

# ASi-5 Module with integrated IO-Link Master with 4 Ports, IP20

## ASi-5 Module with integrated IO-Link Master with 4 Ports

### New standard ASi-5

### Quadruple IO-Link master

### Suitable for port class A and class B

### Power supply of IO-Link ports out of AUX



(Figure similar)

| Figure                                                                             | Type                                         | Number of IO-Link Ports | IO-Link Port Class A <sup>(1)</sup> | IO-Link Port Class B <sup>(2)</sup> | Sensor supply (IO-Link supply and input/output voltage) <sup>(3)</sup> | Actuator supply (for ports class B) <sup>(4)</sup> | ASi connection <sup>(5)</sup> | ASi address <sup>(6)</sup> | Art. no.       |
|------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------------------------------------|-------------------------------------|------------------------------------------------------------------------|----------------------------------------------------|-------------------------------|----------------------------|----------------|
|  | IP20, 22,5 mm x 114 mm, 6 x COM-BICON, ASi-5 | 4                       | configurable connectors             | configurable connectors             | out of AUX                                                             | out of AUX                                         | Push-in terminals             | ASi-5 address              | <b>BWU3843</b> |

**(1) IO-Link Port Class A**

**Configurable connectors:** Terminal assignment (C/Q, L+, L-, I) compatible with pin assignment of IO-Link port class A (M12). Connected IO-Link devices with port class B (M12) with a higher current consumption have to be supplied directly via a separate power supply. Compatible with 3 pol IO-Link devices (M8).

**(2) IO-Link Port Class B**

**Configurable connectors:** Terminal assignment (C/Q, L+, L-, I) compatible with pin assignment of IO-Link port class A (M12). Connected IO-Link devices with port class B (M12) with a higher current consumption have to be supplied directly via a separate power supply. 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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|                                                         |              |                                                                                                                                                                                                  |
|---------------------------------------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Article no.</b>                                      |              | <b>BWU3843</b>                                                                                                                                                                                   |
| <b>Connection</b>                                       |              |                                                                                                                                                                                                  |
| ASi / AUX connection                                    |              | push-in terminals                                                                                                                                                                                |
| Periphery connection                                    |              | push-in terminals                                                                                                                                                                                |
| Primary application                                     |              | control cabinet                                                                                                                                                                                  |
| Length of connector cable                               |              | I/O: max. 20 m                                                                                                                                                                                   |
| <b>ASi</b>                                              |              |                                                                                                                                                                                                  |
| 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                                  |              | 16 byte <sup>(1)</sup>                                                                                                                                                                           |
| Max. current consumption                                |              | 35 mA                                                                                                                                                                                            |
| Max. current consumption without sensor/actuator supply |              | 35 mA                                                                                                                                                                                            |
| <b>AUX</b>                                              |              |                                                                                                                                                                                                  |
| Voltage                                                 |              | 24 V (18 ... 30 V)                                                                                                                                                                               |
| Max. current consumption                                |              | 2 A                                                                                                                                                                                              |
| <b>IO-Link</b>                                          |              |                                                                                                                                                                                                  |
| Number                                                  |              | 4 ports class A                                                                                                                                                                                  |
|                                                         |              | 4 x C/Q (IO-Link communication or configurable as digital input or digital output) + 4 x digital inputs                                                                                          |
| IO-Link data rate                                       |              | COM1 / COM2 / COM3                                                                                                                                                                               |
| IO-Link data width                                      |              | per port: up to 32 byte process data + 1 byte PQI                                                                                                                                                |
| IO-Link revision                                        |              | 1.1                                                                                                                                                                                              |
| Switching threshold                                     |              | U<5 V (low)<br>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 <sup>(2)</sup>                                                                                                                                            |
|                                                         | at +55 °C    | 400 mA per port, $\Sigma(L+, C/Q)$ 1,6 A <sup>(2)</sup>                                                                                                                                          |
|                                                         | at +70 °C    | 200 mA per port, $\Sigma(L+, C/Q)$ 0,8 A <sup>(2)</sup>                                                                                                                                          |
| IO-Link / input/output current (C/Q)                    | up to +40 °C | 500 mA per port, $\Sigma(L+, C/Q)$ 2 A <sup>(2)</sup>                                                                                                                                            |
|                                                         | at +55 °C    | 400 mA per port, $\Sigma(L+, C/Q)$ 1,6 A <sup>(2)</sup>                                                                                                                                          |
|                                                         | at +70 °C    | 200 mA per port, $\Sigma(L+, C/Q)$ 0,8 A <sup>(2)</sup>                                                                                                                                          |
| <b>Display</b>                                          |              |                                                                                                                                                                                                  |
| LED ASi (green)                                         |              | on: ASi voltage on<br>flashing: ASi voltage on, but peripheral fault <sup>(3)</sup> or address 0<br>off: no ASi voltage                                                                          |
| LED FLT/FAULT (red)                                     |              | on: ASi address 0 or node offline<br>flashing: peripheral fault <sup>(3)</sup><br>off: node online                                                                                               |
| LED AUX (red/green)                                     |              | green: AUX voltage OK<br>red: AUX voltage < 18 V                                                                                                                                                 |
| LEDs C/Q1 ... C/Qx (red/green)                          |              | state of IO-Link ports 1 ... 4:<br>green: IO-Link communication OK<br>yellow: switching signal at input or output at terminal C/Q1 ... C/Q4<br>red: IO-Link communication error or short-circuit |
| LEDs I1 ... Ix (yellow)                                 |              | state of inputs I1 ... I4                                                                                                                                                                        |

