

ASi-5 PCB module with self-configuring connections for 32 I/Os

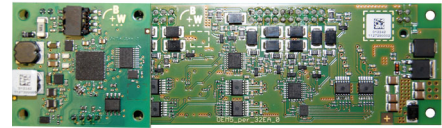
Sensors and actuators may be connected in any combination

Optional assignment of a fixed configuration of the inputs and outputs via software possible

up to 32 digital inputs, depending on configuration

up to 32 digital outputs, depending on configuration

ASi-5 – Great data bandwidth, short cycle times



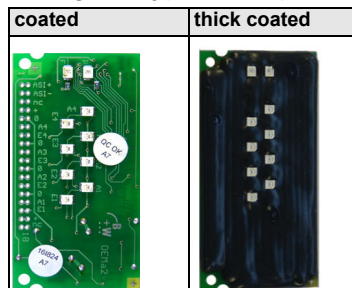
(Figure similar)



Figure	Circuit board dimensions ⁽¹⁾	Inputs digital	Outputs digital	Connection	Coated ⁽²⁾	LED status display ⁽³⁾	Input voltage (sensor supply)	Output voltage (actuator supply) ⁽⁴⁾	ASi address	Art.no.
	140 mm x 40 mm	up to 32, depending on configuration	up to 32 x electronic, depending on configuration	wiring pins, straight	no	yes	external 24 VDC	out of AUX	1 ASi-5 address	BWR4978

(1) **Circuit board dimensions:** 6 holes for assembly angles.

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



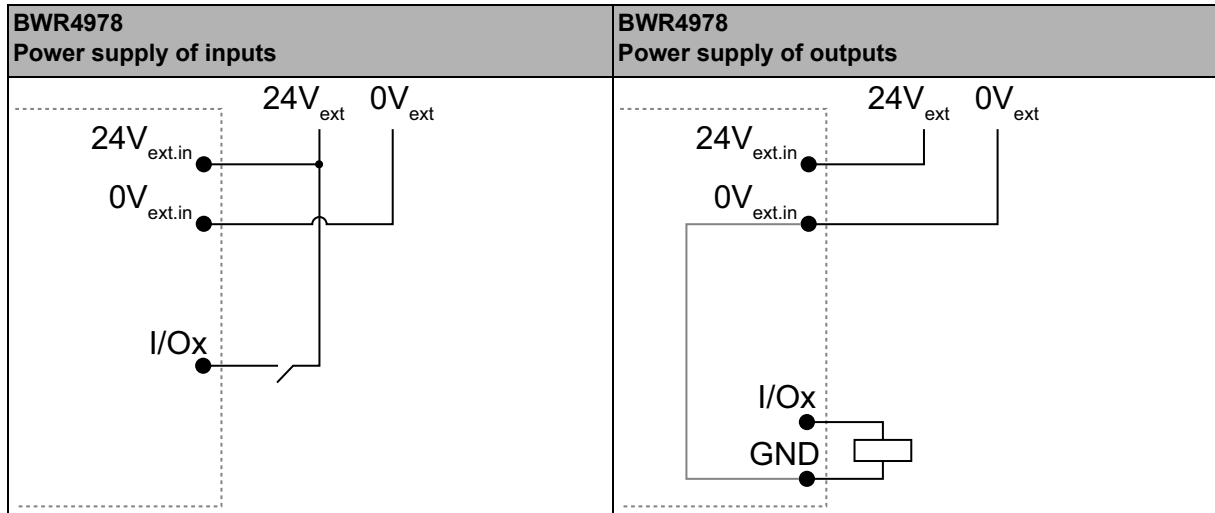
(3) **LED status display:** status of in- and outputs is indicated by LEDs. In addition to that, both ASi LEDs (PWR green and FAULT red) show - as usual regarding the ASi nodes - the status of the ASi nodes. Uaux is indicated by a green LED.

(4) **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.

