



Analogue Input AE/A 2.1 is used to record analogue data. Two conventional sensors can be connected to AE/A 2.1. The connection to the bus is established using a pluggable screw terminal. The device is ready for operation after connecting the bus voltage. No additional auxiliary voltage is required. Analogue Input AE/A 1.2 is parameterised and programmed using the ETS (ETS2 V1.3a).

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Technical data

Supply	Bus voltage	21...32 V DC	
	Current consumption, bus	< 8 mA	
	Power consumption, bus	Maximum 250 mW	
Inputs	Number	2	
	Input signals		
	Voltage	0-1 V, 0-5 V, 0-10 V, 1-10 V, 12 V	
	Maximum upper threshold		
	Current	0-20 mA, 4-20 mA, 25 mA	
	Maximum upper threshold		
	Input resistance	0-1000 ohms, PT 100 2-conductor technology, PT 1000 2-conductor technology, A selection of KT/KTY 1000/2000, User defined	
	Contact	Floating	
	Resolution, accuracy and tolerances	See next page	
	Input resistance to voltage measurement	> 1 Mohm	
Input resistance to current measurement	100 ohms		
Cable length	Between sensor and device input	Maximum 30 m	
Conductor introduction	Permissible external conductor diameter	Ø 6...12.5 mm 4 pcs. per cable entry	
Connections	KNX	Via green pluggable screw terminals	
	Sensor inputs	Via green pluggable screw terminals	
Connection terminals	Pluggable screw terminals, green	0.08...1.5 mm ²	Single core or stranded
		0.2...10.0 mm ²	Flexible with ferrules without/with plastic sleeves
	Multiple conductor connection (2 conductors with identical cross-sections)	0.08...0.5 mm ²	Single core
		0.08...0.75 mm ²	Flexible
		0.25...0.34 mm ²	Flexible with ferrules without plastic sleeves
		0.5 mm ²	Flexible with TWIN ferrules with plastic sleeves
	Insulation strip length	7 mm	
Screw thread	M2		
Tightening torque	max. 0.25 Nm		
Operating and display elements	Programming button/LED	For assignment of the physical address	

Enclosure	IP 54	to DIN EN 60 529
Safety class	II	to DIN EN 61 140
Overvoltage category	III to DIN EN 60 664-1	
Pollution degree	2 to DIN EN 60 664-1	
Temperature range	Operation	-20...+70 °C
	Storage	-25...+70 °C
	Transport	-25...+70 °C
Ambient conditions	Maximum air humidity	93 %, no condensation allowed
Ambient temperature	Differential	Not exceeding 10 °C/hour
Design	Surface mounted	
	Dimensions	117 x 117 x 51mm (H x W x D)
Installation	Surface mounted, screw mounted	
Mounting position	As required	
Weight	0,25 kg	
Housing/colour	Plastic housing, grey, halogen free	
Approvals	KNX to EN 50 090-1, -2	Certification
CE mark	in accordance with the EMC guideline and low voltage guideline	

Application program	Max. number of Communication objects	Max. number of Group addresses	Max. number of Associations
Threshold Value Measurement 2f/1	24	50	50

Note

Detailed information about the application can be found in the product-manuals for the „Analogue Input AE/A 2.1“. This manual can be free downloaded under www.ABB.de/KNX.

ETS is required for programming. If ETS3 is used a *.VD3 type file must be imported. The application program is available in the ETS under ABB/Security and Surveillance/Controller.

Resolution, 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 default delivers 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 if the device is, or is not parameterised, and is independent of the connected sensors.

The normal function of the device is not affected in any way. After calibration has been completed, the calibration values which have been determined will be stored in 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 indicated in the status byte by a 1 on bit 4.

Voltage signals

Sensor signal	Resolution	Accuracy at 25 °C AT ^{*1}	Accuracy at 0...50 °C AT ^{*1}	Accuracy at -20...70 °C AT ^{*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 (AT)

Current signals

Sensor signal	Resolution	Accuracy at 25 °C AT ^{*2}	Accuracy at 0...50 °C AT ^{*2}	Accuracy at -20...70 °C AT ^{*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 (AT)

