

## Temperature Transmitter TM 100

- Temperature transmitter type TM100.
- Measuring ranges from 0 to +50°C, -20 to +80°C, -50 to +50°C, 0 to 100°C (see "Configuration")
- 0-10 V or 4-20 mA output, active sensor, power supply 24 Vac/Vdc (3-4 wires) or 4-20 mA output, passive loop, power supply 18 to 30 Vdc (2 wires).
- ABS IP 65 and IP30 housing, with or without display.
- Quick and easy mounting "1/4 turn" system on wall-mount plate.

### ■ Features of the transmitter

#### Temperature

Working principle: Pt100 is a resistance with a positive temperature coefficient which varies according to the temperature. The higher the temperature is, the more the value of the resistance increases.  
**Example** : for 0°C  $\simeq$  100  $\Omega$  - for 100°C  $\simeq$  138,5  $\Omega$

Measuring range .....	0 to +50°C, -20 to +80°C, -50 to +50°C, 0 to +100°C
Units of measurement .....	°C, °F
Accuracy * .....	$\pm$ 0,5% of reading $\pm$ 0,4°C
Response time .....	1/e (63%) 5 sec. (ambient) 1/e (63%) 20 sec. (air tight)
Resolution .....	0,1°C
Type of sensor.....	Pt 100 class A as per DIN IEC751
Type of fluid.....	air and neutral gases

### ■ Features of the housing

WITH or WITHOUT display



Housing .....	ABS
Fire-proof classification .....	HB as per UL94
Dimensions .....	see drawing shown beside
Protection .....	IP30 (ambient model) or IP65 (air tight model)
Display .....	5-digit LCD. Dimensions 50 x 15 mm
Height of the digits .....	10 mm
Cable grip .....	for cables $\varnothing$ 7 mm max.
Weight.....	145 g (with display) - 110 g (without display)

### ■ Technical Specifications

Output / Power supply .....	active sensor 0-10 V or 4-20 mA (power supply 24 Vac/Vdc $\pm$ 10%, 3-4 wires passive loop 4-20 mA (power supply 18/30 Vdc), 2 wires maximum load : 500 Ohms (4-20 mA) minimum load : 1 K Ohms (0-10 V)
Consumption .....	2 VA (0-10V) or max. 22 mA (4-20 mA passive) max. 35mA (4-20 mA active)
Electro-magnetical compatibility .....	EN 61326
Electrical connection .....	screw terminal block for cables $\varnothing$ 1.5 mm <sup>2</sup> max.
Communication to PC .....	Kimo RS 232 cable
Working temperature .....	+10 to +40°C (ambient model) -10 to +50°C (airtight model) -20 to +50°C (air tight model with no display)
Storage temperature .....	-10 to +70°C
Environment .....	air and neutral gases

\*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.

### ■ Part number

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

#### Transmitter / Power supply / Output

<b>V</b>	Active • 24 Vac/Vdc • 0-10V
<b>A</b>	Passive • 18/30 Vdc • 4-20 mA
<b>AC</b>	Active • 24 Vac/Vdc • 4-20 mA

#### Display

<b>O</b>	With display
<b>N</b>	Without display

#### Housing

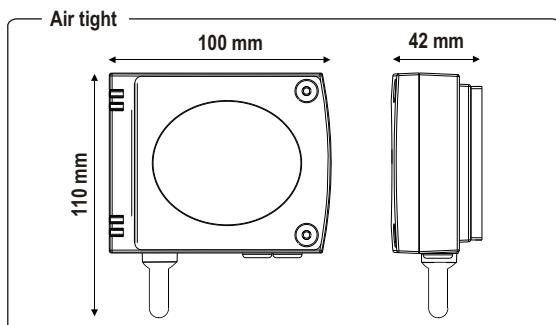
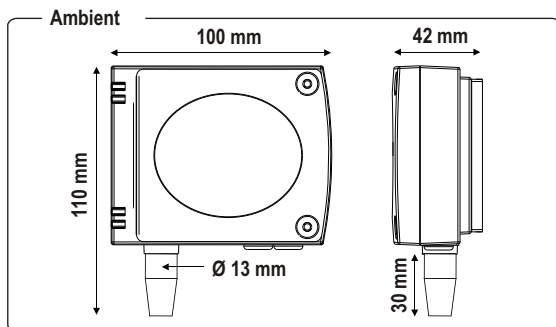
<b>A</b>	Ambient
<b>E</b>	Air tight

**TM 100** - [ ] [ ] [ ] [ ]

Example : TM100-AOA

Model : temperature transmitter TM 100, passive loop 4-20 mA, with display and ambient housing.

