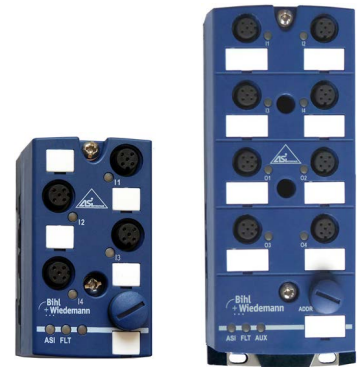


Digital Modules ASi, IP67, M12



2 x 2 connectors for profile cable

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

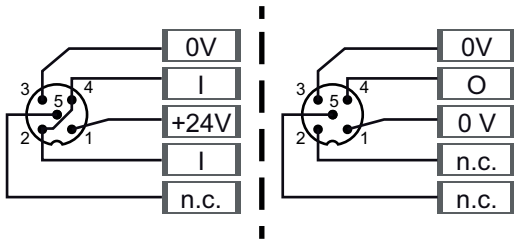


(figure similar)

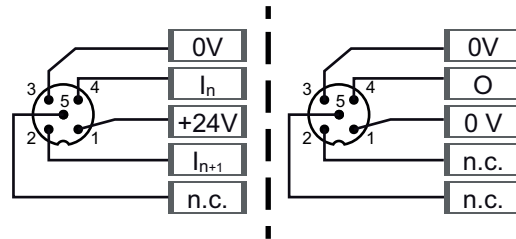


Figure	Type	Inputs digital	Outputs digital	M12 connection (1)	Input voltage (sensor supply) (2)	Output voltage (actuator supply) (3)	ASi connection (4)	ASi address (5)	Max. output current	Art. no.
	IP67, 4 x M12	4	—	standard	out of ASi	—	ASi profile cable	1 single address	—	BWU3682
	IP67, 8 x M12	4	3 x electronic	standard	out of ASi	out of AUX	ASi profile cable	1 AB address	2 A	BWU3701
	IP67, 8 x M12	4	4 x electronic	standard	out of ASi	out of AUX	ASi profile cable	1 single address	2 A	BWU3686
	IP67, 8 x M12	8	—	dual (Y)	out of ASi	—	ASi profile cable	2 AB addresses	—	BWU3523

(1) **M12 wiring:** either as a standard wiring or dual (Y) wiring.
standard wiring



dual (Y) 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:** 1 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.

Digital Modules ASi, IP67, M12



Article No.	BWU3523		BWU3682		BWU3686		BWU3701	
General data								
Device type	input				input / output			
Connection								
ASi/AUX connection	profile cable and piercing							
Periphery connection	M12, dual (Y) wiring		M12, standard wiring					
Length of connector cable	unlimited ⁽¹⁾							
ASi								
Profile	ASi node 1: S-0.A.2 (ID1=7 default) ASi node 2: S-0.A.2 (ID1=7 default)		S-0.0.E (ID1=F fixed)		S-7.0.E (ID1=F default)		S-7.A.0 (ID1=7 default)	
Address	2 AB addresses		1 single address				1 AB address	
Required Master profile	≥M3		≥M0				≥M3	
As of ASi specification	2.1		2.0				2.1	
Operating voltage	30 V (18 ... 31.6 V)							
Max. current consumption	270 mA		165 mA					
Max. current consumption without sensor/ actuator supply	70 mA		45 mA					
AUX								
Operating voltage	-				24 V (18 ... 30 V)			
Max. current consumption	-				8 A		6 A	
Input								
Number	8		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	200 mA ⁽²⁾		120 mA ⁽⁶⁾				
	at +55 °C	150 mA ⁽²⁾		100 mA ⁽⁶⁾				
	at +70 °C	100 mA ⁽²⁾		80 mA ⁽⁶⁾				
Switching threshold	U<5 V (low) U>15 V (high)							
Output								
Number	-				4		3	
Power supply	-				out of AUX			
Output	-				short-circuit and overload protected according to EN 61131			
Max. output current	up to +40 °C	-		2 A per output, Σ (Out) 8 A ⁽⁷⁾		2 A per output, Σ (Out) 6 A ⁽⁷⁾		
	at +55 °C	-		1,5 A per output, Σ (Out) 6 A ⁽⁷⁾		1,5 A per output, Σ (Out) 4,5 A ⁽⁷⁾		
	at +70 °C	-		1 A per output, Σ (Out) 4 A ⁽⁷⁾		1 A per output, Σ (Out) 3 A ⁽⁷⁾		

