

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 ⁽¹⁾	Number of drives	Inputs digital	Outputs digital	Input voltage (sensor supply) ⁽²⁾	Output voltage (actuator supply) ⁽³⁾	ASi connection ⁽⁴⁾	ASi address ⁽⁵⁾	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	BWU4370

- (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).

Article no.		BWU4370
Connection		
ASi / AUX connection	profile cable and piercing	
Periphery connection	M12, Y wiring	
ASi		
Address	1 ASi-5 address	
Required Master profile	≥M5	
Since ASi specification	5	
ASi process data width	6 byte ⁽¹⁾	
Operating voltage	30 V (18 ... 31,6 V)	
Max. current consumption	210 mA	
Max. current consumption without sensor/ actuator supply	65 mA	
AUX		
Voltage	24 V (18 ... 30 V)	
Max. current consumption	3 A	
Input		
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 ⁽²⁾
	at +55 °C	
	at +70 °C	50 mA ⁽²⁾
Switching threshold	< 5 V (low), > 15 V (high)	

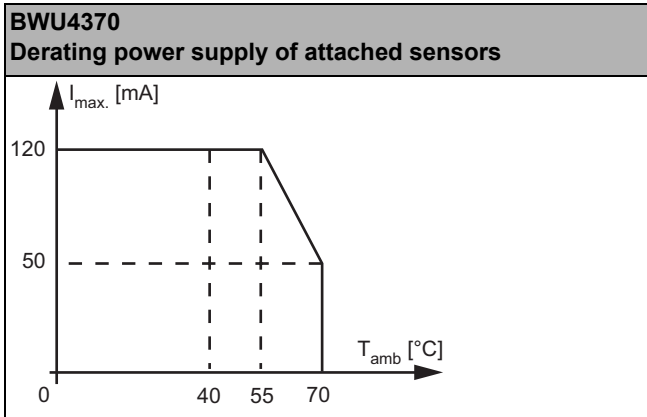
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Article no.		BWU4370
Output		
Number		2
Power supply		out of AUX
Output		short-circuit and overload protected according to EN 61131-2
Max. output current	up to +40 °C	1 A per output, $\Sigma(\text{Out})$ 3 A ⁽³⁾
	at +55 °C	
	at +70 °C	0,5 A per output, $\Sigma(\text{Out})$ 1,5 A ⁽³⁾
RS 485 Port		
Number		1
Interface		RS 485
Baud rates		115200 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 ⁽³⁾
	at +55 °C	
	at +70 °C	0,5 A per motor, $\Sigma(\text{Out})$ 1,5 ⁽³⁾
Visualization		
LED ASI (green)	on: ASi voltage flashing: ASi voltage on, but peripheral fault ⁽⁴⁾ or address 0 off: no ASi voltage	
LED FLT (red)	on: ASi node offline flashing: peripheral fault ⁽⁴⁾ off: ASi node online	
LED AUX (green)	on: 24 V _{DC} AUX off: no 24 V _{DC} 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	
Environment		
Applied standards	EN 61000-6-2 EN 61000-6-4 EN 60529	
It can be used with a switched AUX cable, which is passively safe up to SIL3/PLe	yes ⁽⁵⁾	
Operating altitude	max. 2000 m	
Ambient operating temperature	-30 °C ... +55 °C (up to max. +70 °C) ^{(2) (3) (6)}	
Storage temperature	-25 °C ... +85 °C	
Housing	plastic, for DIN rail mounting or screw mounting ⁽⁷⁾	
Protection category	IP67 ⁽⁸⁾	
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 _{pp} /8 ... 500 Hz 6g, acc. EN 61131-2	
Isolation voltage	≥500 V	
Weight	100 g	
Dimensions (B / H / T in mm)	45 / 80 / 56	

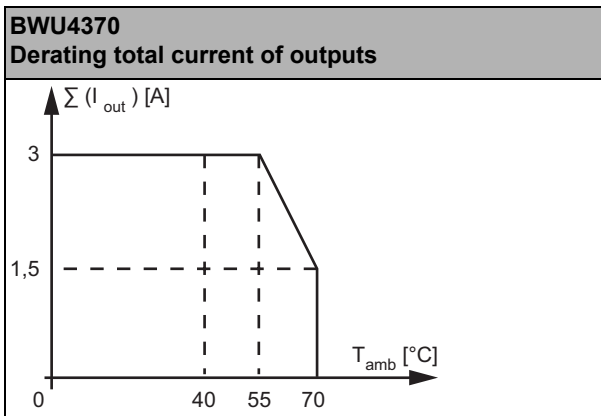
(1) The ASi-5 process data bandwidth depends on the ASi-5 profile. Further selectable profiles can be found in the hardware catalog of the Bihl+Wiedemann Suite or in the configuration manual.

