

# ASi-5 Motor Module for EBM-Papst K4, IP67, M12, 1M/4I/2O

## ASi-5 Motor Module to control EBM-Papst K4


Cyclic writing of speed and ramps possible

4 x M12 connectors

High protection class IP67



(figure similar)

Figure	Type	Drive <sup>(1)</sup>	Number of drives	Inputs digital	Outputs digital	Input voltage (sensor supply) <sup>(2)</sup>	Output voltage (actuator supply) <sup>(3)</sup>	ASi connection <sup>(4)</sup>	ASi address <sup>(5)</sup>	Art. no.
	IP67, 4 x M12, ASi-5	EBM-Papst K4	1	4	2	out of ASi	out of AUX	ASi profile cable	1 ASi-5 address	<b>BWU4370</b>

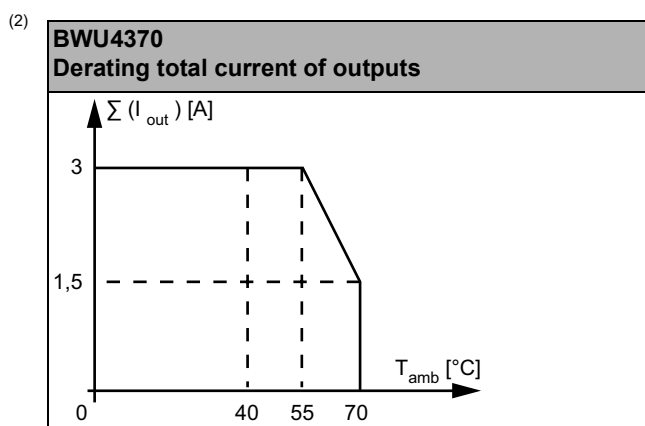
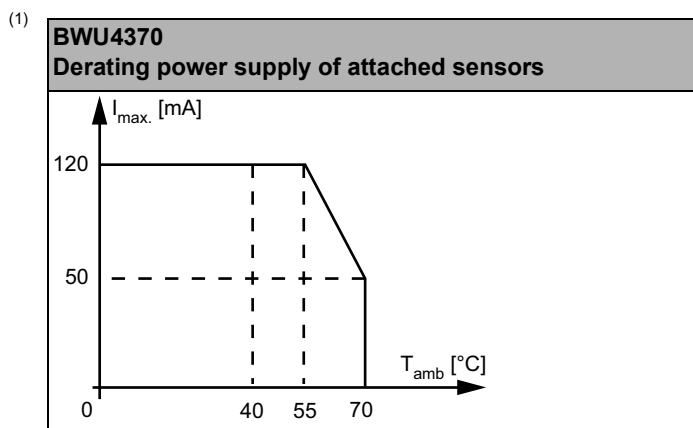
- (1) **Drive:**  
"EBM-Papst K4": Motor module to control geared motors with frequency inverters.
- (2) **Input voltage (sensor supply):** inputs are supplied by ASi or by AUX (auxiliary 24 V power). If supplied by ASi, inputs shall not be connected to earth or to external potential.
- (3) **Output 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
- (4) **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 M12 socket (in IP20 via clamps).
- (5) **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) ASi-5 address (max. 62 ASi-5 addresses/ASi network), mixed use allowed (upon request, nodes are available with specific ASi address profiles).

<b>Article no.</b>	<b>BWU4370</b>	
<b>Connection</b>		
ASi / AUX connection	profile cable and piercing	
Periphery connection	M12, Y wiring	
<b>ASi</b>		
Address	1 ASi-5 address	
Required Master profile	≥M5	
Since ASi specification	5	
Operating voltage	30 V (18 ... 31,6 V)	
Max. current consumption	210 mA	
Max. current consumption without sensor/ actuator supply	65 mA	
Process data width	6 bytes	
<b>AUX</b>		
Voltage	24 V (18 ... 30 V)	
Max. current consumption	3 A	
<b>Input</b>		
Number	4	
Power supply	out of ASi	
Sensor supply	short-circuit and overload protected according to EN 61131-2	
Power supply of attached sensors	up to +40 °C	120 mA <sup>(1)</sup>
	at +55 °C	
	at +70 °C	50 mA <sup>(1)</sup>
Switching threshold	< 5 V (low), > 15 V (high)	

