Circuit Board Modules AS-i, PCB Solutions safe/standard

AS-i Safety Circuit Board Module

Connection of 2 safe switching contacts

(figure similar)

Figure	Type	Inputs Safety, SIL 3, cat. 4	Inputs digital, EDM (1)	Outputs digital	Safety signal inputs	Connection (2)	Coated (3)	AS-i address (4)	Article no
	circuit board 43mm x 30mm	–	2	2 x electronic	–	connecting wires, 100 mm	yes	1 AB Slave	**BWR2574**
	circuit board 43mm x 30mm	–	2	2 x electronic	–	connecting wires, 200 mm	yes	1 AB Slave	**BWR3068**
	circuit board 43mm x 30mm	–	2	2 x electronic	–	connecting wires, 100 mm + contact pins	yes	1 AB Slave	**BWR2522**
	circuit board 43mm x 30mm	1 x 2 channels	–	2 x electronic	floating contacts	connecting wires, 100 mm	yes	1 Single Slave	**BWR2426**
	circuit board 43mm x 30mm	1 x 2 channels	–	2 x electronic	floating contacts	connecting wires, 200 mm	yes	1 Single Slave	**BWR3067**
	circuit board 43mm x 30mm	1 x 2 channels	–	2 x electronic	floating contacts	connecting wires, 100 mm + contact pins	yes	1 Single Slave	**BWR2521**
	circuit board 73mm x 37,5mm	1 x 2 channels	–	2 x electronic	floating contacts	plug-in screw terminals	no	1 Single Slave	**BWR1896**
	circuit board 73mm x 37,5mm	1 x 2 channels	–	2 x electronic	floating contacts	screw terminals	no	1 Single Slave	**BWR1751**
	circuit board 73mm x 37,5mm	1 x 2 channels	–	2 x electronic	floating contacts	wiring pin	no	1 Single Slave	**BWR1801**
	circuit board 73mm x 37,5mm	1 x 2 channels	–	2 x electronic	floating contacts	solder lugs	no	1 Single Slave	**BWR1934**

(1) **Inputs digital, EDM**
An externally connected relay (contactor) can be connected via a feedback loop to the Safety Monitor for monitoring purposes.

(2) **Connection**: further connection options are available on request.

screw terminals nominal cross section 0,5 mm^2	**wiring pins** contact spacing 2,54 mm	**solder lugs** contact spacing 2,54mm	**socket board** nominal cross section 0,65 mm^2	**plug-in spring type terminals** nominal cross section 0,5 mm^2	**connecting wires** nominal cross section 0,34 mm Length 100 / 200 mm (other lengths available on request)

(3) **Coated**: coating protects components and circuit boards when touched.

not coated	**coated**

(4) **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/per AS-i network), mixed use allowed (**upon request, slaves are available with specific AS- Slave profiles**).

Article no.	BWR1751	BWR1801	BWR1896	BWR1934
Connection				
Connection	plug-in screw terminals	screw terminals	wiring pins	solder lugs
Length of connector cable	I/O: max. 15 m (1)			
AS-i				
Profile, S-IO.ID.ID2	S-7.B.0			
Address	1 single slave			
Required Master profile	≥ M0			
Since AS-i specification	2.0			
Voltage	22 .... 31,6V			
Max. current consumption	< 80 mA			
AUX				
Voltage	24 V (20 ... 30 V_{DC}) (PELV)			
Max. current consumption	1,5 A at output short-circuit			
Input				
Number	1 x 2 channels			
Safety signal	floating contacts			
Power supply	out of AS-i			
Switching threshold	U_{in} < 2 V low, U_{in} >10 V high			
Max. loop resistance (switch)	200 Ω			
Output				
Number	2, electronic, short-circuit protected			
Power supply	out of AUX			
Max. output current	100 mA per output			
Display				
LED FLT (red)	AS-i communication error			
LED AS-i (green)	AS-i voltage			
LED S1, S2 (yellow)	state of safe inputs			
LED Out1, Out 2 (yellow)	state of outputs			
UL Recognized Component				
In general	ЯU mark does not provide UL certification for any functional safety rating or aspects of the above devices			
External protection	The input to the devices need to be provided with a fuse rated 4A max or else the devices need to be powered from a class 2 or a SELV limited power source.			
Environment				
Applied standards	EN 61000-6-2 EN 61000-6-4 EN 62061 SIL 3 EN ISO13849-1 PLe			
Ambient temperature	0 °C ... +70 °C			
Storage temperature	-40 °C ... +70° C			
Protection category (EN 60529)	IP00			
Coated	no			
Allowable shock and vibration stress	≤ 15g, T ≤ 11 ms 10 ... 55 Hz, 0,5 mm amplitude			
Weight	27 g			
Dimensions (W /H / D in mm)	73 / 37,5 / 12			