Resistance signals

Sensor signal	Resolution	Accuracy at 25 °C AT ^{*3}	Accuracy at 0...50 °C AT ^{*3}	Accuracy at -20...70 °C AT ^{*3}	Remark:
0-1000 ohms	0.1 ohms	+/-1.0 ohm	+/-1.5 ohms	+/-2 ohms	
PT100 ^{*4}	0.01 ohms	+/-0.15 ohms	+/-0.2 ohms	+/-0.25 ohms	0.1 ohms = 0.25 °C
PT1000 ^{*4}	0.1 ohms	+/-1.5 ohms	+/-2.0 ohms	+/-2.5 ohms	1 ohm = 0.25 °C
KT/KTY 1000 ^{*4}	1 ohm	+/-2.5 ohms	+/-3.0 ohms	+/-3.5 ohms	1 ohm = 0.125 °C/at 25 °C
KT/KTY 2000 ^{*4}	1 ohm	+/-5 ohms	+/-6.0 ohms	+/-7.0 ohms	1 ohm = 0.064 °C/at 25 °C

^{*3} additional to current measured value at ambient temperature (AT)
^{*4} incl. feeder cable and sensor faults

PT100: The PT100 is precise and exchangeable but subject to faults in the feeder cables (line resistance and heating of the feeder cables). A terminal resistance of just 200 milliohms 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 lower 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:

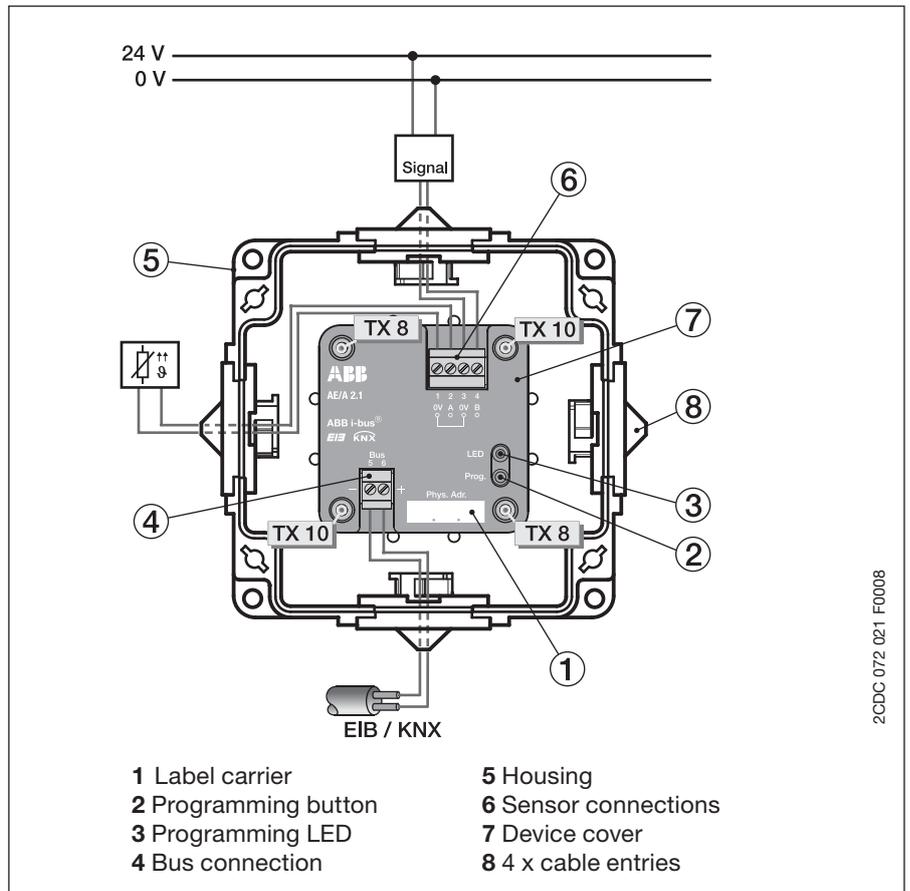
Designation	Tolerance
DIN class A	0.15 + (0.002 x t)
1/3 DIN class B	0.10 + (0.005 x t)
1/2 DIN class B	0.15 + (0.005 x t)
DIN class B	0.30 + (0.005 x t)
2 DIN class B	0.60 + (0.005 x t)
5 DIN class B	1.50 + (0.005 x t)
t = current temperature	

Circuit diagram

Connection example with temperature sensor and externally supplied sensor.

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Caution

Degree of protection IP54 can be guaranteed only if the supplied blanking plugs are used.

If the plugs are not used, condensation and/or water can penetrate the housing and damage the device.

Dimension drawing

