



„Plug and Play“ – as simply as digital AS-i I/O



(Figure similar)

Housing	Inputs analog	Outputs analog	Input voltage (sensor supply) <sup>1</sup>	Output voltage (actuator supply) <sup>2</sup>	AS-i address <sup>3</sup>	Art. no.
45 mm wide 	2x 4 ... 20mA	0	out of AS-i	–	1 AB Slave	<b>BWU1893</b>
	2x 4 ... 20mA	0	out of AS-i	–	1 Single Slave	<b>BWU1894</b>
	2x 0 ... 10V	0	out of AS-i	–	1 AB Slave	<b>BWU1963</b>
	2x 0 ... 10V	0	out of AS-i	–	1 Single Slave	<b>BWU1964</b>
	2x Pt100	0	out of AS-i	–	1 AB Slave	<b>BWU1895</b>
90 mm wide 	1x (4 ... 20mA / 0 ... 10V)	1x (0 ... 20mA / 0 ... 10V)	out of AS-i	out of AS-i	2-4 Single Slaves	<b>BWU1917</b>
	1x (4 ... 20mA / 0 ... 10V)	1x (0 ... 20mA / 0 ... 10V)	out of AUX	out of AUX	2-4 Single Slaves	<b>BWU1853</b>
	4x 4 ... 20mA	0	random, from AS-i or AUX, auto switching	–	1 Single Slave	<b>BWU1359</b>
	4x 0 ... 10V	0	random, from AS-i or AUX, auto switching	–	1 Single Slave	<b>BWU1360</b>
	4x Pt100, 2/4 wire mode	0	out of AS-i	–	1 Single Slave	<b>BWU1363</b>
	4x Pt100, 2/3 wire mode	0	out of AS-i	–	1 Single Slave	<b>BWU2532</b>
	–	4x 0 ... 20mA	–	out of AUX	1 Single Slave	<b>BWU1722</b>
	–	4x 0 ... 20mA	–	random, from AS-i or AUX, auto switching	1 Single Slave	<b>BWU1361</b>
–	4x 0 ... 10V	–	random, from AS-i or AUX, auto switching	1 Single Slave	<b>BWU1362</b>	

<sup>1</sup> **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.

<sup>2</sup> **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.

<sup>3</sup> **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).

Article no.	BWU1893	BWU1894	BWU1895	BWU1963	BWU1964	BWU1359	BWU1360	BWU1363 BWU2532
<b>General data</b>								
Device type	Input							
<b>Connection</b>								
Periphery connection	M12 plug							
AS-i connection	via AS-i substructure module							
<b>AS-i</b>								
Profile	S-7.A.9	S-7.3.D	S-7.A.9		S-7.3.D	S-7.3.E		
Slave-Type	AB Slave (up to 62)	Single Slave (up to 31)	AB Slave (up to 62)		Single Slave (up to 31)			
Required Master profile	≥ M4	≥ M3	≥ M4		≥ M3			
Since AS-i specification	3.0	2.1	3.0		2.1			
Operating voltage	AS-i voltage 30V DC							
Max. current consumption	< 200mA	< 80mA	< 200mA			< 100mA	< 80mA	
<b>AUX</b>								
Voltage	-						18 .. 30V	
Max. current consumption	-					500mA		
<b>Input</b>								
Resolution	normal: 14 Bit, fast: 11Bit		14 Bit	11 or. 14 Bit		16 Bit (1µA)	16 Bit (1mV)	16 Bit (0,1°C)
Range of value	4000 ... 20000 dez. / 0 ... 27648 dez. <sup>1</sup>		-2000 ... +8500 dez. / -12000 ... 13000 dez.	0 ... 10000 dez. / 0 ... 27648 dez. <sup>1</sup>		4000 ... 20000 dez.	0 ... 10000 dez.	-2000 ... +8500 dez.
Internal resistance	82Ω		-	130KΩ		50Ω	100KΩ	-
Max. input voltage	-			25V		-	25	-
Max. input current	40mA			-		40mA	-	
Power supply	24V out of AS-i					24V external or out of AS-i		
Power supply of attached sensors	max. 70mA		-	max. 70mA		max. 500mA out of external 24V, max. 100mA out of AS-i		-
<b>Environment</b>								
Applied standards	EN 61 000-6-2 EN 61 000-6-4					EN 50 081-2 EN 61 000-6-4		
Housing	housing for DIN-rail mounting							
Operating temperature	0°C ... +70°C						-20°C ... +70°C	0°C ... +70°C
Storage temperature	-20°C ... +85°C							
Protection category DIN 40 050	IP65							
Voltage of insulation	≥ 500V							
Dimensions (W / H / D) in mm	45 / 80 / 45					90 / 80 / 45		