Digital Modules ASi, IP67, M12

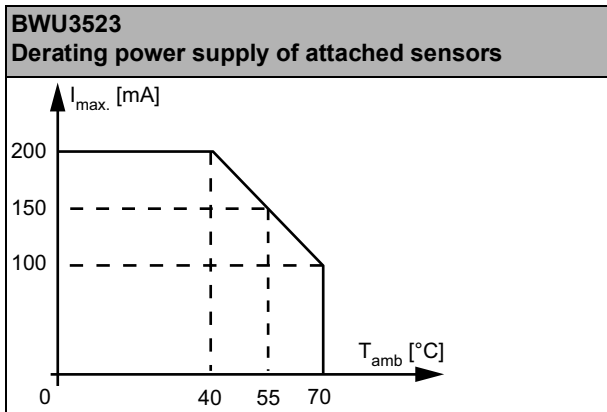


Article No.	BWU3523	BWU3682	BWU3686	BWU3701
Display				
LED ASi (green)	on: ASi voltage on flashing: ASi voltage on, but peripheral fault ⁽³⁾ or address 0 off: no ASi voltage			
LED ASi/FLT 1 (red/green)	green: ASi node online red: ASi node offline yellow/red flashing: address 0 red/green flashing: peripheral fault ⁽³⁾	-		
LED ASi/FLT 2 (red/green)	green: ASi node online red: ASi node offline yellow/red flashing: address 0 red/green flashing: peripheral fault ⁽³⁾ red flashing: ASi node 2 is switched off, because ASi node 1 is offline	-		
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 ... I8	state of inputs I1 ... I4		
LEDs O1 ... On (yellow)	-		state of outputs O1 ... O4	state of outputs O1 ... O3
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 ⁽⁸⁾	yes ⁽⁹⁾	
Operating altitude	max. 2000 m			
Ambient temperature	-30 °C ... +55 °C (up to max. +70 °C) ⁽²⁾ ⁽⁵⁾ ⁽⁶⁾ ⁽⁷⁾			
Storage temperature	-25 °C ... +85 °C			
Housing	plastic, for screw mounting	plastic, for DIN rail mounting	plastic, for screw mounting	
Pollution degree	2			
Protection category	IP67			
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			
Insulation voltage	≥500 V			
Weight	200 g	100 g	200 g	
Dimensions (W / H / D) in mm	60 / 151 / 31	45 / 80 / 42	60 / 151 / 31	

⁽¹⁾ Loop resistance ≤150 Ω

Digital Modules ASi, IP67, M12

(2)

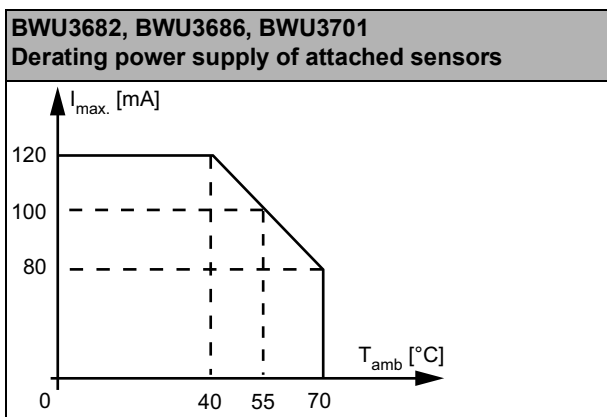


(3) See table "Peripheral fault indication"

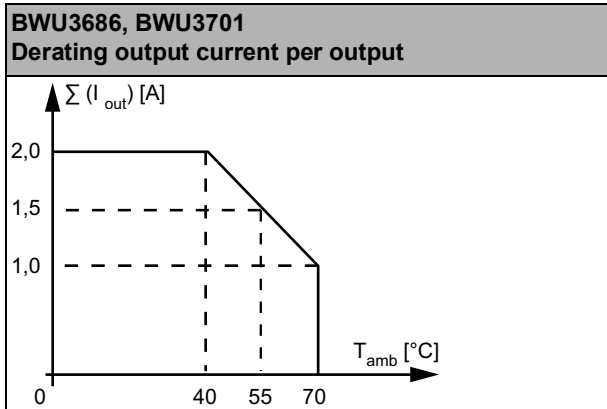
(4) The module is suitable for use in passively safe paths as it has no connection to an AUX potential.

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

(6)



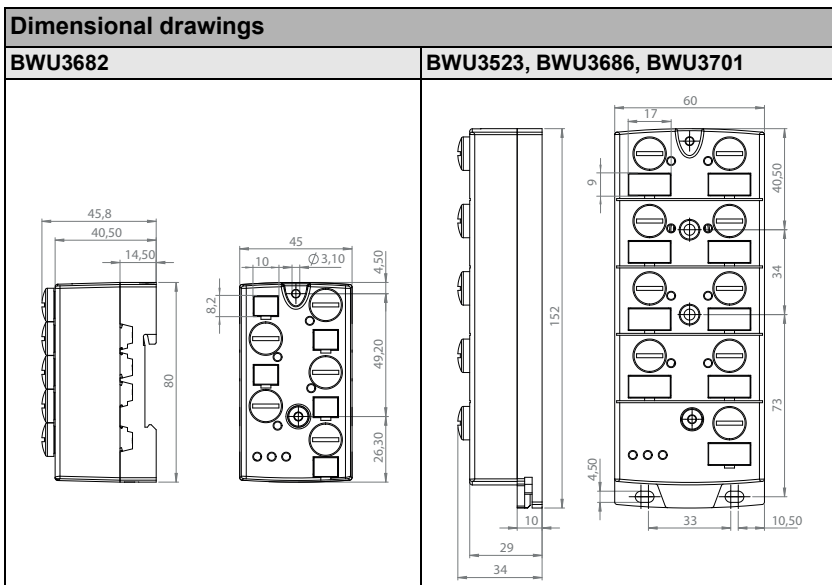
(7)



