

EXTREME Product Line for ASi, Digital Modules ASi, IP67, M12

Suitable for extreme conditions

- 100% protection against moisture
- High resistance to salt spray
- High corrosion resistance to chemically active substances
- Assured functionality at extreme temperatures from -40 °C ... 70 °C
- Shock resistant to 30g (11 ms)
- Vibration rated for a frequency of 5 ... 500 Hz at an amplitude of 50 mm_{pp} / 6g



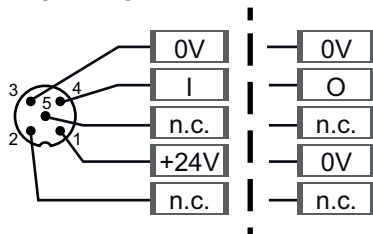
(Figure similar)



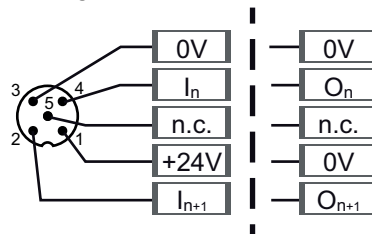
Figure	Type	Inputs digital	Outputs digital	M12 connection (1)	Input voltage (sensor supply) (2)	Output voltage (actuator supply) (3)	ASi connection (4)	ASi address (5)	Max. output current	Art. no.
	IP67, 4 x M12; EXTREME	4	–	Y	out of ASi	–	ASi profile cable	1 AB address	–	BWU3145
	IP67, 8 x M12; EXTREME	4	4 x electronic	Y	out of ASi	out of AUX	ASi profile cable	1 AB address	1 A	BWU3144

(1) **M12 wiring:** either as a single-wiring, Y-wiring or mixed-wiring.

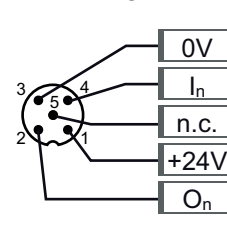
Single-wiring



Y-wiring



Mixed-wiring



- (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), mixed use allowed.
For modules with two ASi nodes the second ASi node is turned off as long as the first ASi node is addressed to address "0".
Upon request, ASi nodes are available with specific ASi address profiles.

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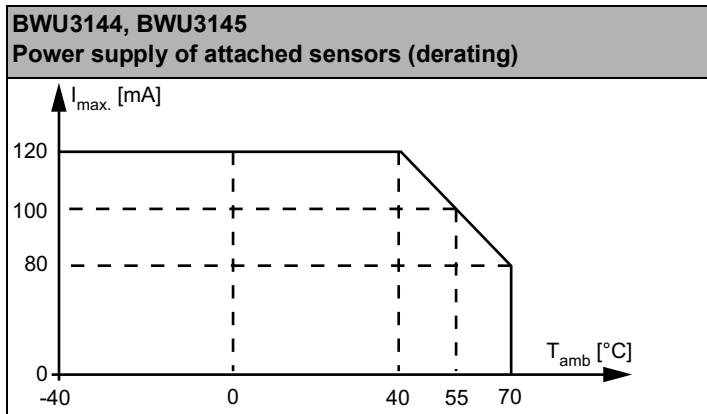
Article No.	BWU3145		BWU3144	
General data				
Device type	input		input / output	
Connection				
ASi/AUX connection	profile cable and piercing			
Periphery connection	M12, Y-wiring			
Length of connector cable	unlimited ⁽¹⁾			
ASi				
Profile	S-0.A.E (ID1=7 default)		S-7.A.7 (ID1=7 fixed)	
Address	1 AB address			
Required Master profile	≥M3		≥M4	
As of ASi specification	2.1		3.0	
Operating voltage	30 V (18 ... 31.6 V)			
Max. current consumption	165 mA			
Max. current consumption without sensor/ actuator supply	45 mA			
AUX				
Operating voltage	–		24 V (18 ... 30 V)	
Max. current consumption	–		3 A	
Input				
Number	4			
Power supply	out of ASi			
Power supply of attached sensors	up to +40 °C	120 mA ⁽²⁾		
	at +55 °C	100 mA ⁽²⁾		
	at +70 °C	80 mA ⁽²⁾		
Switching threshold	U < 5 V (low) U > 15 V (high)			
Output				
Number	–		4	
Power supply	–		out of AUX	
Max. output current	–		1 A (∑ 3 A max.)	
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)	on: ASi address 0 or ASi node 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 ... In (yellow)	state of inputs I1 ... I4			
LEDs O1 ... On (yellow)	–		state of outputs O1 ... O4	

