AS-i Safety Input Modules, IP20,

for optoelectronic protective devices, floating contacts or safety mats

(Figure similar)

Figure	Type	Housing	Inputs Safety, SIL 3, Cat. 4	Outputs digital	Safety signal inputs	Output voltage (actuator supply)[1]	AS-i Connection[2]	AS-i address[3]	Article no.
	IP20, 22,5 mm x 50 mm, 3 x COMBICON, Safety	3 x COMBICON	1 x 2 channels	2 x electronic	floating contacts	out of AUX	clamps	1 Single Slave	**BWU1939**
	IP20, 22,5 mm x 50 mm, 3 x COMBICON, Safety	3 x COMBICON	1 x 2 channels	2 x electronic	floating contacts	out of AS-i	clamps	1 Single Slave	**BWU2724**
	IP20, 22,5 mm x 50 mm, 3 x COMBICON, Safety	3 x COMBICON	1 x 2 channels SIL 2, Cat. 3	2 x electronic	safety mats 1.2 kΩ or 8.2 kΩ monitoring resistor	out of AUX	clamps	1 Single Slave	**BWU2661**
	IP20, 22,5 mm x 50 mm, 3 x COMBICON, Safety	3 x COMBICON	1 x 2 channels	2 x electronic	optoelectronic protective devices	out of AUX	clamps	1 Single Slave	**BWU2577**
	IP20, 22,5 mm x 114 mm, 4 x COMBICON, Safety	4 x COMBICON	1 x 2 channels	2 x electronic	floating contacts	out of AUX	clamps	1 Single Slave	**BWU3013**
	IP20, 22,5 mm x 114 mm, 4 x COMBICON, Safety	4 x COMBICON	2 x 2 channels	4 x electronic	floating contacts	out of AUX	clamps	2 Single Slaves	**BWU2707**

1 **Output voltage (actuator supply):**
The supply of the outputs is made by AS-i or by AUX (auxiliary 24 V power). By supply out of AS-i there is no connection to earth or external potential allowed.

2 **AS-i connection:**
the connection to AS-i as well to AUX (auxiliary 24 V power) is made via yellow resp. black AS-i profile cable with piercing technology or via M12 socket (in IP20 via clamps).

3 **AS-i address:**
AB Slave (max. 62 AB Slaves/AS-i network), 2 AB Slaves (max. 31 modules with 2 AB Slaves), Single Slaves (max. 31 Single Slaves/ AS-i network), mixed use allowed.

Article no.	BWU1939	BWU2577	BWU2661	BWU2707	BWU3013	BWU2724
Connection						
Connection	3 x COMBICON			4 x COMBICON		3 x COMBICON
Length of connector cable	I/O: max. 15 m			unlimited		I/O: max. 15 m
AS-i						
Profile	S-7.B.0, ID1=F	S-7.B.1, ID1=F		SL 1: S-7.B.0, ID1=F SL 2: S-7.B.0, ID1=E	S-7.B.0, ID1=F	
Address	1 Single Slave			2 Single Slaves	1 Single Slave	
Operating voltage	22 ... 31,6V					
Required Master profile	≤M3					
Since AS-i specification	2.1					
Max. current input	80 mA	35 mA		60 mA	35 mA	100 mA
AUX						
Voltage	24V (20 ... 30 V DC)					–
Max. current input	1,5 A at output short-circuit	4A max.				–
Input						
Number	2 / 1 safe inputs (2 channels) for floating contacts	2 / 1 safe inputs (2 channels) for OSSDs	safety mat with 1,2 kΩ or 8,2 kΩ monitoring resistor	4 / 2 safe inputs (2 channels) for floating contacts	2 / 1 safe inputs (2 channels) for floating contacts	
Switching current	static 4 mA at 24 V, dynamic 15 mA at 24 V (T = 100 µs)	–		static 4 mA at 24 V, dynamic 15 mA at 24 V (T = 100 µs)		
Power supply	out of AS-i	out of AUX				out of AS-i
Power supply for external sensor	–	1,8 A out of AUX	–			
Switching threshold	10 mA, R < 150 Ω	V_{in} > 11 V for High-Level, input current ≥ 2,5 mA at 15 V	–	10 mA, R < 150 Ω		
OSSD input test pulses	–	0 ... 50 Hz	–			
OSSD input test pulse width	–	U_{aux} ≥ 21, 5 V= 0 ... 1 ms test pulses possible U_{aux} ≥17 V= 0 ... 0,8 ms test pulses possible U_{aux} <17 V= 0 ... 0,6 ms	–			
Output						
Number	2, electronic, short circuit protected			4, electronic, short circuit protected	2, electronic, short circuit protected	
Power supply	out of AUX					out of AS-i
Max. output current	200 mA per output	1 A per output, ∑= 3 A[1]				50 mA in sum