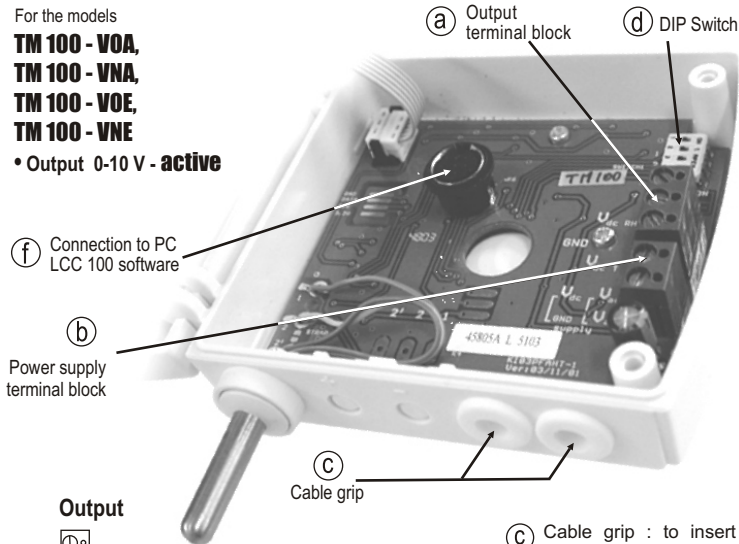
### ■ Dimensions of the housing (including the wall-mount plate)



## Connection

For the models  
**TM 100 - VOA,**  
**TM 100 - VNA,**  
**TM 100 - VOE,**  
**TM 100 - VNE**

• Output 0-10 V - active



(f) Connection to PC LCC 100 software

### Output

- (a) 

⓪	Vdc	.....direct voltage (temperature)
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### Power supply

- (b) 

⓪	Vdc	.....direct voltage
⓪	GND	.....ground

**OR**

- (b) 

⓪	Vac	.....alternative voltage (phase)
⓪	Vac	.....alternative voltage (neutral)

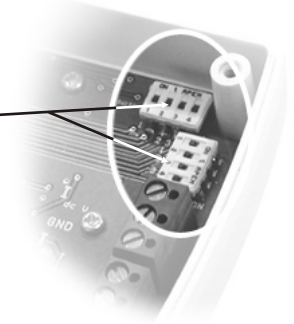
(c) Cable grip : to insert the cable, it is required to slightly cut the rubber.

For the models

**TM 100 - ACOA, TM 100 - ACNA,**  
**TM 100 - ACOE, TM 100 - ACNE**

• Output 4-20 mA - active

(d) and (e) Switchs

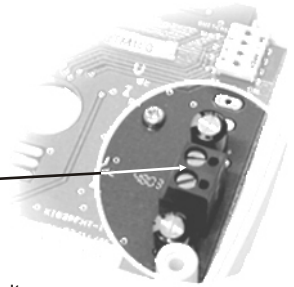


For the models

**TM 100 - AOA, TM 100 - ANA,**  
**TM 100 - AOE, TM 100 - ANE**

• Output 4-20 mA - passive

(a) Terminal block



- (a) 

⓪	Vdc	.....direct voltage
⓪	It	.....direct current (temperature)

## Electrical connection - as per norm NFC15-100

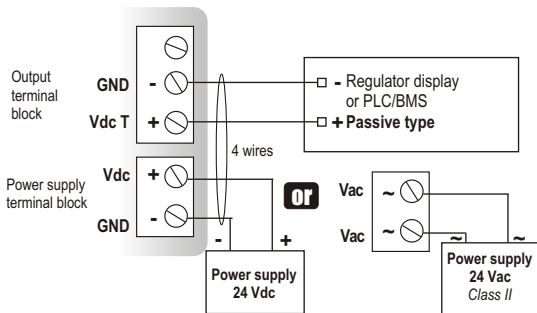
⚠ This connection must be made by qualified technician. To make the connection, the transmitter must not be energized.

