New

TH100 *duct mount*

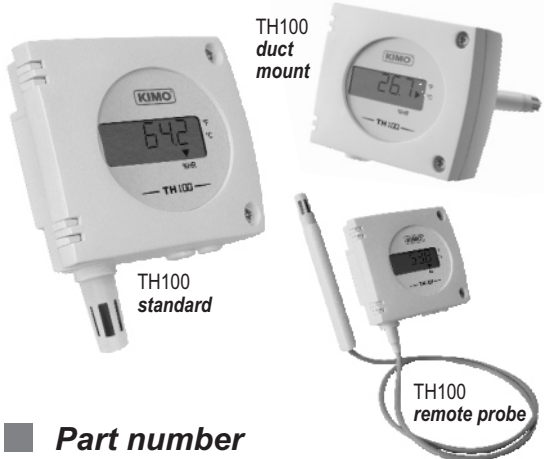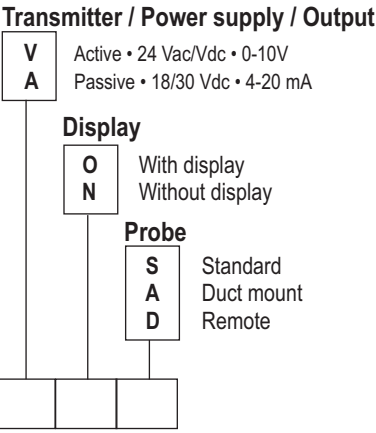TH100 *standard*

TH100 *remote probe*

Temperature and humidity transmitter
TH 100

CE

- *Humidity and temperature transmitter type TH100.*
- *Measuring ranges 0-100%RH and -50 to +50°C, -20 to +80°C, 0 to +50°C, 0 to +100°C (see "Configuration")*
- *0-10 V output, active sensor, power supply 24 Vac/Vdc (3-4wires) or 4-20 mA output, passive loop, power supply 18 to 30 Vdc (2 wires).*
- *Housing ABS IP 65 with or without display.*
- *Alternating display of humidity and temperature*
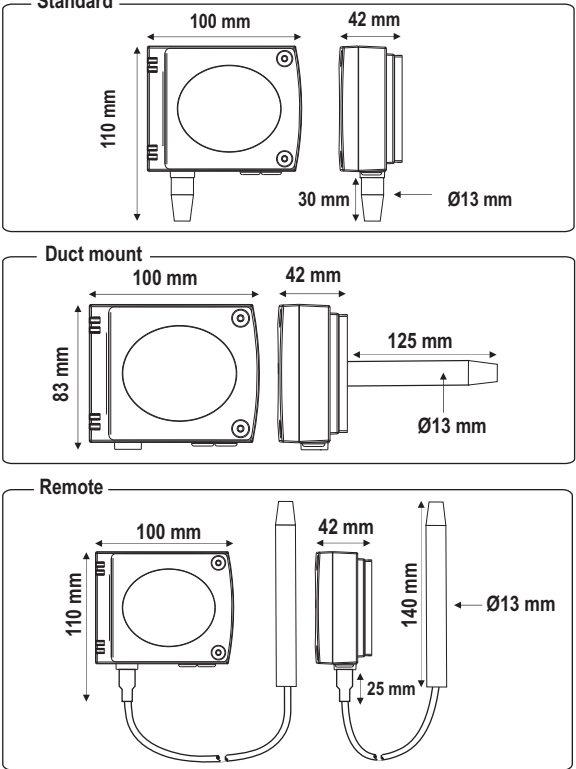- *Quick and easy mounting "1/4 turn" system on wall-mount plate.*

■ *Part number*

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

Transmitter / Power supply / Output

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

Display

O	With display
N	Without display

Probe

S	Standard
A	Duct mount
D	Remote

TH100 - [ ] [ ] [ ]

Example : TH100-VOD
Model : temperature and humidity transmitter TH 100, active sensor, 0-10 V output, with display and remote probe.