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<b>Article no.</b>		<b>BWU4370</b>
<b>Output</b>		
Number		2
Power supply		out of AUX
Output		short-circuit and overload protected according to EN 61131-2
Max. output current	up to +40 °C	1 A per output, $\Sigma(\text{Out})$ 3 A <sup>(2)</sup>
	at +55 °C	
	at +70 °C	0,5 A per output, $\Sigma(\text{Out})$ 1,5 A <sup>(2)</sup>
<b>RS 485 Port</b>		
Number		1
Interface		RS 485
Baud rates		11520 Bit/s
Power supply		out of AUX
Fuse		short-circuit and overload protected according to EN 61131-2
Max. current	up to +40 °C	1 A per motor, $\Sigma(\text{Out})$ 3 A <sup>(2)</sup>
	at +55 °C	
	at +70 °C	0,5 A per motor, $\Sigma(\text{Out})$ 1,5 <sup>(2)</sup>
<b>Visualization</b>		
LED ASI (green)		on: ASi voltage flashing: ASi voltage on, but peripheral fault <sup>(3)</sup> or address 0 off: no ASi voltage
LED FLT (red)		on: node offline flashing: peripheral fault <sup>(3)</sup> off: node online
LED AUX (green)		on: 24 V <sub>DC</sub> AUX off: no 24 V <sub>DC</sub> AUX
LEDs I1 ... In (yellow)		state of inputs I1 ... I4
LEDs O1, O2 (yellow)		state of outputs O1, O2
LED M1 (yellow)		RS 485 communication active
<b>Environment</b>		
Applied standards		EN 61000-6-2 EN 61000-6-4 EN 60529
Operating altitude		max. 2000 m
Ambient operating temperature		-30 °C ... +55 °C (up to max. +70 °C) <sup>(1) (2) (4)</sup>
Storage temperature		-25 °C ... +85 °C
Housing		plastic, for DIN rail mounting or screw mounting <sup>(5)</sup>
Protection category		IP67 <sup>(6)</sup>
Pollution Degree		2
Tolerable loading referring to humidity		according to EN 61131-2
Max. tolerable shock load		30g, 11 ms, acc. EN 61131-2
Max. tolerable vibration stress		5 ... 8 Hz 50 mm <sub>pp</sub> /8 ... 500 Hz 6g, acc. EN 61131-2
Isolation voltage		≥500 V
Weight		100 g
Dimensions (B / H / T in mm)		45 / 80 / 56

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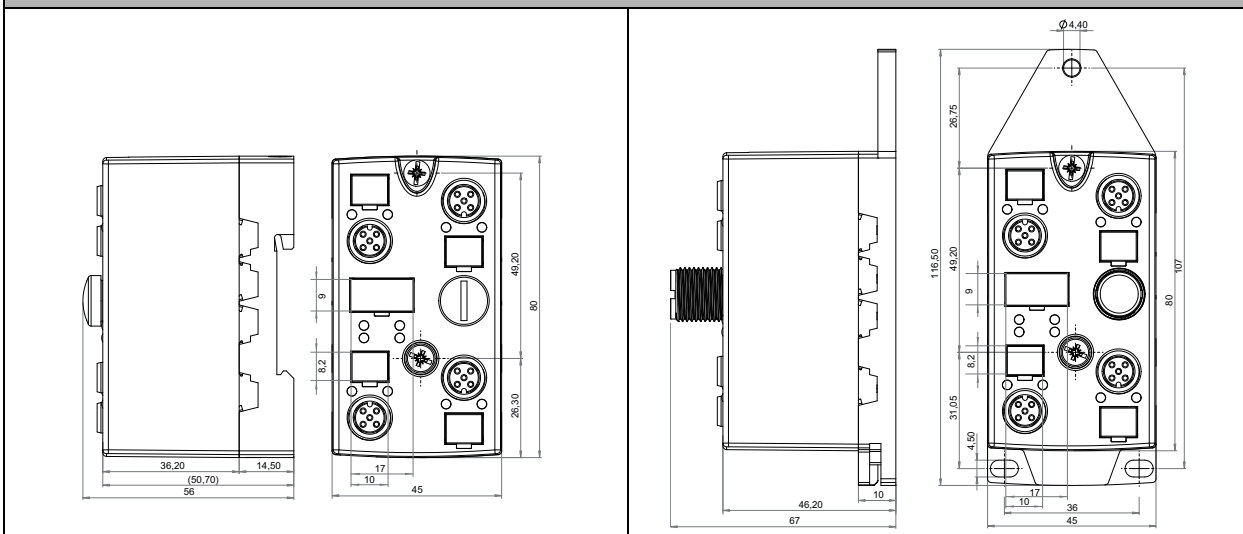


