

DATA SHEET

TM 110

Temperature transmitter



Features of the housing

Material	ABS V0 as per UL94
Protection index	IP65 Duct and air tight models, model with terminal block and piping contact model
	IP20 Ambient model
Display	LCD 10 digits Size: 50 x 17 mm
Height of digits	Values: 10 mm; Units: 5 mm
Cable gland	For cables Ø8 mm maximum Duct model and model with terminal block
Weight	162 g

Part number

TM110 — A — 0 — AI — 6 — 100

Power supply / Output

A: Active – 24 Vac/Vdc – 0-10 V
P: Passive – 16/30 Vdc – 4-20 mA

Display

O: With display
N: Without display

Model

B: Terminal block
AI: Stainless steel duct

S: Ambient

E: Air tight

C: Piping contact**

Stainless steel probe diameter***

10: 100 mm
150: 150 mm
200: 200 mm
250: 250 mm
300: 300 mm

6: Ø6 mm

100: 100 mm

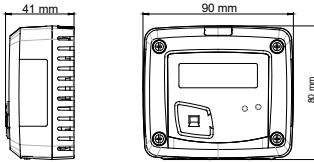
150: 150 mm

200: 200 mm

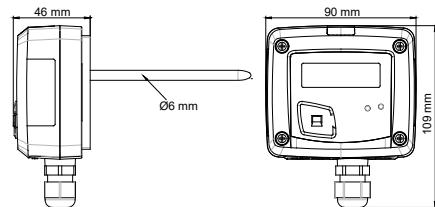
250: 250 mm

300: 300 mm

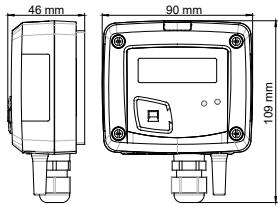
Ambient model



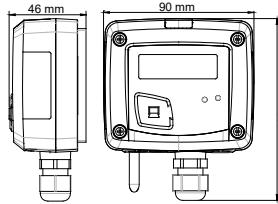
Duct model, stainless steel probe*



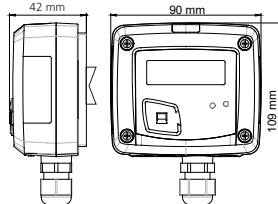
Model with terminal block*



Air tight model



Piping contact model**



Example: TM110-AOAI-6-100

Temperature transmitter, active, with display and stainless steel duct mounting, 6 mm diameter and 100 mm length stainless steel probe.

* Several probes available in option

** The piping contact sensor is available only in passive model without display, that is the following reference: TM110-PNC

*** Duct model only: stainless steel probe specifications

Technical features

Units of measurement	°C, °F
Measuring range	From 0 to 50 °C (ambient model), from -20 to +80 °C (duct, air tight and piping contact models) and from -100 to +400 °C (model with terminal block)
Accuracies*	Pt100: $\pm 0.5\%$ of reading $\pm 0.5\text{ °C}$ NTC: $\pm 0.3\text{ °C}$ (ambient model: from -40 to +70 °C; duct model: from -20 to +70 °C); $\pm 0.5\text{ °C}$ beyond
Type of sensors	Pt100 (model with terminal block, duct air tight and piping contact models) NTC (ambient model and duct model)
Response time	1/e (63%) 5 sec. (ambient) 1/e (63%) 15 sec. (piping contact) 1/e (63%) 20 sec. (airtight)
Resolution	0.1 °C
Type of fluid	Air and neutral gases
Conditions of use (°C/%RH/m)	From 0 to +50 °C In non-condensing condition. From 0 to 2000 m
Storage temperature	From -10 to +70 °C

*All the accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

Technical specifications

Output / Power supply	Active sensor 0-10 V (power supply 24 Vac/Vdc $\pm 10\%$), 3-4 wires Passive loop sensor 4-20 mA (power supply 16/30 Vdc), 2 wires Common mode voltage <30 VAC Maximum load: 500 Ohms (4-20 mA) / minimum load: 1 K Ohms (0-10 V)
Cunsumption	2 VA (0-10 V) or 0.6 VA (4-20 mA)
European directives	2014/30/EU EMC; 2014/35/EU Low Voltage 2011/65/EU RoHS II; 2012/19/EU WEEE
Electrical connection	Screw terminal block for cables from 0.05 to 2.5 mm ² or from 30 to 14 AWG Carried out according to the code of good practice
PC communication	USB-mini DIN cable
Environment	Air and neutral gases



Simplified calibration

Electronic board and measuring element fixed to the front panel of the sensor, allowing you to leave your installation intact to configure or calibrate your instruments.

