

# ASi-5 cable duct motor module for 24 V motorized rollers

## ASi-5 cable duct motor module for 24 V motorized rollers, M8 and M12, 2M/4I

- ASi and AUX per profile cable



(figure similar)

### New standard ASi-5

#### Suitable for


- 2 x 24 V motorized rollers Interroll EC5000 AI with 20 W/35 W
- 2 x 24 V motorized rollers Itoh Denki PM500XC/XK
- 2 x 24 V motorized rollers Rulmeca RDR BL-3

#### Cyclic writing of speed and ramps possible

#### 4 x digital inputs for sensor connection

#### Protection category IP54



| Figure                                                                              | Drive <sup>(1)</sup>           | Number of drives | Line protection fuse <sup>(2)</sup>                    | Inputs digital | Input voltage (sensor supply) <sup>(3)</sup> | Output voltage (actuator supply) <sup>(4)</sup> | Connection                                                                                | ASi connection <sup>(5)</sup> | Article No.    |
|-------------------------------------------------------------------------------------|--------------------------------|------------------|--------------------------------------------------------|----------------|----------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------|----------------|
|  | Interroll, Itoh Denki, Rulmeca | 2                | yes, separately for each motor, 5,0 A (slow-blow fuse) | 4              | out of ASi and AUX                           | out of AUX                                      | 2 x M8 Snap-in cable sockets, straight, 5 poles, 2 x M12 cable sockets, straight, 5 poles | ASi profile cable             | <b>BWU4947</b> |

**(1) Drive:**

Under certain circumstances also suitable for control of motorized rollers from other manufacturers with the same technical data, e.g. MTA MRA50 or Pulseroller IDC. Please compare the manufacturer's specifications with the current values and the pin assignment of the motor module.

**(2) Line protection fuse:**

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 not exchangeable fuse the module is no longer functional and the module 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.

**(3) 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.

**(4) 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.

**(5) 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 M8 socket.

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|                                                          |                                                                                                                           |                                              |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| <b>Article no.</b>                                       |                                                                                                                           | <b>BWU4947</b>                               |
| <b>General data</b>                                      |                                                                                                                           |                                              |
| Motorized rollers                                        | 2 x Interroll (EC5000 AI, 24V, 20 W/35 W)<br>2 x Itoh Denki (PM500XC/XK)<br>2 x Rulmeca (RDR BL-3) <sup>(3)</sup>         |                                              |
| <b>Connection</b>                                        |                                                                                                                           |                                              |
| ASi/AUX connection                                       | profile cable and piercing technology                                                                                     |                                              |
| Periphery connection                                     | M: 2 x M8 Snap-in cable sockets, straight, 5 poles<br>I: 2 x M12 cable sockets, straight, 5 poles                         |                                              |
| Cable(L in m) <sup>(1)</sup>                             | L1 (I3/I4): 2,0<br>L2 (I1/I2): 2,0<br>L3 (M2/ERR2): 2,0<br>L4 (M1/ERR1): 2,0<br>max. allowed tensile strain 10 N          |                                              |
| <b>ASi</b>                                               |                                                                                                                           |                                              |
| Address                                                  | 1 ASi-5 address                                                                                                           |                                              |
| Required ASi specification of master                     | ASi-5                                                                                                                     |                                              |
| Operating voltage                                        | 30 V (18 ... 31,6 V)                                                                                                      |                                              |
| Max. current consumption                                 | 200 mA                                                                                                                    |                                              |
| Max. current consumption without sensor/ actuator supply | 80 mA                                                                                                                     |                                              |
| <b>AUX</b>                                               |                                                                                                                           |                                              |
| Voltage                                                  | 24 V (18 ... 30 V)                                                                                                        |                                              |
| Max. current consumption                                 | at 20 W: 2,8 A continuously, 6,0 A peak<br>at 35 W: 4,8 A continuously, 11,0 A peak                                       |                                              |
| <b>Input</b>                                             |                                                                                                                           |                                              |
| Number                                                   | 4 x sensor inputs +<br>2 x motor fault inputs                                                                             |                                              |
| Power supply                                             | sensor inputs: out of ASi<br>motor fault inputs: out of AUX                                                               |                                              |
| Power supply of attached sensors                         | up to +40 °C                                                                                                              | 120 mA <sup>(4)</sup>                        |
|                                                          | at +55 °C                                                                                                                 | 80 mA <sup>(4)</sup>                         |
|                                                          | at +70 °C                                                                                                                 | 40 mA <sup>(4)</sup>                         |
| Switching threshold                                      | U <sub>in</sub> < 5 V (low)<br>U <sub>in</sub> > 10 V (high)                                                              |                                              |
| <b>Output</b>                                            |                                                                                                                           |                                              |
| Number of drives                                         | 2                                                                                                                         |                                              |
| Power supply                                             | out of AUX (galvanic separation)                                                                                          |                                              |
| Overload voltage tolerated by reaction (AUX)             | 35 V-resistant<br>brake chopper compatible                                                                                |                                              |
| Max. output current                                      | 10 mA per output                                                                                                          |                                              |
| Supply of motors                                         | out of AUX                                                                                                                |                                              |
|                                                          | per motor: 1,4 A continuously at 20 W<br>per motor: 2,4 A continuously at 35 W                                            |                                              |
| Max. current for motor supply                            | up to +40 °C                                                                                                              | per motor: 2,4 A continuously <sup>(5)</sup> |
|                                                          | at +55 °C                                                                                                                 | per motor: 1,7 A continuously <sup>(5)</sup> |
|                                                          | at +70 °C                                                                                                                 | per motor: 1,0 A continuously <sup>(5)</sup> |
| Line protection fuse                                     | yes, separately for each motor, 5,0 AT,<br>at 10 A (200%) release between 1 s and 120 s, fuse UL certified <sup>(6)</sup> |                                              |

