

# ASi Speed Monitor

## ASi Speed Monitor

- for sine/cosine encoder
- for HTL encoder
- for SSI encoder
- for TTL encoder
- for sensors

for up to 2 independent axes

up to 2 electronic safe outputs

- up to 128 devices



(figure similar)

Supplied out of ASi and external 24 V

Chip card



Figure	Model	Safe Monitoring	Encoder signal/ Sensor signal	Number of monitored axes	Outputs Safety, SIL 3, cat. 4	Encoder/Sensor connection	Article no.
	Speed Monitor for encoders	speed + position	sine/cosine, SSI, TTL <sup>(1)</sup>	up to 2 independent axes	2 release circuits; 2 x electronic safe outputs	RJ45	<b>BWU2849</b>
	Speed Monitor for encoders	speed + position	sine/cosine, TTL	1 axis	2 release circuits; 2 x electronic safe outputs	RJ45	<b>BWU2868</b>
	Speed Monitor for encoders	speed	sine/cosine	up to 2 independent axes	–	Mini IO	<b>BWU2427</b>
	Speed Monitor for encoders	speed	HTL	up to 2 independent axes	–	Mini IO	<b>BWU2595</b>

<sup>(1)</sup> TTL ability from ID. no. 15882 (see lateral label).

Article no.	BWU2427	BWU2595	BWU2849	BWU2868
<b>Connection</b>				
ASi /AUX Connection	1 x 4-fold COMBICON		1 x 4-fold COMBICON 1 x 4-fold Mini-COMBICON	
Encoder connection	2 x AMP Mini-IO		2 x RJ45	1 x RJ45
<b>ASi</b>				
Profile	safe ASi input nodes: S-0.B.E., ID1=F ASi diagnostic nodes: S-7.A.5., ID1=7 (default)		safe ASi input nodes: S-7.B.E., ID1=F ASi diagnostic nodes: S-7.A.5., ID1=7 (default)	
Address	depending on configuration			
Operating voltage	18 ... 31,6 V			
Max. current consumption	150 mA			
Max. continuous operating current	125 mA			
<b>AUX</b>				
Voltage	18 ... 30 V			
Max. current consumption	200 mA	50 mA	1,4 A	
<b>Input</b>				
Number	2 x encoder			1 x encoder
Input type	sine / cosine	HTL	sine / cosine, SSI <sup>(3)</sup> , TTL	
Input level	–	Logic level HTL: 16 V ... 28,8 V	–	
Power supply	internal 5 V (max. 100 mA), external 5 V	external 24 V	external, max. 30 V	
Parameterization range for the speed limit	2 Hz ... 200 kHz		1 Hz ... 250 kHz	
SSI master clock	–		max. 250kHz (external and internal)	
<b>Output</b>				
Number	–		2 semiconductor outputs, max. contact load: 700 mA <sub>DC-13</sub> at 24 V	
Power supply	–		out of AUX	
Test pulse	–		minimum interval between 2 pulses: 250 ms pulse length: max. 1 ms	
<b>Display</b>				
LED ASi (green)	on: ASi voltage present flashing: peripheral fault <sup>(1)</sup> or address 0		on: ASi voltage present flashing: configuration not verified or address 0	
LED FAULT/FLT (red)	on: offline or address 0 flashing: peripheral fault <sup>(1)</sup>		on: offline or address 0 flashing: configuration not verified	
LED AUX (green)	24 V <sub>DC</sub> AUX present			
LED CONF (yellow)	off: normal operation mode flashing: chip card is written on: frequency stored via PRJ button		off: normal operation mode flashing: device red or yellow flashing, chip card is written on: configuration operation	
LED ST1, ST2 (yellow)	state of encoders 1 (ENC 1), 2 (ENC 2)			state of encoders 1 (ENC 1)
LED F1, F2 (yellow)	off: axes 1, 2 rotating flashing: encoder error <sup>(1)</sup> on: axes 1, 2 stopped			off: axis 1 rotating flashing: encoder error <sup>(1)</sup> on: axis 1 stopped
LED SO1, SO2 (yellow)	–		state of safe outputs 1, 2 flashing: overload cut-off <sup>(1)</sup>	