For the models

**TM 100 - VOA, TM 100 - VNA, TM 100 - VOE, TM 100 - VNE**

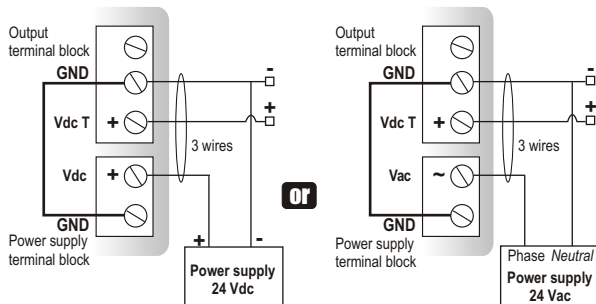
• Output 0-10 V - active

≡≡≡ 4 wires



≡≡≡ 3 wires

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

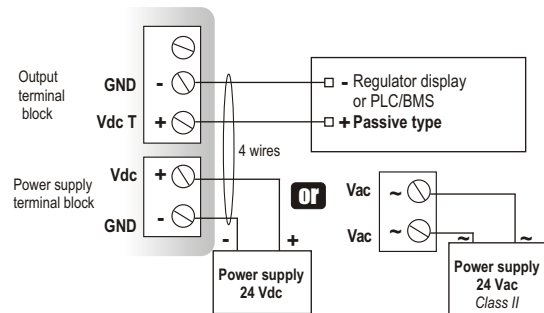


For the models

**TM 100 - ACOA, TM 100 - ACNA, TM 100 - ACOE, TM 100 - ACNE**

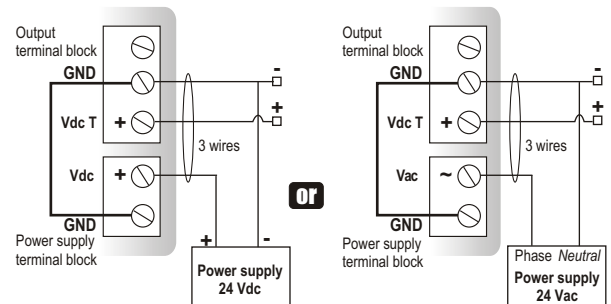
• Output 4-20 mA - active

≡≡≡ 4 wires



≡≡≡ 3 wires

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



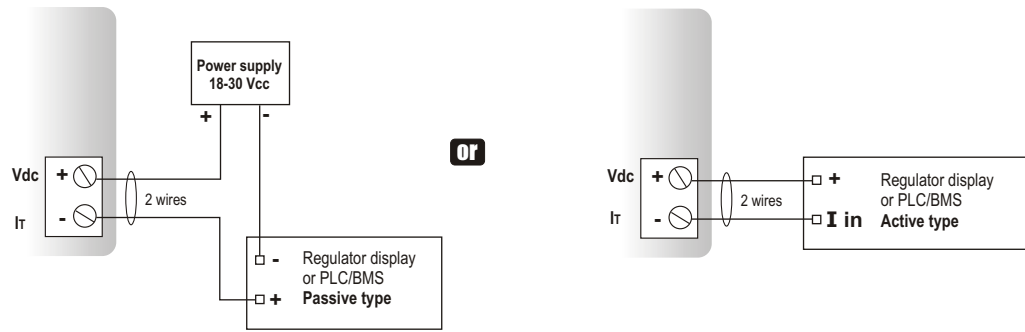
## Electrical connection

For the models

**TM 100 - AOA, TM 100 - ANA, TM 100 - AOE, TM 100 - ANE**

• Output 4-20 mA - **passive**

== 2 wires

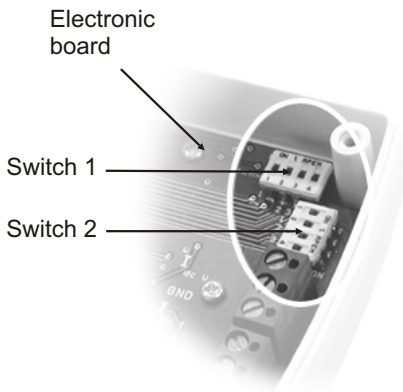


## Configuration

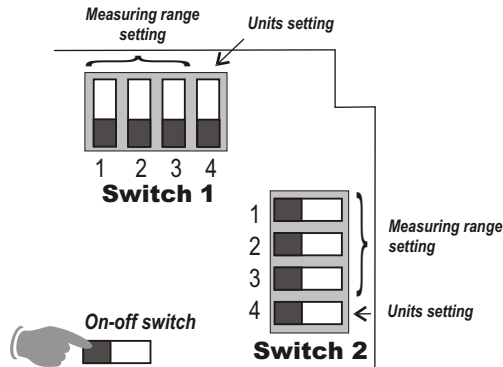
It is possible to configure the measuring ranges, the units, the output of the transmitter (according to the model) either by DIP switch and/or via software (connections ③ / ④ and ① on drawing "connection").

### Configuration by DIP switch

To configure the instrument, please unscrew the 2 screws from the housing.



#### Identification of the DIP switch on the electronic board



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 beside). When the transmitter is configured, you can power it up.

