



(Figure similar)

Figure	Type	Inputs analog	Outputs analog	Input voltage (sensor supply) ¹	Output voltage (actuator supply) ²	AS-i address ³	Art. no.
	IP65, M12, width 45 mm	2 x 4 ... 20 mA	–	out of AS-i	–	1 AB slave	BWU1893
	IP65, M12, width 45 mm	2 x 4 ... 20 mA	–	out of AS-i	–	1 single slave	BWU1894
	IP65, M12, width 45 mm	2 x 0 ... 10 V	–	out of AS-i	–	1 AB slave	BWU1963
	IP65, M12, width 45 mm	2 x 0 ... 10 V	–	out of AS-i	–	1 single slave	BWU1964
	IP65, M12, width 45 mm	2 x Pt100	–	out of AS-i	–	1 AB slave	BWU1895
	IP65, M12, width 90 mm	1 x 4 ... 20 mA/0 ... 10 V	1 x 0 ... 20 mA/0 ... 10 V	out of AS-i	out of AS-i	2-4 single slaves	BWU1917
	IP65, M12, width 90 mm	1 x 4 ... 20 mA/0 ... 10 V	1 x 0 ... 20 mA/0 ... 10 V	out of AUX	out of AUX	2-4 single slaves	BWU1853
	IP65, M12, width 90 mm	4 x 4 ... 20 mA	–	out of AS-i or out of AUX, auto switching	–	1 single slave	BWU1359
	IP65, M12, width 90 mm	4 x 0 ... 10 V	–	out of AS-i or out of AUX, auto switching	–	1 single slave	BWU1360
	IP65, M12, width 90 mm	4x Pt100, 2/4 wire mode	–	out of AS-i	–	1 single slave	BWU1363
	IP65, M12, width 90 mm	4x Pt100, 2/3 wire mode	–	out of AS-i	–	1 single slave	BWU2532
	IP65, M12, width 90 mm	–	4 x 0 ... 20 mA	–	out of AUX	1 single slave	BWU1722
	IP65, M12, width 90 mm	–	4 x 0 ... 20 mA	–	out of AS-i or out of AUX, auto switching	1 single slave	BWU1361
	IP65, M12, width 90 mm	–	4 x 0 ... 10 V	–	out of AS-i or out of AUX, auto switching	1 single slave	BWU1362
	IP65, M12, width 90 mm	–	4 x 0 ... 10 V 24 V, 0 V via M12	–	out of AS-i or out of AUX, auto switching	1 single slave	BWU2857

¹ **Input voltage (sensor supply)**

Inputs are supplied by AS-i or by AUX (auxiliary 24 V power). If supplied by AS-i, inputs shall not be connected to earth or to external potential.

² **Output voltage (actuator supply)**

Outputs are supplied by AS-i or by AUX (auxiliary 24 V power). If supplied by AS-i, outputs shall not be connected to earth or to external potential.

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 (upon request, slaves are available with specific AS- slave profiles).

