

ASi-3 DeviceNet-Gateway with integrated Safety Monitor

ASi-3 DeviceNet-Gateway with integrated Safety Monitor

1 ASi master, DeviceNet slave

Up to 32 release circuits

- Up to 6 release circuits SIL 3, cat. 4 on the Monitor
- Up to 6 electronic safe outputs

Safe ASi outputs are supported

- Up to 31 independent ASi outputs
Multiple safe ASi outputs possible via a single ASi address

Safe speed and standstill monitoring


Applications up to category 4/PLe/SIL 3

Chip card for storage of configuration data



(figure similar)



Figure	Type	Inputs safety, expandable to	Outputs Safety, SIL 3, cat. 4	Safety outputs, independent according to SIL 3, expandable to	Safety communication	Number of ASi networks, Number of ASi Masters ⁽¹⁾	1 power supply, 1 gateway for 2 ASi networks, inexpensive power supplies ⁽²⁾	Diagnostic and configuration interface ⁽³⁾	Article no.
	Safety, DeviceNet	max. 31 x 2-channels, max. 1891 in max. configuration	6 release circuits; 6 electronic safe output	max. 31, max. 991 in max. configuration	Safe Link	1 ASi network, 1 ASi Master	yes, max. 4A/ASi networks	Ethernet diagnostic	BWU2972

(1) **Number of ASi networks, number of ASi Master: Safety devices:**

"Single Master": 1 ASi network, 1 ASi Master.

(2) **1 power supply, 1 gateway for 2 ASi networks, inexpensive power supplies:**

"yes, max. 4A/ASi network": Cost-effective power for 2 ASi networks with 1 power supply (optionally supply of multiple Single Gateways by 1 power supply).

(3) **Diagnostic and configuration interface**

"Ethernet diagnostic": Access to ASi master and safety monitor via Bihl+Wiedemann proprietary software over Ethernet diagnostics interface.

The latest version of the device description file of the gateway is available in the "Downloads" section of the respective device.

ASi-3 DeviceNet-Gateway with integrated Safety Monitor

Article no.	BWU2972
Interface	
Interface	DeviceNet interface (5-pin plug)
Baudrate	125 kBaud, 250 kBaud, 500 kBaud
Diagnostic and configuration interface	Ethernet
Card slot	chip card for storage of configuration data
ASi	
ASi specification	3.0
Cycle time	150 μ s * (number of slaves + 2)
Operating voltage	30 V _{DC} (20 ... 31,6 V) (PELV voltage)
ASi Power24V capability ⁽¹⁾	yes
AUX	
Operating voltage	24 V _{DC} (19,2 ... 28,8 V)
Max current consumption	7,2 A
Display	
LCD	menu, indication of slave addresses and error messages in plain text
LED power (green)	power ON
LED ser active (green)	module/network-status (MNS)
LED config error (red)	configuration error
LED U ASi (green)	ASi voltage o.k.
LED ASi active (green)	ASi normal operation active
LED prg enable (green)	automatic slave addressing enabled
LED prj mode (yellow)	configuration mode active
LED AUX (green)	AUX power supply on
LEDs SI1 ... SI6 (yellow)	state of inputs: LED off: open LED on: closed
LEDs SO1 ... SO6 (yellow)	state of outputs: LED off: open LED on: closed
UL-specifications (UL508)	
External protection	An isolated source with a secondary open circuit voltage of ≤ 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.
Applied standards	EN 60529 EN 61000-6-2 EN 61000-6-4 EN 62061, SIL 3 EN 61508, SIL 3 EN ISO 13849-1, performance-level e
Environment	
Operating altitude	max. 2000 m
Ambient operating temperature	0 °C ... +55 °C
Storage temperature	-25 °C ... +85 °C
Housing	stainless steel, for DIN-rail mounting
Protection category	IP20
Tolerable loading referring to impacts and vibrations	according EN 61131-2
Voltage of insulation	≥ 500 V
Weight	800 g
Dimensions (W / H / D in mm)	100 / 120 / 106

⁽¹⁾ **ASi Power24V**

The device can be operated directly on a 24 V (PELV) power supply. The gateway has been optimized with integrated data coupling coils and adjustable self-resetting fuses for safe use of powerful 24 V power supplies.

ASi-3 DeviceNet-Gateway with integrated Safety Monitor

Article no.	BWU2972
Safety monitor	
Start delay	< 10 ms
Max. turn-off time	< 40 ms
Antivalent switches for local inputs	yes
Standstill monitors for local inputs	6 axes up to 50 Hz ⁽¹⁾
Speed monitors for local inputs	3 to 6 axes up to 400 Hz ⁽²⁾
Connection	
Connection	COMBICON
Length of connector cable	unlimited ⁽³⁾
Input	
Inputs Safety, SIL3, cat. 4	3 x 2 channels ⁽⁴⁾
Inputs digital, EDM	up to 6 standard inputs ⁽⁴⁾
Switching current	15 mA (T = 100 µs), continuously 4 mA at 24 V
Power supply	out of AUX
Output	
Number of release circuits in device	6
Outputs	semiconductor outputs max. contact load: 1,2 A _{DC-13} at 30V, $\Sigma = 7,2$ A in sum ⁽⁵⁾
Power supply (semiconductor outputs)	out of AUX

