KIMO INSTRUMENTS

TECHNICAL DATA SHEET

Temperature transmitter
TM 210-R

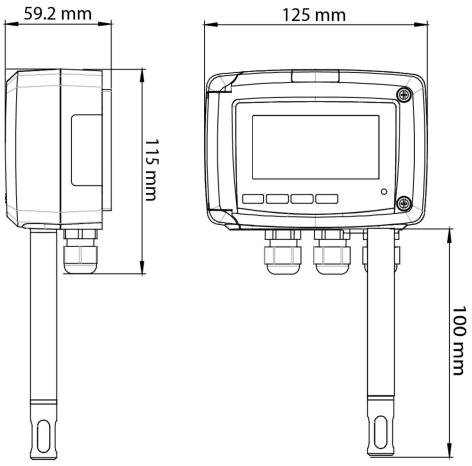




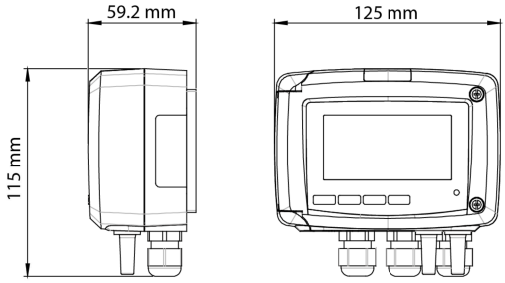
KEY POINTS

- Configurable ranges from 0 to 50°C (ambient model) and from -100 to 400°C (model with terminal block)
- Possibility of a second remote probe on terminal block
- Possibility to connect the KHP psychrometric probe (available as option)
- Display of the minimum and maximum values and trend indicator
- 4 wires analogue outputs 0-5/10 V or 0/4-20 mA
- 24 Vdc/Vac power supply
- Trend indicator
- ABS V0 IP65 housing, with display
- "¼ turn" system mounting with wall-mount plate
- 2 relay outputs

FEATURES OF THE HOUSING



Ambient model



Model with terminal block

Material: ABS V0 as per UL94

Protection: IP65

Display: 75 x 40 mm, LCD 19 digits 2 lines.

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

Cable gland: For cables Ø8 mm maximum

Weight: 340 g

PART NUMBER

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

TM 210 — B — O — [ ] — R

Power supply/Output
B : 24 Vac/Vdc

Display
O : With display

Type of probe
S: Ambient + Pt100 terminal block
B: Two Pt100 terminal blocks

Relay outputs

Example: TM210 – BOS – R
Temperature transmitter, ambient probe and relay outputs.

TECHNICAL FEATURES

TM210 transmitter can measure up to two temperatures (temperature 1 and temperature 2). When two temperature probes are connected, the transmitter can display the difference between both measured temperatures. It can also calculate different parameters in psychrometry thanks to the KHP psycrometric probe available as option (only for models with two Pt100 terminal blocks).

Parameter	Measuring ranges	Accuracy[2]	Resolution
Channel 1 temperature (°C, °F)	From -20 to +80°C (ambient model) From -100 to +400°C (remote model)	±0.3% of reading ±0.25°C According to probe	0.1°C
Channel 2 temperature (°C, °F) or Wet temperature ($°C_{tw}$, $°F_{tw}$)	From -100 to +400°C From -50 to +100$°C_{tw}$	According to probe	0.1°C 0.1$°C_{tw}$
Relative humidity[1] (%RH)	From 0 to 100% RH	-	0.1% RH
Dewpoint[1] ($°C_{td}$, $°F_{td}$)	From -50 to +100$°C_{td}$	-	0.1$°C_{td}$
Absolute humidity[1] (g/m_3)	From 0 to 600 g/m^3	-	0.1 g/m^3
Enthalpy[1] (kJ/kg)	From 0 to 15 000 kJ/kg	-	From 0 to 9999.9: 0.1 kJ/kg From 10 000 to 15 000: 1 kJ/kg
Combination ratio[1] (g/kg)	From 0 to 9999.9 g/kg	-	0.1 g/kg
Response time	T_{90} = 0.9 second for V_{air} = 1 m/s		
Type of sensor	Pt100 1/3 as per DIN IEC751		
Type of fluid	Air and neutral gas		

TECHNICAL SPECIFICATIONS

Power supply	24 Vac / Vdc ±10% **Warning: risk of electric shock**
Output	2 x 4-20 mA or 2 x 0-20 mA ou 2 x 0-5 V or 2 x 0-10 V (4 wires) Common mode voltage <30 Vac Maximum load: 500 Ohms (0/4-20 mA) / Minimum load: 1 K Ohms (0-5/10 V)
Relay outputs	2 changeover relays 3 A / 230 V
Galvanic isolation	Inputs and outputs Device fully protected by DOUBLE ISOLATION or REINFORCED ISOLATION Outputs
Consumption	6 VA
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 cable 2.5 mm^2 Carried out according to the code of good practice
PC communication	USB-Mini Din cable
Environment	Air and neutral gases
Type of fluid	Air and neutral gases
Conditions of use (°C/%RH/m)	From -10 to +50°C. In non-condensing condition. From 0 to 2000 m.
Storage temperature	From -10 to +70°C
Security	Protection class II; Pollution degree 2; Overvoltage category 2 (OVCII)

