ASi-3 Motor modules

ASi-3 motor modules for two 24 V motorized rollers

(Figure similar)

e.g.
Interroll (EC200, EC300, EC310, EC5000) or
RULMECA (RDR BL-2) or
Itoh Denki (PM500ME/XE/XP, PM605ME/XE/XP)

2 slaves in one module

- **1 Single Slave with**
  - **2 analog outputs 0 ... 10 V**
  - **2 digital outputs**
  - **2 digital inputs**
- **1 AB-Slave with**
  - **4 digital inputs**
  - **4 digital outputs**

Mixed input and output slave

Figure	Drive [1]	Number of drives	Line protection fuse [2]	Inputs digital	Outputs digital	Outputs analog	Input voltage (sensor supply) [3]	Output voltage (actuator supply) [4]	Connection	ASi connection [5]	Article No.
	Interroll, RULMECA	2	yes (4,5 AT)	4	2	2	out of ASi	out of AUX	6 x M12 sockets, 5 poles	ASi profile cable	**BWU2766**
	Interroll, RULMECA	2	no	4	2	2	out of ASi	out of AUX	6 x M12 sockets, 5 poles	ASi profile cable	**BWU2478**
	Interroll, RULMECA	2	no	4	2	2	out of ASi	out of AUX	6 x M12 sockets, 5 poles	ASi using M12	**BWU2959**

(1) **Interroll (EC310 or EC5000 AI, 24V, 20W/35W), RULMECA (RDR BL-2):**
Motor module to control 24 V motorized rollers Interroll Type EC310 or EC5000 AI, 24V, 20W/35W (BWU2766 only) or RULMECA Type RDR BL-2.

(2) **yes, separately for each motor, 3,5 A (slow-blow fuse), from Ident.No. ≥18339 4,5 A(slow-blow 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 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.

(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.

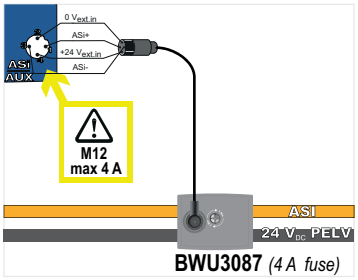
(5) **ASi connection:**
The connection to ASi as well to AUX (auxiliary 24 V power) is made via yellow resp. black ASi profile cable with piercing technology or via M8 socket.

Article no.	BWU2959	BWU2478	BWU2766
General data			
Motorized rollers type	up to 2 x Interroll (EC310) or 2 x RULMECA (RDR BL-2) or 2 x Itoh Denki (PM500ME/XE/XP, PM605ME/XE)	2 x Interroll (EC200, EC300, EC310) or 2 x RULMECA (RDR BL-2) or 2 x Itoh Denki (PM500ME/XE/XP, PM605ME/XE/XP)	2 x Interroll (EC200, EC300, EC310 or EC5000 AI, 24V, 20W/35W (4)) or 2 x RULMECA (RDR BL-2) or 2 x Itoh Denki (PM500ME/XE/XP, PM605ME/XE/XP)
Connection			
ASi / AUX connection	M12 (1)	profile cable and piercing	
Periphery connection	M12		
ASi			
Profile	digital slave S-7.A.7, ID1=7 analog slave S-7.5.5, ID1=F		
Address	1 AB slave + 1 single slave		
Required Master profile	≥M4		
As of ASi specification	3.0		
Operating voltage	30 V (18 … 31.6 V)		
Max. current consumption	200 mA		
AUX			
Voltage	24 V (18 … 30 V)		
Max. current consumption	4 A	6 A continuously, 11 A peak	
Input			
Number	4		
Power supply	sensor inputs: out of ASi		
Power supply of attached sensors	< 100 mA (sum)		
Switching threshold	U_{in} < 5 V (low), U_{in} > 10 V (high)		
Output			
Number (digital)	4		
Number (analog)	2		
Power supply	out of AUX (galvanic separation)		
Overload voltage tolerated by reaction (AUX)	35 V-resistant brake resistor compatible		
Max. output current	500 mA per digital output, 10 mA per analog output		
Supply of motors	out of AUX		
	per motor: 3 A continuously, ∑(motor) ≤4 A	per motor: 3 A continuously	
Line protection fuse	no (2)	no (3)	yes, separately for each motor, 4.5 AT, at 9 A (200%) release between 1 s and 120 s, fuse UL certified (5) (4)
Display			
LED ASI (green)	on: ASi voltage on off: no ASi voltage		
LED FLT/FAULT (red)	on: no data exchange flashing: AUX voltage missing, overload sensor supply		on: no data exchange flashing: AUX voltage missing, overload sensor supply or at least 1 motor fuse is blown
LED AUX (red/green)	green: AUX voltage OK red: AUX voltage < 18 V		
LEDs I1 ...In (yellow)	state of inputs I1 ... I4		
LEDs M1, M2 (yellow)	state of outputs M1 (O1), M2 (O3)		