Article no.	BWU1939	BWU2577	BWU2661	BWU2707	BWU3013	BWU2724
Display						
LED ASI (green)	AS-i power supply on					
	–		flashing: peripheral error[2]	–		
LED FLT/FAULT (red)	on: no data exchange flashing: peripheral error[2]			–		on: no data exchange flashing: peripheral error[2]
LED ASI /FLT1 (red/green)	–			green: Slave online red: no data exchange yellow/red flashing: address 0 red/green flashing: peripheral error[2]		–
LED ASI /FLT2 (red/green)	–			green: Slave online red: no data exchange yellow/red flashing: address 0 red/green flashing: peripheral error[2] red flashing: slave is switched off because slave 1 addressed 0	–	
LED AUX (green)	24 V DC AUX on					–
LED CC (red)	cross connection of input cables, peripheral error[2]	–	sensor cable break	cross connection of input cables, peripheral error[2]		
LED OUT (yellow)	state of outputs O1-O2			–		state of outputs O1-O2
LEDs O1 ... On (yellow)	–			state of outputs O1-O4	state of outputs O1-O2	–
LED IN (yellow)	state of inputs S1, S2		state of input	–		state of inputs S1, S2
LED S1 ... Sn (yellow)	–			state of inputs S1-S4	state of inputs S1-S2	–

Article no.	BWU1939	BWU2577	BWU2661	BWU2707	BWU3013	BWU2724
Environment						
Applied standards	EN ISO 13849-2:2008 EN 61000-6-2, EN 61000-6-4 EN 61131-2 EN 50295					
	EN 62061:2005 SIL3 EN ISO 13849-1:2008/ AC:2009/PLe Kat 4		EN 62 061:2005 SIL2 EN ISO 13849-1:2008/ AC:2009/ PLd Kat 3	EN 62061:2005 SIL3 EN ISO 13849-1:2008/ AC:2009/PLe Kat 4		
Operating temperature	0 °C ... +70 °C	0 °C ... +55 °C		0 °C ... +70 °C		
Storage temperature	-40 °C ... +85 °C					
Protection category EN 60529	IP20 (only suitable for use in electrical operating rooms / control cabinets with IP54 minimum protection rating)					
Allowable shock and vibration stress	≤ 15 g, T ≤ 11 ms 10 ... 55 Hz, 0,5 mm amplitude					
Dimensions (W / H / D in mm)	22,5 / 99,6 / 50,5			22,5 / 99,6 / 114		22,5 / 99,6 / 50,5

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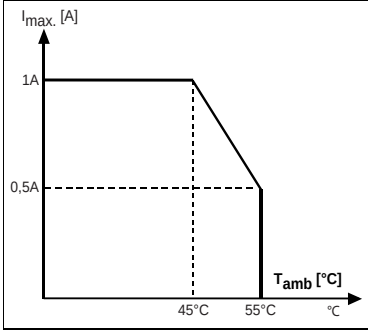
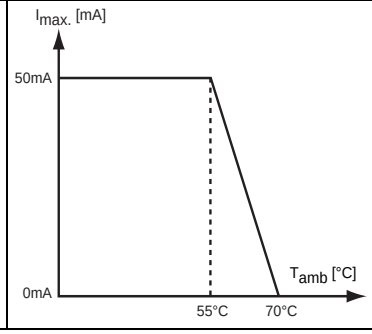
Derating BWU2577, BWU2661, BWU2707, BWU3013



Derating BWU2724

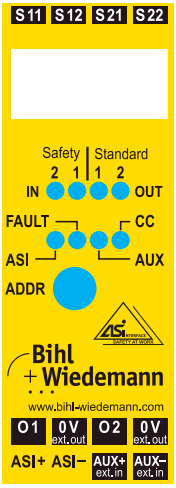


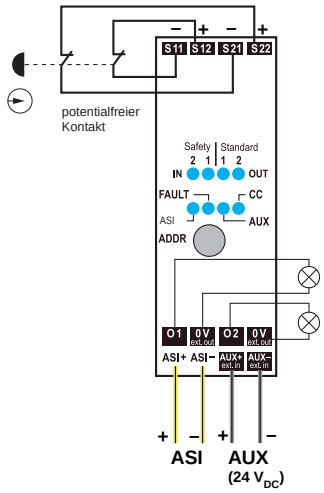
2 see also Installation instruction/Manual

Programming:	AS-i Bit-setting			
	D0	D1	D2	D3
Safe input				
BWU1939 / BWU2724	S11 / S12		S21 / S22	
BWU2577	S1		S2	
BWU2661	Sensor			
BWU2707 / BWU3013	S11 / S12		S21 / S22	
Output				
BWU1939 / BWU2577 / BWU2661 / BWU3013	O1	O2	not used	not used
BWU2707 Slave 1	O1	O2	O3	O4
BWU2707 Slave 2	O3	O4	not used	not used
Parameter bit				
	P0	P1	P2	P3
BWU1939 / BWU2577 / BWU2661/ BWU2707 / BWU2724 / BWU3013	0: off/ 1: on (Watchdog)	not used	not used	not used