# ASi-5 cable duct motor module for 24 V motorized rollers

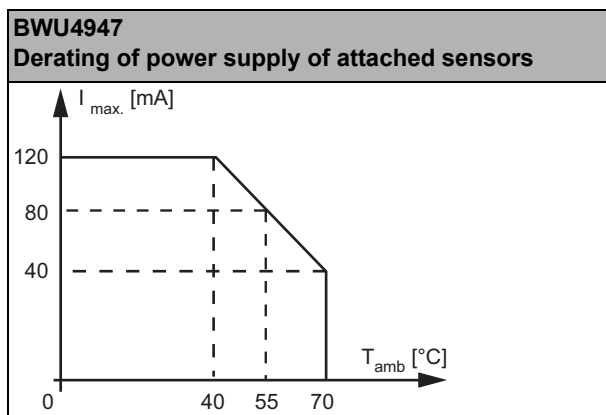
|                                                                                  |                                                                                                                                                                                       |
|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Article no.</b>                                                               | <b>BWU4947</b>                                                                                                                                                                        |
| <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>(7)</sup><br>off: data exchange ok                                                                                            |
| LED AUX (green)                                                                  | on: 24 V <sub>DC</sub> AUX<br>off: no 24 V <sub>DC</sub> AUX                                                                                                                          |
| LEDs I1 ... I4 (yellow)                                                          | state of inputs I1 ... I4                                                                                                                                                             |
| LEDs M1, M2 (yellow)                                                             | state of motors M1, M2<br>on: motor on<br>off: motor off                                                                                                                              |
| LEDs ERR1, ERR2 (red) <sup>(2)</sup>                                             | on: motor M1, M2 is signaling fault condition <sup>(7)</sup><br>flashing (only Interroll): Motor M1, M2 is signaling fault condition or is not connected to the module <sup>(7)</sup> |
| <b>Environment</b>                                                               |                                                                                                                                                                                       |
| Applied standards                                                                | EN 61000-6-2,<br>EN 61000-6-4,<br>EN 60529<br>EN 61131-2                                                                                                                              |
| It can be used with a switched AUX cable, which is passively safe up to SIL3/PLe | yes <sup>(8)</sup>                                                                                                                                                                    |
| Operating altitude                                                               | max. 2000 m                                                                                                                                                                           |
| Operating temperature                                                            | -30 °C ... +70 °C <sup>(4)</sup> <sup>(5)</sup>                                                                                                                                       |
| Storage temperature                                                              | -25 °C ... +85 °C                                                                                                                                                                     |
| Housing                                                                          | plastic, for screw mounting<br>suitable for cable ducts (≥19 mm installation depth)                                                                                                   |
| Pollution degree                                                                 | 2                                                                                                                                                                                     |
| Protection category                                                              | IP54                                                                                                                                                                                  |
| Tolerable loading referring to humidity                                          | according to EN 61131-2                                                                                                                                                               |
| Max. tolerable shock load                                                        | according to EN 61131-2                                                                                                                                                               |
| Max. tolerable vibration stress                                                  | according to EN 61131-2                                                                                                                                                               |
| Isolation voltage                                                                | ≥ 500 V                                                                                                                                                                               |
| Weight                                                                           | approx. 205 g                                                                                                                                                                         |
| Dimensions (W / H / D in mm)                                                     | 130 / 60 / 18                                                                                                                                                                         |

