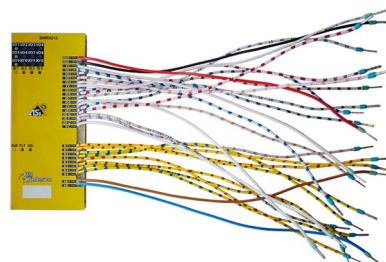


ASi-5 Safety PCB module

4 x 1 channel safe inputs or 2 x 2 channel safe inputs for
• 2 x floating contacts

Up to 12 digital inputs, depending on configuration

Up to 12 digital outputs, depending on configuration



(Figure similar)



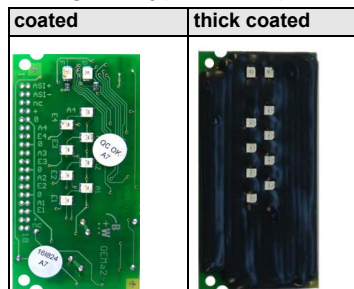
Figure	Circuit board dimensions ⁽¹⁾	Inputs Safety, SIL 3, cat. 4	Safety signal inputs	Inputs digital	Outputs digital	Input voltage (sensor supply) ⁽²⁾	Output voltage (actuator supply) ⁽³⁾	Coated ⁽⁴⁾	Connection	ASi connection	ASi address ⁽⁵⁾	Art.no.
	110 mm x 45 mm x 16 mm, ASi-5 Safety	4 x 1 channel or 2 x 2 channels	floating contacts	up to 12, depending on configuration	up to 12, depending on configuration	out of AUX	out of AUX	potted	connecting wires, 200 mm	connecting wires, 200 mm	1 ASi-5 address	BWR5215

(1) **Circuit board dimensions:** mounting through 4 x M3 female thread.

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



(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.

Article no.		BWR5215
Connection		
ASi /AUX connection		connecting wires, 200 mm
peripheral connection		connecting wires, 200 mm
Length of connector cable		I/O: max. 1,5 m ⁽¹⁾
ASi		
Address		1 ASi-5 address
Since ASi specification		ASi-5
ASi process data length		3 bytes
Operating voltage		== 30 V (18 ... 31,6 V) (SELV/PELV)
Max. current consumption		100 mA
Max. current consumption without sensor/actuator supply		100 mA
AUX		
Voltage		== 24 V _{DC} (20 ... 30 V) (SELV/PELV) ⁽²⁾
Max. current consumption		1.5 A max.
Input		
Number		up to 12, depending on configuration
Power supply		out of AUX
Input level		U <5 V (low), U >15 V (high)
Output		
Number		up to 12, depending on configuration
Power supply		out of AUX
Output		short-circuit and overload protected according to EN 61131-2
Max. current consumption	up to +45 °C	350 mA per output, Σ (Out) 1500 mA
	at +55 °C	
	at +70 °C	
Safety input, SIL 3, Kat. 4		
Number		4 x 1 channel safe inputs (SIL1, cat. 2, PLc) or 2 x 2 channel safe inputs (SIL3, cat. 4, PLe)
Safety signal		2 x floating contacts
Power supply		out of AUX
Switching current		15 mA (T = 100Is), continuously 4 mA at 24 V
Max. output current for OSSD supply		–
OSSD test pulses		–
OSSD test pulse width		–
Input level		10 mA, R < 150 Ω
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 I/O1 ... I/On (green/red)		state of inputs I1 ... I121 or outputs O1 ... O12, depending on configuration off: corresponding input or output is turned off yellow: the corresponding input or output is turned on red flashing: output short circuit ⁽³⁾ at the corresponding output red: overload sensor supply ⁽³⁾ at the corresponding input
LEDs SI1 ... SIn (yellow)		state of safe inputs SI1 ... SI4

Article no.	BWR5215
Environment	
Applied standards	EN 61000-6-2 EN 61000-6-3 EN 61131-2 EN 62061 EN ISO 13849-1 EN 60529
It can be used with a switched AUX cable, which is passively safe up to SIL3/PLe	no ⁽⁴⁾
Operating altitude	max. 2000 m
Ambient temperature	-25 °C ... +70 °C, no condensation permitted
Storage temperature	-25 °C ... +85 °C
Intended environment	for indoor use only ⁽⁵⁾
Pollution degree	2
Protection class	IP20 ⁽⁶⁾ (potted)
Overvoltage category	II
Coating	yes
Allowed shock and vibration stress	≤15g, T≤11 ms, 10 ... 55 Hz, 0,5 mm amplitude
Voltage of insulation	≥500 V
Weight	ca. 134g
Dimensions (W / H / D in mm)	110 / 45 / 16

(1) loop resistance: ≤150 Ω

(2) The ground connection of the 24 V power supply, which supplies auxiliary power (AUX), must be grounded!

