

ASi-5 Module with integrated IO-Link Master with 4 IO-Link Ports, IP67, M12

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New standard ASi-5

Quadruple IO-Link master

2 x IO-Link port class A and
2 x IO-Link port class B in one housing


Power supply of IO-Link ports out of AUX

ASi via M12



(figure similar)



Figure	Number of IO-Link ports	IO-Link port class A ⁽¹⁾	IO-Link port class B ⁽²⁾	Sensor supply (IO-Link supply and input/output voltage) ⁽³⁾	Actuator supply (for ports class B) ⁽⁴⁾	ASi connection ⁽⁵⁾	ASi address ⁽⁶⁾	Art. no.
	4	2	2	out of AUX	out of AUX	ASi via M12	1 ASi-5 address	BWU3897

- (1) **Port class A (M12):** Pin 4 configurable (IO-Link/DI/DO), additional digital input at pin 2. Compatible with 3 pol IO-Link devices (M8).
- (2) **Port class B (M12):** Pin 4 configurable (IO-Link/DI/DO), additional power supply (galvanically isolated) for IO-Link devices at pins 2 and 5. Compatible with 3 pol IO-Link devices (M8).
- (3) **Sensor supply (IO-Link supply and input/output supply)**
IO-Link and additional inputs/outputs are supplied by ASi or by AUX (auxiliary 24 V power). If supplied by ASi, inputs can neither be connected to earth nor to external potential.
- (4) **Actuator supply (for ports class B)**
Connection via M12: For ports class B the supply of actuators is provided by an additional (galvanically isolated) power supply by AUX (auxiliary 24 V power).
Connection via clamps: If connected IO-Link nodes with port class B need a higher current consumption, additionally they can be supplied directly via the power supply.
- (5) **ASi connection**
The connection to ASi as well to AUX (auxiliary 24 V power) is made via yellow or black ASi profile cable with piercing technology or via M12 socket (in IP20 via clamps).
- (6) **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), 1 ASi-5 address (max. 62 ASi-5 addresses/ASi network), mixed use allowed.
For modules with 2 nodes, the 2nd node is switched off as long as the 1st node is addressed "0".
Upon request, nodes are available with specific ASi address profiles.

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Article no.		BWU3897
Connection		
ASi/AUX connection	M12 ⁽¹⁾	
Periphery connection	M12	
Length of connector cable	I/O: max. 20 m	
ASi		
Address	1 ASi-5 address	
Operating voltage	30 V (18 ... 31.6 V)	
Required master profile	M5	
Since ASi specification	5	
ASi process data width	2 ... 32 Bytes	
Max. current consumption	35 mA	
Max. current consumption without sensor / actuator supply	35 mA	
AUX		
Voltage	24 V (18 ... 30 V)	
Max. current consumption	4 A	
IO-Link		
Number	2 ports Class A + 2 ports Class B 4 x C/Q (IO-Link communication or configurable as digital input or digital output) + 2 x digital inputs	
IO-Link data rate	COM1 / COM2 / COM3	
IO-Link revision	1.1	
Switching threshold	U < 5 V (low) U > 15 V (high)	
Power supply	out of AUX	
Power supply of attached sensors (L+)	up to +40 °C	500 mA per port, $\Sigma(L+, C/Q)$ 2 A, $\Sigma(L+, C/Q, P24)$ 4 A ⁽²⁾
	at +55 °C	400 mA per port, $\Sigma(L+, C/Q)$ 1,6 A, $\Sigma(L+, C/Q, P24)$ 4 A ⁽²⁾
	at +70 °C	200 mA per port, $\Sigma(L+, C/Q)$ 0,8 A, $\Sigma(L+, C/Q, P24)$ 4 A ⁽²⁾
IO-Link / input/output current (C/Q)	up to +40 °C	500 mA per port, $\Sigma(L+, C/Q)$ 2 A, $\Sigma(L+, C/Q, P24)$ 4 A ⁽²⁾
	at +55 °C	400 mA per port, $\Sigma(L+, C/Q)$ 1,6 A, $\Sigma(L+, C/Q, P24)$ 4 A ⁽²⁾
	at +70 °C	200 mA per port, $\Sigma(L+, C/Q)$ 0,8 A, $\Sigma(L+, C/Q, P24)$ 4 A ⁽²⁾
Max. actuator supply for port class B (P24)	up to +40 °C	4 A per port, $\Sigma(L+, C/Q, P24)$ 4 A ⁽²⁾
	at +55 °C	4 A per port, $\Sigma(L+, C/Q, P24)$ 4 A ⁽²⁾
	at +70 °C	4 A per port, $\Sigma(L+, C/Q, P24)$ 4 A ⁽²⁾
Display		
LED ASi (green)	on: ASi voltage on flashing: ASi voltage on, but peripheral fault ⁽³⁾ or address 0 off: no ASi voltage	
LED FLT/FAULT (red)	on: ASi address 0 or node offline flashing: peripheral fault ⁽³⁾ off: node online	
LED AUX (red/green)	green: AUX voltage OK red: AUX voltage < 18 V	
LEDs C/Q1 ... C/Qx (red/green)	state of IO-Link ports 1 ... 4: green: IO-Link communication OK yellow: switching signal at input or output at pin4 red: IO-Link communication error or short-circuit	
LEDs I1 ... Ix (yellow)	state of inputs I1, I2	