(1) ±0,005 m manufacturing tolerance

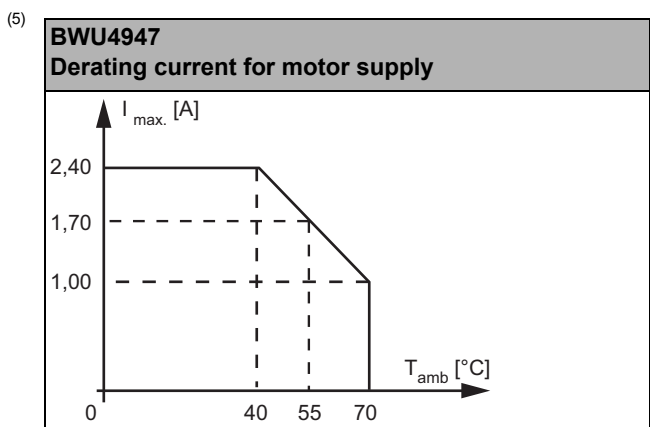
(2) The ERR LED is not controlled when the motor ports are deactivated

(3) suitable for transmission rates 24:1, 36:1, 49:1, 64:1, 96:1 (not suitable for transmission rates 12:1, 16:1)

(4)

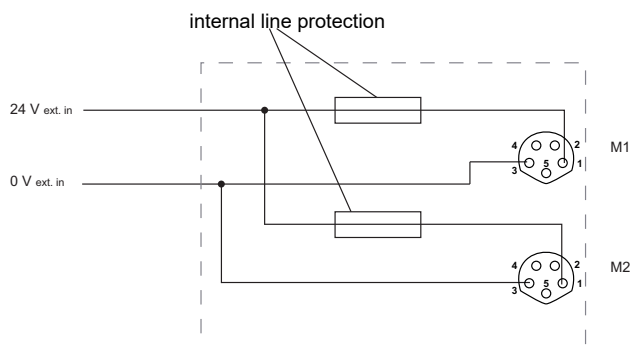


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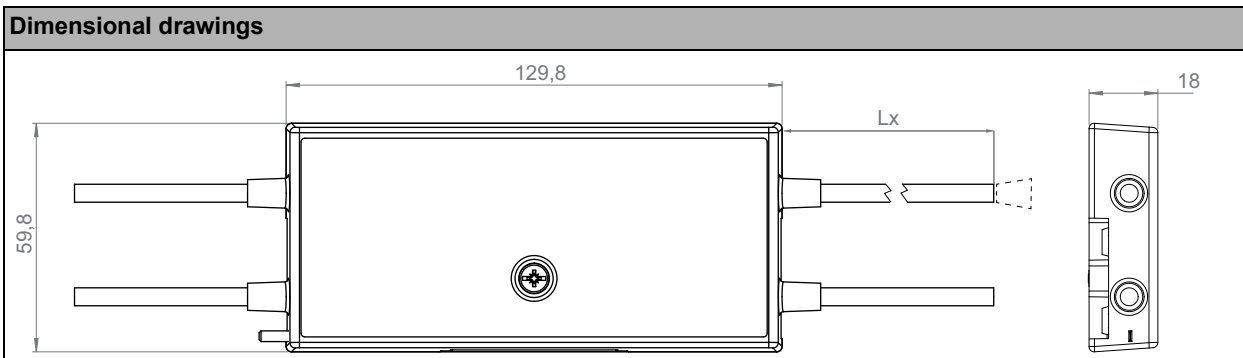
(6) In the motor module UL approved fuses are placed before each of the motor supply connections. A short circuit in the motor causes this fuse to blow, protecting the connection cable between the module and motor. After blowing the not exchangeable fuse the module is no longer functional and the module 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.



(7) see table "Peripheral fault indication".

(8) 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.



| Article no.    | Peripheral fault indication |                     |                        |                                                                                                               |
|----------------|-----------------------------|---------------------|------------------------|---------------------------------------------------------------------------------------------------------------|
|                | Overload output             | AUX voltage missing | Overload sensor supply | at least 1 motor fuse is blown or 1 motor in fault condition or is not connected to the module <sup>(1)</sup> |
| <b>BWU4947</b> | •                           | •                   | •                      | •                                                                                                             |

(1) only Interroll

# ASi-5 cable duct motor module for 24 V motorized rollers

## Programming (ASi bit assignment)

| Article no. | Byte | bit                                 |                   |                         |                         |    |    |                         |                         |
|-------------|------|-------------------------------------|-------------------|-------------------------|-------------------------|----|----|-------------------------|-------------------------|
|             |      | D7                                  | D6                | D5                      | D4                      | D3 | D2 | D1                      | D0                      |
| BWU4947     | 0    | Fuse M2                             | Fuse M1           | Error M2 <sup>(1)</sup> | Error M1 <sup>(1)</sup> | I4 | I3 | I2                      | I1                      |
|             | 1    | reserved                            | Temperature Error | Voltage Error           | reserved                |    |    | Error M2 <sup>(1)</sup> | Error M1 <sup>(1)</sup> |
|             | 2    | AUX voltage (mV), high byte, UINT16 |                   |                         |                         |    |    |                         |                         |
|             | 3    | AUX voltage (mV), low byte, UINT16  |                   |                         |                         |    |    |                         |                         |