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Article No.	BWU3145	BWU3144
Environment		
Applied standards	EN 61000-6-2 EN 61000-6-3 EN 61131-2 EN 60529	
Can be used in passively safe paths up to SIL3/PLe	yes ⁽⁴⁾	yes ⁽⁷⁾
Operating altitude	max. 2000 m	
Ambient temperature	-40 °C ... +55 °C (up to max. +70 °C) ⁽²⁾ ⁽⁵⁾	
Storage temperature	-25 °C ... +85 °C	
Relative humidity	100 %; dewing, condensation and ice formation permitted	
Corrosive gas	acc. EN 60068-2-60, Method 4: H ₂ S: 10 ppb NO ₂ : 200 ppb Cl ₂ : 10 ppb SO ₂ : 200 ppb relative humidity: 75 %	
Salt mist	acc. EN 60068-2-52: severity level 3	
Housing	plastic, for DIN rail mounting for screw mounting ⁽⁶⁾	plastic, for screw mounting
Protection category	IP67 (circuit board coated)	
Pollution degree	2	
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	
Weight	100 g	200 g
Dimensions (W / H / D) in mm	45 / 80 / 42	60 / 151 / 31

(1) Loop resistance ≤150 Ω

(2)



(3) See table "Peripheral fault indication"

(4) The module is suitable for use in passively safe paths as it has no connection to an AUX potential.

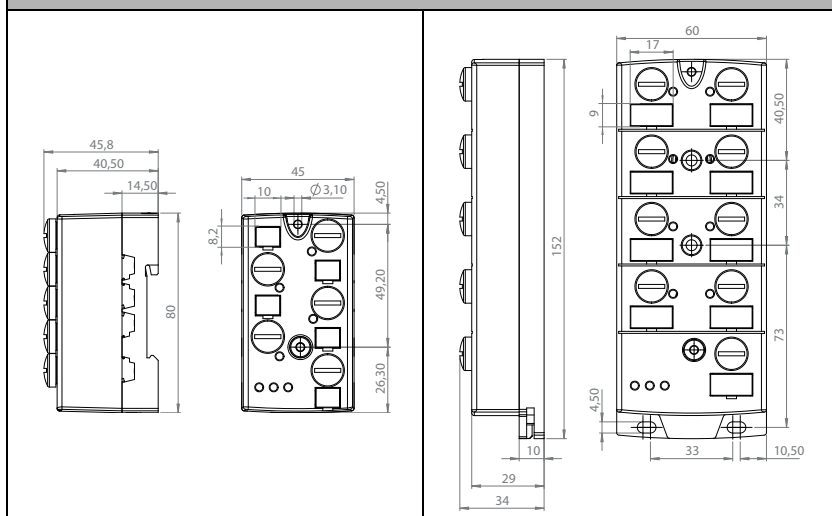
(5) Maximum ambient operating temperature +55 °C according UL certificate for the use in the USA and Canada

(6) Depending on substructure module (see accessories). The substructure module is not included in the scope of delivery.

(7) BWU3144 from ID no. 16961; The module is suitable for use in passively safe paths because an exclusion of errors can be assumed for the connection of the two potentials, ASi and AUX.

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Dimensional drawings



UL-specifications (UL508)

BWU3144, BWU3145

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.

Article no.	Peripheral fault indication		
	Overload sensor supply	Output short circuited	AUX voltage missing
BWU3144	•	•	-
BWU3145	•	-	-

Programming	ASi bit assignment			
	D3	D2	D1	D0
Bit	input			
BWU3144 / BWU3145	I4	I3	I2	I1
	output			
BWU3144	O4	O3	O2	O1
	parameter bit			
	P3	P2	P1	P0
BWU3144	not used	0= on / 1= off (synchronous I/O mode)	0= on / 1= off (data input filter 128µs)	0= off / 1= on (Watchdog)
BWU3145				0= off / 1= on (peripheral fault)