#### Caution !

Please follow carefully the combinations beside with the DIP switch. If the combinations are wrong, the following message will appear on the display of the transmitter "CONFERROR". In that case, you will have to unplug the transmitter, replace the DIP switches correctly, and then power the transmitter up.

#### Units setting

To set the measuring unit, put the on-off switch 4 of units as shown beside.

Configurations	Switch 1 TM100 AC - Output 4-20mA - Active		Switch 2 TM 100V - Output 0-10V - Active TM 100 A - Output 4-20mA - Passive	
	°C	°F	°C	°F
Combinations	 1 2 3 4	 1 2 3 4	 1 2 3 4	 1 2 3 4

#### Measuring range setting

To set the measuring range, put the on-off switches 1, 2 and 3 of the units, as shown beside.

Configurations	Switch 1 TM100 AC - Output 4-20mA - Active				Switch 2 TM 100V - Output 0-10V - Active TM 100 A - Output 4-20mA - Passive			
	0 to 50°C	-20 to 80°C	-50 to 50°C	0 to 100°C	0 to 50 °C	-20 to 80 °C	-50 to 50 °C	0 to 100 °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	 1 2 3 4	 1 2 3 4

## ■ Initialization of the transmitter

When the transmitter is powered up, it initializes and displays the digits  $\boxed{0000}$ , and then its configuration including :

- **The measuring range.** - **The analog output**

### 1- The measuring range.

The following message is displayed :  $\boxed{Lo}$ . This is the low value of the measuring range, and its digit value : **eg** :  $\boxed{0}$

The following message is displayed :  $\boxed{Hi}$ . This is the high value of the measuring range and its digit value **eg** :  $\boxed{50}$ .

The arrow displayed (at the bottom or on the right of the screen) is relative to the unit of measurement : **eg** : from 0 to 50 °C.

### 2 - The analog output.

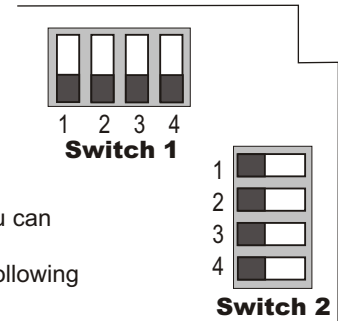
If the analog output is in 4-20 mA, then the following message will appear :  $\boxed{4-20mA}$ .

If the analog output is 0-10V, then the following message will appear :  $\boxed{0-10V}$ .

After the display of the configuration, the transmitter displays  $\boxed{- - - -}$ , which confirms that the initialization is finished and you can start the measurements.

## ■ Configuration via software

(with optional LCC100 software)



### An easy and friendly configuration with the software !

You can configure your own intermediary ranges, the offset....

Example : for a transmitter with a range of 0-100°C, the minimum delta of the range is 20°C. You can also configure your transmitter from 0 to +70°C, or from -10 to +10°C...

• To access the configuration via software, you must first position the **DIP switches** as per the following picture (shown beside), and then connect the cable to the transmitter (see beside and see "Connection").

• **Please refer to the user manual of the LCC100 to make the configuration.**



### Caution !

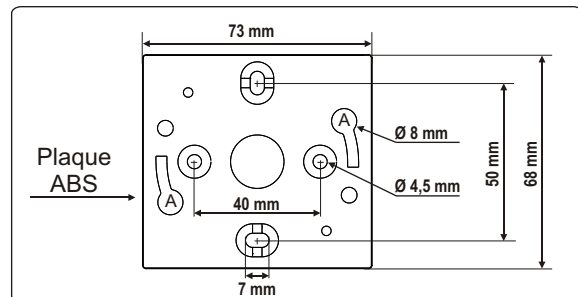
The configuration of the parameters can be done **either by DIP switch, OR via software** (you cannot combine both solutions).



## ■ Mounting

Installation: mount the ABS plate on the wall (this plate is supplied with the transmitter). Drilling :  $\varnothing 6$  mm (with the screws and pins supplied with the transmitter).

Insert the transmitter at 30 ° on the plate (see A on the drawing beside) and rotate its housing in clockwise direction until you hear a "click" which confirms that the transmitter is correctly installed.



## ■ Maintenance

Please avoid any aggressive solvent.

Please protect the transmitter and its probes from any cleaning product containing formol, that may be used for cleaning rooms or ducts.

## ■ Options

- Power supply class 2, input 230 Vac, output 24 Vac, ref.KIAL-100A
- Configuration software LCC 100 with RS 232 cable.
- Temperature probes Pt100 3 wires



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