- (3) See table "Peripheral fault indication"
- (4) Maximum ambient operating temperature +55 °C according UL certificate for the use in the USA and Canada
- (5) Depending on substructure module (see accessories). The substructure module is not included in the scope of delivery.
- (6) Protection category IP67 can only be achieved if all open connections are sealed with suitable end caps fulfilling the same protection category.

<b>UL-specifications (UL508)</b>	
<b>BWU4370</b>	
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.

# ASi-5 Motor Module for EBM-Papst K4, IP67, M12, 1M/4I/2O

## Dimensional drawings



Article no.	Peripheral fault indication				
	Overload sensor supply	Output short circuited	AUX voltage missing	EBM Papst K4 Communication Error	EBM Papst K4 Parameter Error
BWU4370	•	•	•	•	•

## Programming (Bit-setting of ASi process data image)

Article no.	Byte	Bit									
		D7	D6	D5	D4	D3	D2	D1	D0		
BWU4370	Digital input data										
	0	reserved						I4	I3	I2	I1
	1	motor ready	motor running	at reference	direction of rotation	motor error	motor specific error	reserved			
	2	actual speed, high byte (0 ... 100%), UINT16									
	3	actual speed, low byte (0 ... 100%), UINT16									
	4	actual current (mA), high byte, UINT16									
5	actual current (mA), low byte, UINT16										

Article no.	Byte	Bit									
		D7	D6	D5	D4	D3	D2	D1	D0		
BWU4370	Digital output data										
	0	reserved						O2	O1		
	1	enable	start/stop	direction of rotation	brake	reset	free wheel	reserved			
	2	speed setpoint, high byte (0 ... 100%), UINT16									
	3	speed setpoint, low byte (0 ... 100%), UINT16									
	4	ramp (ms), high byte, UINT16									
5	ramp (ms), low byte, UINT16										

# ASi-5 Motor Module for EBM-Papst K4, IP67, M12, 1M/4I/2O

## Pin assignment

Signal name	Explanation
I <sub>x</sub>	Digital input x
O <sub>x</sub>	Digital output x
RS 485 Tx/Rx +	Communication with motor, positive pole (labeling on motor RX +)
RS 485 Tx/Rx -	Communication with motor, negative pole (labeling on motor RX -)
24 V <sub>ext out</sub>	Power supply, out of external voltage, positive pole (AUX, actuator supply)
0 V <sub>ext out</sub>	Power supply, out of external voltage, negative pole (AUX, actuator supply)
24 V <sub>out of ASi</sub>	Power supply, out of ASi, positive pole (sensor supply)
0 V <sub>out of ASi</sub>	Power supply, out of ASi, negative pole (sensor supply)
n.c.	not connected

Connections							
Article no.	M12 Connection	Marking	Pin1	Pin2	Pin3	Pin4	Pin5
BWU4370	X1	I1/I2	24 V <sub>out of ASi</sub>	I2	0 V <sub>out of ASi</sub>	I1	n.c.
	X2	I3/I4	24 V <sub>out of ASi</sub>	I4	0 V <sub>out of ASi</sub>	I3	n.c.
	X3	O1/O2	0 V <sub>ext out</sub>	O2	0 V <sub>ext out</sub>	O1	n.c.
	X4	M1 (motor)	24 V <sub>ext out</sub>	RS 485 Tx/Rx -	0 V <sub>ext out</sub>	RS 485 Tx/Rx +	n.c.
	ADDR (protection cap)	connection for ASi-5 addressing plug					

## Accessories:

- ASi substructure module for 4-channel module in 45 mm-housing (art. no. BW2349)
- ASi substructure module (CNOMO) 4-channel module in 45 mm-housing (art. no. BW2350)
- Universal protection cap ASi-5/ASi-3 for M12 sockets, IP67 (art. no. BW4056)
- 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. BW4708)