ASi-5/ASi-3 EtherNet/IP + Modbus TCP-Gateway with integrated Safety Monitor

ASi-5 – Great data bandwidth, short cycle times

Compatible with all ASi generations

CIP Safety™ [1] over EtherNet/IP™ [1] and Safe Link in one device

2 ASi-5/ASi-3 master, EtherNet/IP + Modbus TCP device
- switch integrated

Safe ASi outputs are supported
- up to 64 independent ASi outputs
  Multiple safe ASi outputs possible via a single ASi address

OPC UA interface and REST API for IIoT applications

Integrated web server for simple diagnostics and maintenance

Safe speed and standstill monitoring

Applications up to category 4/PLe/SIL 3

Chip card for storage of configuration data

(figure similar)

[1] EtherNet/IP™, CIP™ and CIP Safety™ are registered trademarks of ODVA®, Inc.

Figure	Interface, fieldbus	Safety communication	Inputs Safety [1]	Outputs Safety, SIL 3, cat. 4	Inputs Safety, expandable to	Safety outputs, independent according to SIL 3, expandable to	Number of ASi networks, number of ASi Master [2]	Integrated decoupling, ASi current measurement in the gateway [3]	Diagnostic and configuration interface [4]	Art. no.
	EtherNet/IP + Modbus TCP, OPC UA	CIP Safety over EtherNet/IP + Safe Link	–	–	max. 62x 2 channels, max. 1922 in max. configuration	max. 64, max. 1984 in max. configuration	2 ASi networks, 2 ASi-5/ASi-3 masters	yes, max. 4 A/ASi network	Ethernet fieldbus, Ethernet diagnostic	**BWU3978**

[1] **Inputs Safety**
Safe inputs can be configured as 1-channel or 2-channel depending on the desired application or PL and SIL level. Suitable for applications up to category 4/PLe/SIL3.

[2] **Number of ASi networks, number of ASi Master**
"Double Master": 2 ASi network,s 2ASi-5/ASi-3 masters.

[3] **Integrated decoupling, ASi current measurement in the gateway**
"yes, max. 4 A/ASi network": Data decoupling integrated in the gateway. Cost-effective power for 2 ASi networks with 1 power supply (optionally supply of multiple Single Gateways by 1 power supply). Operation with short cable lengths with standard 24 V power supply possible.

[4] **Diagnostic and configuration interface**
"Ethernet fieldbus + Ethernet diagnostic": Access to ASi Master and Safety Monitor with Bihl+Wiedemann software by using the Ethernet diagnostic interface or Ethernet fieldbus interface
The latest version of the device description file of the gateway is available in the "Downloads" section of the respective device.

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Article no.	BWU3978
Fieldbus interface	
Type	Ethernet + Modbus TCP acc. to IEEE 802.3 2 x RJ-45, integrated 2-Port-Switch
Baud rate	10/100 MBaud
IT interface	OPC UA server, web server, REST API
Safety communication	CIP Safety over EtherNet/IP + Safe Link
Variably configurable Assembly Objects	yes
Function	Device Level Ring (DLR) (Ethernet/IP only)
Card slot	chip card (BW4785) for storage of configuration data
Diagnostic interface	
Type	Ethernet; RJ-45 acc. to IEEE 802.3
Baud rate	10/100 MBaud half-duplex or full-duplex
IT interface	OPC UA server, web server, REST API
Safety communication	Safe Link
ASi	
ASi specification	ASi-5 + ASi-3
Cycle time	**Cycle time ASi-5 (constant):** 1,27 ms for 384 bits input data + 384 bits output data
	Cycle time ASi-3 (variable): 150 µs * (number of ASi-3 nodes + 2)
ASi Safety	ASi-5 Safety and ASi-3 Safety compatible
Operating voltage	30 V_{DC} (20 ... 31,6 V) (PELV voltage)
Operating current	300 mA
Current per ASi network	max. 4 A
ASi Power24V capability [(1)]	yes
AUX	
Operating voltage	–
Max current consumption	–
Display	
LCD	menu, indication of ASi addresses and error messages in plain text
LED power (green)	power on
LED net (green)	Ethernet network active
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 address programming enabled
LED prj mode (yellow)	configuration mode active
LED AUX (green)	–
LEDs SI1 ... SI6 (yellow)	–
LEDs SO1 ... SO6 (yellow)	–
UL-specifications (UL61010)	
In general	UL mark does not provide UL certification for any functional safety rating or aspects of the above devices.