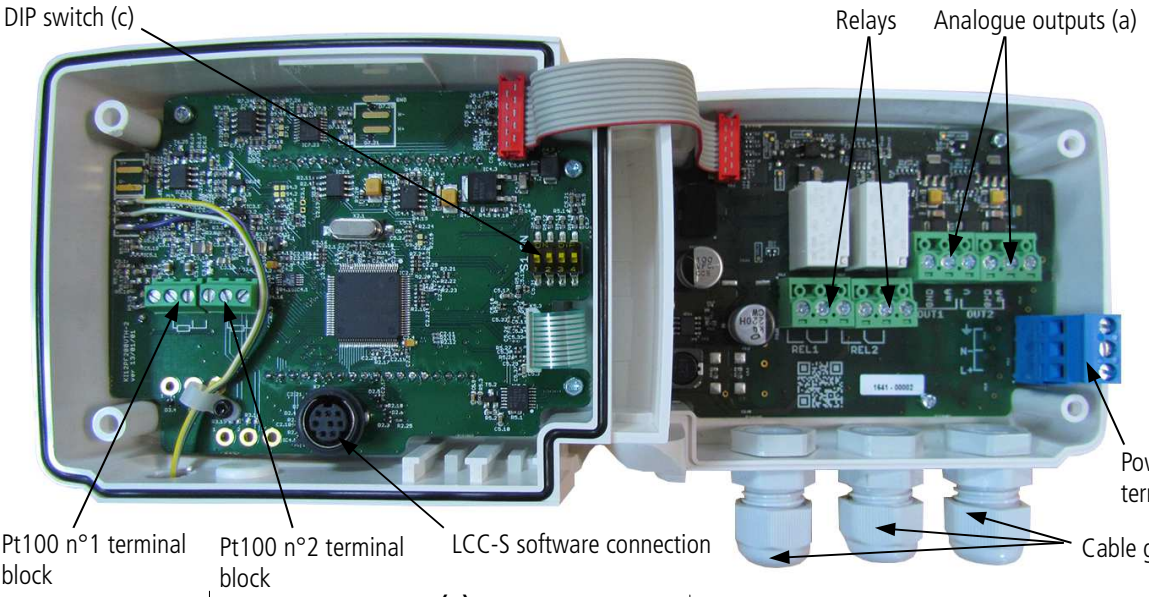
TECHNICAL FEATURES OF THE TEMPERATURE PROBES

Different Pt100 temperature probes are available on the range -100 to +400°C with different types of contact tip (straight stainless steel, angled stainless steel, with penetration tip...). Please contact us in order to define the type of probe that corresponds to your need.

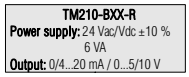


[1] Calculated value.
[2] All the accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

CONNECTIONS

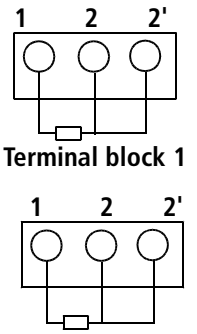


Power supply type (b) specified on the label on the side of the transmitter

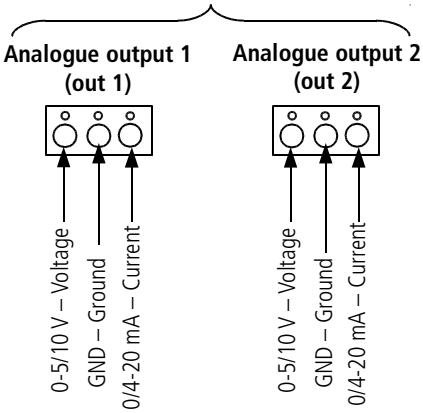


24 Vac/Vdc

Pt100 wiring

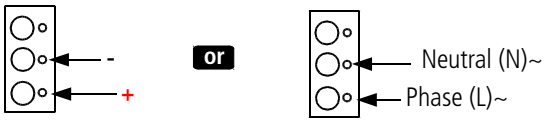


(a)

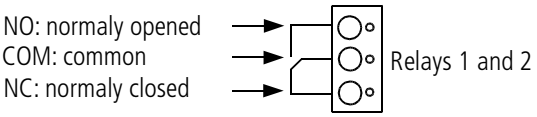


(b)

24 Vdc power supply

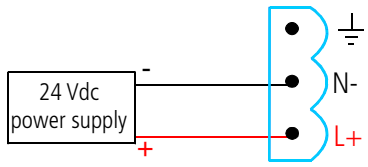


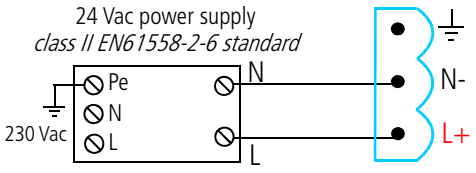
Relays



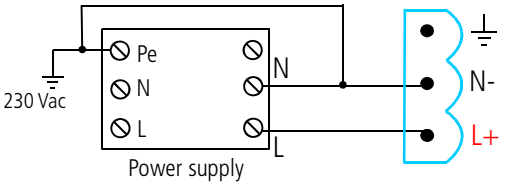
ELECTRICAL CONNECTIONS – as per *NFC15-100 standard*

