

## Shuttle Safety Guard

2 x electronic safe outputs

3 x 2 channels safe inputs

- optionally the safe inputs will be used as well as standard inputs and signal outputs

Safe ASi outputs are supported

- max. 8 independent ASi outputs  
multiple safe ASi outputs possible via a single address

Chip card for storage of configuration data

Protection category IP20



(Figure similar)



Figure	Model	Inputs Safety, SIL 3, Cat. 4	Inputs safety, expandable to	Outputs Safety, SIL 3, cat. 4	Safety outputs, independent according to SIL 3, expandable to	Safety communication	Fieldbus interface	1 power supply, 1 gateway for 2 ASi networks, inexpensive power supplies	Diagnostic and configuration interface <sup>(1)</sup>	Article no.
	Safety Basic Monitor with extended features	3 x 2 channels input 3 optional for speed monitor up to 4 kHz	max. 31 x 2 channels, max. 1891 in max. configuration	2 release circuits; 2 x electronic safe output	max. 8, max. 991 in max configuration	dynamic position monitoring	ASi monitors	yes, max. 0,5 A/ASi network, max. 8 A with ASi power supply	Ethernet diagnostic	<b>BWU3505</b>

(1) **Diagnostic and configuration interface**

"**USB**": Access to ASi Master and Safety Monitor with Bihl+Wiedemann proprietary software by using the USB interface.

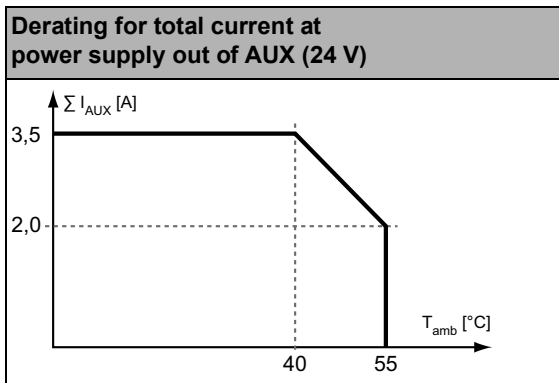
"**Ethernet diagnostic + Modbus TCP diagnostic**": Access to ASi Master and Safety Monitor with Bihl+Wiedemann software or diagnostic via Modbus TCP by using the Ethernet diagnostic interface.

<b>Article no.</b>	<b>BWU3505</b>
<b>Connection</b>	
Connection	COMBICON clamps
Length of connector cable	unlimited <sup>(1)</sup>
<b>Safety Monitor</b>	
Respond delay	< 40 ms
<b>ASi Master</b>	
ASi Master	integrated
<b>Interface</b>	
Diagnostic and configuration interface	Ethernet diagnostic chip card slot
<b>ASi</b>	
Voltage	30 V (18 ... 31,6 V)
Max. current consumption	200 mA <sup>(2)</sup>
Max. current with internal decoupling out of AUX	500 mA <sup>(2), (3)</sup>
<b>AUX</b>	
Voltage	24 V (20 ... 30 V) (PELV)
Max. current consumption	max. 4 A
<b>Input</b>	
Number	3 x 2-channel safe inputs SIL3, cat. 4 or 6 standard inputs and signaling outputs
Switching current	15 mA (T = 100 µs), continuously 4 mA at 24 V
Safety signal	floating contacts or OSSDs
Supply voltage	out of AUX
Sensor supply	short-circuit and overload protected according to EN 61131
Network connection between the safe input terminals	max. resistance 150 Ω
<b>Output</b>	
Number	2 (4) output switching elements; semiconductor outputs (output circuits 1 and 2) max. contact load: 700 mA <sub>DC-13</sub> at 24 V <sup>(2)</sup>
Supply voltage	out of AUX
Actuator supply	short-circuit and overload protected according to EN 61131
Max. output current signal outputs	10 mA per output
Test pulse	if output is on: minimum interval between 2 test pulses: 250 ms (from safety version 4.3); maximum pulse width 1 ms
<b>Display</b>	
LED S1 ... Sn (yellow)	state of safe input S1 ... S6
LED SM (green/yellow/red)	state of Safety Monitor
LED ASi M (green/yellow/red)	state of ASi master
LED SO1 (green/yellow/red)	output 1 has switched
LED SO2 (green/yellow/red)	output 2 has switched
LED NET (green)	Safe Link active
1 button	Service
<b>UL-specifications (UL508)</b>	
External protection	An isolated source with a secondary open circuit voltage of ≤30 V <sub>DC</sub> has to be protected with a 3 A maximum over current. 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.

