



(Figure similar)

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

(1) **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.

(2) **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.

(3) **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 (upon request, ASi nodes are available with specific ASi address profiles).

Article no.	BWU1893	BWU1894	BWU1895	BWU1963	BWU1964	BWU1359	BWU1360	BWU1363 BWU2532	
<b>General data</b>									
Device type	input								
<b>Connection</b>									
ASi/AUX connection	profile cable and piercing								
Periphery connection	M12								
<b>ASi</b>									
Profile	S-7.A.9	S-7.3.D	S-7.A.9		S-7.3.D		S-7.3.E		
Address	1 AB address	1 single address	1 AB address		1 single address		1 single address		
Required Master profile	≥ M4	≥ M3	≥ M4		≥ M3				
Since ASi specification	3.0	2.1	3.0		2.1				
Operating voltage	30 V <sub>DC</sub> (18 ... 31,6 V)								
Max. current consumption	< 200 mA		< 80 mA	< 200 mA			< 100 mA	< 80 mA	
<b>AUX</b>									
Voltage	-					24 V <sub>DC</sub> (18 .. 30 V)		-	
Max. current consumption	-					500 mA		-	
<b>Input</b>									
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. <sup>(1)</sup>		-2000 ... +8500 dec. -12000 ... 13000 dec.	0 ... 10000 dec. / 0 ... 27648 dec. <sup>1</sup>		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 ASi					out of ASi or out of AUX		out of ASi	
Power supply of attached sensors	max. 70 mA		-	max. 70 mA		max. 500 mA out of AUX, max. 100 mA out of ASi		-	
<b>Display</b>									
LED PWR (green)	on: ASi voltage on flashing: ASi voltage on, but peripheral fault <sup>(2)</sup> or address 0 off: no ASi voltage								
LED FLT/FLAUT (red)	on: no data exchange, ASi address 0 or ASi node offline flashing: peripheral fault <sup>2</sup> off: ASi node online								
LED AUX (green)	-					on: 24 V <sub>DC</sub> AUX off: no 24 V <sub>DC</sub> 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			

Article no.	BWU1893	BWU1894	BWU1895	BWU1963	BWU1964	BWU1359	BWU1360	BWU1363 BWU2532	
<b>Environment</b>									
Applied standards	EN 61000-6-2 EN 61000-6-4 EN 60529								
It can be used with a switched AUX cable, which is passively safe up to SIL3/PLe	yes <sup>(3)</sup>					no <sup>(4)</sup>		yes <sup>(5)</sup>	
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“

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

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

Article no.	BWU1853	BWU1917	BWU1361	BWU1362	BWU2857	BWU1722
<b>General data</b>						
Device type	input/output			output		
<b>Connection</b>						
ASi/AUX connection	profile cable and piercing					
Periphery connection	M12					
<b>ASi</b>						
Profile	S-6.0.x			S-7.3.6		
Address	2-4 single addresses			1 single address		
Required Master profile	≥ M4			≥ M3		
Since ASi specification	3.0			2.1		
Operating voltage	30 V <sub>DC</sub> (18 ... 31,6 V)					
Max. current consumption	< 200 mA				< 100 mA	
<b>AUX</b>						
Voltage	24 V <sub>DC</sub> (18 ... 30 V)	-		24 V <sub>DC</sub> (18 ... 30 V)		
Max. current consumption	1 A	-		500 mA		

Article no.	BWU1853	BWU1917	BWU1361	BWU1362	BWU2857	BWU1722
<b>Input</b>						
Number	1		–			
Resolution	16 Bit (1 $\mu$ A) or 16 Bit (1 mV)		–			
Range of value	4000 ... 20000 dec. / 0 ... 10000 dec.		–			
Internal resistance	4 ... 20 mA: 50 $\Omega$ 0 ... 10 V: 100 k $\Omega$		–			
Max. input voltage	25 V		–			
Max. input current	40 mA		–			
Power supply	out of AUX	out of ASi	–			
Power supply of attached sensors	$\Sigma$ (sensors and actuators) max. 1 A	$\Sigma$ (sensors and actuators) max. 200 mA	–			
<b>Output</b>						
Number	1		4			
Resolution	16 Bit (1 $\mu$ A) or 16 Bit (1 mV)		16 Bit (1 $\mu$ A)	16 Bit (1 mV)		16 Bit (1 $\mu$ A)
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 $\Omega$ 0 ... 10 V: min. 3,3 k $\Omega$		max. 600 $\Omega$	min. 3,3 k $\Omega$		max. 600 $\Omega$
Max. output voltage	11,5 V		–	11,5 V		–
Max. output current	23 mA		–	–		23 mA
Power supply	out of AUX	out of ASi	out of ASi or out of AUX			out of AUX
Power supply of attached actors	$\Sigma$ (sensors and actuators) max. 1 A	$\Sigma$ (sensors and actuators) max. 200 mA	max. 500 mA out of AUX, max. 100 mA out of ASi			$\Sigma$ max. 1,1 A
<b>Display</b>						
LED PWR (green)	on: ASi voltage on flashing: ASi voltage on, but peripheral fault <sup>(1)</sup> or address 0 off: no ASi voltage					
LED FLT/FLAUT (red)	on: no data exchange, ASi address 0 or ASi node offline flashing: peripheral fault <sup>1</sup> off: ASi node online					
LED AUX (green)	an: 24 V <sub>DC</sub> AUX aus: keine 24 V <sub>DC</sub> 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		–			

