

# ASi Analog Module, 2 inputs Pt100 + 4 digital inputs/outputs in IP67 (M12)

## AS-i Analog Module, 2 inputs Pt100 + 4 digital inputs/outputs in IP67 (M12)

### 2 ASi nodes in one housing

- 1 ASi node with 2 analog inputs PT100
- 1 ASi node with
  - 4 binary inputs
  - 4 binary outputs

Protection category IP67



### Article no. BW2313: ASi Analog Module, 2 inputs Pt100 + 4 digital inputs/outputs in IP67 (M12)

The analog module has 2 analog inputs for Pt100 sensors.

The conversion of the measured value and the data transmission via ASi occurs according to ASi Profile 7.A.9. The digital module has 4 binary inputs and 4 binary outputs. Inputs and outputs are completely galvanic isolated. The ground of the binary outputs is connected to 0V ext.

The sensor-interfaces can be supplied by external voltage (according to PELV) via the black ribbon cable, 1A max. The resolution of the analog data is 14 or 12 bit. The connection of the sensors and actuators is done via M12 connectors.

Addressing is done through the addressing socket. Both devices use extended addressing (AB address).

Article no.	BW2313
Connection	flat cable and M12
AS-i Profile	analog ASi node: S-7.A.9, ID1=7 (default) digital ASi node: S-7.A.7, ID1=7 (fixed)
AS-i voltage	30 V (22 V ... 31,6 V)
Max. AS-i current consumption	80 mA
AUX voltage	24 V (18 V ... 30 V)
Max. AUX current consumption	3 A
Number of analog inputs	2
Power supply of analog inputs	AUX voltage
Analog input level	Pt100, 15 ... 400 Ohm
Analog measuring range	-200°C ... +850°C in 0.1° resolution (-2000 ... +8500) or -120°C ... +130°C in 0.01° resolution (-12000 ... +13000)
Analog conversion speed	240 ms for both sides
Number of digital inputs	4
Power supply of digital inputs	AUX voltage
Digital input level	U < 5 V: low U > 15 V: high
Number of digital outputs	4
Power supply of digital outputs	AUX voltage
Max. digital output current	1 A, $\Sigma$ 3 A max.
Power supply of attached sensors	1 A max.
Indicator	
LED yellow (AI1)	state of Pt100 sensor AI1
LED yellow (AI2)	state of Pt100 sensor AI2
LED yellow (DI1)	state of digital input DI1
LED yellow (DI2)	state of digital input DI2
LED yellow (DI3)	state of digital input DI3
LED yellow (DI4)	state of digital input DI4
LED yellow (DO1-2)	state of digital output DO1 and DO2
LED yellow (DO3-4)	state of digital output DO3 and DO4
LED green (ASi)	no ASi node has address 0 or peripheral fault
LED red (FLT)	state of ASi nodes
LED green (AUX)	AUX voltage on
Applied standards	EN 61 131-2, EN 61 000-6-2, EN 61 000-6-3
Passive safety (up to PLe/SIL 3)	no <sup>1</sup>
Operating temperature	0°C ... +70°C
Storage temperature	-20°C ... +85°C
Protection class	IP67
Dimensions (L / W / H in mm)	151 / 60 / 31
Weight	200 g

#### Analog ASi node:

**Analog input values:**  
CH0 Temperature AI1  
CH1 Temperature AI2

#### Programming: (Bit-settings of ASi parameters)

**Bit P0:**  
1: peripheral fault is indicated  
0: peripheral fault is not indicated

**Bit P1:**  
1: 2-wire mode  
0: 4-wire mode

**Bit P2:**  
1: -200 °C ... +850 °C / 0,1 °C  
0: -120 °C ... +130 °C / 0,01 °C

**Bit P3:**  
not used

#### Digital ASi node:

**Digital input values:**  
DI0 Input DI1  
DI1 Input DI2  
DI2 Input DI3  
DI3 Input DI4

**Digital output values:**  
DO0 Output DO1  
DO1 Output DO2  
DO2 Output DO3  
DO3 Output DO4

#### Programming: (Bit-settings of AS-i parameters)

**Bit P0:**  
1: watchdog enabled  
0: watchdog disabled

**Bit P1:**  
1: 128µs input filter  
0: no input filter

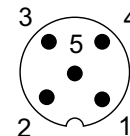
**Bit P2:**  
1: synchronous I/O mode disabled  
0: synchronous I/O mode enabled

