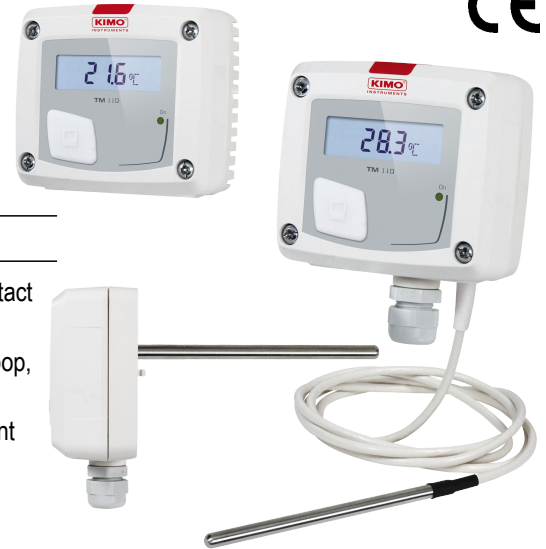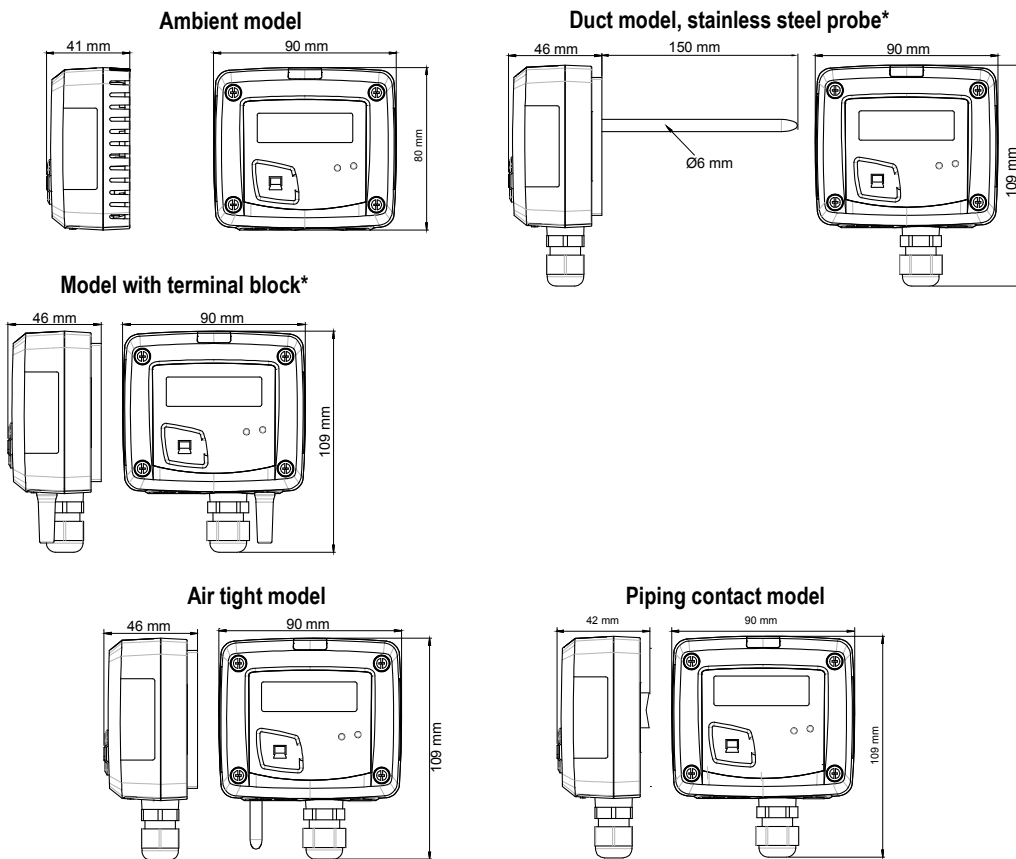# Temperature transmitter
TM 110

KEY POINTS

- 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 Pt100 terminal block)
- 0-10 V output, active, power supply 24 Vac/Vdc (3-4 wires) or 4-20 mA output, passive loop, power supply from 16 to 30 Vdc (2 wires)
- ABS V0 housing, IP65 (remote, air tight, duct and piping contact models) or IP20 (ambient model), with or without display
- "¼ turn" system mounting with wall-mount plate
- Housing with simplified mounting system