(8) BWU3686 from ID no. 17088; 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.

(9) BWU3701 from ID no. 17129; 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.

Digital Modules ASi, IP67, M12



UL-specifications (UL508)	
BWU3523, BWU3682, BWU3686, BWU3701	
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
BWU3523	•	-	-
BWU3682	•	-	-
BWU3686	•	-	-
BWU3701	•	-	-

Programming	ASi bit assignment			
	D3	D2	D1	D0
	input			
BWU3682, BWU3686, BWU3701	I4	I3	I2	I1
BWU3523	ASi node 1: I4	ASi node 1: I3	ASi node 1: I2	ASi node 1: I1
	ASi node 2: I8	ASi node 2: I7	ASi node 2: I6	ASi node 2: I5
	output			
BWU3701	-	O3	O2	O1
BWU3686	O4	O3	O2	O1

Programming	Parameter bits			
	P3	P2	P1	P0
BWU3523, BWU3682, BWU3686, BWU3701	not used	0= on / 1= off (synchronous I/O mode)	0= on / 1= off (data input filter 128µs)	0= off / 1= on (peripheral fault)

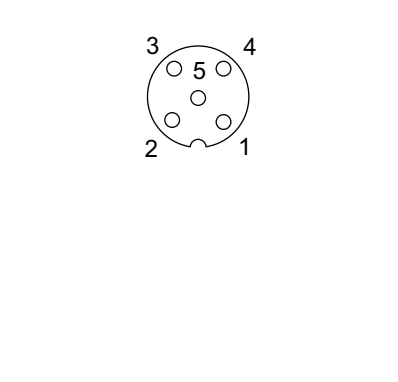
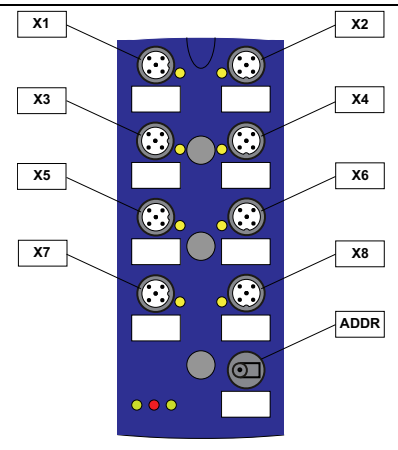
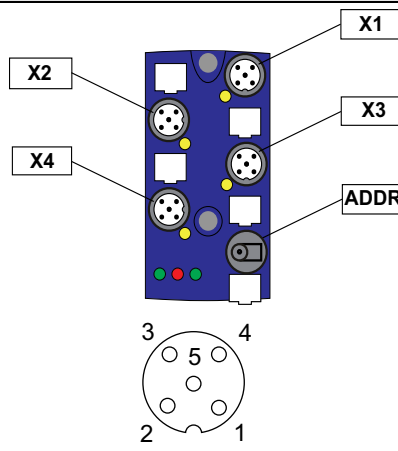
Digital Modules ASi, IP67, M12



Pin assignment

Signal name	Explanation
I _x	digital input x
O _x	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)	not connected

Connections							
Article no.	M12 connection	Marking	Pin1	Pin2	Pin3	Pin4	Pin5
BWU3682	X1	I1	24 V out of ASi	I1 (1)	0 V out of ASi	I1 (1)	n.c.
	X2	I2	24 V out of ASi	I2 (1)	0 V out of ASi	I2 (1)	n.c.
	X3	I3	24 V out of ASi	I3 (1)	0 V out of ASi	I3 (1)	n.c.
	X4	I4	24 V out of ASi	I4 (1)	0 V out of ASi	I4 (1)	n.c.
	ADDR (protection cap)	connection for ASi-3 addressing plug					
BWU3686	X1	I1	24 V out of ASi	I1 (1)	0 V out of ASi	I1 (1)	n.c.
	X2	I2	24 V out of ASi	I2 (1)	0 V out of ASi	I2 (1)	n.c.
	X3	I3	24 V out of ASi	I3 (1)	0 V out of ASi	I3 (1)	n.c.
	X4	I4	24 V out of ASi	I4 (1)	0 V out of ASi	I4 (1)	n.c.
	X5	O1	0 V _{ext out}	n.c.	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}	n.c.	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						
BWU3701	X1	I1	24 V out of ASi	I1 (1)	0 V out of ASi	I1 (1)	n.c.
	X2	I2	24 V out of ASi	I2 (1)	0 V out of ASi	I2 (1)	n.c.
	X3	I3	24 V out of ASi	I3 (1)	0 V out of ASi	I3 (1)	n.c.
	X4	I4	24 V out of ASi	I4 (1)	0 V out of ASi	I4 (1)	n.c.
	X5	O1	0 V _{ext out}	n.c.	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}	n.c.	0 V _{ext out}	O3	n.c.
	X8	not used					
ADDR (protection cap)	connection for ASi-3 addressing plug						