Monostats / 110 range

Connections

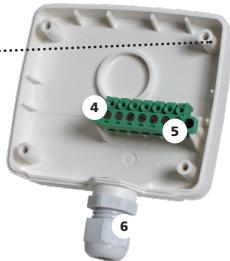
1. Terminal block (only for model with terminal block)
2. Switch
3. LCC-S software connection
4. Output terminal block
5. Power supply terminal block
6. Cable gland



Inside the front housing



Removable front face

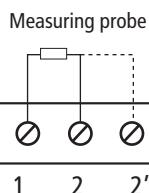


Fixed back housing

Symbols used

For your safety and in order to avoid any damage of the device, please follow the procedure described in this document and read carefully the notes preceded by the following symbol:

The following symbol will also be used in this document, please read carefully the information notes indicated after this symbol:



Connection of a Pt100 probe on terminal block



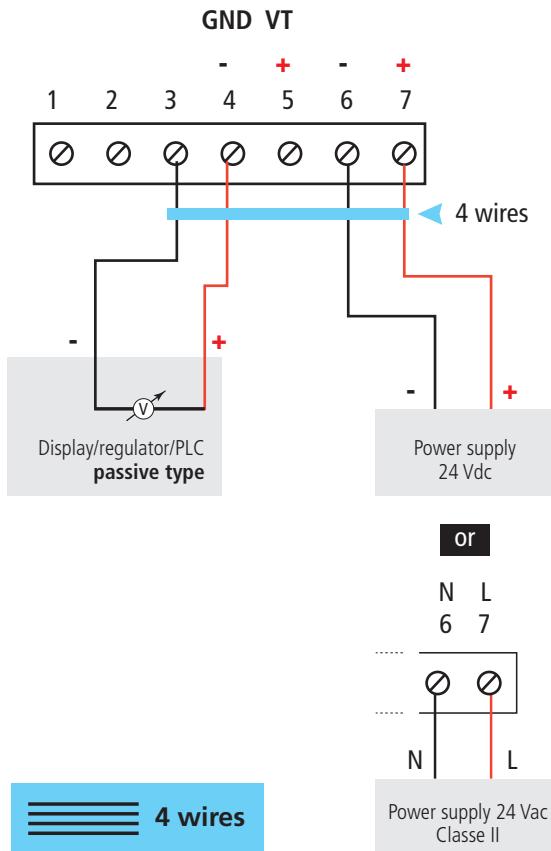
Warning: In case of a 2-wire probe used, carry out a shunt between 2 and 2'.

Electrical connections as per NFC15-100

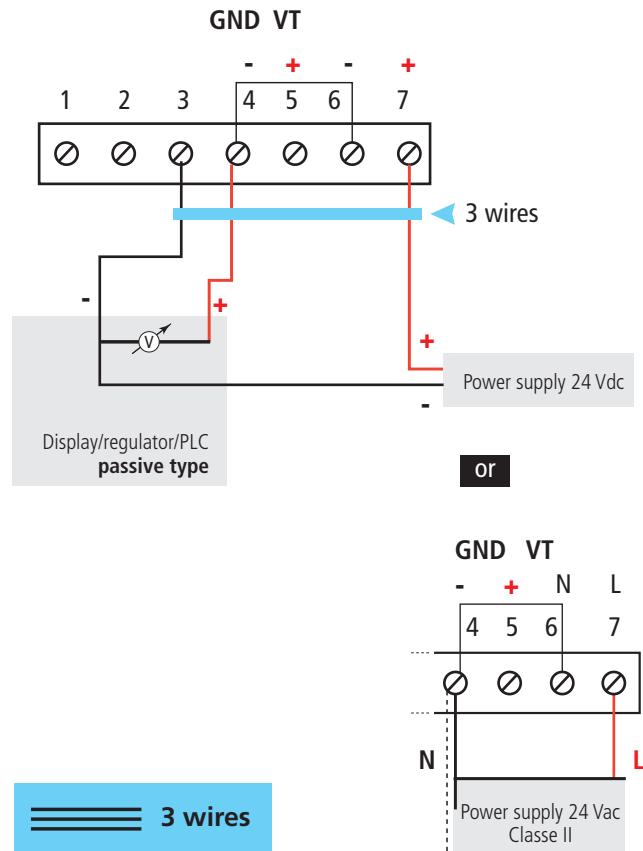


This connection must be made by a qualified and trained technician. To make the connection, the transmitter **MUST NOT BE ENERGIZED**.