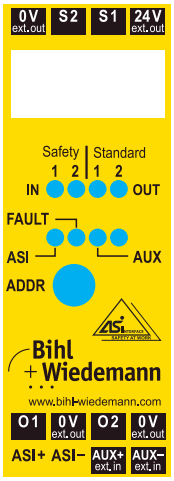
Connections:

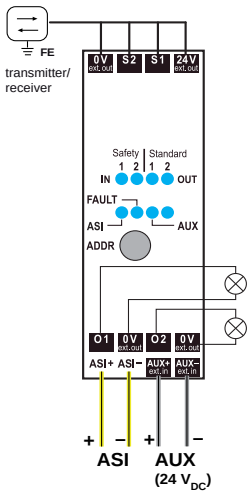
BWU1939



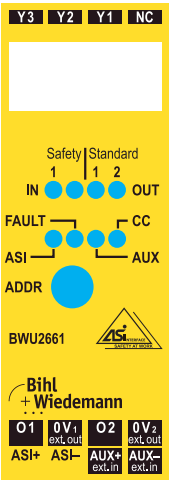


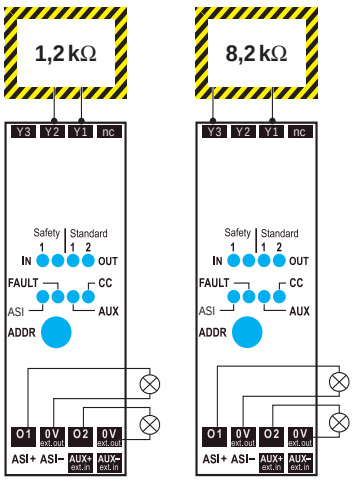
BWU2577





BWU2661





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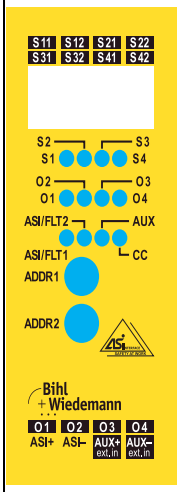
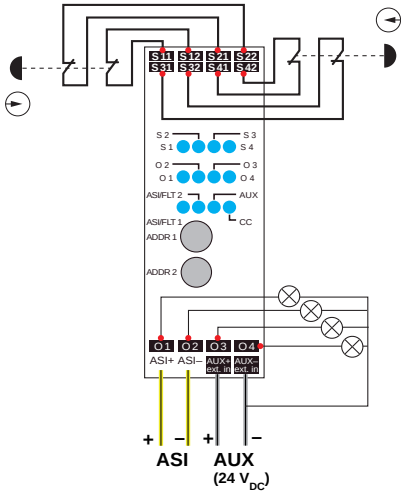
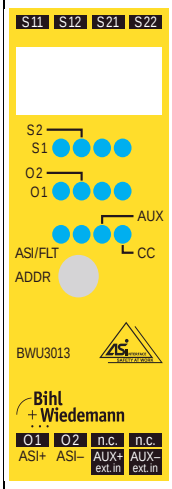
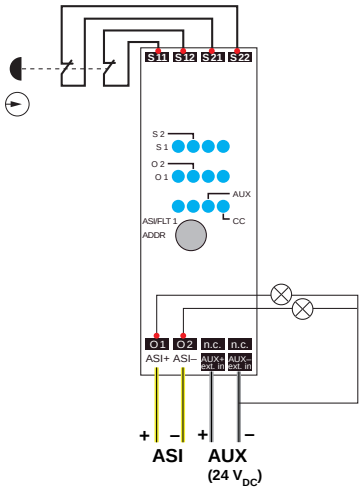
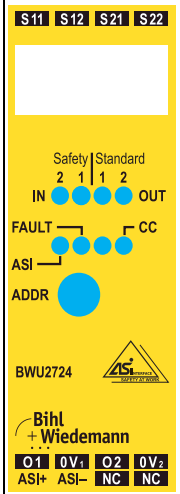
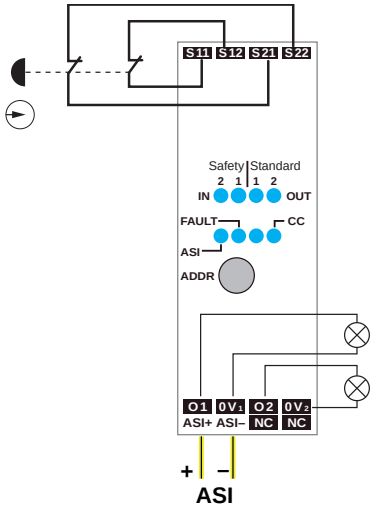




BWU3013





BWU2724