This connection must be made by a formed and qualified technician. To make the connection, the transmitter must not be energized. The presence of a switch and a circuit breaker upstream the device is compulsory

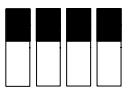
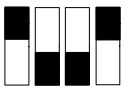
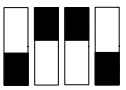




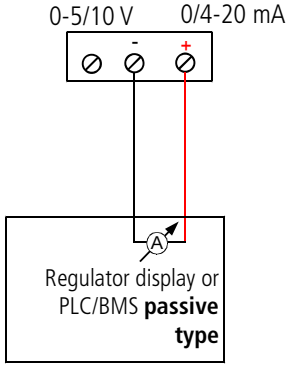
or



The selection of the output signal in voltage (0-10 V or 0-5 V) or in current (4-20 mA or 0-20 mA) is made via the DIP switch (c) of the electronic board of the transmitter: put the on-of switches as shown in the table below:

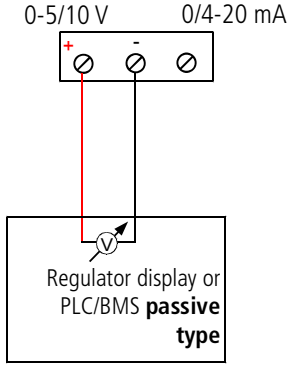
Configurations	4-20 mA	0-10 V	0-5 V	0-20 mA
Combinations				
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

- **Connection of the output in current 4-20 mA:**



4-20 mA output

- **Connection of output in voltage 0-10 V:**



0-10 V output

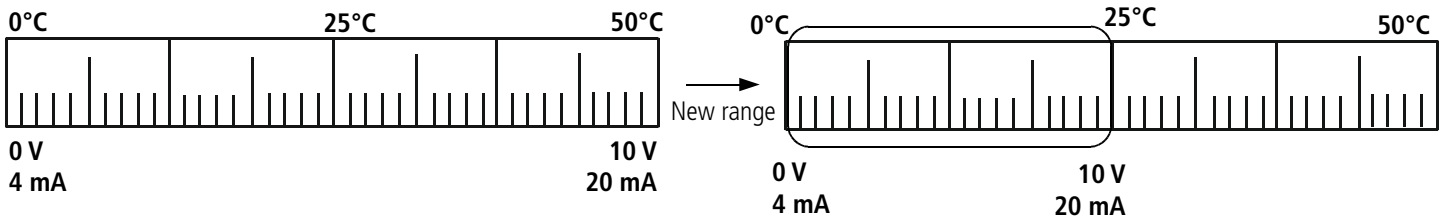
CONFIGURATION OF THE TRANSMITTERS

It is possible on the class 210 to configure all the parameters of the transmitter: units, measuring ranges, outputs, channels, calculation functions, etc, via different methods:

- **Keypad** for models with display: a code-locking system allows to secure the installation (See class 210 transmitters user manual).
- **Software** (optional) on all models. Simple user-friendly configuration. See LCC-S user manual.

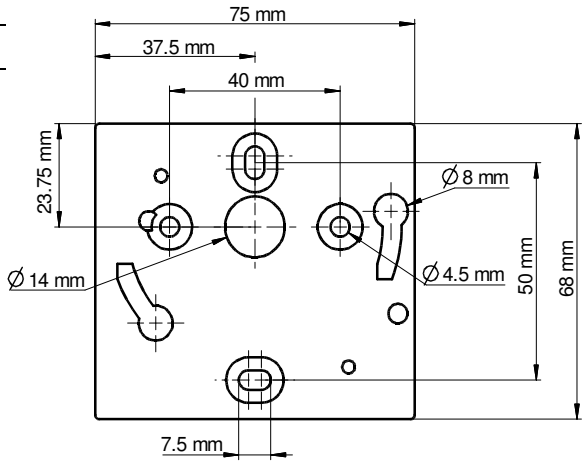
Configurable analogue output:
It is possible to configure your own intermediary ranges
Caution: the minimum difference between the high range and the low range is 20.

Configure the range according to your needs : outputs are automatically adjusted to the new measuring range



MOUNTING

To mount 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.



CALIBRATION

Outputs diagnostic: With this function, you can check with a multimeter (or on a regulator / display, or a PLC / BMS) if the transmitter outputs work properly. The transmitter generates a voltage of 0 V, 5 V and 10 V or a current of 4 mA, 12 mA and 20 mA

Certificate: Class 210 transmitters are supplied with adjusting certificates. Calibration certificates are available as an option.

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

- **LCC-S:** configuration software with USB cable
- **Calibration certificate**
- Pt100 temperature probes
- **KHP:** psychrometric probe



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.

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