AS-i 3.0 Motor modules

AS-i 3.0 motor modules for two 24 V motorized rollers

(Figure similar)

e.g.
Interroll (EC200, EC300, EC310) 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

Article no. BWU2766: Control module for two 24 V motorized rollers Interroll (EC200, EC300, EC310) or RULMECA (RDR BL-2) or Itoh Denki (PM500ME/XE/XP, PM605ME/XE/XP)

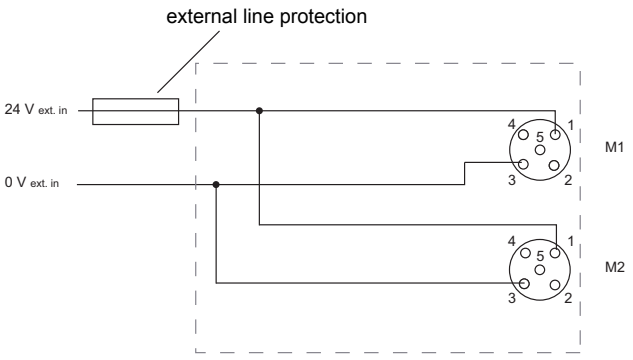
Article no. BWU2478: Control module for two 24 V motorized rollers Interroll (EC200, EC300, EC310) or RULMECA (RDR BL-2) or Itoh Denki (PM500ME/XE/XP, PM605ME/XE/XP)

Article no. BWU2959: Control module for two 24 V motorized rollers Interroll (EC310) or RULMECA (RDR BL-2) or Itoh Denki (PM500ME/XE/XP, PM605ME/XE/XP), AS-i via M12

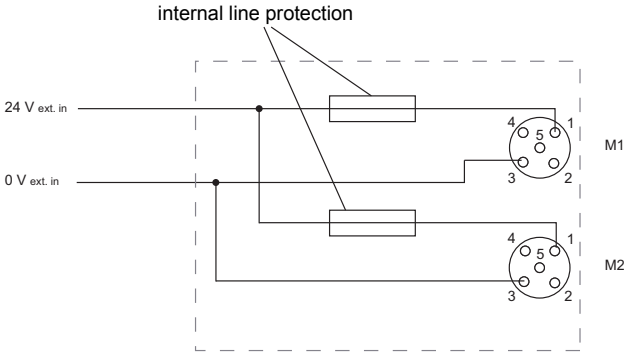
Article no.	BWU2959	BWU2478	BWU2766
General data			
Motorized rollers type	2 x Interroll (EC310) or 2 x RULMECA (RDR BL-2) or 2 x Itoh Denki (PM500ME/XE/XP, PM605ME/XE/XP)	2 x Interroll (EC200, EC300, EC310) or 2 x RULMECA (RDR BL-2) or 2 x Itoh Denki (PM500ME/XE/XP, PM605ME/XE/XP)	
Connection			
AS-i / AUX connection	M12	profile cable and piercing	
Periphery connection	M12		
AS-i			
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 AS-i 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	6 A continuously, 11 A peak		

Article no.	BWU2959	BWU2478	BWU2766
Input			
Number	4		
Power supply	sensor inputs: out of AUX	sensor inputs: out of AS-i	
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, 3 A continuously, 5.5 A max.		
Line protection fuse	no (1)		yes, separately for each motor, 3.5 AT, at 7 A (200%) release between 1 s and 120 s, fuse UL certified (2)
Display			
LED ASI (green)	on: AS-i voltage on off: no AS-i 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)		
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		
Protection category	IP67		
Isolation voltage	≥500 V		
Weight	200 g		
Dimensions (W / H / D in mm)	60 / 151 / 36,5	60 / 151 / 31	

(1) 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.



(2) 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**		AS-i 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

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

(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

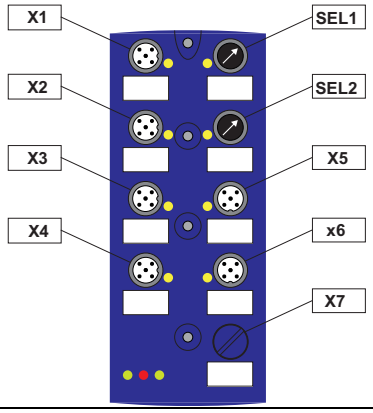
		Rotary switch SEL2															
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**A**	**B**	**C**	**D**	**E**	**F**
rotary switch SEL1	**0**	analog slave + digital slave active values of analog slave for voltage and ramp															
	1																
	2	digital slave active only analog 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																

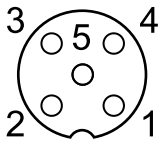
Pin assignment

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-)
AS-i+, AS-i-	connection to AS-i bus
24 $V_{out\ of\ AS-i}$	Power supply, out of AS-i, positive pole (sensor supply)
0 $V_{out\ of\ AS-}$	Power supply, out of AS-i, negative pole (sensor supply)
GND	ground earth
n.c.	not connected

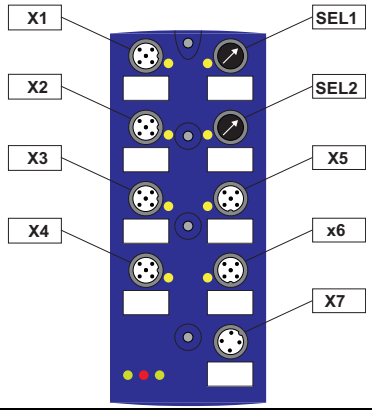
Connections

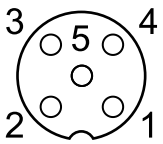
Article no.	M12 Connection	Marking	Pin1	Pin2	Pin3	Pin4	Pin5
BWU2478 BWU2766	**X1**	I1 (input 1)	24 $V_{out\ of\ AS-i}$	n.c.	GND	I1	n.c.
	X2	I2 (input 2)	24 $V_{out\ of\ AS-i}$	n.c.	GND	I2	n.c.
	X3	I3 (input 3)	24 $V_{out\ of\ AS-i}$	n.c.	GND	I3	n.c.
	X4	I4 (input 4)	24 $V_{out\ of\ AS-i}$	n.c.	GND	I4	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 AS-i addressing device				
	SEL1	rotary switch 1	selection of operating mode				
	SEL2	rotary switch 2					





Connections							
Article no.	**M12 Connection**	**Marking**	**Pin1**	**Pin2**	**Pin3**	**Pin4**	**Pin5**
BWU2959	**X1**	I1 (input 1)	24 $V_{ext\ out}$	n.c.	0 $V_{ext\ out}$	I1	n.c.
	X2	I2 (input 2)	24 $V_{ext\ out}$	n.c.	0 $V_{ext\ out}$	I2	n.c.
	X3	I3 (input 3)	24 $V_{ext\ out}$	n.c.	0 $V_{ext\ out}$	I3	n.c.
	X4	I4 (input 4)	24 $V_{ext\ out}$	n.c.	0 $V_{ext\ out}$	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	AS-i+	0 $V_{ext\ in}$	AS-i-	24 $V_{ext\ in}$	–
	SEL1	rotary switch 1	selection of operating mode				
	SEL2	rotary switch 2					





Accessories:

- **AS-i substructure module (CNOMO) for 8-channel module in 60 mm-housing (article no. BW2351)**
- **Passive Distributor AS-i/24 V to 1 x M12, 2 m line (article no. BW3246)**
- **Protection caps for unused M12 sockets (article no. BW2368)**
- **Sealing profile IP67 (IDC plug), 60 mm (art. no. BW3282)**
- **It is recommended to use pre-assembled cables to connect the motors to the module.**