | 24 V <sub>out of ASi</sub> | I2                      | 0 V <sub>out of ASi</sub> | I2                      | n.c.            |
|                    | X3                   | M1 (Motor 1)                         | 24 V <sub>ext out</sub>    | O2<br>(0: 0 V; 1: 24 V) | 0 V <sub>ext out</sub>    | I3<br>(0: 0 V; 1: 24 V) | Analog value O1 |
|                    | X4                   | M2 (Motor 2)                         | 24 V <sub>ext out</sub>    | O4<br>(0: 0 V; 1: 24 V) | 0 V <sub>ext out</sub>    | I4<br>(0: 0 V; 1: 24 V) | Analog value O3 |
|                    | ADDR<br>(dummy plug) | connection for ASi addressing device |                            |                         |                           |                         |                 |
| BWU2765            | X1                   | I1 (Input 1)                         | 24 V <sub>out of ASi</sub> | n.c.                    | 0 V <sub>out of ASi</sub> | I1                      | n.c.            |
|                    | X2                   | I2 (Input 2)                         | 24 V <sub>out of ASi</sub> | n.c.                    | 0 V <sub>out of ASi</sub> | I2                      | n.c.            |
|                    | X3                   | M1 (Motor 1)                         | 24 V <sub>ext out</sub>    | O2<br>(0: 0 V; 1: 24 V) | 0 V <sub>ext out</sub>    | I3<br>(0: 0 V; 1: 24 V) | analog value O1 |
|                    | X4                   | M2 (Motor 2)                         | 24 V <sub>ext out</sub>    | O4<br>(0: 0 V; 1: 24 V) | 0 V <sub>ext out</sub>    | I4<br>(0: 0 V; 1: 24 V) | analog value O3 |
|                    | ADDR<br>(dummy plug) | connection for ASi addressing device |                            |                         |                           |                         |                 |

| Connections |                |              |                         |                         |                        |                         |                 |
|-------------|----------------|--------------|-------------------------|-------------------------|------------------------|-------------------------|-----------------|
| Article no. | M12 connection | Name         | Pin 1                   | Pin 2                   | Pin 3                  | Pin 4                   | Pin 5           |
| BWU2958     | X1             | I1 (Input 1) | 24 V <sub>ext out</sub> | n.c.                    | 0 V <sub>ext out</sub> | I1                      | n.c.            |
|             | X2             | I2 (Input 2) | 24 V <sub>ext out</sub> | n.c.                    | 0 V <sub>ext out</sub> | I2                      | n.c.            |
|             | X3             | M1 (Motor 1) | 24 V <sub>ext out</sub> | O2<br>(0: 0 V; 1: 24 V) | 0 V <sub>ext out</sub> | I3<br>(0: 0 V; 1: 24 V) | analog value O1 |
|             | X4             | M2 (Motor 2) | 24 V <sub>ext out</sub> | O4<br>(0: 0 V; 1: 24 V) | 0 V <sub>ext out</sub> | I4<br>(0: 0 V; 1: 24 V) | analog value O3 |
|             | X5             | ASi / AUX    | ASi+                    | 0 V <sub>ext in</sub>   | ASi-                   | 24 V <sub>ext in</sub>  | –               |

The diagram shows the physical module with five M12 connectors labeled X1 to X5. X1 and X2 are input sockets, X3 and X4 are motor sockets, and X5 is an ASi/AUX socket. To the right, a circular terminal layout shows five pins numbered 1 to 5, corresponding to the connections in the table above.

### Accessories:

- ASi substructure module for 4-channel module in 45 mm-housing (article no. BW2349)
- ASi substructure module (CNOMO) for 4-channel module in 45 mm-housing (article no. BW2350)
- Protection caps for not used M12 sockets (article no. BW2368)
- Sealing profile IP67 (IDC plug), 45 mm (art. no. BW3283)
- Passive Distributor ASi/AUX to 2 x M12 socket, internal protection via changeable 4 A slow-blow fuses (art. no. BWU3087)
- It is recommended to use pre-assembled cables to connect the power source with the module.
- It is recommended to use pre-assembled cables to connect the motors to the module.