

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 | Type | Configurable I/O's ⁽¹⁾ | Sensor supply (IO-Link supply and input/output voltage) ⁽²⁾ | Actuator supply (for ports class B) ⁽³⁾ | ASi connection ⁽⁴⁾ | ASi address ⁽⁵⁾ | Art. no. |
|--|------------------------|--|--|--|-------------------------------|----------------------------|----------------|
|  | IP67 4 x M12, ASi-5 | 2 x IO-Link ports class A + 2 x IO-Link ports class B | out of AUX | out of AUX | ASi via M12 | 1 ASi-5 address | BWU3897 |

(1) **Configurable I/O's**

Port class A: In this type, Pin 2 is assigned with an additional digital input.

Port class B: This type provides additional supply voltage and is suitable for the connection of devices that have an increased power demand. In this case, pins 2 and 5 are used to provide additional (galvanically isolated) supply voltage.

Configurability: The C/Q connections may be used for IO-Link configuration or as digital input/output signal.

(2) **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.

(3) **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.

(4) **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).

(5) **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 | |
| 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 | |
| Configurable I/O's | | |
| Number | 2 ports Class A + 2 ports Class B | |
| 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/Qn (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 | |
| LEDs I1 ... In (yellow) | state of inputs I1, I2 | |

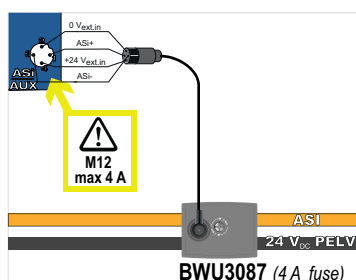
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| | |
|--|--|
| Article no. | BWU3897 |
| Environment | |
| Applied standards | EN 61000-6-2 EN 61000-6-3 EN 61131-2 EN 60529 |
| Can be used in passively safe paths up to SIL3/PLe | no ⁽⁴⁾ |
| Operating altitude | max. 2000 m |
| Operating temperature | -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) |

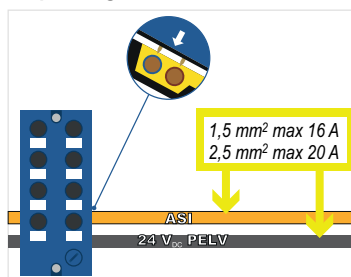
(1) **Line protection:**

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)

| BWU3897 Derating total current of sensor supply and IO-Link / input/output supply (L+, C/Q) | BWU3897 Derating total current of sensor supply, IO-Link / input/output supply and actuator supply port class B (L+, C/Q, P24) |
|--|--|
| | |

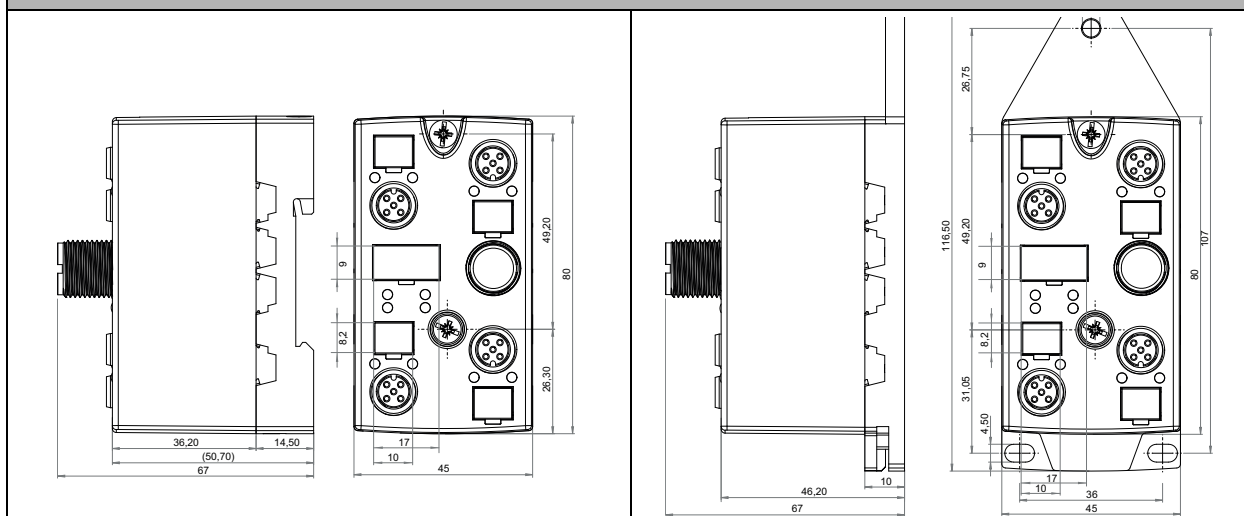
(3) **See table "Peripheral fault indication"**

(4) The module is not suitable for use in passively safe paths because an exclusion of errors cannot be assumed for the connection of the two potentials, ASi and AUX.

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

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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 | actuator supply, out of external voltage, positive pole |
| N24 | actuator supply, out of external voltage, negative pole |
| Ix | digital input x |
| L+ | IO-Link sensor supply out of external voltage, positive pole |
| L- | IO-Link sensor supply, out of external voltage, negative pole |
| C/Qx | 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 | I1 | L- ₁ | C/Q1 | n.c. |
| | X2 | C/Q2 / I2 | IO-Link port class A | L+ ₂ | I2 | L- ₂ | C/Q2 | n.c. |
| | X3 | C/Q3 | IO-Link port class B | L+ ₃ | P24 | L- ₃ | C/Q3 | N24 |
| | X4 | C/Q4 | IO-Link port class B | L+ ₄ | P24 | L- ₄ | C/Q4 | N24 |
| | 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 2 x M12 socket, internal protection via changeable 4 A slow-blow fuses (art. no. BWU3087)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4708)
- It is recommended to use pre-assembled cables to connect the power source with the module.