Technical Data 2CDC504084D0201

ABB i-bus® KNX
Analogue Input, 4-fold, MDRC
AE/S 4.1.1.3, 2CDG110190R0011

Product description

The device is used to record analogue data. Four conventional sensors can be connected to the device. The connection to the bus is established via the bus connection terminal on the front of the device.

The device is ready for operation after connecting the bus voltage. Additional auxiliary voltage is required.
The device is parameterized and programmed using ETS.

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Technical data

Supply	Bus voltage	21…32 V DC
	Current consumption, bus	< 10 mA
	Mains voltage U_S	85…265 V AC, 110…240 V DC, 50/60 Hz
	Power consumption	Max. 11 W at 230 V AC
	Power consumption, mains	80/40 mA at 115/230 V AC
	Leakage loss, device	Max. 3 W at 230 V AC
Auxiliary voltage supply for the sensors	Rated voltage U_n	24 VDC
	Rated current I_n	300 mA
Connections	KNX	Via bus connection terminal, screwless
	Mains voltage	Via screw terminals
	Sensor supply	Via screw terminals
	Sensor inputs	Via screw terminals
	Screw terminals	0.2…2.5 mm^2 fine stranded
		0.2…4.0 mm^2 single core
	Tightening torque	Max. 0.6 Nm
Cable length	Between sensor and device input	Max. 100 m
Operating and display elements	*Programming* button/LED	For assignment of the physical address
Protection type	IP 20	To DIN EN 60 529
Protection class	II	To DIN EN 61 140
Isolation category	Overvoltage category	III to EN 60 664-1
	Pollution degree	II to DIN EN 60 664-1
KNX safety voltage	SELV 24 V DC	
Temperature range	Operation	-5 °C…+45 °C
	Storage	-25 °C…+55 °C
	Transport	-25 °C…+70 °C
Ambient conditions	Maximum air humidity	93 %, no condensation allowed
Design	Modular installation device (MDRC)	Modular installation device, Pro *M*
	Dimensions	90 x 72 x 64.5 mm (H x W x D)
	Mounting width in space units	4 x 18 mm modules
	Mounting depth	64.5 mm
Mounting	On 35 mm mounting rail	To DIN EN 60 715
Installation position	Any	
Weight	0.27 kg	
Housing/color	Plastic housing, gray	
Approvals	KNX to EN 50 090-1, -2	Certification
CE mark	In accordance with the EMC guideline and low voltage guideline	

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Inputs

Rated values	Quantity	4
	Voltage	0…1 V, 0…5 V, 0…10 V, 1…10 V
	Maximum upper limit	12 V
	Current	0...20 mA, 4...20 mA
	Maximum upper limit	25 mA
	Resistance	0…1,000 ohms
		PT100 2-conductor technology
		PT100 3-conductor technology
		PT1000 2-conductor technology
		PT1000 3-conductor technology
		Choice of KT/KTY 1000/2000, user-defined
	Contact	Floating
	Input resistance for voltage measurement	> 50 Mohms
	Input resistance for current measurement	260 ohms
	Permitted cable length between sensor and device input	Max. 100 m

Device type	Application	Max. number of communication objects	Max. number of group addresses	Max. number of assignments
AE/S 4.1.1.3	Threshold measurement 4f/...*	42	100	100

* … = Current version number of the application. **Please refer to the software information on our website for this purpose.**

Note

For a detailed description of the application see *„Analogue Input AE/S 4.1.1.3“* product manual. It is available free-of-charge at *www.abb.com/knx*.

ETS and the current version of the device application are required for programming.

The current application can be found with the respective software information for download on the Internet at *www.abb.com/knx*. After import into ETS, the application appears in the *Catalogs* window under *Manufacturers/ABB/Analogue Input, 4-fold-MDRC*.

The device does not support the locking function of a KNX device in ETS. If you use a *BCU code* to inhibit access to all the project devices, this has no effect on this device. Data can still be read and programmed.

Resolution and accuracy and tolerances

Please note that the tolerances of the sensors which are used will need to be added to the listed values.

With the sensors which are based on resistance measurement, it is necessary to also consider the feeder cable errors.

In the supplied state of the device, the stated accuracies will not be initially achieved. After initial commissioning, the device performs an autonomous calibration of the analogue measurement circuit. This calibration takes about an hour and is performed in the background. It is undertaken regardless of whether or not the device is parameterized and is independent of the connected sensors. The normal function of the device is not affected. After calibration has been completed, the calibration values which have been determined will be stored in the non-volatile memory. Thereafter, the device will achieve this level of accuracy every time it is switched on. If the calibration is interrupted by programming or bus failure, it will recommence every time it is restarted. The ongoing calibration is displayed in the Status byte by a 1 in bit 4.