Article no.	BWU2427	BWU2595	BWU2849	BWU2868
<b>Environment</b>				
Applied standards	EN 62061 SIL 3 EN ISO 13849-1 PLe EN 60529			
Operating altitude	max. 5000 m			
Ambient temperature	0 °C ... +55 °C			
Storage temperature	-25 °C ... +85 °C			
Housing	plastic, for DIN rail mounting			
Protection class	IP20			
Tolerable loading referring to humidity	acc. EN 61131-2			
Weight	160 g			
Dimensions (W / H / D in mm)	22,5 / 99,6 / 114			
Mounting position	vertical (mounting rail horizontal, ASi clamps pointing downwards) <sup>(2)</sup>			
Mounting	Can be combined with Bihl+Wiedemann devices of the same design and neighboring devices with max. 3 W heat radiation. For higher heat radiation, a minimum distance of one module width (22.5 mm) must be provided.			
	There is no fixed limit for the connecting cable between the speed monitor and the encoder. However, it is recommended to keep the connecting cable between the speed monitor and the encoder as short as possible in order to avoid possible interference, e.g. EMC.			

(1) see table „Peripheral fault indication“

(2) Make sure there is adequate ventilation. The supply air temperature at the bottom of the housing may not exceed values specified under ambient temperature.

(3) SSI encoders may only be used with speed monitors with 2 encoder connections as a second encoder is required as a reference for security applications.

Article No.	Peripheral fault indication		
	Encoder error	AUX voltage missing	Overload output
BWU2427	•	•	–
BWU2595	•	•	–
BWU2849	•	–	•
BWU2868	•	–	•

UL-specifications (UL508) BWU2427, BWU2595, BWU2849, BWU2868	
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.

## Pin assignment

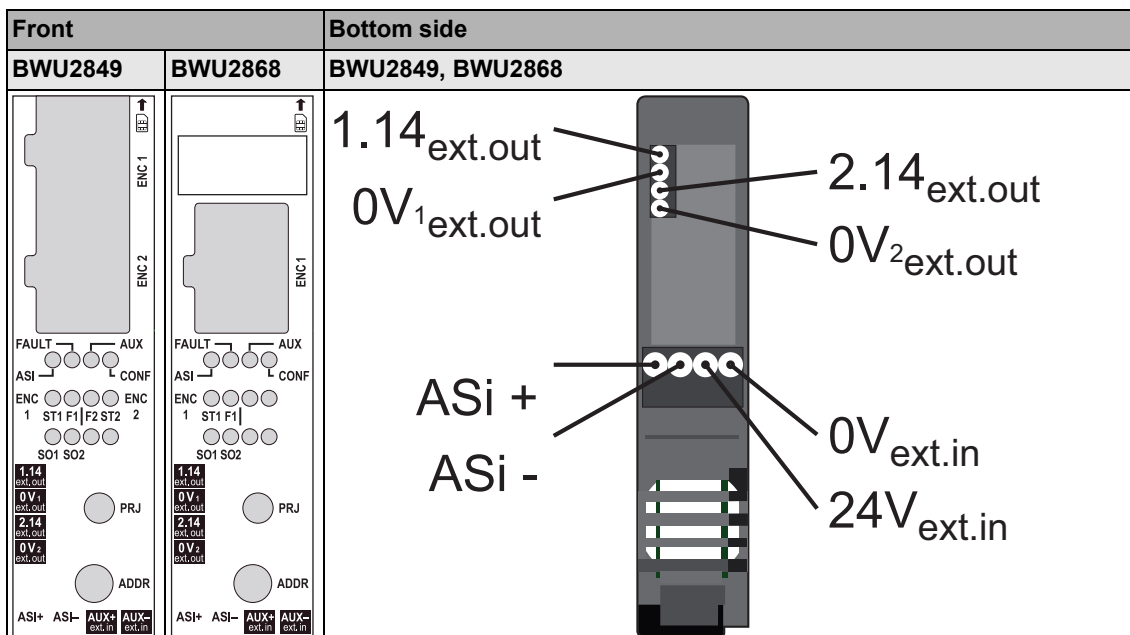
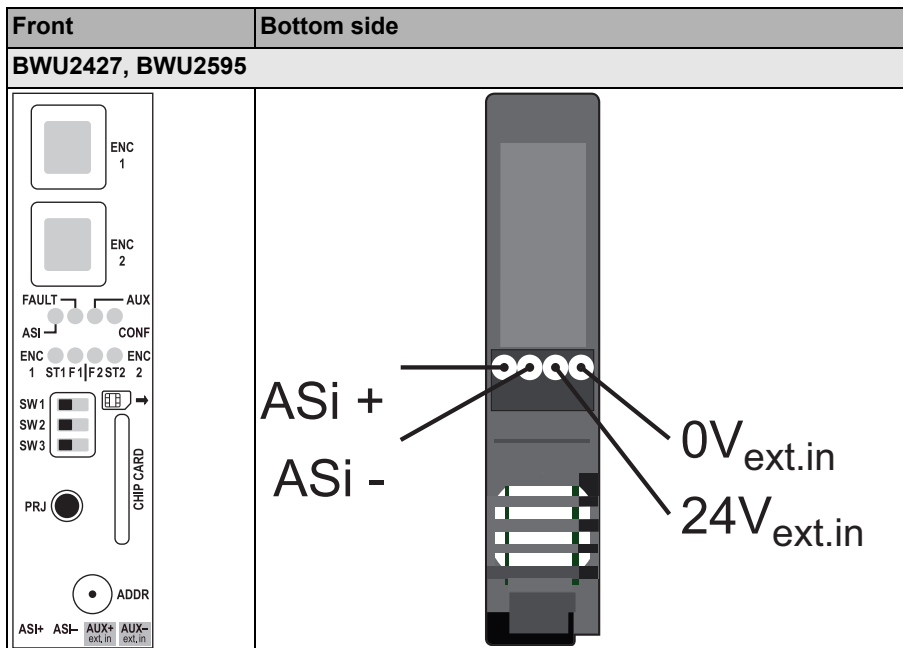
Signal name	Description
Ub	power supply, encoder, positive pole
GND	power supply, encoder, negative pole
CLK, $\overline{CLK}$	clock connection
DATA, $\overline{DATA}$	data connection
sin, $\overline{sin}$ ; cos, $\overline{cos}$ ; A, $\overline{A}$ ; B, $\overline{B}$	signal connection