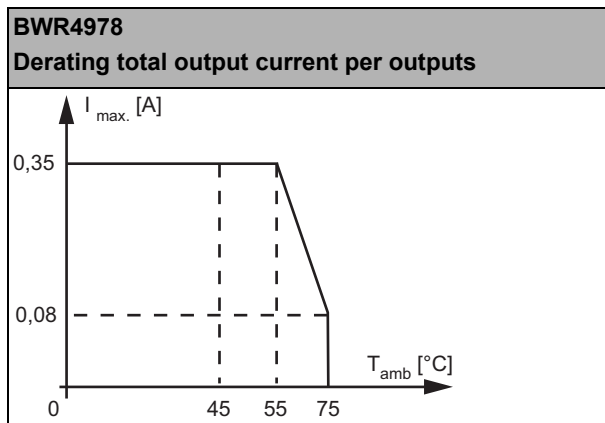
Article no.		BWR4978
General data		
Device type		input/output
Connection		
ASi / AUX connection		wiring pins, straight
Peripheral connection		wiring pins, straight
Length of connector cable		I/O: max. 1,5 m ⁽¹⁾
ASi		
Address		1 ASi-5 address
Required ASi specification		ASi-5
Operating voltage		30 V (18 ... 31,6 V)
Max. current consumption		70 mA
Max. current consumption without sensor/actuator supply		70 mA
AUX		
Operating voltage		24 V (18 ... 30 V)
Max. current consumption		8 A
Inputs digital		
Number		up to 32, depending on configuration
Power supply		external 24 V _{DC} , same GND as AUX ⁽²⁾
Sensor supply		external 24 V _{DC} , same GND as AUX ⁽²⁾
Input level		U < 5 V (low), U > 15 V (high)
Outputs digital		
Number		up to 32 x electronic, depending on configuration
Power supply		out of AUX ⁽²⁾
Output		short-circuit and overload protected according to EN 61131-2
Max. output current	up to +40 °C	max. 0,35 A per output, $\sum (\text{Out}) \leq 8 \text{ A}^{(3)}$
	at +55 °C	max. 0,35 A per output, $\sum (\text{Out}) \leq 8 \text{ A}^{(3)}$
	at +75 °C	max. 0,08 A per output, $\sum (\text{Out}) \leq 2,56 \text{ A}^{(3)}$
Display		
LED ASi (green)		on: ASi voltage on flashing: ASi voltage on, but peripheral fault ⁽⁴⁾ or address 0 off: no ASi voltage
LED FLT/FAULT (red)		on: ASi address 0 or ASi node offline flashing: peripheral fault ⁽⁴⁾ off: ASi node online
LED AUX (green)		on: 24 V _{DC} AUX off: no 24 V _{DC} AUX
Environment		
Applied standards		EN 61000-6-2 EN 61000-6-3 EN 60529
Can be used with a switched AUX cable, which is passively safe up to SIL3/PLe		yes ⁽⁵⁾
Operating altitude		max. 2000 m
Ambient temperature		-25 °C ... +75 °C (no condensation permitted)
Storage temperature		-25 °C ... +85 °C
Pollution degree		2
Protection class		IP00
Coating		no
Allowed shock and vibration stress		$\leq 15g$, $T \leq 11 \text{ ms}$, 10 ... 55 Hz, 0,5 mm amplitude
Weight		53 g
Dimensions (W / H / D in mm)		140 / 40 / 26,5

(1) loop resistance: $\leq 150 \Omega$

(2)



(3)



(4) See table "Peripheral fault indication"

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

Article no.	Peripheral fault indication	
	Output short circuited	AUX voltage missing
BWR4978	•	•

Programming: ASi bit assignment

Article no.	Byte	Bit							
		D7	D6	D5	D4	D3	D2	D1	D0
		input							
BWR4978	0	I8	I7	I6	I5	I4	I3	I2	I1
	1	I16	I15	I14	I13	I12	I11	I10	I9
	2	I24	I23	I22	I21	I20	I19	I18	I17
	3	I32	I31	I30	I29	I28	I27	I26	I25

Article no.	Byte	Bit							
		D7	D6	D5	D4	D3	D2	D1	D0
		output							
BWR4978	0	O8	O7	O6	O5	O4	O3	O2	O1
	1	O16	O15	O14	O13	O12	O11	O10	O9
	2	O24	O23	O22	O21	O20	O19	O18	O17
	3	O32	O31	O30	O29	O28	O27	O26	O25

Connections	
I/Ox	either digital input x or digital output x
0 V	reference potential for outputs
+ or +24V	output for 24 V power supply for the inputs
ASi +, ASi -	connection to the ASi bus
AUX+, AUX-	connection to 24 V auxiliary power supply (AUX)
n.c.	not connected

Dimensional drawings [mm]	
BWR4978	

LED assignment	
BWR4978	



Notice

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

Connection assignment						
BWR4978						
Pin	X1	X2.1	X2.2	X3		
1	ASi+	I/O1	I/O17	0 V _{ext.in} ⁽¹⁾	12 1 2 X1	
2	ASi-	I/O3	I/O19	24 V _{ext.in} ⁽²⁾		
3	—	I/O5	I/O21	0 V _{ext.in} ⁽¹⁾	1120 11 12 13 14 15 16 17 18 19 20 X2.1	
4		I/O7	I/O23	24 V _{ext.in} ⁽²⁾		
5		0 V _{ext.out}	0 V _{ext.out}	—		
6		0 V _{ext.out}	0 V _{ext.out}			
7		I/O9	I/O25			
8		I/O11	I/O27			
9		I/O13	I/O29			
10		I/O15	I/O31			
11		I/O2	I/O18			
12		I/O4	I/O20			
13		I/O6	I/O22			
14		I/O8	I/O24			
15		0 V _{ext.out}	0 V _{ext.out}			
16		0 V _{ext.out}	0 V _{ext.out}			
17		I/O10	I/O26			
18		I/O12	I/O28			
19		I/O14	I/O30			
20		I/O16	I/O32			
					34 1 2 3 4 X3	

(1) Pin 1 and Pin 3 internally bridged.

(2) Pin 2 and Pin 4 internally bridged.

Scope of delivery:

- pre-assembled spacer bolts for mounting the module on a motherboard