<sup>(1)</sup> The motor ports can be deactivated individually using the software ASIMON360 (BW2916) or ASi Control Tools360 (BW2902).

| Article no. | Byte | bit                                                                   |    |    |    |    |    |    |    |
|-------------|------|-----------------------------------------------------------------------|----|----|----|----|----|----|----|
|             |      | D7                                                                    | D6 | D5 | D4 | D3 | D2 | D1 | D0 |
| BWU4947     | 0    | Speed M1 <sup>(1)</sup> (speed motor 1) (- 100 ... 0 ... 100 %), INT8 |    |    |    |    |    |    |    |
|             | 1    | Speed M2 <sup>(1)</sup> (speed motor 2) (- 100 ... 0 ... 100 %), INT8 |    |    |    |    |    |    |    |
|             | 2    | ramp M1 (0 ... 25,5 s), UINT8 <sup>(2)</sup>                          |    |    |    |    |    |    |    |
|             | 3    | ramp M2 (0 ... 25,5 s), UINT8 <sup>(2)</sup>                          |    |    |    |    |    |    |    |

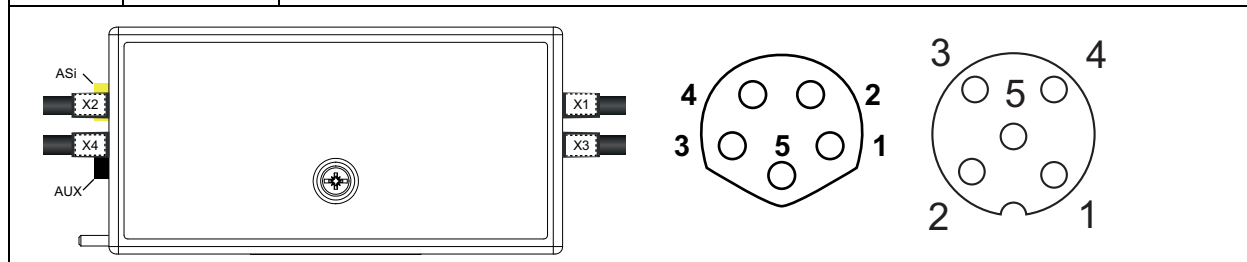
<sup>(1)</sup> The motor ports can be deactivated individually using the software ASIMON360 (BW2916) or ASi Control Tools360 (BW2902).

<sup>(2)</sup> Time for setpoint step by  $\pm 100\%$  (acceleration, deceleration).

## Pin assignment

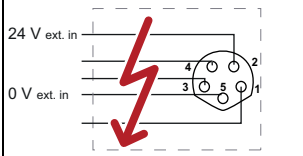
| Signal name                | Explanation                                                                 |
|----------------------------|-----------------------------------------------------------------------------|
| Ix                         | digital input x                                                             |
| CW Mx (clockwise)          | direction of rotation of motor x                                            |
| Error Mx                   | error at motor x                                                            |
| Speed Mx                   | speed of motor 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) |
| 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. | M8+M12 connection | Name    | Function   | Pin1                       | Pin2  | Pin3                      | Pin4     | Pin5     |
| BWU4947     | X1                | I3/I4   | inputs 3,4 | 24 V <sub>out of ASi</sub> | I4    | 0 V <sub>out of ASi</sub> | I3       | n.c.     |
|             | X2                | I1/I2   | inputs 1,2 | 24 V <sub>out of ASi</sub> | I2    | 0 V <sub>out of ASi</sub> | I1       | n.c.     |
|             | X3 <sup>(1)</sup> | M2/ERR2 | motor 2    | 24 V <sub>ext out</sub>    | CW M2 | 0 V <sub>ext out</sub>    | Error M2 | Speed M2 |
|             | X4 <sup>(1)</sup> | M1/ERR1 | motor 1    | 24 V <sub>ext out</sub>    | CW M1 | 0 V <sub>ext out</sub>    | Error M1 | Speed M1 |



# ASi-5 cable duct motor module for 24 V motorized rollers

(1)

|                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  | <b>Notice</b><br>Incorrect wiring at the motor sockets can cause a device defect. |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|

## Accessories:

- **ASi Substructure Module in IP67 for ASi cable duct motor modules (art. no BW4749)**
- **Magnetic holders for substructure Modules (art. no. BW4779)**
- **ASi-5/ASi-3 Address Programming Device (art. no. BW4925)**