

ASi motor module for 2 x 24 V DC motors

4 inputs

Control of 2 motors over output

Passive safety up to PLe



(Figure similar)

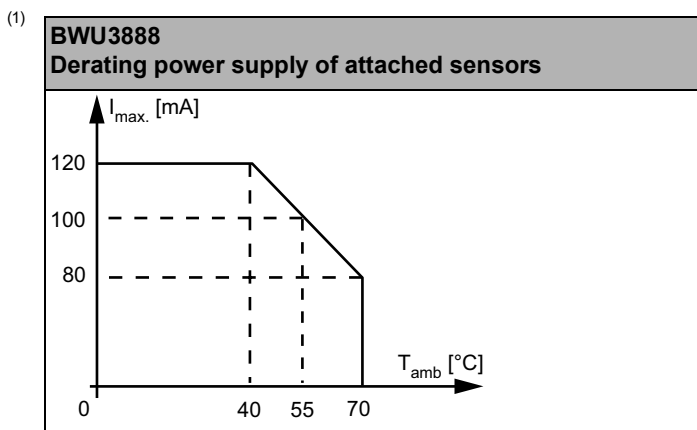


Figure	Type	Inputs digital	Outputs digital	M12 connection	Input voltage (sensor supply) ⁽¹⁾	Output voltage (actuator supply) ⁽²⁾	ASi connection ⁽³⁾	ASi address ⁽⁴⁾	Max. output current	Art. no.
	IP67, 8 x M12	4	4 x electronic	single	out of ASi	out of AUX	ASi profile cable	1 AB address	2 A	BWU3888

- (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.		BWU3888
Connection		
ASi/AUX connection		profile cable and piercing
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		3.0
Max. current consumption		165 mA
Max. current consumption without sensor/actuator supply		45 mA
AUX		
Voltage		24 V (18 ... 30 V)
Max. current consumption		4 A
Input		
Number		4
Power supply		out of ASi
Power supply of attached sensors	up to +40 °C	120 mA ⁽¹⁾
	at +55 °C	100 mA ⁽¹⁾
	at +70 °C	80 mA ⁽¹⁾
Switching threshold		U < 5 V (low) U > 15 V (high)
Output		
Number		4
Power supply		out of AUX
Max. output current		2 A per output, $\Sigma(\text{Out})$ 4 A output switches off according to rotary switch position (SEL1) ⁽²⁾
Display		
LED ASi (green)		on: ASi voltage on flashing: ASi voltage on, but peripheral fault ⁽³⁾ or address 0 off: no ASi voltage
LED FLT/FAULT (red)		an: ASi address 0 or ASi node is offline flashing: peripheral fault ⁽³⁾ off: ASi node online
LED AUX (green)		on: 24 V DC AUX off: no 24 V DC AUX
LEDs I1 ... I4 (yellow)		state of inputs I1 ... I4 ⁽⁴⁾
LEDs M1, M2 (yellow/red)		state of outputs M1 (O1, O2), M2 (O3, O4) yellow on: motor on red on: short circuit at motor ⁽³⁾ off: motor in state „STOP“ or state „FREE“

Article no.	BWU3888
Environment	
Applied standards	EN 61000-2 EN 61000-3 EN 61131-2 EN 60529 EN 62061 SIL3 EN ISO 13849-1 PLe Kat 4
It can be used with a switched AUX cable, which is passively safe up to SIL3/PLe	yes ⁽⁵⁾
Operating altitude	2000 m
Operating voltage	-30 °C ... +55 °C (up to max. +70 °C) ^{(6) (1)}
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



- (2) see table "Rotary switch position"
- (3) see table „Peripheral fault indication“
- (4) see table "Driving direction"
- (5) 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.
- (6) 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	Motor short circuited ⁽¹⁾	AUX voltage missing	both limit switches „on“ ⁽¹⁾
BWU3888	•	•	-	•

(1) Motor is switched off. The peripheral fault can only be reset by resetting the outputs.

Programming	ASi bit assignment			
Bit	D0	D1	D2	D3
	Input			
BWU3888	I1	I2	I3	I4
	Output			
BWU3888	O1 ⁽¹⁾	O2 ⁽¹⁾	O3 ⁽¹⁾	O4 ⁽¹⁾
	Parameter bit			
	P0	P1	P2	P3
BWU3888	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"

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	not used	
1	0,5 A	100 ms
2	0,75 A	100 ms
3	1,0 A	100 ms
4	1,25 A	100 ms
5	1,5 A	100 ms
6	1,75 A	100 ms
7	2,0 A	100 ms
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	
BWU3888	X1	I1/I2	24 V _{out of ASi}	I2	0 V _{out of ASi}	I1	n.c.	
	X2	M1 (motor 1)	n.c.	n.c.	M11 ⁽¹⁾	M12 ⁽¹⁾	n.c.	
	X3	I3/I4	24 V _{out of ASi}	I4	0 V _{out of ASi}	I3	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 table "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

Limit switch

	I1	I2	I3	I4
M1	limit switch for clockwise	limit switch for counterclockwise	–	
M2	–		limit switch for clockwise	limit switch for counterclockwise
	If the respective limit switch is activated, the motor is switched off. Drive in the opposite direction is only possible when the limit switch is actuated			

Driving direction

M1/M2		
Limit switch for clockwise	Limit switch for counterclockwise	
off	off	Motor rotation possible in both directions
on	off	Motor rotation only possible in counterclockwise direction
off	on	Motor rotation only possible in clockwise direction
on	on	Motor is switched off. A peripheral fault is displayed. The motor can only be restarted by resetting the outputs

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. BW4708)