

ASi Safety Output Module, IP20, 1SO/1EDM

Safety and standard I/O in one module

with diagnostic slave

1 release circuit; 2 x electronic safe outputs

1 EDM input, 2 outputs


IEC 61508 SIL 3, EN ISO 13849-1 PLe cat. 4, EN 62061 SIL 3

Protection category IP20



(Figure similar)



Figure	Type	Housing	Inputs digital, EDM ⁽¹⁾	Outputs Safety, SIL 3, cat 4	Input voltage (sensor supply) ⁽²⁾	Output voltage (actuator supply) ⁽³⁾	ASi address ⁽⁴⁾	Article no.
	IP20, 22,5 mm x 114 mm, 4 x COMBICON, Safety	4 x COMBICON	1 EDM	1 release circuit; 2 x elec- tronic safe outputs, max. 3 A, aug. reliability	out of AUX	out of AUX	1 single slave + 1 AB slave	BWU3869

(1) Inputs digital, EDM:

An externally connected relay (contactor) can be connected via a feedback loop to the Safety Monitor for monitoring purposes.

(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 address: 1 AB Slave (max. 62 AB Slaves/ASi network), 2 AB Slaves (max. 31 modules with 2 AB Slaves), Single Slaves (max. 31 Single Slaves/ASi network), mixed use allowed.

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 ASi Slave profiles.

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Article no.		BWU3869
Connection		
ASi/AUX connection		COMBICON plugs, push-in terminals ⁽¹⁾
Periphery connection		COMBICON plugs, push-in terminals ⁽¹⁾
Length of connector cable		unlimited ⁽²⁾
ASi		
Profile		S-7.A.E, ID1=5 (default)
Address		1 single slave + 1 AB slave
Required Master profile		≥M3
As of ASi specification		2.1
Operating voltage		30 V (18 ... 31.6 V)
Max. current consumption		< 200 mA
AUX		
Operating voltage		24 V (18 ... 30 V)
Max. current consumption		6 A
Input		
Number		1 EDM
Power supply		out of AUX
Switching current		15 mA (T = 100 µs), continuously 4 mA at 24 V
Power supply of attached sensors	up to +25 °C	max. 100 mA
	at +40 °C	
	at +55 °C	
External device monitoring (EDM)		supplied out of AUX, approx. 10 mA
Output		
Number		1 release circuit; 2 x electronic safe outputs, augmented reliability
Max. contact load		3 A _{DC-13} at 24 V
Max output current	up to +25 °C	3 A per output, ∑ (In/Out) 6 A ⁽³⁾
	at +40 °C	
	at +55 °C	
Test pulse		if output is on: minimum interval between 2 test pulses: 250 ms pulse width: 1 ms
Display		
LED 1.Y1 (yellow)		state of EDM input 1.Y1
LED ASI (green)		on: ASi voltage on flashing: ASi voltage on, but peripheral fault ⁽⁴⁾ or address 0 off: no ASi voltage
LED FAULT (red)		on: no data exchange (slave address 0 or slave offline) flashing: peripheral fault ⁽⁴⁾ off: slave online
LED O1, O2 (yellow)		state of outputs O1, O2

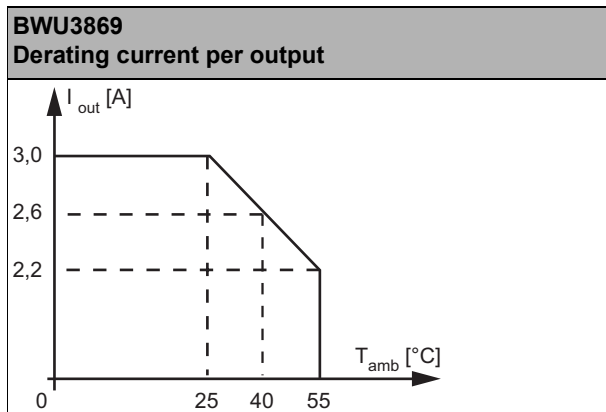
ASi Safety Output Module, IP20, 1SO/1EDM

Article no.	BWU3869
Environment	
Applied standards	IEC 61508 SIL 3 EN ISO 13849-1 PLe cat 4 EN 62061 SIL 3 EN 60529
Operating height max.	2000 m
Ambient temperature	-30 °C ... +55 °C ⁽⁵⁾ , no condensation permitted
Storage temperature	-25 °C ... +85 °C
Housing	plastic, for DIN rail mounting
Pollution Degree	2
Protection category	IP20
Tolerable loading referring to humidity	according to EN 61131-2
Maximum tolerable shock and vibration stress	according to EN 61131-2
Insulation voltage	≥ 500 V
Weight	150 g
Dimensions (W / H / D) in mm	25 / 105 / 114

(1) see table "Wiring rules"

(2) loop resistance ≤ 150 Ω

(3)



(4) see table "Peripheral fault indication"