Pin assignment

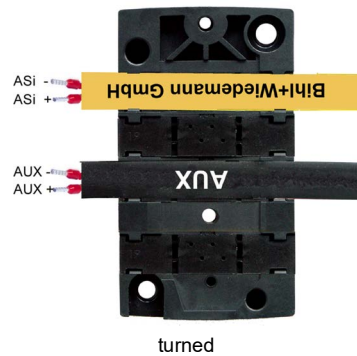
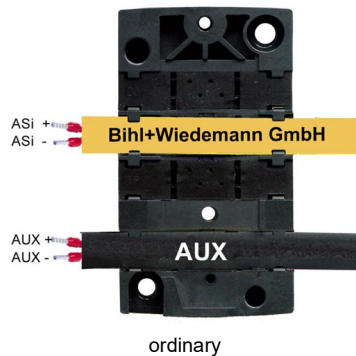
Signal name	Explanation
Ix	digital input x
Ox	digital output x
24V _{ext out}	power supply, out of external voltage, positive pole (AUX, actuator supply)
0V _{ext out}	power supply, out of external voltage, negative pole (AUX, actuator supply)
24V _{out of ASi}	power supply, out of ASi, positive pole (sensor supply)
0V _{out of ASi}	power supply, out of ASi, negative pole (sensor supply)
ASi +, ASi -	connection to ASi bus
n.c.	not connected

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Connections							
Article no.	M12 connection	Marking	Pin1	Pin2	Pin3	Pin4	Pin5
BWU3145	X1	I1	24 V _{out of ASi}	I2	0 V _{out of ASi}	I1	n.c.
	X2	I2	24 V _{out of ASi}	n.c.	0 V _{out of ASi}	I2	n.c.
	X3	I3	24 V _{out of ASi}	I4	0 V _{out of ASi}	I3	n.c.
	X4	I4	24 V _{out of ASi}	n.c.	0 V _{out of ASi}	I4	n.c.
	ADDR (protection cap)	connection for ASi-3 addressing plug					

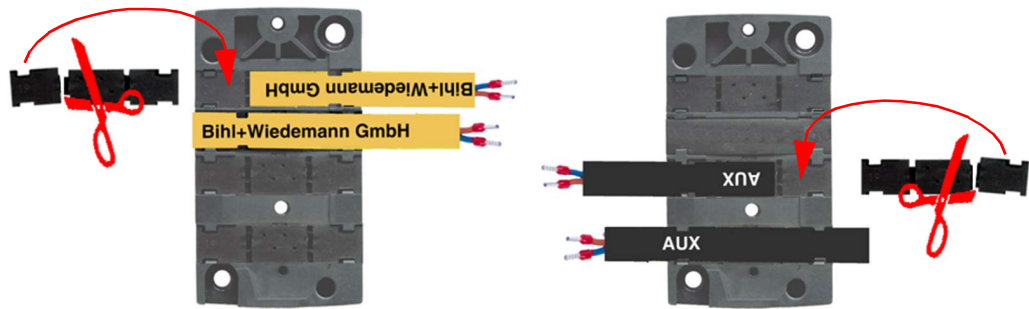
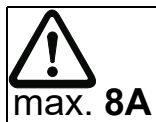
Connections							
Article no.	M12 connection	Marking	Pin1	Pin2	Pin3	Pin4	Pin5
BWU3144	X1	I1	24 V _{out of ASi}	I2	0 V _{out of ASi}	I1	n.c.
	X2	I2	24 V _{out of ASi}	n.c.	0 V _{out of ASi}	I2	n.c.
	X3	I3	24 V _{out of ASi}	I4	0 V _{out of ASi}	I3	n.c.
	X4	I4	24 V _{out of ASi}	n.c.	0 V _{out of ASi}	I4	n.c.
	X5	O1	0 V _{ext out}	O2	0 V _{ext out}	O1	n.c.
	X6	O2	0 V _{ext out}	n.c.	0 V _{ext out}	O2	n.c.
	X7	O3	0 V _{ext out}	O4	0 V _{ext out}	O3	n.c.
	X8	O4	0 V _{ext out}	n.c.	0 V _{ext out}	O4	n.c.
ADDR (protection cap)	connection for ASi-3 addressing plug						

Mounting according to cable direction



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Line termination with sealing profiles / as junction



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)
- Sealing profiles IP67 (IDC plug), 60 mm (art. no. BW3282)
- Sealing profiles IP67 (IDC plug), 45 mm (art. no. BW3283)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4708)