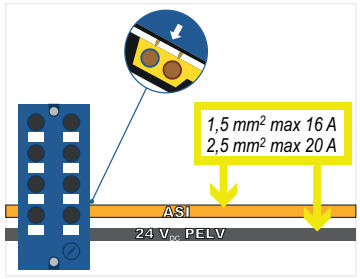
Article no.	BWU2959	BWU2478	BWU2766
Environment			
Applied standards	EN 61000-6-2 EN 61000-6-4 EN 60529		
Operating altitude	max. 2000 m		
Operating temperature	0 °C ... +55 °C		
Storage temperature	-25 °C ... +85 °C		
Housing	plastic, for screw mounting		
Pollution degree	2		
Protection category	IP67		
Isolation voltage	≥500 V		
Weight	200 g		
Dimensions (W / H / D in mm)	60 / 151 / 36,5	60 / 151 / 31	

(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.

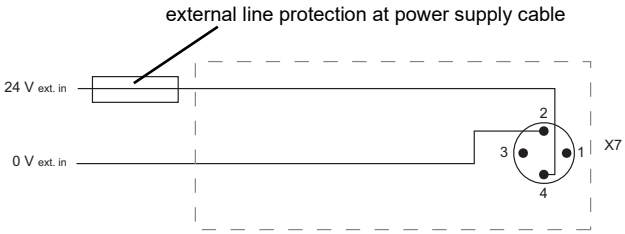
Connection to ASi and AUX via M12



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.



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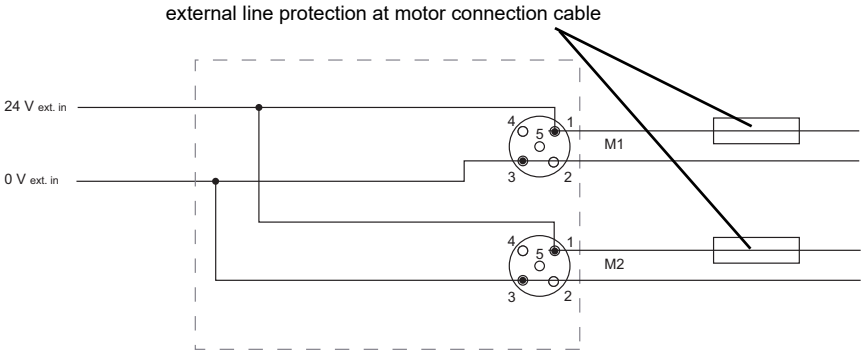
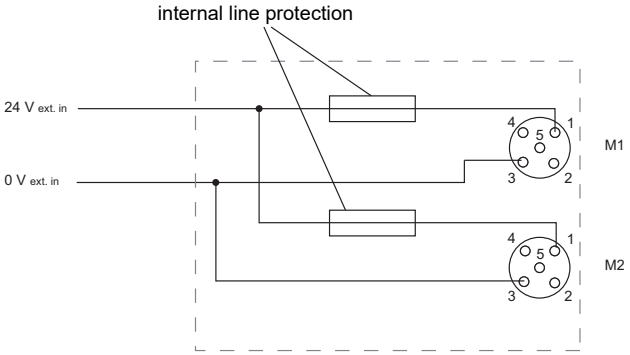


(4) BWU2766 from Ident.No. ≥18339

(5) 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.



