

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

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2 slaves in one housing

- 1 slave with 2 analog inputs PT100
- 1 slave with
 - 4 binary inputs
 - 4 binary outputs

Protection category IP67



Article no. BW2313: AS-i 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 AS-i occurs according to AS-i 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 slave: S-7.A.9, ID1=7 (default) digital slave: 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, Σ 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 slave has address 0 or peripheral fault
LED red (FLT)	state of slaves
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 ¹
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 slave:

Analog input values:
CH0 Temperature AI1
CH1 Temperature AI2

Programming: (Bit-settings of AS-i 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 slave:

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

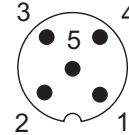
Bit P2:
1: synchronous I/O mode disabled
0: synchronous I/O mode enabled

Bit P3:
not used

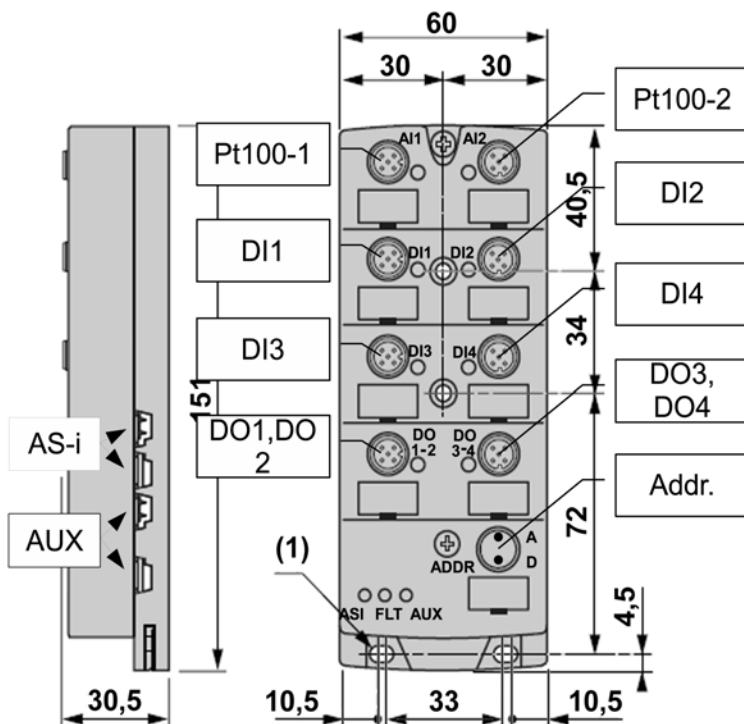
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¹ Exclusion of errors for the connection of the two ASI and AUX potentials cannot be assumed in the module. It is not possible to achieve passive safety for the application with this module.

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
Dlx	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 slave		
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

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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
		no Pt100 sensor connected or sensor out of range
DI1, DI2, DI3, DI4 (yellow)		Input off
		Input on
DO1-2 (yellow)		DO1 and DO2 off
		DO1 or DO2 on
DO3-4 (yellow)		DO3 and DO4 off
		DO3 or DO4 on
ASI (green)		no slave has address 0 or peripheral fault
		at least one slave has address 0 or peripheral fault
FLT (red)		both slaves are online and no slave has peripheral fault
		at least one slave is offline
		at least one slave has peripheral fault
AUX (green)		no AUX voltage present
		AUX voltage present

 LED on  LED flashing  LED off

Accessories:

- AS-i substructure module (CNOMO) for 8 channel module in 60 mm housing (art. no. BW2351)
- Protection caps for unused M12 sockets (art. no. BW2368)