

ASi motor modules for two 24 V motorized rollers

e.g.
 Interroll (EC200, EC300, EC310, EC5000) or
 RULMECA (RDR BL-2) or
 Itoh Denki (PM500XC/XK, PM500XE/XP, PM605XE/XP)

2 ASi nodes in one module

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



(Figure similar)

Mixed input and output module



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

- (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 (BWU2766 only). Please compare the manufacturer's specifications with the current values and the pin assignment of the motor module.
- (2) **Line protection 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 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.

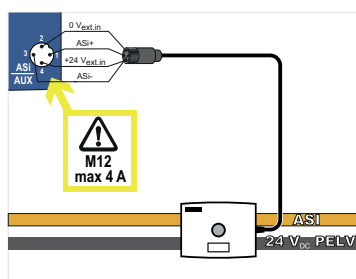
Article no.	BWU2959	BWU2478	BWU2766
General data			
Motorized rollers type	up to 2 x Interroll (EC310) or 2 x RULMECA (RDR BL-2) or 2 x Itoh Denki (PM500XC/XK, PM500XE/XP, PM605XE/XP)	2 x Interroll (EC200, EC300, EC310) or 2 x RULMECA (RDR BL-2) or 2 x Itoh Denki (PM500XC/XK, PM500XE/XP, PM605XE/XP)	2 x Interroll (EC200, EC300, EC310 or EC5000 AI, 24V, 20W/35W ⁽⁵⁾) or 2 x RULMECA (RDR BL-2) or 2 x Itoh Denki (PM500XC/XK, PM500XE/XP, PM605XE/XP)
Connection			
ASi / AUX connection	M12 ⁽¹⁾	profile cable and piercing	
Periphery connection	M12		
ASi			
Profile	digital ASi node S-7.A.7, ID1=7 analog ASi node S-7.5.5, ID1=F		
Address	1 AB address + 1 single address		
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	out of ASi		
Power supply of attached sensors	< 100 mA (sum)		
Switching threshold	U _{in} < 5 V (low), U _{in} > 10 V (high)		
Drive			
Number (digital)	2		
Power supply	out of AUX (galvanic separation)		
Overload voltage tolerated by reaction (AUX)	35 V-resistant brake chopper 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, Σ(motor) ≤ 4 A	per motor: 3 A continuously	
Line protection fuse	no ⁽²⁾	no ⁽⁴⁾	yes, separately for each motor, 4.5 AT, at 9 A (200%) release between 1 s and 120 s, fuse UL certified ⁽⁶⁾ ⁽⁵⁾
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		
It can be used with a switched AUX cable, which is passively safe up to SIL3/PLe	no ⁽³⁾		yes ⁽⁷⁾
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	

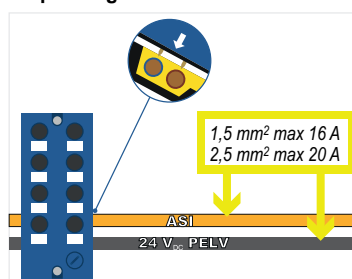
(1) **Line protection:**

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

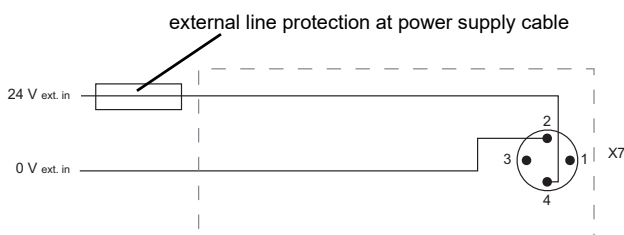


via piercing contacts



(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.

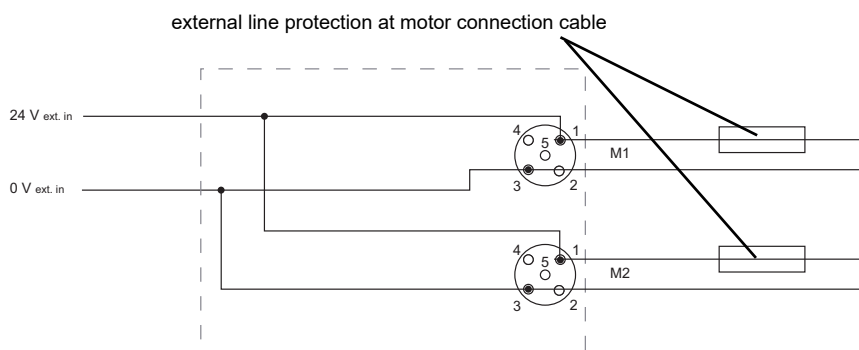
The cable protection should be realized outside the motor module with additional measures.



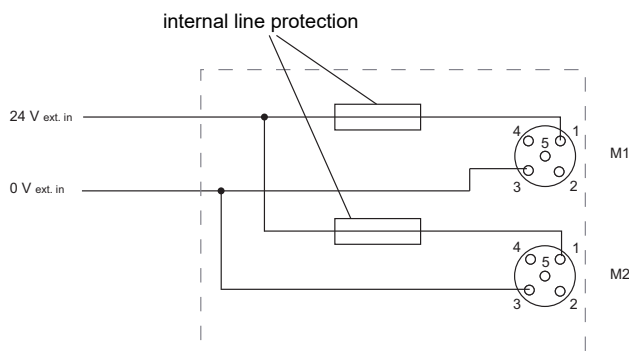
(3) The module is not suitable for use in paths with a passively safe-switched AUX cable, since an exclusion of errors cannot be assumed for the connection of the two ASi and AUX potentials.

If the module is supplied from an unswitched AUX cable, this has no influence on the safety consideration for the paths with passively safe-switched AUX cable. In an ASi circuit, paths supplied from a passively safe-switched AUX cable and paths supplied from unswitched AUX potential can be used together.

- (4) 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.



- (5) BWU2766 from Ident.No. ≥ 18339
- (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) BWU2766 from Ident. No. 17743; 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.

LEDs		Status	Signal / Description
M1, M2	yellow		State M1/M2
I1, I2, I3, I4	yellow		Input off
			Input on
ASi	green		no ASi address 0, no peripheral fault
			at least 1 ASi node with address 0 or peripheral fault
FLT	red		ASi node online and no peripheral fault
			at least 1 ASi node 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 $\leq 30 V_{DC}$ 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.

Programming:			
Analog ASi node			
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 ASi node			
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 ASi nodes 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 ASi node, 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 ASi node + digital ASi node active															
	1	values of analog ASi node for voltage and ramp															
	2	digital ASi node active only analog ASi node outputs = 0 V															
	3																
	4																
	5																
	6																
	7																
	8	digital ASi node 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
I _x	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 (protection cap)	connection for ASi-3 addressing plug				
	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 _{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:

- Connection cable for Itoh Denki Motor Rollers, M12 cable plug, straight, 5 poles to M8 snap-in cable socket, straight, 5 poles, cable length 2 m (art. no. BW2755)
- Connection cable for Itoh Denki Motor Rollers, M12 cable plug, straight, 5 poles to M8 snap-in cable socket, straight, 5 poles, cable length 1,2 m (art. no. BW3030)
- ASi substructure module (CNOMO) for 8-channel module in 60 mm-housing (article no. BW2351)
- Universal protection cap ASi-5/ASi-3 for M12 sockets, IP67 (art. no. BW4056)
- 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)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4925)
- 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.