

ASi motor module for 2 x 24 V motorized rollers

ASi-3 motor module 2I/2M

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, PM605XC/XK)
- 2 x 24 V motorized rollers Rulmeca (RDR BL-3)

2 x digital inputs for sensor connection

2 x binary and 2 x analog outputs

Mixed input/output node

Speed setting of ASi parameter

Protection category IP67



(figure similar)



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; Itoh Denki; Rulmeca	2	yes (4,5 AT)	4	2	2	out of ASi	out of AUX	4 x M12 sockets, 5 poles	ASi profile cable	BWU4205

(1) Type of motor

Interroll (EC5000 AI, 24V, 20W/35W): Motor module to control 24 V motorized rollers Interroll type EC5000 AI with 20W or 35W power.

Itoh Denki (PM500XC/XK, PM605XC/XK): Motor module to control 24 V motorized rollers Itoh Denki PM500XC/XK, PM605XC/XK.

Rulmeca (RDR BL-3): Motor module to control 24 V motorized rollers Rulmeca RDR BL-3 (transmission rates 24:1, 36:1, 49:1, 64:1, 96:1, not suitable for transmission rates 12:1, 16:1)

(2) yes, separately for each motor, 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.

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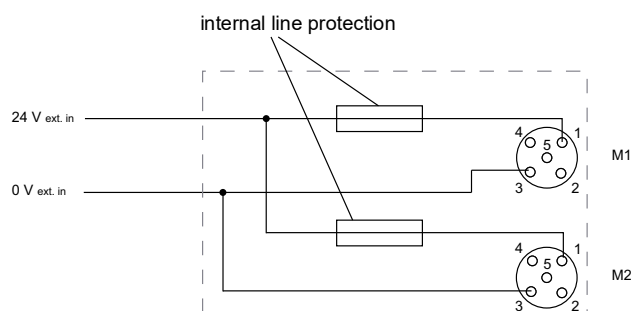
Article no.	BWU4205
General data	
Motorized rollers	2 x Interroll (EC5000 AI, 24V, 20 W/35 W) 2 x Itoh Denki (PM500XC/XK, PM605XC/XK) 2 x Rulmeca (RDR BL-3) ⁽¹⁾
Connection	
ASi/AUX connection	profile cable and piercing
Periphery connection	M12
ASi	
Profile	S-7.A.7, ID1 = 7 (fixed)
Address	AB address
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	at 20 W: 2,8 A continuously, 6,0 A peak at 35 W: 4,8 A continuously, 11,0 A peak
Input	
Number	2 x sensor inputs + 2 x motor fault inputs
Power supply	sensor inputs: out of ASi motor fault inputs: out of AUX
Power supply of attached sensors	120 mA
Switching threshold	U _{in} < 5 V (low) U _{in} > 10 V (high)
Output	
Number (digital)	2
Number (analog)	2 (depending)
Power supply	out of AUX (galvanic separation)
Overload voltage tolerated by reaction (AUX)	35 V-resistant brake resistor compatible
Max. output current	10 mA per output
Supply of motors	out of AUX per motor: 1,4 A continuously at 20 W per motor: 2,4 A continuously at 35 W
Line protection fuse	yes, separately for each motor, 4,5 AT, at 9 A (200%) release between 1 s and 120 s, fuse UL certified ⁽²⁾
Display	
LED ASi (green)	on: ASi voltage on off: no ASi voltage
LED FLT/FAULT (red)	on: no data exchange flashing: peripheral fault ⁽³⁾
LED AUX (green)	on: 24 V DC AUX off: no 24 V DC AUX
LEDs I1, I2 (yellow)	state of inputs I1, I2
LEDs M1, M2 (yellow)	state of motors M1 (O1), M2 (O3)

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Article no.	BWU4205
Environment	
Applied standards	EN 61000-6-2, EN 61000-6-4, EN 60529
Can be used in passively safe paths up to SIL3/PLe	yes ⁽⁴⁾
Operating altitude	max. 2000 m
Operating temperature	-30 °C ... +55 °C (up to max. +70 °C) ⁽⁵⁾
Storage temperature	-25 °C ... +85 °C
Housing	plastic, for DIN rail mounting or for screw mounting ⁽⁶⁾
Protection category	IP67 ⁽⁷⁾
Isolation voltage	≥ 500 V
Weight	100 g
Dimensions (W / H / D in mm)	45 / 80 / 42

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

(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.



(3) see Table , "Peripheral fault indication," on page 3".

(4) The module is suitable for use in passively safe paths because an exclusion of errors can be assumed for the connection of the two potentials, ASi and AUX.

(5) Maximum ambient operating temperature +55 °C according UL certificate for the use in the USA and Canada

(6) Depending on substructure module (see accessories). The substructure module is not included in the scope of delivery.

(7) Protection category IP67 can only be achieved if all open connections are sealed with suitable end caps fulfilling the same protection category.

Article no.	Peripheral fault indication			
	Overload output	AUX voltage missing	Overload sensor supply	at least 1 motor fuse is blown
BWU4205	•	•	•	•

UL-specifications (UL508)	
BWU4205	
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

Article no.	ASi bit assignment			
	D3	D2	D1	D0
	input			
BWU4205	Error M2	Error M1	I2	I1

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Article no.	ASi bit assignment			
	D3	D2	D1	D0
	output			
BWU4205	CW M2	Start/Stop M2	CW M1	Start/Stop M1

Configuration analog-value O1/O3				
Parameter bit			Start/Stop M1/M2 (O1/O3)	BWU4205
P2	P1	P0		Speed M1/M2 (Pin 5)
0	0	0	0	0 V
			1	2,3 V
0	0	1	0	0 V
			1	3,4 V
0	1	0	0	0 V
			1	4,5 V
0	1	1	0	0 V
			1	5,6 V
1	0	0	0	0 V
			1	6,7 V
1	0	1	0	0 V
			1	7,8 V
1	1	0	0	0 V
			1	8,9 V
1	1	1	0	0 V
			1	10 V

Pin assignment

Signal name	Explanation
Ix	digital input x
CW Mx	Direction of rotation of motor x (CW = 24 V, CCW = 0 V)
Error Mx	Indicating error at motor x (error = High Impedance; no error = 0 V)
Speed Mx	Speed of motor 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)
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)
n.c.	not connected

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Connections								
Article no.	M12 connection	Name	Function	Pin1	Pin2	Pin3	Pin4	Pin5
BWU4205	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	M1	motor 1	24 V _{ext} out	CW M1 (0: 0 V; 1: 24 V)	0 V _{ext} out	Error M1 (0: 0 V; 1: high Z)	Speed M1
	X4	M2	motor 2	24 V _{ext} out	CW M2 (0: 0 V; 1: 24 V)	0 V _{ext} out	Error M2 (0: 0 V; 1: high Z)	Speed M2
	ADDR (protection cap)	connection for ASi-3 addressing plug						

The diagram shows the physical layout of the BWU4205 module. It features four M12 connectors labeled X1, X2, X3, and X4. X1 and X2 are input connectors, while X3 and X4 are motor output connectors. The ADDR connector is a circular plug used for ASi-3 addressing. A separate diagram shows the pin configuration for the ADDR plug: pin 1 is at the bottom right, pin 2 at the bottom left, pin 3 at the top left, pin 4 at the top right, and pin 5 in the center.

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)
- Universal protection cap ASi-5/ASi-3 for M12 sockets, IP67 (art. no. BW4056)
- Sealing profile IP67 (IDC plug), 45 mm (art. no. BW3283)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4708)
- It is recommended to use pre-assembled cables to connect the motors to the module.