(1) loop resistance: ≤ 150Ω

Circuit Board Modules AS-i, PCB Solutions safe/standard

Article no.	BWR2426	BWR3067	BWR2521	BWR2522	BWR2574	BWR3068
Connection						
Connection	connecting wires, 100 mm	connecting wires, 200 mm	connecting wires, 100 mm + contact pins		connecting wires, 100 mm	connecting wires, 200 mm
Length of connector cable	I/O: max. 15 m (2)					
AS-i						
Profile, S-IO.ID.ID2	S-7.B.0			S-7.A.E		
Address	1 single slave			1 AB slave		
Required Master profile	≥ M0			≥ M3		
Since AS-i specification	2.0			2.1		
Voltage	22 .... 31,6 V					
Max. current consumption	< 120 mA					
Input						
Number	1 x 2 channels			2 x standard		
Safety signal	floating contacts			–		
Power supply	out of AS-i					
Switching threshold	U_{in} < 2 V low, U_{in} >10 V high					
Max. loop resistance (switch)	200 Ω					
Output						
Number	2 x electronic					
Power supply	out of AS-i					
Max. output current	20 mA per output, ∑ (outputs) ≤ 40 mA					
Display						
LED FLT (red)	AS-i communication error					
LED AS-i (green)	AS-i voltage					
LED S1, S2 (yellow) (1)	state of safe inputs			-		
LED In1, In2 (yellow) (1)	-			state of inputs		
LED Out1, Out 2 (yellow)	state of outputs					
UL Recognized Component						
In general	ЯU mark does not provide UL certification for any functional safety rating or aspects of the above devices					
External protection	The input to the devices need to be provided with a fuse rated 4A max or else the devices need to be powered from a class 2 or a SELV limited power source.					
Environment						
Applied standards	EN 61000-6-2 EN 61000-6-4 EN 62061 SIL 3 EN ISO13849-1 PLe			EN 61000-6-2 EN 61000-6-4		
Ambient temperature	0 °C ... +70 °C					
Storage temperature	-40 °C ... +70° C					
Protection category (EN 60529)	IP00 (coated)					
Coated	yes					
Allowable shock and vibration stress	≤ 15g, T ≤ 11 ms 10 ... 55 Hz, 0,5 mm amplitude					
Weight	27 g					
Dimensions (W / H / D in mm)	43 / 10 / 30					

(1) **BWR2426, BWR2521, BWR2522, BWR2574, BWR3067, BWR3068:**
For proper functionality of the LED display, the slave has to be in data exchange with the AS-i master.

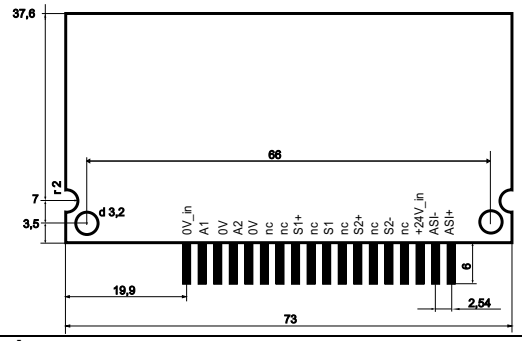
(2) loop resistance: ≤ 150Ω

Circuit Board Modules AS-i, PCB Solutions safe/standard

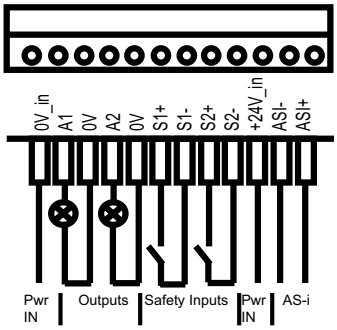
Programming:	AS-i Bit-setting			
	D0	D1	D2	D3
	Safe input			
BWR1751, BWR1801, BWR1896, BWR2426, BWR2521, BWR3067	S1	S1	S2	S2
	Standard input			
BWR2574, BWR2522, BWR3068	I1	I2	I2	I1
	Output			
BWR1751, BWR1801, BWR1896, BWR2426, BWR2521, BWR2522, BWR2574, BWR3067, BWR3068	O1	O2	-	
	Parameter bit			
	P0	P1	P2	P3
BWR1751, BWR1801, BWR1896, BWR2426, BWR2521, BWR2522, BWR2574, BWR3067, BWR3068	not used			

Signal	BWR2426 / BWR3067	BWR2521	BWR2522	BWR2574 / BWR3068
AS-i +	BN	BN	BN	BN
AS-i -	BU	BU	BU	BU
S11, S12	RD, RD	Pin, RD	–	–
S21, S22	YE, YE	Pin, YE	–	–
O1	WH	WH	WH	WH
O2	GR	GR	GR	GR
0V	BK	Pin, BK	Pin, BK	BK
I1	–	–	RD	RD
I2	–	–	YE	YE
I1+	–	–	Pin	RD
I2+	–	–	Pin	YE

BWR1751 / BWR1801



BWR1896

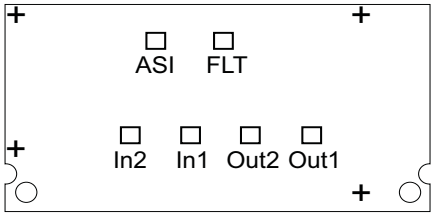
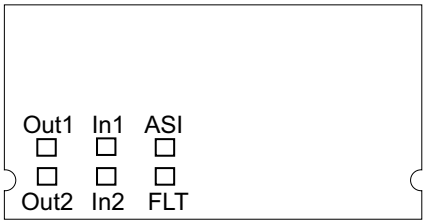


Caution:

The modules can not be used with the OEM carrier board BW1484.

LED assignment

BWR1751 / BWR1801 / BWR1896 / BWR1934



BWR2426 / BWR2521 / BWR2522 / BWR2574 / BWR3067 / BWR3068