Analog Modules AS-i, IP65, M12

Article no.	BWU1893	BWU1894	BWU1895	BWU1963	BWU1964	BWU1359	BWU1360	BWU1363 BWU2532	
General data									
Device type	input								
Connection									
AS-i/AUX connection	profile cable and piercing								
Periphery connection	M12								
AS-i									
Profile	S-7.A.9	S-7.3.D	S-7.A.9	S-7.3.D	S-7.3.E				
Address	1 AB slave	1 single slave	1 AB slave	1 single slave	1 single slave				
Required Master profile	≥ M4	≥ M3	≥ M4	≥ M3					
Since AS-i specification	3.0	2.1	3.0	2.1					
Operating voltage	30 V _{DC} (18 ... 31,6 V)								
Max. current consumption	< 200 mA		< 80 mA	< 200 mA			< 100 mA	< 80 mA	
AUX									
Voltage	-					24 V _{DC} (18 .. 30 V)		-	
Max. current consumption	-					500 mA		-	
Input									
Number	2				4				
Resolution	normal: 14 Bit, fast: 11 Bit		14 Bit	11 or 14 Bit		16 Bit (1 µA)	16 Bit (1 mV)	16 Bit (0,1 °C)	
Range of value	4000 ... 20000 dec. / 0 ... 27648 dec. ¹		-2000 ... +8500 dec. -12000 ... 13000 dec.	0 ... 10000 dec. / 0 ... 27648 dec. ¹		4000 ... 20000 dec.	0 ... 10000 dec.	-2000 ... +8500 dec.	
Internal resistance	82 Ω		-	130 kΩ		50 Ω	100 kΩ	-	
Max. input voltage	-		25 V			-	25 V	-	
Max. input current	40 mA		-			40 mA	-		
Power supply	out of AS-i					out of AS-i or out of AUX		out of AS-i	
Power supply of attached sensors	max. 70 mA		-		max. 70 mA		max. 500 mA out of AUX, max. 100 mA out of AS-i		
Display									
LED PWR (green)	on: AS-i voltage on flashing: AS-i voltage on, but peripheral fault ² or address 0 off: no AS-i voltage								
LED FLT/FLAUT (red)	on: no data exchange, slave address 0 or slave offline flashing: peripheral fault ² off: slave online								
LED AUX (green)	-					on: 24 V _{DC} AUX off: no 24 V _{DC} AUX		-	
LED I1 ...In (yellow)	state of channel I1, I2 on: analog signal within range of value flashing: analog signal outside range of values off: channel switched off					state of channel I1 ... I4 on: analog signal within range of value flashing: analog signal outside range of values off: channel switched off			
Environment									
Applied standards	EN 61000-6-2 EN 61000-6-4 EN 60529								
Operating altitude	max. 2000 m								
Ambient temperature	0 °C ... +70 °C					-20 °C ... +70 °C		0 °C ... +70 °C	
Storage temperature	-20 °C ... +85 °C								
Housing	plastic, for DIN rail mounting								
Pollution degree	2								
Protection category	IP65								
Insulation voltage	≥ 500 V								
Dimensions (W / H / D in mm)	45 / 80 / 45					90 / 80 / 45			

¹ Siemens format

² see table „Peripheral fault indication“

Article no.	BWU1853	BWU1917	BWU1361	BWU1362	BWU2857	BWU1722
General data						
Device type	input/output		output			
Connection						
AS-i/AUX connection	profile cable and piercing					
Periphery connection	M12					
AS-i						
Profile	S-6.0.x		S-7.3.6			
Address	2-4 single slaves		1 single slave			
Required Master profile	≥ M4		≥ M3			
Since AS-i specification	3.0		2.1			
Operating voltage	30 V _{DC} (18 ... 31,6 V)					
Max. current consumption	< 200 mA					< 100 mA
AUX						
Voltage	24 V _{DC} (18 ... 30 V)	–	24 V _{DC} (18 ... 30 V)			
Max. current consumption	1 A	–	500 mA			
Input						
Number	1		–			
Resolution	16 Bit (1 µA) or 16 Bit (1 mV)		–			
Range of value	4000 ... 20000 dec. / 0 ... 10000 dec.		–			
Internal resistance	4 ... 20 mA: 50 Ω 0 ... 10 V: 100 kΩ		–			
Max. input voltage	25 V		–			
Max. input current	40 mA		–			
Power supply	out of AUX	out of AS-i	–			
Power supply of attached sensors	∑ (sensors and actuators) max. 1 A	∑ (sensors and actuators) max. 200 mA	–			
Output						
Number	1		4			
Resolution	16 Bit (1 µA) or 16 Bit (1 mV)		16 Bit (1 µA)	16 Bit (1 mV)	16 Bit (1 µA)	
Range of value	0 ... 20000 dec. / 0 ... 10000 dec.		0 ... 20000 dec.	0 ... 10000 dec.	0 ... 20000 dec.	
Actuator resistance	0 ... 20 mA: max. 600 Ω 0 ... 10 V: min. 3,3 kΩ		max. 600 Ω	min. 3,3 kΩ		max. 600 Ω
Max. output voltage	11,5 V		–	11,5 V		–
Max. output current	23 mA			–		23 mA
Power supply	out of AUX	out of AS-i	out of AS-i or out of AUX			out of AUX
Power supply of attached actors	∑ (sensors and actuators) max. 1 A	∑ (sensors and actuators) max. 200 mA	max. 500 mA out of AUX, max. 100 mA out of AS-i			∑ max. 1,1 A