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

Standard

100 mm
42 mm
110 mm
30 mm
Ø13 mm

Duct mount

100 mm
42 mm
83 mm
125 mm
Ø13 mm

Remote

100 mm
42 mm
110 mm
140 mm
Ø13 mm
25 mm

■ *Features of the transmitter*

Humidity

Working principle : the measurement of temperature and humidity is made by only one digital component CMOS (complementary metal-oxyde semiconductor), including a capacitive element and a thermistor.
This technology guarantees an excellent stability in the long term, along with a great accuracy of the measurement.

Measuring range	0 to 100 % RH
Unit of measurement	% RH
Response time	1/e (63%) 4 s
Resolution	0,1% RH
Type of fluid	air and neutral gases

HYGROMETRY PROBE :
Guaranteed Accuracy Limits* (GAL) = ±2,95 % RH between 18 and 28°C (normal measurement range)
Measuring range : 0 to 100%RH
Short-term drift : 1% RH / year

* As per norm NFX 15-113 and the Charter "2000-2001 HYGROMETERS.

* GAL= Et + Ehl + k $(uet^2 + ur^2 + ud^2 + us^2)1/2$
As per the Charter 2000/2001 Hygrometers with :
uet : uncertainty of calibration = ± 0,55% RH
ur : uncertainty of resolution = ± 0,003% RH
ud : manufacturing dispersion = ± 0,2% RH
us : comparison repeatabiity = 0,13% RH
Et : temperature coefficient error = ± 0,42%RH
Ehl : linearity and hysteresis errors = ± 1,33% RH
k : coverage factor value = 2

Temperature

Measuring range	0 to +50°C, -20 to +80°C, -50 to +50°C, 0 to +100°C
Unit of measurement	°C, °F
Accuracy *	±1% of reading ±0,4°C in the range 5 to 80°C
	±2% of reading ±0,6°C in the range -20 to 5°C
Response time	1/e (63%) 15 s
Resolution	0,1°C
Type of fluid	air and neutral gases

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

WITH or WITHOUT **display**

■ *Features of the housing*

Housing	ABS
Fire-proof classification	HB as per UL94
Dimensions	see drawing beside
Protection	IP65
Display	5-digit LCD. Dimensions 50 x 15 mm
	Alternating display of humidity and temperature.
Height of the digits	10 mm
Cable grip	for cable Ø 7 mm maxi.
Weight	145 g (with display) - 110g (without display)

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▪ *Technical Specifications*

Output / Power supply...........active 0-10 V (power supply 24 Vac/Vdc ±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)
Electro-magnetical compatibility ...EN 61326
Electrical connection......................screw terminal block for cable Ø 1.5 mm²
max.

Communication to PC.................. Kimo RS 232 cable
Working temperature(housing) ....0 to +50°C
Working temperature (probe).......0 to +50°C (standard)
-20 to +80°C (remote and duct mount)
Storage temperature....................-10 to +70°C
Environment.................................air and neutral gases
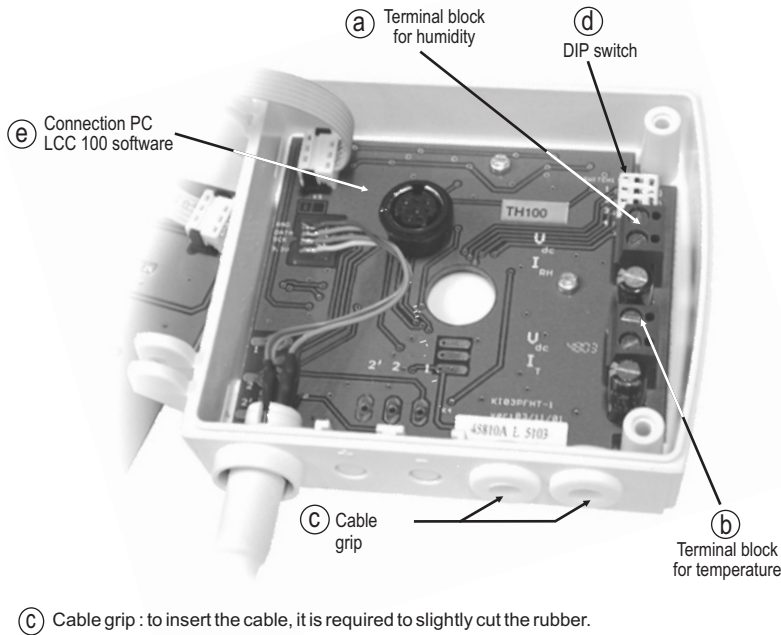**Warm up time** ....30 minutes