<sup>1</sup> Siemens format

Article no.	BWU1853	BWU1917	BWU1361, BWU1362	BWU1722
<b>General data</b>				
Device type	In-/Output		Output	
<b>Connection</b>				
Periphery connection	M12 plug			
AS-i connection	via AS-i substructure module			
<b>AS-i</b>				
Profile	S-6.0.x		S-7.3.6	
Slave-Type	2, 3 o. 4 Single Slaves (up to 31)		Single Slave (up to 31)	
Required Master profile	≥ M4		≥ M3	
Operating voltage	AS-i voltage 30V DC			
Max. AS-i current consumption	< 200mA			< 100mA
<b>AUX</b>				
Voltage	18..30V	–	18..30V	
Max. AUX current consumption	1A	–	500mA	
<b>Input</b>				
Resolution	16 Bit (1µA) or 16 Bit (1mV)		–	
Range of value	4000 ... 20000 dez. / 0 ... 10000 dez.		–	
Internal resistance	4-20mA: 50Ω 0-10V: 100kΩ		–	
Max. input voltage	25V		–	
Max. input current	40mA		–	
Power supply	24V external	24V out of AS-i		–
Power supply of attached sensors	max. 1A in total (sensors and actuators)	max. 200mA in total (sensors and actuators)		–
<b>Ausgang</b>				
Resolution	16 Bit (1µA) or 16 Bit (1mV)		16 Bit (1µA)	16 Bit (1mV)
Range of value	4000 ... 20000 dez. / 0 ... 10000 dez.		0 ... 20000 dez.	0 ... 10000 dez.
Resistance of actuators	0-10V: min. 3,3kΩ	0-20mA: max. 600Ω		max. 600Ω
Max. output voltage	11,5V			–
Max. output current	23mA			
Power supply	24V external	24V out of AS-i	24V external or out of AS-i	
Power supply of attached actuators	max. 1A in total (sensors and actuators)	max. 200mA in total (sensors and actuators)	–	max. 1,1A in total
<b>Environment</b>				
Applied standards	EN 61 000-6-2 EN 61 000-6-4		EN 50 081-2 EN 61 000-6-4	
Housing	housing for DIN-rail mounting			
Operating temperature	0°C ... +70°C			
Storage temperature	-20°C ... +85°C			
Protection category DIN 40 050	IP65			
Voltage of insulation	≥ 500V			

Programming input								
Bit setting	Article number							
	BWU1893	BWU1894	BWU1895	BWU1963 BWU1964	BWU1359	BWU1360	BWU1363	BWU2532
<b>P0:</b>								
1: Peripheral fault is indicated 0: Peripheral fault is not indicated	•	•	•	•	_1	_1	_1	_1
1: Bridge between Pin 3 and 4 active 0: Bridge between Pin 3 and 4 active	-	-	-	-	•	-	-	-
1: 50 Hz filter in A/D converter active 0: 60 Hz filter in A/D converter active	-	-	-	-	-	-	•	•
<b>P1:</b>								
1: 4000 ... 20000 dez. 0: 0 ... 27648 dez. (Siemens format)	•	•	-	-	-	-	-	-
1: 2 wire-mode 0: 4 wire-mode	-	-	•	-	-	-	-	-
1: 0 ... 10000 dez. 0: 0 ... 27648 dez. (Siemens format)	-	-	-	•	-	-	-	-
<b>P2:</b>								
1: normal 0: fast	•	•	-	•	-	-	-	-
1: -200°C ... +850°C 0: -120°C ... +130°C	-	-	•	-	-	-	-	-
<b>P3:</b>								
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	-	-	-	-	-	-	-	•

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

<sup>1</sup> Siemens format

Programming notes						
Article no.	ID-Code	ID1-Code		ID2-Code	IO-Code	
BWU1893, BWU1895, BWU1963 <sup>1</sup>	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"> <li>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.</li> <li>ID1 is the same code for all slaves.</li> <li>the code ID2 for all slaves (different for each according to his profile) is specified by the code ID1.</li> </ul> <p><b>number of connected AS-i slaves</b>                      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	3	(Default value ID1=F)			6	7

<sup>1</sup> BWU1893, BWU1895 + 1963 can transfer either 11 or 14 Bit values.  
Via ID1 the data capacity and the channel number can be defined.

M12 Connections:								
	BWU1359, BWU1360, BWU1893, BWU1894, BWU1963, BWU1964	BWU1853, BWU1917		BWU1895, BWU2086, BWU1363	BWU2532	BWU1361, BWU1362	BWU1722	
		Inl, InU	Outl, OutU					
1	24V	24V	Sig+	CH+	CH+	Sig+	Sig+	
2	Sig+	Sig+	24V	CHS+	CHS-	n.c.	24V	
3	0V	0V	Sig-	CH-	CH-	Sig-	Sig-/0V	
4	Sig-	Sig-	0V	CHS-	1	n.c.	n.c.	
5	Shield	Shield	Shield	Shield	Shield	Shield	Shield	

<sup>1</sup> Pin 4 bridged internally to Pin 3

### Accessories:

- AS-i substructure module to connect 2 AS-i flat cables (article no. BW1180)
- AS-i substructure module to connect 1 AS-i flat cable, 1 flat 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 flat cables with addressing socket (article no. BW1438)