(3) See table "Peripheral fault indication"

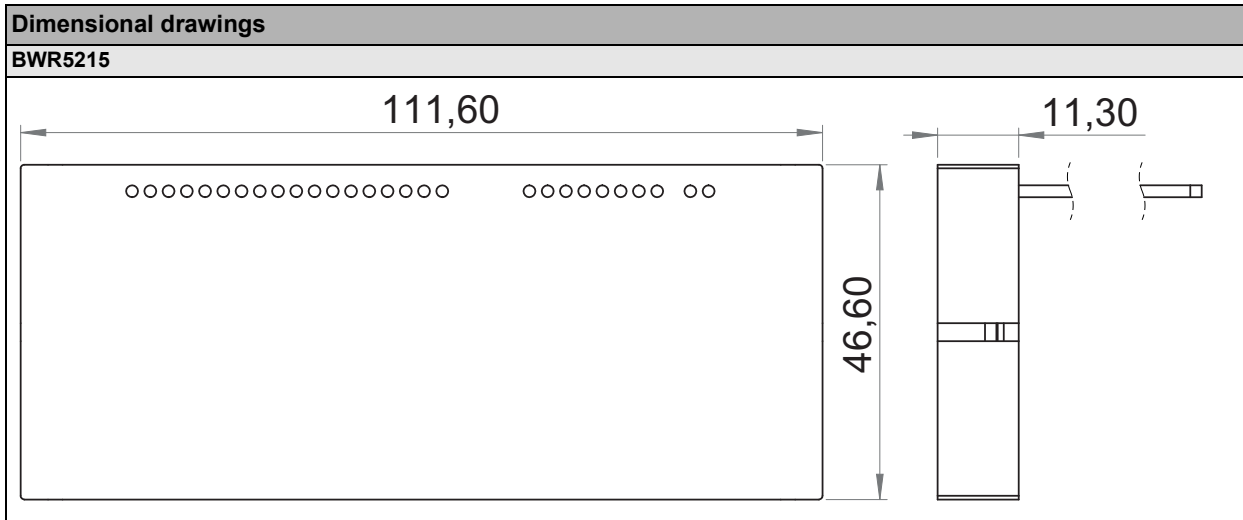
(4) The module is not suitable for use in paths with a passively safe-switched AUX cable, since an exclusion of errors cannot be assumed for the connection of the two ASi and AUX potentials.
If the module is supplied from an unswitched AUX cable, this has no influence on the safety consideration for the paths with passively safe-switched AUX cable. In an ASi circuit, paths supplied from a passively safe-switched AUX cable and paths supplied from unswitched AUX potential can be used together.

(5) Intended environment according to UL certificate for the use in the USA and Canada.

(6) Manufacturer specification, IP rating not evaluated by UL.

UL-specifications (UL61010)	
BWR5215	
Model ⁽¹⁾	RAA.C01-5215
In general	UL mark does not provide UL certification for any functional safety rating or aspects of the above devices.
External protection	The supply source to these devices shall meet the requirements of Class 2 of NEC, or Limited Energy of UL/CSA 61010-1, -2-201 or Limited Power Source of UL/CSA 60950/62368-1.

(1) For reference see UL file E227214 "Programmable Controllers "ASi OEM node board Family"



Article no.	Peripheral fault indication				
	Overload sensor supply	Output short circuited	Cross connection	Output overload	AUX voltage missing
BWR5215	•	•	•	•	•

Programming: ASi bit assignment

Article no.	Byte	Bit							
		D7	D6	D5	D4	D3	D2	D1	D0
		input							
BWR5215	0	reserved				SI4	SI3	SI2	SI1
	1	I8	I7	I6	I5	I4	I3	I2	I1
	2	reserved				I12	I11	I10	I9
	3	Diagnostics SI3/SI4 ⁽¹⁾				Diagnostics SI1/SI2 ⁽³⁾			
	4	Diagnostics SI4 ⁽²⁾				Diagnostics SI2 ⁽²⁾			

⁽¹⁾ SI3 only if configured as a 1-channel safe input

⁽²⁾ Only if configured as a 1-channel safe input

⁽³⁾ SI1 only if configured as a 1-channel safe input

Article no.	Byte	Bit							
		D7	D6	D5	D4	D3	D2	D1	D0
		output							
BWR5215	0	reserved							
	1	O8	O7	O6	O5	O4	O3	O2	O1
	2	reserved				O12	O11	O10	O9