Important
The Analogue Input has a U_n = 24 V DC output voltage to power the sensors. Make sure that the maximum output current is not exceeded.

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Voltage signals

Sensor signal	Resolution	Accuracy at 25 °C T_u *1	Accuracy at -5...+45 °C T_u *1	Accuracy at -20...+70 °C T_u *1	Remark
0...1 V	200 µV	±0.2 % ±1 mV	±0.5 % ±1 mV	±0.8 % ±1 mV	
0...5 V	200 µV	±0.2 % ±1 mV	±0.5 % ±1 mV	±0.8 % ±1 mV	
0...10 V	200 µV	±0.2 % ±1 mV	±0.5 % ±1 mV	±0.8 % ±1 mV	
1...10 V	200 µV	±0.2 % ±1 mV	±0.5 % ±1 mV	±0.8 % ±1 mV	

*1 of current measured value at ambient temperature (T_U)

Current signals

Sensor signal	Resolution	Accuracy at 25 °C T_u *2	Accuracy at -5...+45 °C T_u *2	Accuracy at -20...+70 °C T_u *2	Remark
0...20 mA	2 µA	±0.2 % ±4 µA	±0.5 % ±4 µA	±0.8 % ±4 µA	
4...20 mA	2 µA	±0.2 % ±4 µA	±0.5 % ±4 µA	±0.8 % ±4 µA	

*2 of current measured value at ambient temperature (T_U)

Resistance signals

Sensor signal	Resolution	Accuracy at 25 °C T_u *3	Accuracy at -5...+45 °C T_u *3	Accuracy at -20...+70 °C T_u *3	Remark
0...1,000 ohms	0.1 ohm	±1.0 ohm	±1.5 ohms	±2 ohms	
PT100*4	0.01 ohm	±0.15 ohm	±0.2 ohm	±0.25 ohm	0.1 ohm = 0.25 °C
PT1000*4	0.1 ohm	±1.5 ohms	±2.0 ohms	±2.5 ohms	1 ohm = 0.25 °C
KT/KTY 1,000*4	1 ohm	±2.5 ohms	±3.0 ohms	±3.5 ohms	1 ohm = 0.125 °C/at 25 °C
KT/KTY 2,000*4	1 ohm	±5 ohms	±6.0 ohms	±7.0 ohms	1 ohm = 0.064 °C/at 25 °C

*3 in addition to current measured value at ambient temperature (T_U)
*4 plus feeder cable and sensor faults

PT100

The PT100 is precise and exchangeable but subject to faults in the feeder cables (cable resistance and heating of the feeder cables). A terminal resistance of just 200 milliohm causes a temperature error of 0.5 °C.

PT1000

The PT1000 responds just like the PT100, but the influences of feeder cable errors are lower by a factor of 10.

Use of this sensor is preferred.

KT/KTY

The KT/KTY has a low level of accuracy, can only be exchanged under certain circumstances and can only be used for very simple applications.

Please note that there are different tolerance classes for the sensors in the versions PT100 and PT1000.

The table indicates the individual classes:

Designation	Tolerance
DIN class A	0.15 + (0.002 x t)
1/3 DIN class B	0.10 + (0.005 x t)
1/2 DIN class B	0.15 + (0.005 x t)
DIN class B	0.30 + (0.005 x t)
2 DIN class B	0.60 + (0.005 x t)
5 DIN class B	1.50 + (0.005 x t)
t = Current temperature	

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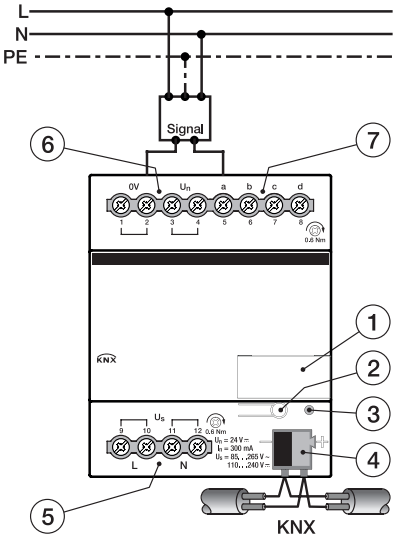
Connection schematics

Connecting sensor with an external supply



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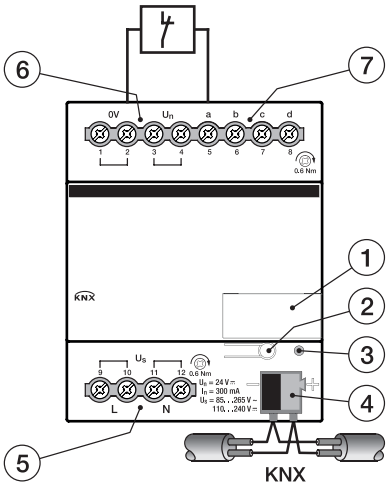
Connecting a floating contact