▪ *Connection*

For the models
TH 100 - AOS, TH100 - ANS, TH 100 - AOD, TH 100 - AND, TH 100 - AOA, TH 100 - ANA • Output 4-20 mA - passive loop

ⓐ Terminal block for humidity
ⓓ DIP switch
ⓔ Connection PC LCC 100 software
ⓒ Cable grip
ⓑ Terminal block for temperature

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

ⓐ Vdc......direct voltage
IRH ....direct current (humidity)

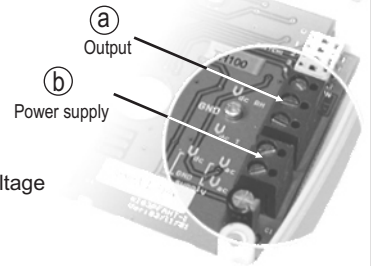ⓑ Vdc ......direct voltage
IT ....direct current (temperature)

For the models
TH 100 - VOS, TH100 - VNS, TH 100 - VOD, TH 100 - VND, TH 100 - VOA, TH 100 - VNA • Output 0-10 V - active

ⓐ Vdc RH ..direct voltage (humidity)
GND ......ground
Vdc T .....direct voltage (temperature)

ⓐ Output
ⓑ Power supply

Power supply
ⓑ Vdc ......direct voltage
GND ....ground

or

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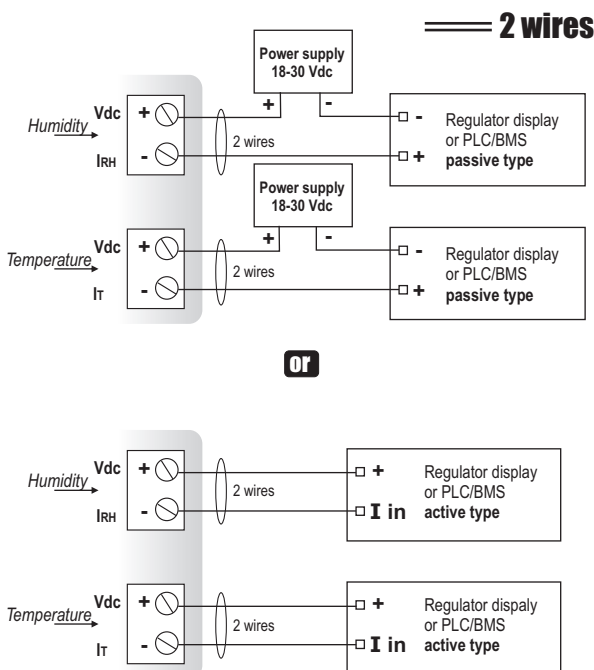Vac.......alternative voltage (neutral)

