AS-i Motor Module, IP67, M12, 4I/2O

AS-i motor module for
1 x 24 V DC motors, reversible

2 x 2 connections for profile cable

4 digital inputs

2 digital outputs

1 motor connection for 1 motor, max. 8 A

2 color LEDs per output,
Status (yellow), overload (red) (optional)

(Figure similar)

Figure	Type	Drive	Number of Drives	Inputs digital	Outputs digital	Input voltage (sensor supply.) (1)	Output voltage (actuator supply.) (2)	AS-i connection (3)	AS-i address (4)	Art. no.
	IP67, 8 x M12	24 VDC motor, 2-pole switched, reversible	1	4	2 x electronic	out of AS-i	out of AUX	AS-i profile cable	1 single slave	**BWU3551**

(1) I**nput voltage (sensor supply):**
inputs are supplied by AS-i or by AUX (auxiliary 24V power). If supplied by AS-i, inputs shall not be connected to earth or to external potential.

(2) **Output voltage (actuator supply):**
the supply of the outputs is made by AS-i or by AUX (auxiliary 24V power). If supplied by AS-i, outputs shall not be connected to earth or to external potential.

(3) **AS-i connection:**
the connection to AS-i as well to AUX (auxiliary 24V power) is made via yellow resp. black AS-i profile cable with piercing technology or via M12 socket (in IP20 via clamps).

(4) **AS-i address:**
AB Slave (max. 62 AB Slaves/AS-i network), 2 AB Slaves (max. 31 modules with 2 AB Slaves), Single Slaves (max. 31 Single Slaves/AS-i network), mixed use allowed (upon request, slaves are available with specific AS- Slave profiles).
For modules with two slaves the second slave is turned off as long as the first slave is addressed to address "0". Upon request, slaves are available with specific AS-i Slave profiles.

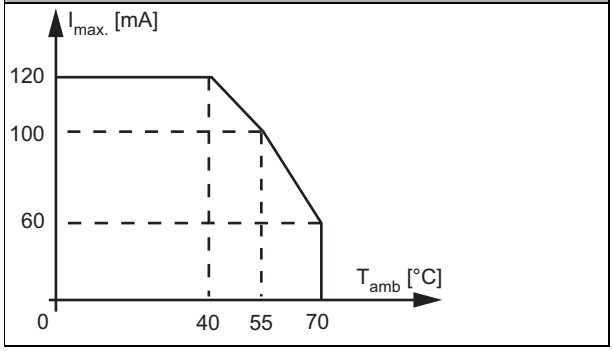
Article no.		BWU3551
General data		
Motor		24 VDC motor, reversible
Connection		
AS-i/AUX connection		profile cable and piercing
Periphery connection		M12
Length of connector cable		unlimited (1)
AS-i		
Profile		S-7.F.E (ID1=7 default)
Address		1 single slave
Operating voltage		30 V (18 … 31.6 V)
Required master profile		≥ M0
As of AS-i specification		2.0
Operating voltage		30 V_{DC} (20 ... 31,6 V)
Max. current consumption		165 mA
Max. current consumption without sensor/actuator supply		45 mA
AUX		
Voltage		24 V (18 … 30 V)
Max. current consumption		10 A
Input		
Number		4
Power supply		out of AS-i
Power supply of attached sensors	up to +40 °C	120 mA (2)
	at +55 °C	100 mA (2)
	at +70 °C	60 mA (2)
Switching threshold		U < 5 V (low) U > 15 V (high)
Output		
Number		2
Power supply		out of AUX
Max. output current	up to +40 °C	1 A per output (3)
	at +55 °C	
	at +70 °C	0,75 A per output (3)
Motor		
Number		1 motor, 2-pole switched, reversible
Power supply of motors		out of AUX
Max. output current	up to +40 °C	8 A (4)
	at +55 °C	6 A (4)
	at +70 °C	4 A (4)
Line protection fuse		8 A, electronically limited and 15 A slow blow fuse; fuse is UL certified (5)
UL-specifications (UL508)		
External protection		an isolated source with a secondary open circuit voltage of ≤30 VDC with a 3 A maximum over current protection. Over current protection is not required when a Class 2 source is employed.