(5) temperature range up to -30°C from Ident.No. ≥16367

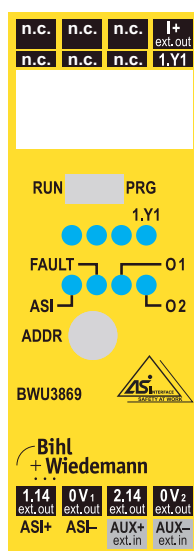
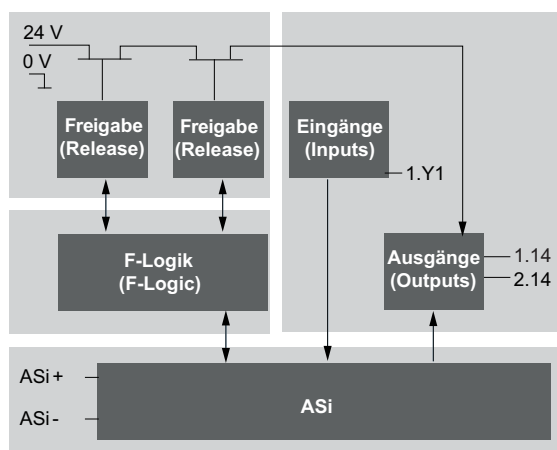
Wiring rules

	Push-in terminals
General	
Nominal cross section	2,5 mm ²
Conductor cross section	
Conductor cross section solid	0,2 ... 2,5 mm ²
Conductor cross section flexible	0,2 ... 2,5 mm ²
Conductor cross section flexible, with ferrule	without plastic sleeve: 0,2 ... 2,5 mm ² with plastic sleeve: 0,25 ... 2,5 mm ²
2 conductors with same cross section, stranded, with TWIN ferrules	without plastic sleeve: 0,5 ... 1,5 mm ²
AWG	24 ... 14
Stripped insulation length	10 mm

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UL-specifications (UL508) BWU3869	
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
BWU3869	•	-	•



Clamps/Switch	Description
1.14	semiconductor output 1
2.14	semiconductor output 2
I+	supply voltage for inputs
1.Y1	EDM 1 / input for electronic device monitoring
ASi +, ASi -	ASi network connection
AUX + _{ext.in}	voltage supply input
AUX - _{ext.in}	
ADDR	addressing socket
PRG	Programming of safety-related ASi address enabled.
RUN	Programming of non safety-related ASi address enabled

Programming instructions (bit values of the diagnostic slave)				
Bit	ASi output		Bit	ASi input
00	Parameter P1=1	Parameter P1=0	10	diagnostic (for definition see table device colors)
	not used	1: output O 1 controlled by safety release 0: inhibits output O 1 on irrespective of safety release		
01	Parameter P1=1	Parameter P1=0	11	
	not used	1: output O 2 controlled by safety release 0: inhibits output O 2 on irrespective of safety release		
02	not used		12	
03	inexistent		13	Parameter P2=1
			Parameter P2=0	
				1: feedback for user: <i>safety release on</i> 0: feedback for user: <i>safety release off</i>
				1.Y1

Peripheral fault indicates unavailable 24 V ext.

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Diagnostic (device colors)				
Value	Color	Description	State change	LED O1, O2
0	green	output on		on
1	green flashing	–		–
2	yellow	restart inhibit	auxiliary signal 2	1 Hz
3	yellow flashing	–		–
4	red	output off		off
5	red flashing	waiting for "reset of error condition"	auxiliary signal 1	8 Hz
6	gray	internal error, such as "fatal error"	only via "Power On" on device	all LEDs flashing
7	green/yellow	output released, but not switched on	switching-on by setting of O1	off

Programming instructions (bit values of the ASi parameter, diagnostic slave)	
Bit P1	
P1=1	safe output controlled by safety release only
P1=0	safe output controlled by output O0=1 and O1=1 in addition to safety release
Bit P2	
P2=1	feedback for user: release on ASi bit I3
P2=0	input 1.Y1 at ASi bit I3
Bits P0, P3:	
not used	

Release	ASi Parameter	ASi Safety Output Module, safety release from the ASi safety monitor	
		... not received	... received
ASi parameter (AB slave) changes the function of output bit O0 and O1	P1=1 (default) O0=0	semiconductor output 1 open	semiconductor output 1 closed
	P1=1 O0=1	semiconductor output 1 open	semiconductor output 1 closed
	P1=0 O0=0	semiconductor output 1 open	semiconductor output 1 open
	P1=0 O0=1	semiconductor output 1 open	semiconductor output 1 closed
	P1=1 (default) O1=0	semiconductor output 2 open	semiconductor output 2 closed
	P1=1 O1=1	semiconductor output 2 open	semiconductor output 2 closed
	P1=0 O1=0	semiconductor output 2 open	semiconductor output 2 open
	P1=0 O1=1	semiconductor output 2 open	semiconductor output 2 closed