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(2)



(3)

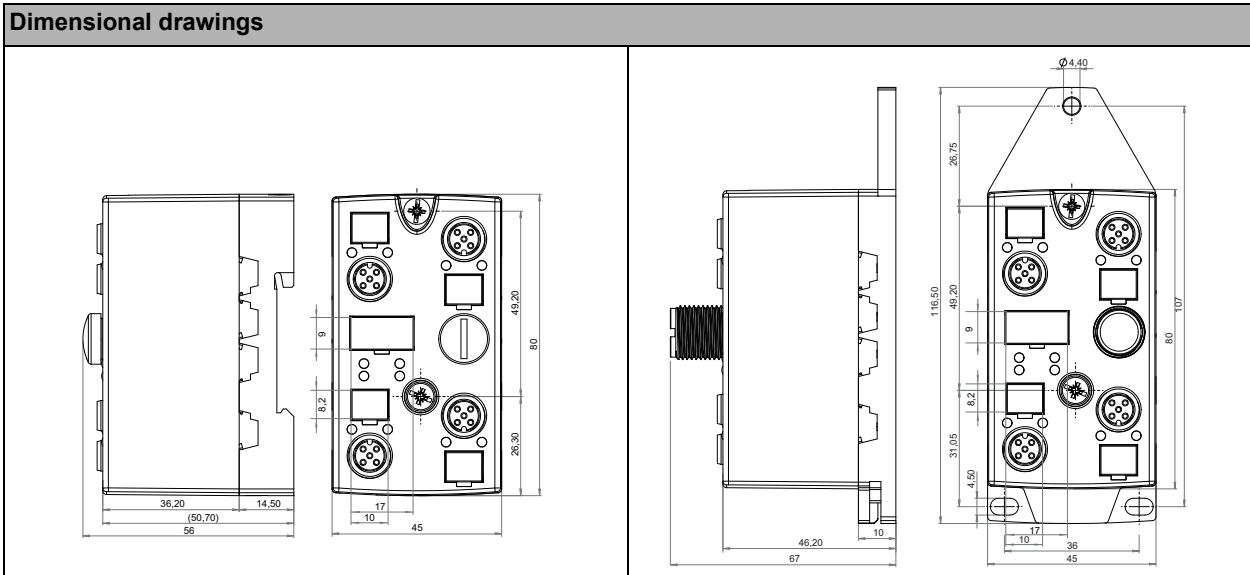


(4) See table "Peripheral fault indication"

- (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
- (7) Depending on substructure module (see accessories). The substructure module is not included in the scope of delivery.
- (8) Protection category IP67 can only be achieved if all open connections are sealed with suitable end caps fulfilling the same protection category.

UL-specifications (UL508)	
BWU4370	
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.

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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%, resolution 0,01%), UINT16									
	3	actual speed, low byte (0 ... 100%, resolution 0,01%), 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%, resolution 0,01%), UINT16									
	3	speed setpoint, low byte (0 ... 100%, resolution 0,01%), UINT16									
	4	ramp (ms), high byte, UINT16									
5	ramp (ms), low byte, UINT16										

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Pin assignment

Signal name	Explanation
Ix	Digital input x
Ox	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 _{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)
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

Connections							
Article no.	M12 Connection	Marking	Pin1	Pin2	Pin3	Pin4	Pin5
BWU4370	X1	I1/I2	24 V _{out of ASi}	I2	0 V _{out of ASi}	I1	n.c.
	X2	I3/I4	24 V _{out of ASi}	I4	0 V _{out of ASi}	I3	n.c.
	X3	O1/O2	0 V _{ext out}	O2	0 V _{ext out}	O1	n.c.
	X4	M1 (motor)	24 V _{ext out}	RS 485 Tx/Rx -	0 V _{ext out}	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)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4925)