Article no.	BWU1853	BWU1917	BWU1361	BWU1362	BWU2857	BWU1722
<b>Environment</b>						
Applied standards	EN 61000-6-2 EN 61000-6-4 EN 60529					
It can be used with a switched AUX cable, which is passively safe up to SIL3/PLe	no <sup>(2)</sup>	yes <sup>(3)</sup>	no <sup>(4)</sup>			
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“

(2) 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.

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

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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.

<b>UL-specifications (UL508)</b>	
<b>BWU1359, BWU1360, BWU1361, BWU1362, BWU1363, BWU1722, BWU1853, BWU1917, BWU2532, BWU2857</b>	
External protection	An isolated source with a secondary open circuit voltage of $\leq 30 V_{DC}$ with a 3 A maximum over current protection. Over current protection is not required when a Class 2 source is employed.
In general	UL mark does not provide UL certification for any functional safety rating or aspects of the above devices.

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

Bit	Bit setting			
	input			
	P3	P2	P1	P0
BWU1893	–	1: normal 0: fast	1: 4000 ... 20000 dec. 0: 0 ... 27648 dec. <sup>(1)</sup>	1: Peripheral fault is indicated 0: Peripheral fault is not indicated
BWU1894	1: channel 2 on 0: channel 2 off			
BWU1895	–	1: -200 °C ... +850 °C 0: -120 °C ... +130 °C	1: 2 wire-mode 0: 4 wire-mode	
BWU1963 / BWU1964		1: normal 0: fast	1: 0 ... 10000 dec. 0: 0 ... 27648 dec. <sup>1</sup>	
BWU1359	1: Peripheral fault is indicated 0: Peripheral fault is not indicated	–	–	1: Bridge between Pin 3 and 4 active 0: Bridge between Pin 3 and 4 not active <sup>(2)</sup>
BWU1360				– <sup>2</sup>
BWU1363	1: 2 wire-mode 0: 4 wire-mode			1: 50 Hz filter in A/D converter active 0: 60 Hz filter in A/D converter active <sup>2</sup>
BWU2532	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	Bit setting			
	Input / Output			
	Parameter (first address)			
Bit	P3	P2	P1	P0
BWU1853 / BWU1917	<b>If P0= 0</b> 1: InI active 0: InU active, otherwise not used	1: Peripheral fault is indicated 0: Peripheral fault is not indicated	<b>If P0= 0</b> 1: OutI active 0: OutU active, otherwise not used	1: Automatic switching between current and voltage 0: Current / voltage specified by P1 and P3
	Parameter (second address)			
	1: Pin 3 and Pin 4 bridged 0: Pin 3 and Pin 4 not bridged	1: 10 V = 10000 dec., 20 mA = 20000 dec. 0: 10 V = 27648 dec. <sup>(1)</sup> , 20 mA = 27648 dec. <sup>1</sup>	<b>Transformation speed InI, InU</b> 11: fastest: 1 ms/8 Bit 01: medium speed/precise: 5 ms/12 Bit 10: highest precision: 20 ms/16 Bit 00: not used	
Output				
BWU1361 / BWU1362 BWU1722 / BWU2857	not used	1: Peripheral fault is indicated 0: Peripheral fault is not indicated	not used	

(1) 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 ASi nodes, but only the ASi node with the lowest address defines the code for the remaining ASi nodes.</li> <li>ID1 is the same code for all ASi nodes.</li> <li>the code ID2 for all ASi nodes (different for each according to his profile) is specified by the code ID1.</li> </ul>			X	6
		<b>number of connected ASi nodes</b> ID1= A: 2 ASi nodes corresponding to 8 Bit ID1= B: 3 ASi nodes corresponding to 12 Bit else: 4 ASi nodes corresponding to 16 Bit				
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:

- ASi substructure module to connect 2 ASi profile cables (article no. BW1180)
- ASi substructure module to connect 1 ASi profile cable, 1 profile cable for additional supply (article no. BW1181)
- ASi substructure module to connect 2 ASi round cable (article no. BW1182)
- ASi substructure module to connect 1 ASi round cable, 1 round cable for additional supply (article no. BW1183)
- ASi substructure module to connect 2 ASi profile cables with addressing socket (article no. BW1438)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4708)