Article no.	BWU1853	BWU1917	BWU1361	BWU1362	BWU2857	BWU1722
Display						
LED PWR (green)	on: AS-i voltage on flashing: AS-i voltage on, but peripheral fault ¹ or address 0 off: no AS-i voltage					
LED FLT/FLAUT (red)	on: no data exchange, slave address 0 or slave offline flashing: peripheral fault ¹ off: slave online					
LED AUX (green)	an: 24 V _{DC} AUX aus: keine 24 V _{DC} AUX					
LED O1 ...On (yellow)	-		state of channel O1 ... O4 on: analog signal within range of value flashing: analog signal outside range of values			
LED InI, InU (yellow)	state of channel InI or InU on: analog signal within range of value flashing: analog signal outside range of values		-			
LED OutI, OutU (yellow)	state of channel OutI or OutU on: analog signal within range of value flashing: analog signal outside range of values		-			
Environment						
Applied standards	EN 61000-6-2 EN 61000-6-4 EN 60529					
Operating altitude	max. 2000 m					
Ambient temperature	0 °C ... +70 °C					
Storage temperature	-20 °C ... +85 °C					
Housing	plastic, for DIN rail mounting					
Pollution degree	2					
Protection category	IP65					
Insulation voltage	≥ 500 V					
Dimensions (W / H / D in mm)	90 / 80 / 45					

¹ see table „Peripheral fault indication“

Article no.	Peripheral fault indication	
	analog signal outside range of value	at least 1 parameterized channel not connected
BWU1359	•	•
BWU1360	•	•
BWU1361	•	•
BWU1362	•	•
BWU1363	•	•
BWU1722	•	•
BWU1853	•	•
BWU1917	•	•
BWU2532	•	•
BWU2857	•	•

Programming input								
Bit setting	Article number							
	BWU1893	BWU1894	BWU1895	BWU1963 BWU1964	BWU1359	BWU1360	BWU1363	BWU2532
P0:								
1: Peripheral fault is indicated 0: Peripheral fault is not indicated	•	•	•	•	_2	_2	_2	_2
1: Bridge between Pin 3 and 4 active 0: Bridge between Pin 3 and 4 not active	-	-	-	-	•	-	-	-
1: 50 Hz filter in A/D converter active 0: 60 Hz filter in A/D converter active	-	-	-	-	-	-	•	•
P1:								
1: 4000 ... 20000 dec. 0: 0 ... 27648 dec. ¹	•	•	-	-	-	-	-	-
1: 2 wire-mode 0: 4 wire-mode	-	-	•	-	-	-	-	-
1: 0 ... 10000 dec. 0: 0 ... 27648 dec. ¹	-	-	-	•	-	-	-	-
P2:								
1: normal 0: fast	•	•	-	•	-	-	-	-
1: -200 °C ... +850 °C 0: -120 °C ... +130 °C	-	-	•	-	-	-	-	-
P3:								
1: channel 2 on 0: channel 2 off	-	•	-	-	-	-	-	-
1: Peripheral fault is indicated 0: Peripheral fault is not indicated	-	-	-	-	•	•	-	-
1: 2 wire-mode 0: 4 wire-mode	-	-	-	-	-	-	•	-
1: 2 wire-mode 0: 3 wire-mode	-	-	-	-	-	-	-	•

¹ Siemens format

² For peripheral fault setting see the table "Bit combinations P1 and P2"

Bit combinations P1 and P2					
BWU1359, BWU1360, BWU1363, BWU2532					
Peripheral fault can be released through channel					
P1	P2	1	2	3	4
0	0	on	off	off	off
0	1	on	on	off	off
1	0	on	on	on	off
1	1	on	on	on	on