FEATURES OF THE HOUSING

Ambient model

41 mm | 90 mm | 80 mm

Duct model, stainless steel probe*

46 mm | 150 mm | 90 mm | 109 mm | Ø6 mm

Model with terminal block*

46 mm | 90 mm | 109 mm

Air tight model

46 mm | 90 mm | 109 mm

Piping contact model

42 mm | 90 mm | 109 mm

Material: ABS V0 as per UL94

Protection:
- duct and air tight models, model with terminal block and piping contact model: IP65
- ambient model: IP20
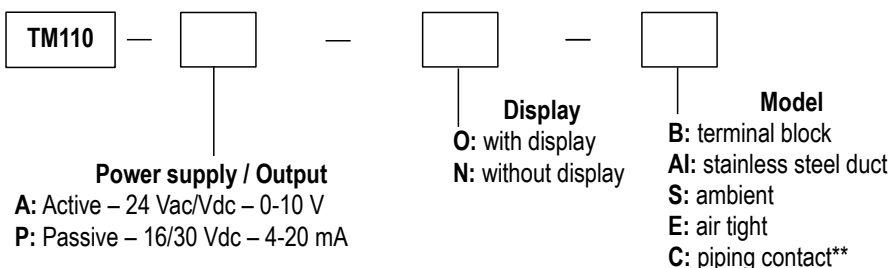
Display: LCD 10 digits.
Size: 50 x 17 mm

Height of digits: Values: 10 mm; Units: 5 mm

Cable gland (duct model and model with terminal block):
For cables Ø8 mm maximum

Weight: 162 g

PART NUMBER

To order, just add the codes to complete the part number:

TM110 — ☐ — ☐ — ☐

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**

Example: TM110-POB
Temperature transmitter, passive 4-20 mA output, with display and with terminal block.

several probes available in option.
*** the piping contact sensor is available only in passive model without display, that is the following reference : TM 110 PNC*

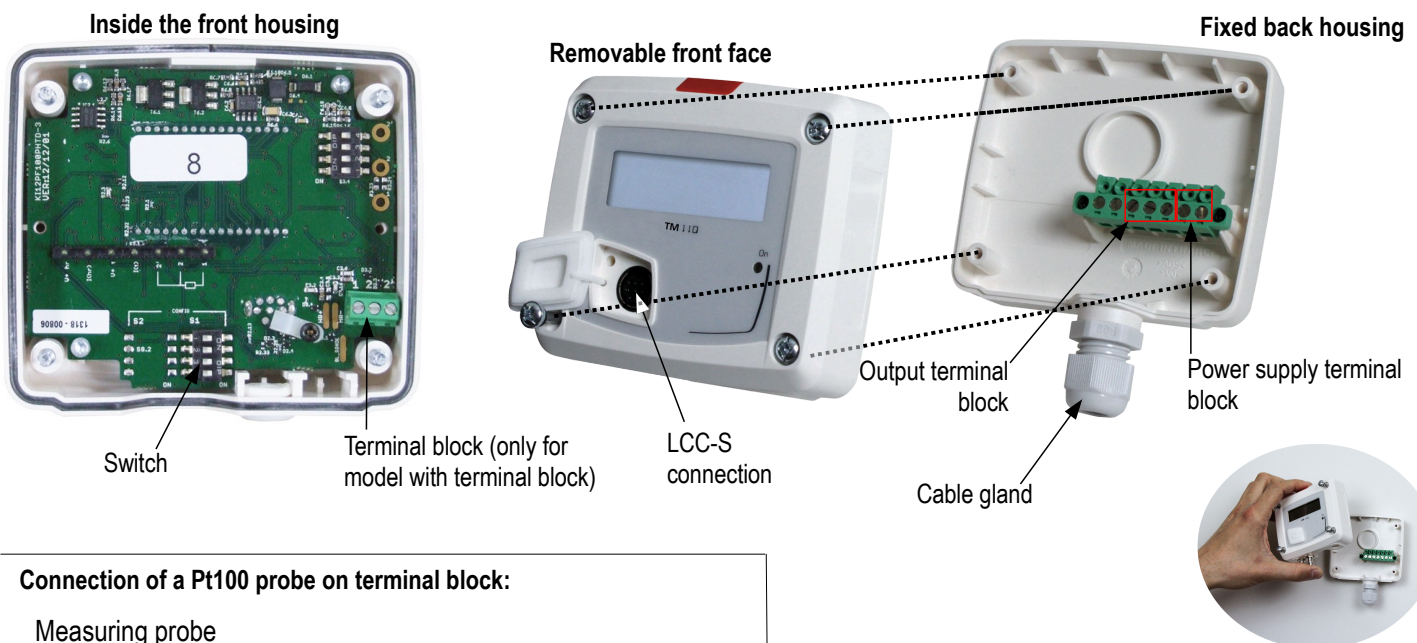| Unit of measurement	°C, °F
Measuring range	From 0 to 50°C (ambient model), form -20 to +80°C (duct, air tight and piping contact models) and from -100 to +400°C (model with terminal block)
Accuracy*	Pt100: ±0.5% of reading ±0.5°C NTC: ±0.3°C (from -40 to 70°C); ±0.5°C (outside the -40 to +70°C temperature range)
Type of sensor	Pt100 (model with terminal block and stainless steel 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.
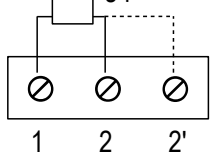
TECHNICAL SPECIFICATIONS