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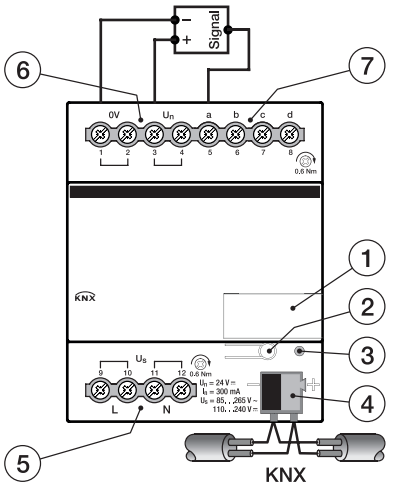
Connecting a 3-conductor sensor with its own power supply



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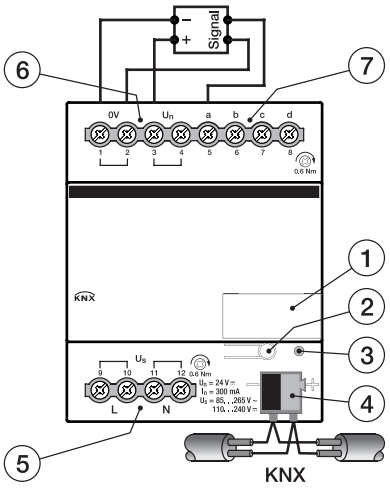
Connecting a 4-conductor sensor with its own power supply



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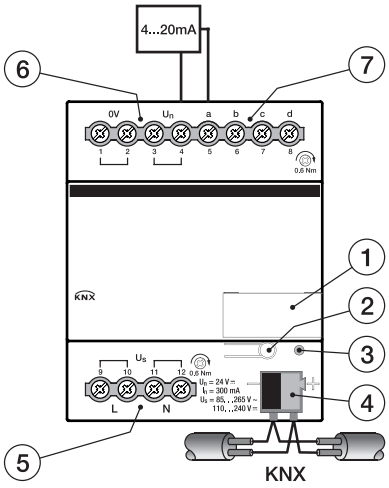
Connecting a 4...20 mA sensor



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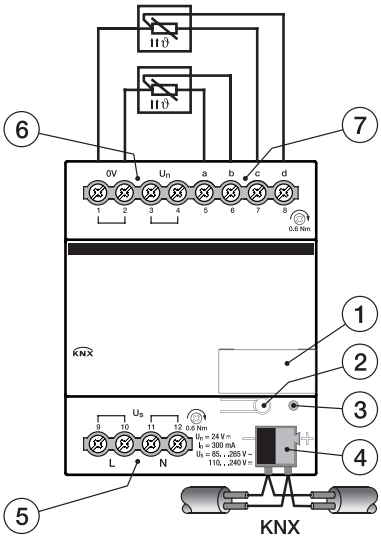
Connecting a PT100/PT1000 3-conductor temperature sensor



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1 Label carrier
2 *Programming* button
3 *Programming* LED
4 Bus connection terminal
5 Power supply
6 Auxiliary voltage output for sensor supply
7 Sensor input

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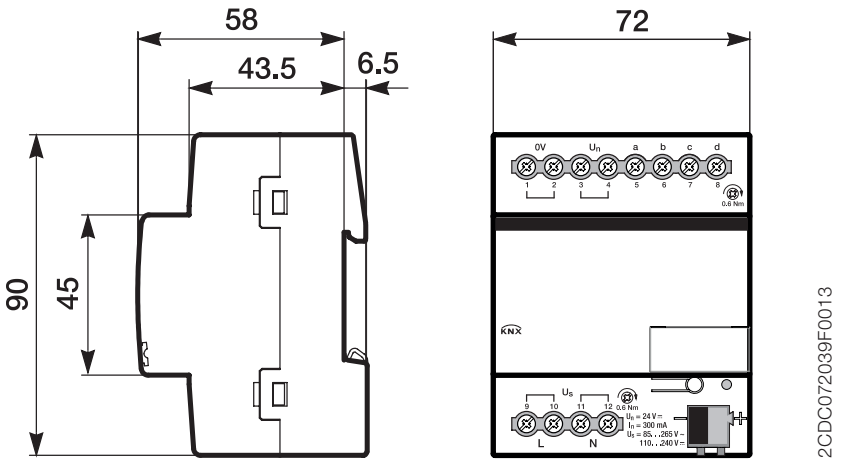
Dimension drawing



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Publication number 2CDC504084D0201 (04/2015)

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