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Article no.	BWU3978
Environment	
Applied standards	EN 60529 EN 61000-6-2 EN 61000-6-4 EN 62061, SIL 3 EN 61508, SIL 3 EN ISO 13849-1, PLe
Operating altitude	2000 m
Ambient temperature	-25 °C … +55 °C (no condensation permitted)
Storage temperature	-25 °C … +85 °C
Housing	stainless steel, for DIN rail mounting
Pollution Degree	2
Overvoltage category	III
Protection category	IP20
Tolerable loading referring to humidity	according to EN 61131-2
Maximum tolerable shock and vibration stress	according to EN 61131-2
Voltage of insulation	≥500 V
Weight	800 g
Dimensions (W / H / D in mm)	85 / 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.
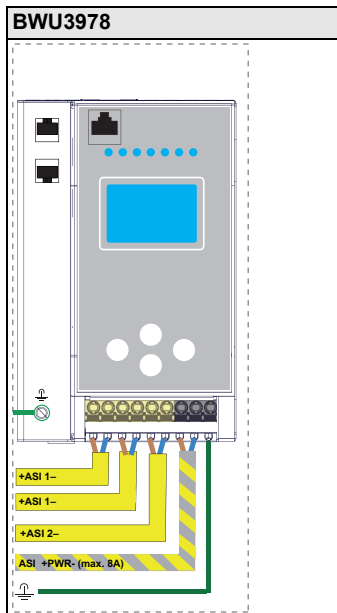
Wiring rules for ASi connection and power supply

Push-in terminals, 2 /3 /4 poles (pitch 5 mm)	
General	
Nominal cross section	2.5 mm^2
Conductor cross section	
Conductor cross section solid	0.2 ... 2.5 mm^2
Conductor cross section flexible	0.2 ... 2.5 mm^2
Conductor cross section flexible, with ferrule	without plastic sleeve: 0.25 ... 2.5 mm^2
	with plastic sleeve: 0.25 ... 2.5 mm^2
2 conductors with same cross section, stranded, with TWIN ferrules	without plastic sleeve: 0.5 ... 1.5 mm^2
AWG	24 ... 14
Stripped insulation length	10 mm

	BWU3978
Data decoupling integrated in the gateway	●
Current measurement of the ASi circuits	●
Self-resetting adjustable fuses	●
ASi earth fault monitor distinguishes between ASi cable and sensor cable	●
Cost-effective power for 2 ASi networks with 1 power supply	●

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Connections

BWU3978

+ASI 1–
+ASI 1–
+ASI 2–
ASI +PWR- (max. 8A)

Accessories:

- Safe contact expander, 1 or 2 independent channels (art. no. BWU2548 / BWU2539)
- Chip card for storage of configuration and additional data (art. no. BW4785)
- Bihl+Wiedemann Safety Suite - Safety Software for Configuration, Diagnostics and Commissioning (art. no. BW2916)
- Power supplies, e.g.: 30 V power supply, 4 A, 1 phase (art. no. BW4218), 30 V power supply, 8 A, 1 phase (art. no. BW4219), 30 V power supply, 8 A, 3 phases (art. no. BW4220), 30 V Power Supply, 16 A, 1 phase (art. no. BW4221), 30 V Power Supply, 16 A, 3 phases (art. no. BW4222) (for further power supply units visit *www.bihl-wiedemann.de/en/products/accessories/power-supplies*)
- EtherNet/IP Master Simulator Plus, One-Year License (art. no. BW4693)

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