LEDs		Status	Signal / Description
M1, M2	**yellow**		State M1/M2
I1, I2, I3,I4	**yellow**		Input off
			Input on
ASI	**green**		no slave address 0, no peripheral fault
			at least 1 slave with address 0 or peripheral fault
FLT	**red**		ASi slave online and no peripheral fault
			at least 1 slave offline or with address 0
			BWU2478, BWU2959: AUX voltage missing or overload sensor supply
			BWU2766: AUX voltage missing, overload sensor supply or alt least 1 motor fuse is blown
AUX	**red**		no AUX voltage
			AUX voltage low (< 18 V)
	green		AUX voltage at limit (18 V ... 22 V)
			AUX voltage OK

LED on LED flashing LED off

UL-specifications (UL508) **BWU2478, BWU2959**	
External protection	An isolated source with a secondary open circuit voltage of ≤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.

Programming:			
Analog slave			
Analog output 0 ... 10 V: (0 ... 10 000 dez.)			
AO2: Analog value 2: motor 1 / motor 2 (1)	AO1: Analog value 1: motor 1 / motor 2 (1)		
Digital outputs			
D3: AO1 / AO2 Motor 2 **(O6)** (1)	D2: AO1 / AO2 Motor 1 **(O5)** (1)		
Digital inputs			
		D1: M2 disturbance input **(I6)** (2)	D0: M1 disturbance input **(I5)** (2)
Object ramp			
adjustable up to 37,5 s from 0 V to 10 V			
Digital Slave			
Digital input values			
D3: Input **(I4)**	D2: Input **(I3)**	D1: Input **(I2)**	D0: Input **(I1)**
Digital output values			
D3: M2 rotating direction **(O4)**	D2: M2 start output **(O3)** (2)	D1: M1 rotating direction **(O2)**	D0: M1 start output **(O1)** (2)

(1) With bits D2 and D3 of the analog slaves can be controlled, which analog value has an effect on which engine.
This function depends on the rotary switch position.

(2) Pin 4 of the M1/M2 connections can be used as start output or alternatively as a disturbance input (depending on the rotary switch position).
To use the input, the start output (digital slave, output D0/D2) must be set to be inactive.

Rotary switch position

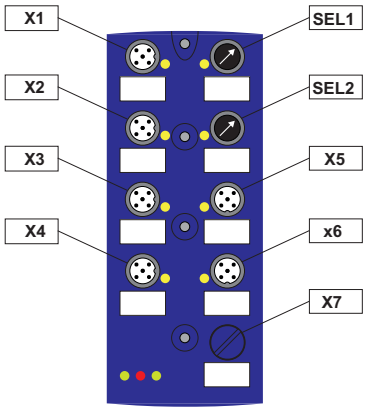
		Rotary switch SEL2															
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**A**	**B**	**C**	**D**	**E**	**F**
rotary switch SEL1	**0**	analog slave + digital slave active values of analog slave for voltage and ramp															
	1																
	2	digital slave active only analog slave outputs = 0 V															
	3																
	4																
	5																
	6																
	7																
	8	digital slave active only Selection of preset voltages via SEL1 and SEL2: SEL1 = Motor 1, SEL2 = Motor 2 (for values of voltage see installation instructions)															
	9																
	A																
	B																
	C																
	D																
	E																
	F																