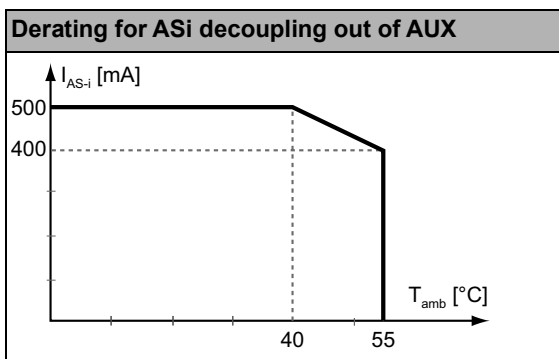
<b>Article no.</b>	<b>BWU3505</b>
<b>Environment</b>	
Applied standards	EN 60529 EN 61508 EN 62061 EN 61131 EN 61000-6-2 EN 61000-6-4 EN ISO 13849-1
Operation altitude	max. 2000 m
Ambient temperature	0 °C ... +55 °C no condensation permitted
Storage temperature	-25 °C ... +85 °C
Housing	plastic, for DIN rail mounting
Protection class	IP20
Tolerable loading referring to humidity	according to EN 61131-2
Voltage of insulation	≥ 500 V
Weight	160 g
Dimensions (W / H / D in mm)	22,5 / 99 / 114

(1) Loop resistance ≤ 150 Ω

(2)



(3)



<b>Article no.</b>	<b>BWU3505</b>
<b>ASi Safety Monitor</b>	
Safety Monitor	Safety Basis Monitor, with extended features
Optimized to ASi Monitor operations	no
Release circuits	8 additionally 8 release circuits (9 ... 16) for controlling standard ASi outputs
Antivalent switches for local inputs	yes
Standstill monitors of local inputs	1 axe, up to 4 kHz
<b>Electrical data</b>	
Power supply decoupling unit	integrated

## Wiring rules

Push-in terminals, 2 poles/4 poles (pitch 5 mm)	
<b>General</b>	
Nominal cross section	2.5 mm <sup>2</sup>
<b>Conductor cross section</b>	
Conductor cross section solid	0.2 ... 2.5 mm <sup>2</sup>
Conductor cross section flexible	0.2 ... 2.5 mm <sup>2</sup>
Conductor cross section flexible, with ferrule	without plastic sleeve: 0.25 ... 2.5 mm <sup>2</sup>
	with plastic sleeve: 0.25 ... 2.5 mm <sup>2</sup>
2 conductors with same cross section, stranded, with TWIN ferrules	without plastic sleeve: 0.5 ... 1.5 mm <sup>2</sup>
AWG	24 ... 14
Stripped insulation length	10 mm

BWU3505	Clamps	Description	
	S22, S21, S12, S11	safety input terminal input 1	
	S42, S41, S32, S31	safety input terminal input 2	
	S62, S61, S52, S51	safety input terminal input 3	
	1.14 <sub>ext.out</sub>	semiconductor output 1	
	2.14 <sub>ext.out</sub>	semiconductor output 2	
	0 V <sub>ext.out</sub>	ground for semiconductor output	
	ASI +, ASI -	connection to the ASi Bus	
	AUX + <sub>ext.in</sub> , AUX - <sub>ext.in</sub>	power supply input	

## **Accessories:**

- Safety Software for Configuration, Diagnosis and Programming (art. no. BW2916)
- Chip card, memory capacity 128 KB (art. no. BW2222)
- Safe Contact Expander 1 or 2 independent channels (art. no. BWU2548 / BWU2539)
- Safe Contact Expander 10 A or 20 A (art. no. BW3016 / BW3281)
- ASi Safety 4I/2O Module, 4 x 2 channels safety inputs and 2 fast electronic safety outputs in IP20 (art. no. BWU2314) as supplementary module
- ASi Speed Monitor (art. no. BWU2427 / BWU2849) as supplementary module