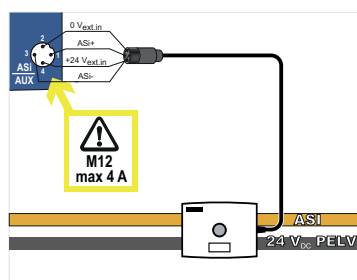
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Article no.	BWU3897
Environment	
Applied standards	EN 61000-6-2 EN 61000-6-3 EN 61131-2 EN 60529
It can be used with a switched AUX cable, which is passively safe up to SIL3/PLe	no ⁽⁴⁾
Operating altitude	max. 2000 m
Operating temperature	-30 °C ... +55 °C (up to max. +70 °C) ^{(2) (5)}
Storage temperature	-30 °C ... +85 °C
Housing	plastic, for screw mounting
Pollution degree	2
Protection category	IP67
Max. tolerable shock load	30g, 11 ms, acc. EN 61131-2
Max. tolerable vibration stress	5 ... 8 Hz 50 mm _{pp} /8 ... 500 Hz 6g, acc. EN 61131-2
Insulation voltage	≥500 V
Weight	200 g
Dimensions (W / H / D in mm)	45 / 80 / 53 (without substructure)

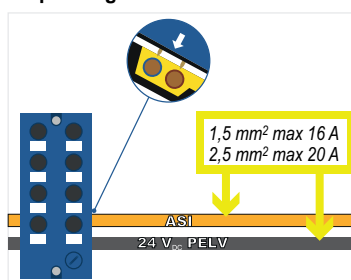
(1) Line protection:

If the module is supplied via a M12 connection with A or B coding, it may only be used with a current load of max. 4 A per pin in acc. with IEC 61076-2-101 and IEC 61076-2-109. A fused tap is recommended. There is no such limitation for modules supplied via piercing contacts.

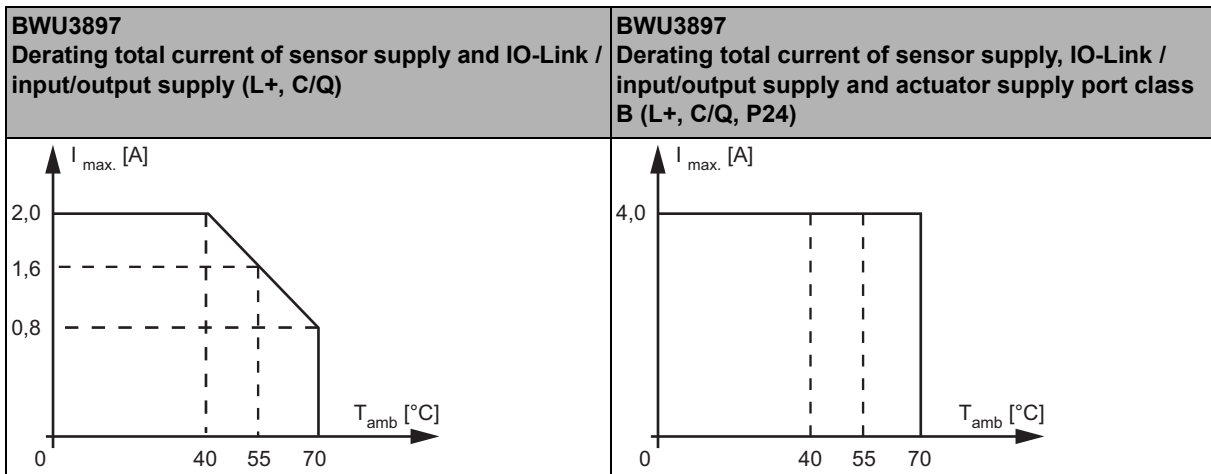
Connection to ASi and AUX via M12



via piercing contacts



(2)