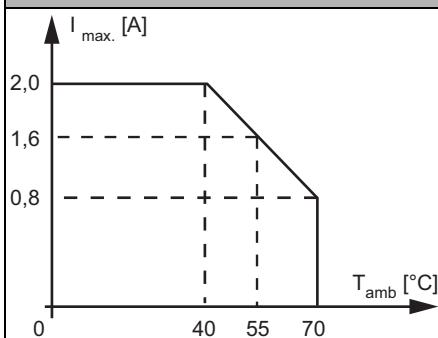
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| Article no.                                                                      | BWU3843                                                                               |
|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Environment</b>                                                               |                                                                                       |
| Applied standards                                                                | EN 61000-2<br>EN 61000-3<br>EN 61131-2<br>EN 60529                                    |
| It can be used with a switched AUX cable, which is passively safe up to SIL3/PLe | yes <sup>(4)</sup>                                                                    |
| Operating altitude                                                               | max. 2000 m                                                                           |
| Operating temperature                                                            | -25 °C ... +55 °C (up to max. +70 °C) <sup>(2) (5)</sup><br>no condensation permitted |
| Storage temperature                                                              | -25 °C ... +85 °C                                                                     |
| Housing                                                                          | plastic, din-rail mounting                                                            |
| Pollution degree                                                                 | 2                                                                                     |
| Protection category                                                              | IP20                                                                                  |
| Tolerable loading referring to humidity                                          | according to EN 61131-2                                                               |
| Insulation voltage                                                               | ≥500 V                                                                                |
| Weight                                                                           | 120 g                                                                                 |
| Dimensions (W / H / D in mm)                                                     | 22,5 / 99 / 114                                                                       |

<sup>(1)</sup> The ASi-5 process data bandwidth depends on the ASi-5 profile. Further selectable profiles can be found in the hardware catalog of the Bihl+Wiedemann Suite or in the configuration manual.

<sup>(2)</sup>

## **BWU3843** **Derating total current of sensor supply and IO-Link /** **input/output supply (L+, C/Q)**



<sup>(3)</sup> **See table "Peripheral fault indication"**

<sup>(4)</sup> The module is suitable for use in paths with a passively safe-switched AUX cable, since an exclusion of errors can be assumed for the connection of the two ASi and AUX potentials.

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

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## Wiring rules

| Push-in terminals, 2 /3 /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                                                |

| Article no. | Peripheral fault indication |                        |                     |                     |
|-------------|-----------------------------|------------------------|---------------------|---------------------|
|             | Overload sensor supply      | Output short circuited | AUX voltage missing | IO-Link error/event |
| BWU3843     | •                           | •                      | •                   | •                   |

## Programming

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

## Connections

| BWU3843                                                                                                                                          | Name                   | Explanation                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------|
|                                                                                                                                                  | 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                                               |
|                                                                                                                                                  | AUX+ <sub>ext.in</sub> | External power supply, input, positive pole                         |
|                                                                                                                                                  | AUX- <sub>ext.in</sub> | External power supply, input, negative pole                         |
|                                                                                                                                                  | ADDR                   | connection for ASi addressing device                                |
|                                                                                                                                                  |                        |                                                                     |
|                                                                                                                                                  |                        |                                                                     |
| <b>Note</b>                                                                                                                                      |                        |                                                                     |
| If connected IO-Link nodes with Port Class B need a higher current consumption, additionally they can be supplied directly via the power supply. |                        |                                                                     |

## ASi-5 Module with integrated IO-Link Master with 4 Ports, IP20



### Note

To achieve passive safety, the device must be installed in a switching cabinet with protection class IP54.

### Accessories:

- ASi-5/ASi-3 Address Programming Device (art. no. BW4925)