Output / Power supply	- active sensor 0-10 V (power supply 24 Vac/Vdc ±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)
Consumption	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

CONNECTIONS

Inside the front housing

Switch

Terminal block (only for model with terminal block)

Removable front face

TM 110

LCC-S connection

Fixed back housing

Output terminal block

Cable gland

Power supply terminal block

Connection of a Pt100 probe on terminal block:

Measuring probe

1   2   2'

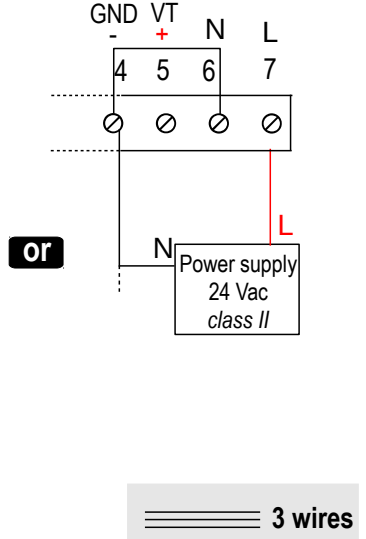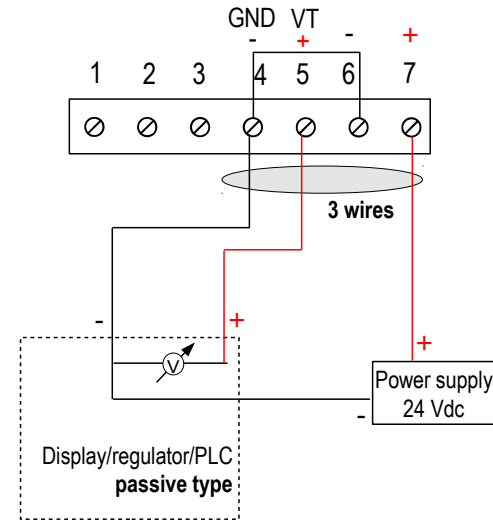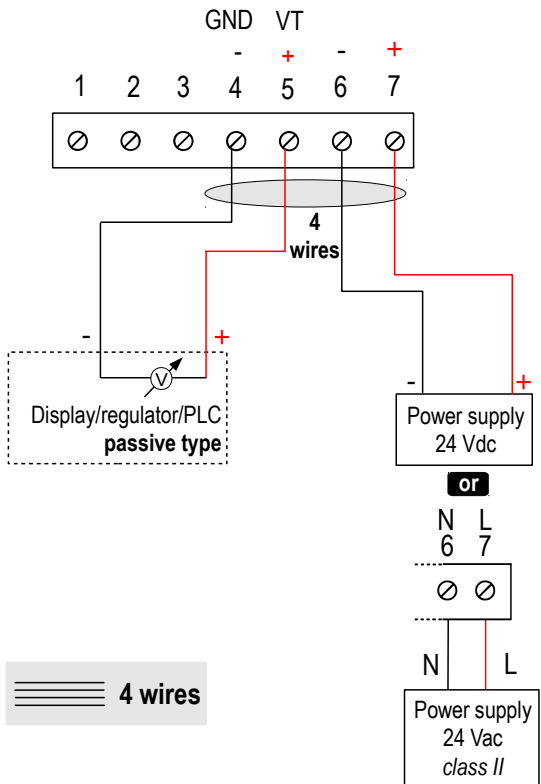⚠ **In case of a 2-wire probe used, carry out a shunt between 2 and 2'.**