Programming

Bit setting		Input / Output		Output	
		BWU1853 BWU1917		BWU1361 BWU1362 BWU1722 BWU2857	
Parameter (first address)			Parameter		
P0:			P0		
1: Automatic switching between current and voltage 0: Current / voltage specified by P1 and P3		•	not used		•
P1:			P1		
If P0= 0 1: OutI active 0: OutU active, otherwise not used		•	not used		•
P2:			P2		
1: Peripheral fault is indicated 0: Peripheral fault is not indicated		•	1: Peripheral fault is indicated 0: Peripheral fault is not indicated		•
P3:			P3		
If P0= 0 1: InI active 0: InU active, otherwise not used		•	not used		•
Parameter (second address)					
P0, P1:					
Transformation speed InI, InU 11: fastest: 1 ms/8 Bit 01: medium speed/precise: 5 ms/12 Bit 10: highest precision: 20 ms/16 Bit 00: not used		•			
P2:					
1: 10 V = 10000 dec., 20 mA = 20000 dec. 0: 10 V = 27648 dec. ¹ , 20 mA = 27648 dec. ¹		•			
P3:					
1: Pin 3 and Pin 4 bridged 0: Pin 3 and Pin 4 not bridged		•			

¹ Siemens format

Programming notes						
Article no.	ID-Code	ID1-Code			ID2-Code	IO-Code
BWU1893, BWU1895, BWU1963 ¹	A	Code definition			9	7
		ID1	14 Bit	11 Bit		
		Channel 1	0; 2; 3	1		
		Channel 1 and 2	4; 5; 7 (Default value ID1=7)	6		
BWU1853, BWU1917	0	<ul style="list-style-type: none"> the ID code 1 can be written for all slaves, but only the slave with the lowest address defines the code for the remaining slaves. ID1 is the same code for all slaves. the code ID2 for all slaves (different for each according to his profile) is specified by the code ID1. <p>number of connected AS-i slaves ID1= A: 2 AS-i slaves corresponding to 8 Bit ID1= B: 3 AS-i slaves corresponding to 12 Bit else: 4 AS-i slaves corresponding to 16 Bit</p>			X	6
BWU1894, BWU1964	3	(Default value ID1=F)			D	7
BWU1359, BWU1363, BWU2532, BWU2049, BWU1360	3	(Default value ID1=F)			E	7
BWU1361, BWU1362, BWU1722, BWU2857	3	(Default value ID1=F)			6	7

¹ BWU1893, BWU1895, BWU1963 can transfer either 11 or 14 Bit values.
Via ID1 the data capacity and the channel number can be defined.

M12 Connections:									
Pin	BWU1359 BWU1360 BWU1893 BWU1894 BWU1963 BWU1964	BWU1853 BWU1917		BWU1895 BWU1363	BWU2532	BWU1361 BWU1362	BWU2857	BWU1722	
		InI, InU	OutI, OutU						
1	24 V	24 V	Sig+	CH+	CH+	Sig+	Sig+	Sig+	
2	Sig+	Sig+	n.c.	CHS+	CHS-	n.c.	24 V	24 V	
3	0 V	0 V	Sig-	CH-	CH-	Sig-	Sig-	Sig-/0 V	
4	Sig-	Sig-	n.c.	CHS-	¹	n.c.	0 V	n.c.	
5	Shield	Shield	Shield	Shield	Shield	Shield	Shield	Shield	

¹ Pin 4 bridged internally to Pin 3

Accessories:

- AS-i substructure module to connect 2 AS-i profile cables (article no. BW1180)
- AS-i substructure module to connect 1 AS-i profile cable, 1 profile cable for additional supply (article no. BW1181)
- AS-i substructure module to connect 2 AS-i round cable (article no. BW1182)
- AS-i substructure module to connect 1 AS-i round cable, 1 round cable for additional supply (article no. BW1183)
- AS-i substructure module to connect 2 AS-i profile cables with addressing socket (article no. BW1438)