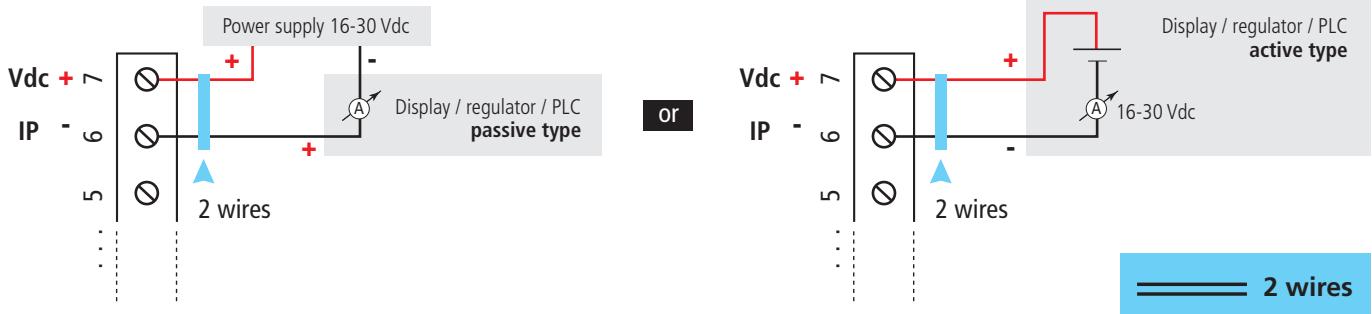
For TM110 – AO and TM110 – AN models with 0-10 V output – **active**, 4 wires:



To make a 3-wire connection, **BEFORE POWERING UP THE TRANSMITTER** please connect the output ground to the input ground. See drawing below.



For TM110 – PO and TM110 – PN models with 4-20 mA output – **passive**:



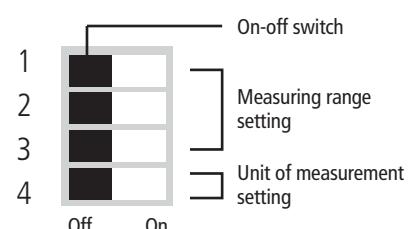
Settings and use of the transmitter

Configuration



CAUTION: the transmitter **MUST NOT BE ENERGIZED** before a configuration. Then, proceed to the required settings, with the DIP switches (as shown on the drawings hereafter). Once the transmitter configured, it can be powered up.

To configure the transmitter, unscrew the 4 screws of the casing then open it. The switches allowing the different settings are accessible.



Measuring range setting

To set a measuring range, put the on-switches 1, 2 and 3 of the measuring ranges as shown in the following table.

Configurations	From 0 to +50 °C	From -20 to +80 °C	From -50 to +50 °C	From 0 to +100 °C	From 0 to +200 °C	From 0 to +400 °C
Combinations	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

Unit of measurement setting

To set the unit of measurement, put the on-off switch 4 as shown in the following table.

Configurations	°C	°F
Combinations	1 2 3 4	1 2 3 4

Configuration via LCC-S software (option)

An easy and friendly configuration with the software! It is possible to configure intermediate ranges.

⚠ The minimum difference between the high range and the low range is 20.

Example: for a 0-100 °C transmitter, the minimum delta of the range is 20 °C. It is then possible to configure the transmitter from 0 to +100 °C, or from 0 to +20 °C, etc.

To access the configuration via software:

Set the DIP switches as shown beside.

Connect the cable of the LCC-S to the connection of the transmitter.

⚠ The configuration of the parameters can be done either with the DIP switch or via software (you can not combine both solutions).

PC configuration

1 2 3 4	1 2 3 4
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Left switch

Right switch

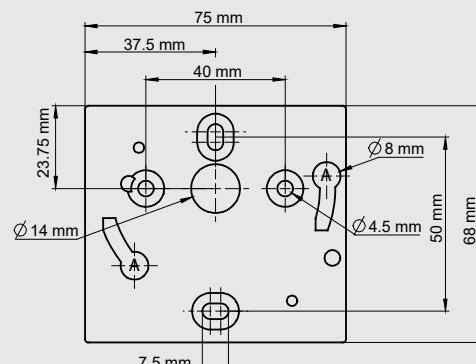
Please refer to the optional LCC-S software to make the configuration.

Mounting

To install the transmitter, mount the ABS plate on the wall (drilling: Ø6 mm, screws and pins are supplied).

Insert the transmitter on the fixing plate (see A on the drawing beside). Rotate the housing in clockwise direction until you hear a "click" which confirms that the transmitter is correctly installed.

⚠ The mounting plate is not available for ambient models. 4 fixing holes inside the back housing can be used to install the transmitter on the required location.



Maintenance: please avoid any aggressive solvent. Please protect the transmitter and its probes from any cleaning product containing formalin, that may be used for cleaning rooms or ducts.

Precautions for use: please always use the device in accordance with its intended use and within parameters described in the technical features in order not to compromise the protection ensured by the device.

Accessories

Part number	Description
KIAL-100A	Power supply class 2, 230 Vac input, 24 Vac output
KIAL-100C	Power supply class 2, 230 Vac input, 24 Vdc output
LCC-S	Configuration software with USB cable

Pt100 2 or 3 wires or NTC stainless steel probe for duct and remote models



Only the accessories supplied with the device must be used.