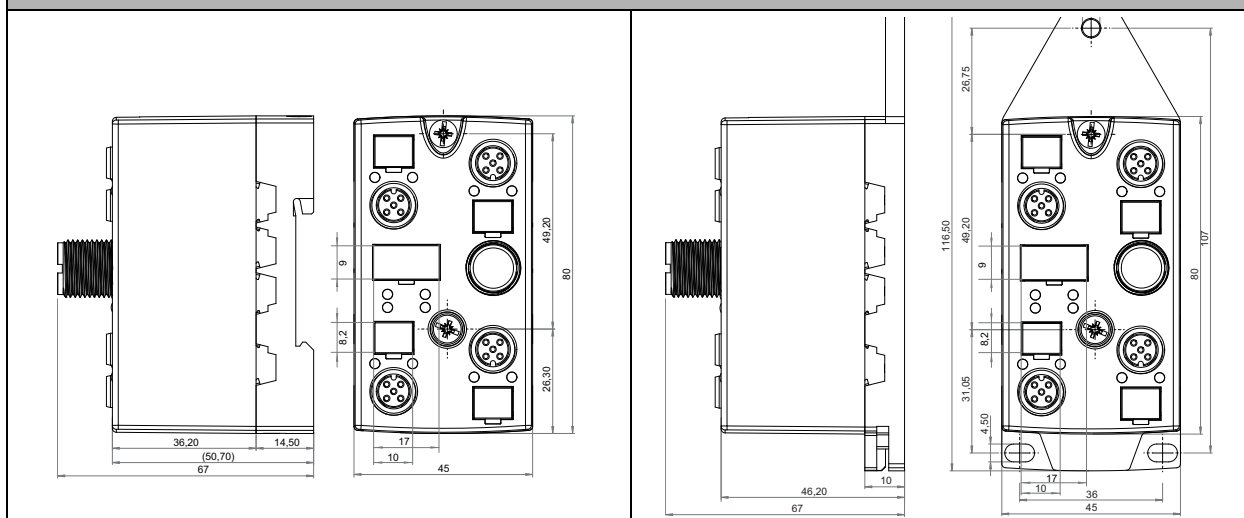
(3) See table "Peripheral fault indication"

(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.

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(5) Maximum ambient operating temperature +55 °C according UL certificate for the use in the USA and Canada

Dimensional drawing



Article no.	Peripheral fault indication			
	Overload sensor supply	Output short circuited	AUX voltage missing	IO-Link error/event
BWU3897	•	•	•	•

UL-specifications (UL508)

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.

Programming

- ASi-5 bit assignment: default 2 byte per port, configurable via ASi-5.

Pin assignment

Signal name	Explanation
$P24_{ext.out}$	actuator supply, out of external voltage, positive pole
$N24_{ext.out}$	actuator supply, out of external voltage, negative pole
I_x	digital input x
$L^+_{ext.out}$	IO-Link sensor supply out of external voltage, positive pole
$L^-_{ext.out}$	IO-Link sensor supply, out of external voltage, negative pole
$C/Qx_{ext.out}$	connection x, optionally for IO-Link communication, input or output
ASi +, ASi -	connection to ASi bus
$24V_{ext.in}$	input power supply, out of external voltage, positive pole (AUX)
$0V_{ext.in}$	input power supply, out of external voltage, negative pole (AUX)

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Connections								
Art. no.	M12 connection	Marking	Function	Pin1	Pin2	Pin3	Pin4	Pin5
BWU3897	X1	C/Q1 / I1	IO-Link port class A	L+ ₁ ext.out	I1	L- ₁ ext.out	C/Q1 _{ext.out}	n.c.
	X2	C/Q2 / I2	IO-Link port class A	L+ ₂ ext.out	I2	L- ₂ ext.out	C/Q2 _{ext.out}	n.c.
	X3	C/Q3	IO-Link port class B	L+ ₃ ext.out	P24 _{ext.out}	L- ₃ ext.out	C/Q3 _{ext.out}	N24 _{ext.out}
	X4	C/Q4	IO-Link port class B	L+ ₄ ext.out	P24 _{ext.out}	L- ₄ ext.out	C/Q4 _{ext.out}	N24 _{ext.out}
	ASI/AUX	ASI/AUX	power supply	ASI+	0 V _{ext in}	ASI-	24 V _{ext in}	-

Accessories:

- Universal protection cap ASi-5/ASi-3 for M12 sockets, IP67 (art. no. BW4056)
- Passive Distributor ASi/AUX to 1 x M12 cable socket, straight, 5 poles, depth 19 mm, IP67 (art. no. BW3911)
- Passive Distributor ASi/AUX to 1 x M12 cable socket, angled, 5 poles, depth 19 mm, IP67 (art. no. BW3408)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4925)
- It is recommended to use pre-assembled cables to connect the power source with the module.