

ASi motor module for 2 x 24 V DC motors


2 inputs

Control of 2 motors over output



(Figure similar)



Figure	Type	Number of inputs	Inputs digital	Outputs digital	Input voltage (sensor supply.) ⁽¹⁾	Output voltage (actuator supply.) ⁽²⁾	ASi connection ⁽³⁾	ASi address ⁽⁴⁾	Max. output current	Art. no.
	IP67, 8 x M12	2	2	–	out of AUX	out of AUX	ASi profile cable	1 AB address	2 A	BWU3501

- (1) **Input voltage (sensor supply):**
inputs are supplied by ASi or by AUX (auxiliary 24V power). If supplied by ASi, inputs shall not be connected to earth or to external potential.
- (2) **Output voltage (actuator supply):**
the supply of the outputs is made by ASi or by AUX (auxiliary 24V power).
- (3) **ASi connection:**
the connection to ASi as well to AUX (auxiliary 24V power) is made via yellow resp. black ASi profile cable with piercing technology or via M12 socket (in IP20 via clamps).
- (4) **ASi address:**
AB address (max. 62 AB addresses/ASi network), 2 AB addresses (max. 31 modules with 2 AB addresses), Single addresses (max. 31 Single addresses/ASi network), mixed use allowed (upon request, ASi nodes are available with specific ASi address profiles).

Article no.	BWU3501
Connection	
ASi/AUX connection	profile cable and piercing technology
Periphery connection	M12
ASi	
Profile	S-7.A.7 (ID1=7 fixed)
Address	1 AB address
Operating voltage	30 V (18 ... 31.6 V)
Required master profile	≥ M4
As of ASi specification	3
Max. current consumption	35 mA
Max. current consumption without sensor/actuator supply	35 mA
AUX	
Voltage	24 V (18 ... 30 V)
Max. current consumption	5 A
Input	
Number	2
Power supply	out of AUX
Power supply of attached sensors	max. 1 A
Switching threshold	U < 5 V (low) U > 15 V (high)
Drive	
Number	2
Power supply	out of AUX
Max. output current	2 A per output pair O1/O2 and O3/O4, Σ(Out) 4 A output switches off according to rotary switch position (SEL1) ⁽¹⁾
Display	
LED ASI (green)	on: ASi voltage on flashing: ASi voltage on, but peripheral fault ⁽²⁾ or address 0 off: no ASi voltage
LED FLT/FAULT (red)	an: ASi address 0 or ASi node is offline flashing: peripheral fault ⁽²⁾ off: ASi node online
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/red)	state of outputs M1 (O1, O2), M2 (O3, O4) yellow on: motor on red on: short circuit at motor ⁽²⁾ off: motor in state „STOP“ or state „FREE“

Article no.	BWU3501
Environment	
Applied standards	EN 61000-2 EN 61000-3 EN 61131-2 EN 60529
It can be used with a switched AUX cable, which is passively safe up to SIL3/PLe	yes ⁽³⁾
Operating altitude	2000 m
Operating voltage	-30 °C ... +55 °C (up to max. +70 °C) ⁽⁴⁾
Storage voltage	-25 °C ... +85 °C
Housing	plastic, for screw mounting
Protection category	IP67
Max. tolerable shock load	30g, 11 ms, acc. EN 61131-2
Max. tolerable vibration stress	5 ... 8 Hz 50 mm _{pp} /8 ... 500 Hz 6g, acc. EN 61131-2
Insulation voltage	≥ 500 V
Weight	200 g
Dimensions (W / H / D) in mm	60 / 151 / 31

- (1) see table „Rotary switch position“
- (2) see table „Peripheral fault indication“
- (3) BWU3501 from Ident. No. 17691; 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.
- (4) Maximum ambient operating temperature +55 °C according UL certificate for the use in the USA and Canada

Article no.	Peripheral fault indication		
	Overload sensor supply	Output short circuited	AUX voltage missing
BWU3501	•	•	•