**Bit P3:**  
not used

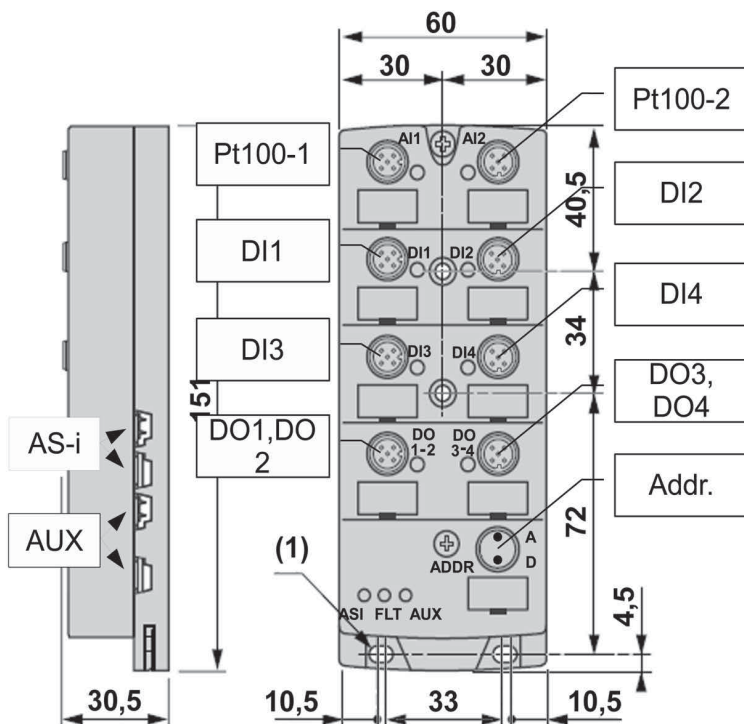
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<sup>1</sup> Exclusion of errors for the connection of the two ASi and AUX potentials cannot be assumed in the module. It is not possible to achieve passive safety for the application with this module.

Connections					
Connector / M12 Pin number	1	2	3	4	5
AI1	CH1+	CH1S+	CH1-	CH1S-	Shield
AI2	CH2+	CH2S+	CH2-	CH2S-	Shield
DI1	24 V ext out	DI2	0 V ext out	DI1	nc
DI2	24 V ext out	nc	0 V ext out	DI2	nc
DI3	24 V ext out	DI4	0 V ext out	DI3	nc
DI4	24 V ext out	nc	0 V ext out	DI4	nc
DO1-2	0 V ext out	DO2	0 V ext out	DO1	nc
DO3-4	0 V ext out	DO4	0 V ext out	DO3	nc
ADDR A, ADDR D	Dummy plug, double AS-i hand-held connector behind				



Signal Name	Explanation
CHx+	Positive terminal for 2-wire sensors and supply terminal for 4-wire sensors
CHxS+	Positive sense terminal for 4-wire sensors. Not used for 2-wire sensors
CHx-	Negative terminal for 2-wire sensors and supply terminal for 4-wire sensors
CHxS-	Negative sense terminal for 4-wire sensors. Not used for 2-wire sensors
Dix	Digital input x
DOx	Digital output x
24 V ext out	Positive terminal for 2-wire sensors and supply terminal for 4-wire sensors
0 V ext out	Reference sense terminal for 4-wire sensors. Not used for 2-wire sensors



ID1 code definition for the analog ASi node		
ID1	14 bit	12 bit
Channel 1 only	0; 2; 3	1
Channel 1+2	4; 5; 7 (default setting ID1=7)	6

AS-Interface Master/Gateways

AS-Interface Modules/Slaves



















Safety components

Bus couplers/ Master Simulators

Accessories

Software

# ASi Analog Module, 2 inputs Pt100 + 4 digital inputs/outputs in IP67 (M12)

LEDs	State	Signal / Description
AI1 (yellow)		Pt100 sensor connected and in range
		no Pt100 sensor connected or sensor out of range
AI2 (yellow)		Channel deactivated or module offline
		Pt100 sensor connected and in range
DI1, DI2, DI3, DI4 (yellow)		no Pt100 sensor connected or sensor out of range
		Input off
DO1-2 (yellow)		Input on
		DO1 and DO2 off
DO3-4 (yellow)		DO1 or DO2 on
		DO3 and DO4 off
ASi (green)		DO3 or DO4 on
		no ASi node has address 0 or peripheral fault
FLT (red)		at least one ASi node has address 0 or peripheral fault
		both ASi nodes are online and no ASi node has peripheral fault
		at least one ASi node is offline
AUX (green)		at least one ASi node has peripheral fault
		no AUX voltage present
		AUX voltage present

 LED on  LED flashing  LED off

## Accessories:

- ASi substructure module (CNOMO) for 8 channel module in 60 mm housing (art. no. BW2351)
- Universal protection cap ASi-5/ASi-3 for M12 sockets, IP67 (art. no. BW4056)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4708)

AS-Interface  
Master/Gateways

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