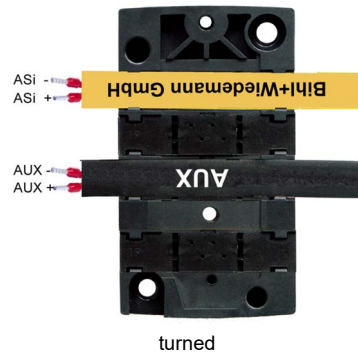
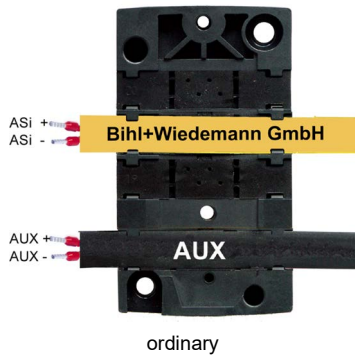
Digital Modules ASi, IP67, M12



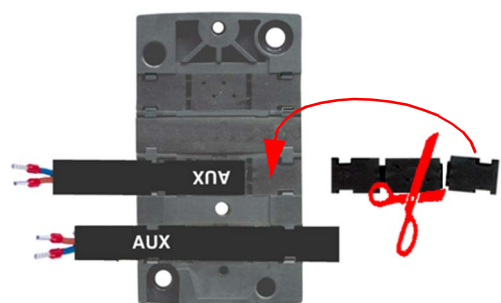
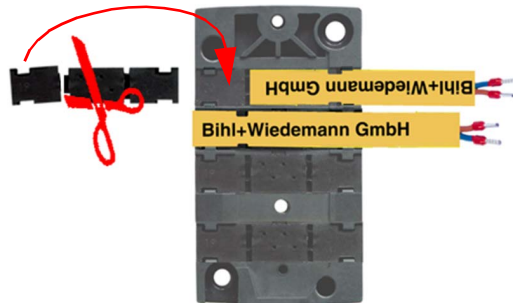
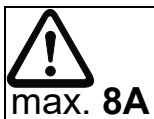
Connections							
Article no.	M12 connection	Marking	Pin1	Pin2	Pin3	Pin4	Pin5
BWU3523	X1	I1	24 V out of ASi	I2	0 V out of ASi	I1	n.c.
	X2	I2	24 V out of ASi	n.c.	0 V out of ASi	I2	n.c.
	X3	I3	24 V out of ASi	I4	0 V out of ASi	I3	n.c.
	X4	I4	24 V out of ASi	n.c.	0 V out of ASi	I4	n.c.
	X5	I5	24 V out of ASi	I6	0 V out of ASi	I5	n.c.
	X6	I6	24 V out of ASi	n.c.	0 V out of ASi	I6	n.c.
	X7	I7	24 V out of ASi	I8	0 V out of ASi	I7	n.c.
	X8	I8	24 V out of ASi	n.c.	0 V out of ASi	I8	n.c.
	ADDR (protection cap)	connection for ASi-3 addressing plug					

(1) Pin2 and Pin 4 are bridged internally.

Mounting according to cable direction



Line termination with sealing profiles / as junction



Digital Modules ASi, IP67, M12



Accessories:

- ASi substructure module for 4 channel module in 45 mm housing, for DIN rail mounting (art. no. BWU2349)
- ASi substructure module (CNOMO) for 4 channel module in 45 mm housing, for screw mounting (art. no. BWU2350)
- ASi substructure module (CNOMO) for 8 channel module in 60 mm housing, for DIN rail mounting (art. no. BWU3516)
- ASi substructure module (CNOMO) for 8 channel module in 60 mm housing, for screw mounting (art. no. BWU2351)
- Universal protection cap ASi-5/ASi-3 for M12 sockets, IP67 (art. no. BW4056)
- Sealing profile IP67 (IDC plug), 45 mm (art. no. BW3283)
- Sealing profile IP67 (IDC plug), 60 mm (art. no. BW3282)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4708)



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