Programming	ASi bit assignment			
	D0	D1	D2	D3
	Input			
BWU3501	I1	I2	overload at M1 ⁽²⁾	overload at M2 ⁽²⁾
	Output			
BWU3501	O1 ⁽¹⁾	O2 ⁽¹⁾	O3 ⁽¹⁾	O4 ⁽¹⁾
	Parameter bit			
	P0	P1	P2	P3
BWU3501	0= off / 1= on (Watchdog)	0= on / 1= off (data input filter 128µs)	0= on / 1= off (synchronous I/O mode)	not used

- (1) see “Motor control over outputs”
- (2) Reset only possible by turning the output signals O1/O2 resp. O3/O4 off and removing the overload at the M12 connection before restarting the motor.

Motor control over outputs

Bit	M1 CW	M1 CCW	M1 STOP	M1 FREE	M2 CW	M2 CCW	M2 STOP	M2 FREE
O1 (D0)	1	0	1	0	-			
O2 (D1)	0	1	1	0				
O3 (D2)					1	0	1	0
O4 (D3)					0	1	1	0

Rotary switch position

SEL1	Current limit	Time
0	1,5 A	80 ms
1	not used	
2	not used	
3	not used	
4	not used	
5	not used	
6	not used	
7	not used	
8	not used	
9	not used	
A	not used	
B	not used	
C	not used	
D	not used	
E	not used	
F	not used	

Pin assignment

Signal name	Explanation
I _x	digital input x
O _x	digital output x
M1 _x , M2 _x	motor connection
24V _{ext out}	power supply, out of external voltage, positive pole (AUX, actuator supply)
0V _{ext out}	power supply, out of external voltage, negative pole (AUX, actuator supply)
24V _{out of ASi}	power supply, out of ASi, positive pole (sensor supply)
0V _{out of ASi}	power supply, out of ASi, negative pole (sensor supply)
n.c.	not connected

Connections								
Article no.	M12 connection	Marking	Pin1	Pin2	Pin3	Pin4	Pin5	
BWU3501	X1	I1	24 V _{ext.out}	n.c.	0 V _{ext.out}	I1	n.c.	
	X2	M1 (motor 1)	n.c.	n.c.	M11 ⁽¹⁾	M12 ⁽¹⁾	n.c.	
	X3	I2	24 V _{ext.out}	n.c.	0 V _{ext.out}	I2	n.c.	
	X4	M2 (motor 2)	n.c.	n.c.	M21 ⁽¹⁾	M22 ⁽¹⁾	n.c.	
	X5	SEL	rotary switch (selecting switch off time)					
	X6	–	n.c.	n.c.	n.c.	n.c.	n.c.	
	X7	–	n.c.	n.c.	n.c.	n.c.	n.c.	
	X8	–	n.c.	n.c.	n.c.	n.c.	n.c.	
	ADDR (protection cap)	connection for ASi-3 addressing plug						

⁽¹⁾ see "Motor connections"

Motor connections

	M11	M12	M21	M22
M1 CW	24 V _{ext.out}	0 V _{ext.out}	–	
M1 CCW	0 V _{ext.out}	24 V _{ext.out}		
M1 STOP	0 V _{ext.out}	0 V _{ext.out}		
M1 FREE	off	off		
M2 CW	–		24 V _{ext.out}	0 V _{ext.out}
M2 CCW			0 V _{ext.out}	24 V _{ext.out}
M2 STOP			0 V _{ext.out}	0 V _{ext.out}
M2 FREE			off	off

Accessories:

- ASi substructure module for 4 channel module in 45 mm housing (art. no. BW2349)
- ASi substructure module (CNOMO) for 4 channel module in 45 mm housing (art. no. BW2350)
- ASi substructure module (CNOMO) for 8 channel module in 60 mm housing (art. no. BW2351)
- Universal protection cap ASi-5/ASi-3 for M12 sockets, IP67 (art. no. BW4056)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4925)