⚠️ **This connection must be made by a qualified and trained technician. To make the connection, the transmitter must not be energized.**
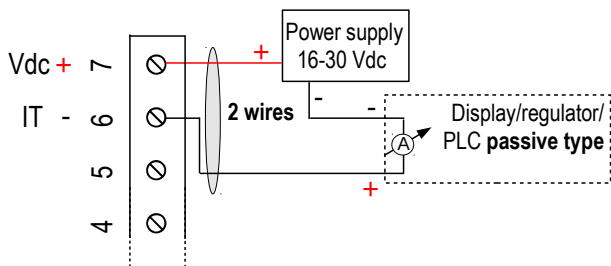
For **TM110 – AO** and **TM110 – AN** models with 0-10 V output – **active, 4 wires**:

⚠️ **To make a 3-wire connection, before powering up the transmitter, please connect the output ground to the input ground. See drawing below.**

GND VT

1 2 3 4 5 6 7

4 wires

- +

Display/regulator/PLC **passive type**

Power supply 24 Vdc

or

N L
6 7

Power supply 24 Vac *class II*

4 wires

GND VT

1 2 3 4 5 6 7

3 wires

Display/regulator/PLC **passive type**

Power supply 24 Vdc

or

GND VT N L
4 5 6 7

N L

Power supply 24 Vac *class II*

3 wires

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

Vdc + 7
IT - 6
5
4

2 wires

Power supply 16-30 Vdc

Display/regulator/ PLC **passive type**

or

Vdc + 7
IT - 6
5
4

2 wires

Display/regulator/PLC **active type**

16-30 Vdc

2 wires
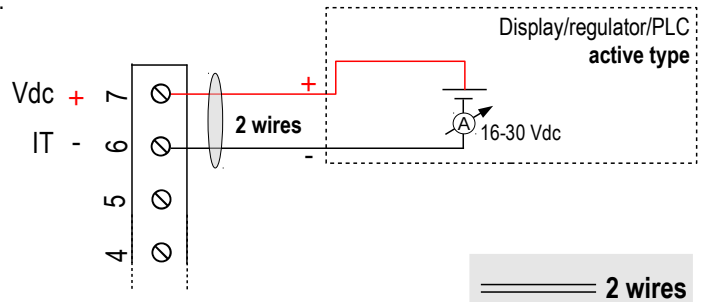
SETTINGS AND USE OF THE TRANSMITTER

➢ **Configuration**

⚠️ **To configure the transmitter, it must not be energized. Then, you can make the settings required, with the DIP switches (as shown on the drawing below). When the transmitter is configured, you can power it up.**

On-off switch

1
2
3
4

Off   On

Measuring range setting

Unit of measurement setting
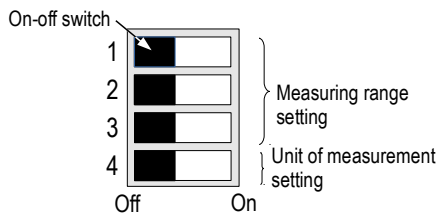
➢ **Measuring range setting**

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

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 show beside.

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.

⚠️ *Caution : 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...
• 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.
• Please refer to the user manual of the LCC 100 to make the configuration.

Configuration via PC

1 ☐■
2 ☐■
3 ☐■
4 ☐■
Switch

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

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.

⚠️ **Ambient model does not have any mounting plate.**
4 fixing holes are present inside the back housing. Use them 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.

OPTIONS AND ACCESSORIES

• **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

ℹ️ **Only the accessories supplied with the device must be used.**

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.

🗙 Once returned to KIMO, required waste collection will be assured in the respect of the environment in accordance with European guidelines relating to WEEE.