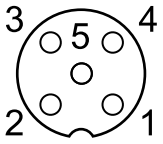
Pin assignment

Signal name	Explanation
Ix	Digital input x
24 $V_{ext\ out}$	Power supply, out of external voltage, positive pole (AUX, actuator supply)
0 $V_{ext\ out}$	Power supply, out of external voltage, negative pole (AUX, actuator supply)
24 $V_{ext\ in}$	Input voltage, positive pole (AUX+)
0 $V_{ext\ in}$	Input voltage, negative pole (AUX-)
ASi +, ASi -	connection to ASi bus
24 $V_{out\ of\ ASi}$	Power supply, out of ASi, positive pole (sensor supply)
0 $V_{out\ of\ ASi}$	Power supply, out of ASi, negative pole (sensor supply)
GND	ground earth
n.c.	not connected

Connections

Article no.	M12 Connection	Marking	Pin1	Pin2	Pin3	Pin4	Pin5
BWU2478 BWU2766	X1	I1 (input 1)	24 $V_{out\ of\ ASi}$	n.c.	0 $V_{out\ of\ ASi}$	I1	n.c.
	X2	I2 (input 2)	24 $V_{out\ of\ ASi}$	n.c.	0 $V_{out\ of\ ASi}$	I2	n.c.
	X3	I3 (input 3)	24 $V_{out\ of\ ASi}$	n.c.	0 $V_{out\ of\ ASi}$	I3	n.c.
	X4	I4 (input 4)	24 $V_{out\ of\ ASi}$	n.c.	0 $V_{out\ of\ ASi}$	I4	n.c.
	X5	M1 (motor 1)	24 $V_{ext\ out}$	rotating direction	0 $V_{ext\ out}$	start output / disturbance input	analog output 0 ... 10 V
	X6	M2 (motor 2)	24 $V_{ext\ out}$	rotating direction	0 $V_{ext\ out}$	start output / disturbance input	analog output 0 ... 10 V
	X7	ADDR (dummy plug)	connection for ASi addressing device				
	SEL1	rotary switch 1	selection of operating mode				
	SEL2	rotary switch 2					





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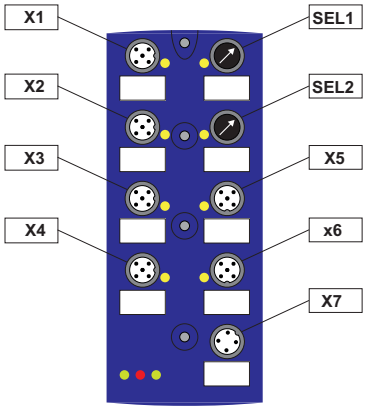
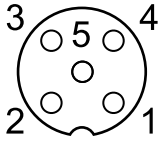
Article no.	**M12 Connection**	**Marking**	**Pin1**	**Pin2**	**Pin3**	**Pin4**	**Pin5**
BWU2959	X1	I1 (input 1)	24 $V_{out\ of\ ASi}$	n.c.	0 $V_{out\ of\ ASi}$	I1	n.c.
	X2	I2 (input 2)	24 $V_{out\ of\ ASi}$	n.c.	0 $V_{out\ of\ ASi}$	I2	n.c.
	X3	I3 (input 3)	24 $V_{out\ of\ ASi}$	n.c.	0 $V_{out\ of\ ASi}$	I3	n.c.
	X4	I4 (input 4)	24 $V_{out\ of\ ASi}$	n.c.	0 $V_{out\ of\ ASi}$	I4	n.c.
	X5	M1 (motor 1)	24 $V_{ext\ out}$	rotating direction	0 $V_{ext\ out}$	start output / disturbance input	analog output 0 ... 10 V
	X6	M2 (motor 2)	24 $V_{ext\ out}$	rotating direction	0 $V_{ext\ out}$	start output / disturbance input	analog output 0 ... 10 V
	X7	ASI / AUX	ASi+	0 $V_{ext\ in}$	ASi-	24 $V_{ext\ in}$	–
	SEL1	rotary switch 1	selection of operating mode				
	SEL2	rotary switch 2					





Accessories:

- **ASi substructure module (CNOMO) for 8-channel module in 60 mm-housing (article no. BW2351)**
- **Protection caps for unused M12 sockets (article no. BW2368)**
- **Sealing profile IP67 (IDC plug), 60 mm (art. no. BW3282)**
- **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.**