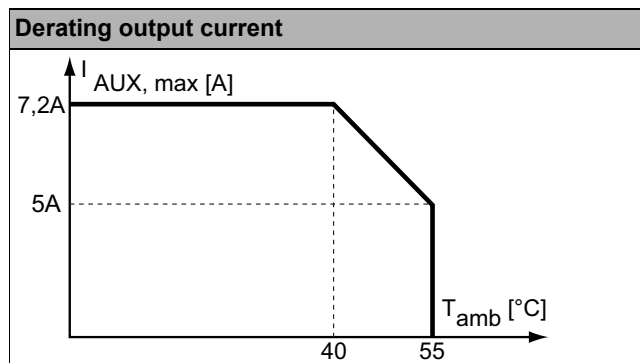
(1) connection at all SI or SO terminals possible.

(2) connection only at terminals SO1 ... SO6 configured as standard inputs (see "Variation of terminal connection for BWU2972")

(3) loop resistance $\leq 150 \Omega$

(4) see "Variation of terminal connection for BWU2972"

(5)

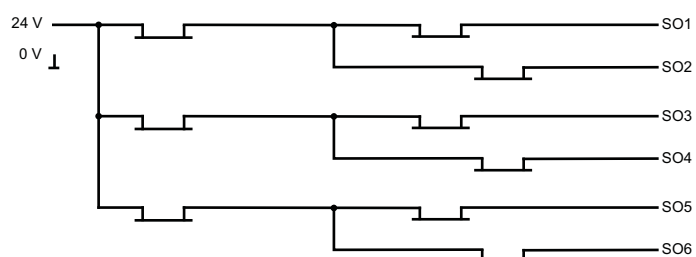


Article No.	Operating current		
	master power supply, approx 300mA out of ASi network	master power supply, max. 300mA out of ASi circuit 1 (approx. 70mA ... 300mA), max. 300mA out of ASi circuit 2 (approx. 70mA ... 300mA); in sum max. 370mA	Version „1 Gateway, 1 Power supply, for 2 ASi Networks“, approx. 300mA (PELV voltage)
BWU2972	-	-	•

ASi-3 DeviceNet-Gateway with integrated Safety Monitor

	BWU2972
Redundant power supply out of ASi: all fundamental functions of the device remain available even in case of power failure in one of the two ASi networks	–
Current measurement of the ASi circuits	•
self-resetting adjustable fuses	•
ASi earth fault monitor distinguishes between ASi cable and sensor cable	•
In Version „1 Gateway, 1 Power supply, for 2 ASi Networks“: only 1 Gateway + 1 ASi power supply required for 2 ASi networks	•

Block diagram of safety outputs BWU2972



Variation of terminal connection for BWU2972

Terminal	Safe output	Safe input for mechanical contacts in combination with T1, T2 ⁽¹⁾	Safe antivalent input ⁽¹⁾	Safe electronic input ⁽¹⁾	Standard input ⁽¹⁾
SI1,2	–	•	•	•	•
SI3,4	–	•	•	•	•
SI5,6	–	•	•	•	•
SO1,2 ⁽²⁾	•	•	•	–	•
SO3,4 ⁽²⁾	•	•	•	–	•
SO5,6 ⁽²⁾	•	•	•	–	•

⁽¹⁾ Inputs may only be supplied by the same 24 V source as the device itself.

⁽²⁾ If outputs are configured as inputs, the input current has to be limited by an external device to $\leq 100\text{mA}$

ASi-3 DeviceNet-Gateway with integrated Safety Monitor

Connections: Gateway + Safety Monitor

BWU2972	Terminals	Description	
<p>The diagram shows the terminal block layout for the BWU2972. It includes terminals for safe inputs (SI1-SI6), clock outputs (T1, T2), semiconductor outputs (SO1-SO6), a 24V/0V power supply, and ASi network connections (+ASI 1- and +PWR-). Labels indicate 'Safe inputs / Standard inputs' and 'Safe Output'.</p>	SI1, SI3, SI5	safe input terminals (T1)	
	SI2, SI4, SI6	safe input terminals (T2)	
	T1	clock output 1	
	T2	clock output 2	
	SO1 ... SO6	safe semiconductor outputs1 ... 6	
	24V, 0V	power supply for local I/Os	
	+ASI 1-	connection of ASi network	
	ASI +PWR-	power supply for Gateway and ASi networks	

Connections: DeviceNet

Signal	Color
V+	red
CAN_H	white
Shield	n/a
CAN_L	blue
V-	black

Accessories:

- Safe contact expander, 1 or 2 independent channels (art. no. BWU2548 / BWU2539)
- Bihl+Wiedemann Suite - Safety Software for Configuration, Diagnostics and Programming (art. no. BW2916)
- Power supplies, e.g.: ASi power supply, 4 A (art. no. BW1649), ASi power supply, 8 A (art. no. BW1997)
(further power supply units can be found at www.bihl-wiedemann.de/en/products/accessories/power-supplies)