Pin assignment

Signal	BWR5215
ASi +	BN
ASi -	BU
AUX +	RD
AUX -	BK
I/O1, I/O5, I/O9	WH/BU
I/O2, I/O6, I/O10	WH/RD
I/O3, I/O7, I/O11	WH/GY
I/O4, I/O8, I/O12	WH/PK
0 V _{ext out}	WH
SI1, SI3	YE/RD
SI2, SI4	YE/BU

Connection assignment

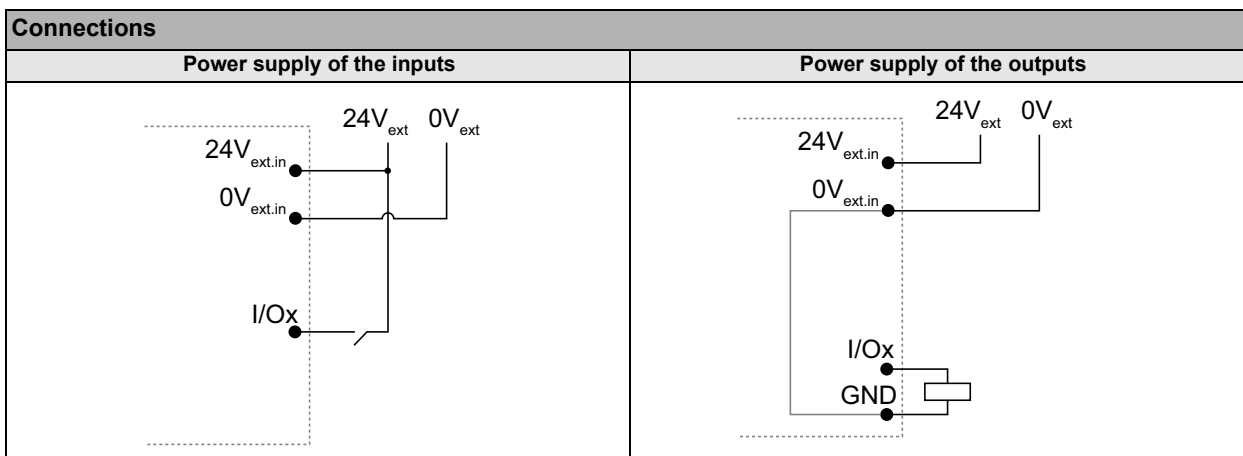
BWR5215			
Pin	X1	X2	X3
1	24 V _{ext.in} (RD)	SI1+ (YE/RD)	ASi+ (BN)
2	0 V _{ext.in} (BK)	SI1- (YE/RD)	ASi- (BU)
3	0 V ₁ (WH)	SI2+ (YE/BU)	—
4	I/O1 (WH/BU)	SI2- (YE/BU)	—
5	I/O2 (WH/RD)	SI3+ (YE/RD)	—
6	I/O3 (WH/GY)	SI3- (YE/RD)	—
7	I/O4 (WH/PK)	SI4+ (YE/BU)	—
8	0 V ₂ (WH)	SI4- (YE/BU)	—
9	I/O5 (WH/BU)	—	—
10	I/O6 (WH/RD)	—	—
11	I/O7 (WH/GY)	—	—
12	I/O8 (WH/PK)	—	—
13	0 V ₃ (WH)	—	—
14	I/O9 (WH/BU)	—	—
15	I/O10 (WH/RD)	—	—
16	I/O11 (WH/GY)	—	—
17	I/O12 (WH/PK)	—	—
18	0 V ₄ (WH)	—	—

The diagram illustrates the physical layout of the ASi-5 Safety PCB module. It features a yellow main body with a blue header section. The header contains 18 pins arranged in two rows of 9. The top row (pins 1-12) is labeled I/O1 through I/O12, and the bottom row (pins 13-18) is labeled 0V1 through 0V4. The main body has three connection points: X1 (top), X2 (middle), and X3 (bottom). X1 has 18 pins, X2 has 8 pins, and X3 has 2 pins. The ASi-5 logo is prominently displayed in the center, and the Bihl+Wiedemann logo is at the bottom.



Notice

You shall not connect connecting wires with connections marked **n.c.** (**not connected**).



Hinweis

Install the PCB module in a protected location (e.g., control cabinet, housing).
The housing must have at least IP54 protection.

Accessories:

- Bihl+Wiedemann Safety Suite License - Safety Software for Configuration, Diagnostics and Commissioning (art. no. BW2619)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4925)