Article No.	Pin	sin/cos	HTL	Mini IO connector, 8 pole
BWU2427 / BWU2595	1	$\overline{\text{sin}}$	$\overline{\text{B}}$	
	2	sin	B	
	3	n.c.	n.c.	
	4	n.c.	n.c.	
	5	cos	A	
	6	$\overline{\text{cos}}$	$\overline{\text{A}}$	
	7	Ub <sub>out</sub>	n.c.	
	8	GND <sub>out</sub>	GND	

Article No.	Pin	sin/cos	SSI	TTL	RJ45 connector, 8 pole
BWU2849 / BWU2868	1	Ub <sub>in</sub>	Ub <sub>in</sub>	Ub <sub>in</sub>	
	2	GND <sub>in</sub>	GND <sub>in</sub>	GND <sub>in</sub>	
	3	-	CLK	-	
	4	sin	DATA	B	
	5	$\overline{\text{sin}}$	$\overline{\text{DATA}}$	$\overline{\text{B}}$	
	6	-	$\overline{\text{CLK}}$	-	
	7	cos	-	A	
	8	$\overline{\text{cos}}$	-	$\overline{\text{A}}$	

### Connection and switch assignment

Marked	Description
ENC 1, ENC 2	connection encoder
CHIP CARD	chip card
ADDR	addressing socket
PRJ	projecting button
S1, S2, S3	function selector switch
1.14 <sub>ext.out</sub> , 0V <sub>1 ext.out</sub>	semiconductor output 1
2.14 <sub>ext.out</sub> , 0V <sub>2 ext.out</sub>	semiconductor output 2
ASI +, ASI -	connection to ASi bus
24V <sub>ext.in</sub> , 0V <sub>ext.in</sub> AUX <sub>ext.in</sub> , AUX <sub>ext.in</sub>	connection external 24 V <sub>DC</sub> power supply (AUX)



### Accessories:

- Connecting cable for Speed Monitor (art. no. BW2476, BW2477, BW2494, BW2991, BW2993)
- Adapter for connecting 2 encoders (art. no. BWU2977)
- Adapter for Speed Monitor (art. no. BW2497, BW2499, BW2740, BW3046)
- Encoder Simulator (art. no. BW2506)
- Chip card (art. no. BW2079, BW2222, BW2744)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4925)