Article no.	BWU3551
Display	
LED ASI (green)	on: AS-i voltage on flashing: AS-i voltage on, but peripheral fault (6) or address 0 off: no AS-i voltage
LED FLT/FAULT (red)	an: slave address 0 or slave is offline flashing: peripheral fault (6) off: slave online
LED AUX (green)	on: 24 V DC AUX off: no 24 V DC AUX
LEDs I1/I2, I3/4 (yellow)	State of the input pairs I1/I2, I3/I4
LEDs O1/O2 (yellow / red)	yellow: State of the output pair O1/O2 red: overload
LEDs M1 (yellow/red)	state of outputs M1 (O3, O4) yellow on: motor on red on: short circuit at motor (6) off: motor in state „STOP“ or state „FREE“
Environment	
Applied standards	EN 61000-6-2 EN 61000-6-3 EN 62026-2 EN 61131-2 EN 60529
Operating altitude	max. 2000 m
Operating voltage	-30 °C … +55 °C (up to max. +70 °C) (2) (3) (4) (7)
Storage voltage	-25 °C … +85 °C
Housing	plastic, for screw mounting
Pollution Degree	2
Protection category	IP67
Tolerable loading referring to humidity	according to EN 61131-2
Max. tolerable shock load	30*g*, 11 ms, acc. EN 61131-2
Max. tolerable vibration stress	5 ... 8 Hz 50 mm_{pp}/8 ... 500 Hz 6*g*, acc. EN 61131-2
Insulation voltage	≥ 500 V
Weight	200 g
Dimensions (W / H / D) in mm	60 / 151 / 31

(1) Loop resistance ≤150 Ω

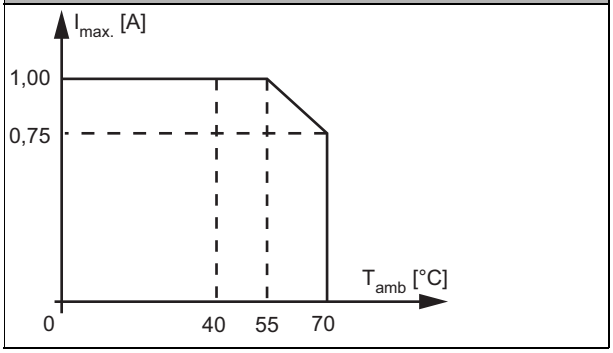
(2)

BWU3551
Derating power supply of attached sensors



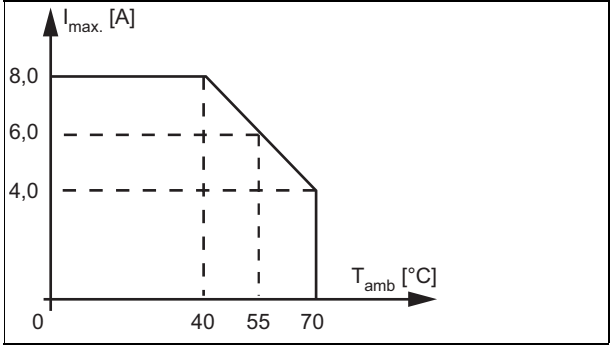
(3)

BWU3551
Derating output current per output

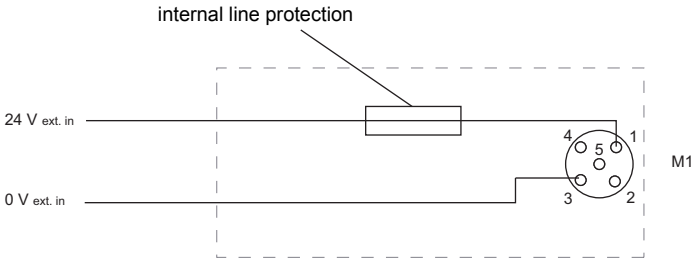


(4)

BWU3551
Derating motor supply



(5) 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.



(6) see table „Peripheral fault indication“

(7) 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
BWU3551	•	•	•

Programming	AS-i bit assignment			
Bit	D0	D1	D2	D3
	Input			
BWU3551	I1	I2	I3	I4
	Output			
BWU3551	O1	O2	O3 (1)	O4 (1)
	Parameter bit			
	P0	P1	P2	P3
BWU3551	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 via output bits”

Motor control via output bits

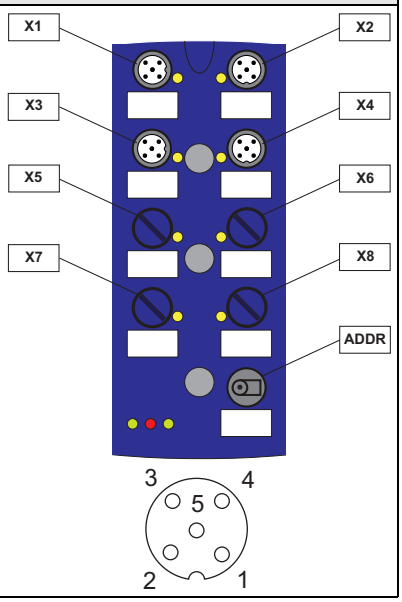
Bit	M1 CW	M1 CCW	M1 STOP	M1 FREE
O1 (D0)	–			
O2 (D1)				
O3 (D2)	1	0	1	0
O4 (D3)	0	1	1	0

Pin assignment

Signal name	Explanation
Ix	digital input x
Ox	digital output x
$24V_{ext\ out}$	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)
$24V_{out\ of\ AS\text{-}i}$	power supply, out of AS-i, positive pole (sensor supply)
$0V_{out\ of\ AS\text{-}}$	power supply, out of AS-i, negative pole (sensor supply)
AS-i+, AS-i-	connection to AS-i bus
n.c.	not connected

Connections

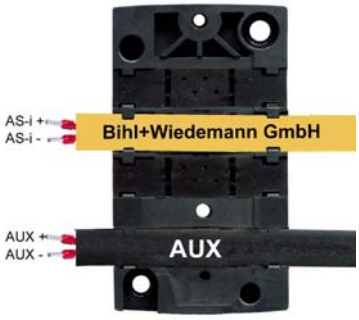
Article no.	M12 connection	Marking	Pin1	Pin2	Pin3	Pin4	Pin5
BWU3551	**X1**	I1/I2	24 $V_{out\ of\ AS\text{-}i}$	I2	0 $V_{out\ of\ AS\text{-}i}$	I1	n.c.
	X2	O1/O2	0 $V_{ext\ out}$	O2	0 $V_{ext\ out}$	O1	n.c.
	X3	I3/I4	24 $V_{out\ of\ AS\text{-}i}$	I4	0 $V_{out\ of\ AS\text{-}i}$	I3	n.c.
	X4 (1)	M1	M+	M-	M-	M+	n.c.
	X5	not used					
	X6	not used					
	X7	not used					
	X8	not used					
	ADDR (dummy plug)	connection for AS-i addressing device					



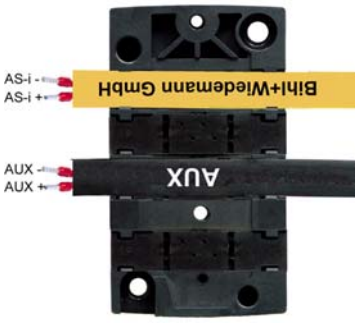
(1) X4 connection:
A maximum of 4 A can pass over each pin. To supply the motor with the maximum possible 8 A, 2 pins must be used in parallel for each connection.

Mounting according to cable direction

IP67



ordinary

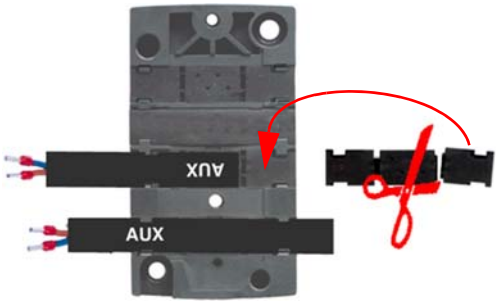


turned

Line termination with sealing profiles / as junction

IP54

max. 8A



Accessories:

- **AS-i substructure module (CNOMO) for 8 channel module in 60 mm housing (art. no. BW2351)**
- **Protection caps for unused M12 sockets (art. no. BW2368)**
- **Sealing profile IP67 (IDC plug) (art. no. BW3282)**