▪ *Electrical connection - as per norm NFC15-100*

⚠ This connection must be made by a qualified technician. **To make the connection, the transmitter must not be energized.**
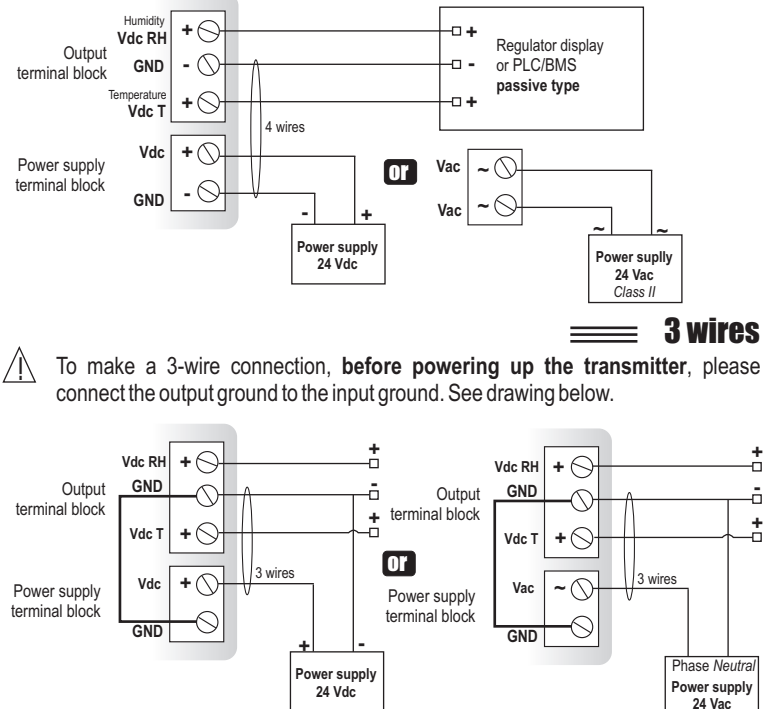
For the models
TH 100 - AOS, TH100 - ANS, TH 100 - AOD, TH 100 - AND, TH 100 - AOA, TH 100 - ANA • Output 4-20 mA - passive

≡ **2 wires**

Humidity → Vdc + / IRH −
Power supply 18-30 Vdc + / −
2 wires
Regulator display or PLC/BMS **passive type** − / +

Temperature → Vdc + / IT −
Power supply 18-30 Vdc + / −
2 wires
Regulator display or PLC/BMS **passive type** − / +

or

Humidity → Vdc + / IRH −
2 wires
Regulator display or PLC/BMS **active type** + / I in

Temperature → Vdc + / IT −
2 wires
Regulator dispaly or PLC/BMS **active type** + / I in

For the models
TH 100 - VOS, TH100 - VNS, TH 100 - VOD, TH 100 - VND, TH 100 - VOA, TH 100 - VNA • Output 0-10 V - active

≡ **4 wires**

Humidity Vdc RH + / GND − / Temperature Vdc T +
Output terminal block
Regulator display or PLC/BMS **passive type** + / − / +

4 wires

Power supply terminal block
Vdc + / GND −

or Vac ~ / Vac ~

Power supply 24 Vdc − +
Power supply 24 Vac − +
Class II

≡ **3 wires**

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

Vdc RH + / GND / Vdc T +
Output terminal block
+ / − / +

Vdc + / GND −
Power supply terminal block
3 wires

Power supply 24 Vdc + −

or

Vdc RH + / GND / Vdc T +
Output terminal block
+ / − / +

Vac ~ / GND
Power supply terminal block
3 wires

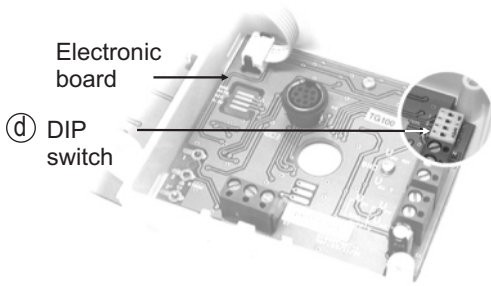Phase *Neutral*
Power supply 24 Vac

■ 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 ⓔ and ⓓ on drawing "connection).

### ▪ Configuration by **DIP switch**

To configure the instrument, please unscrew the 2 screws from the housing, and then open it .

Identification of the DIP switches on the electronic card

Electronic board

ⓓ DIP switch

1 ⟩
2 ⟩ *Measuring range setting*
3
4 ← *Units setting*

DIP switch

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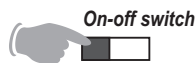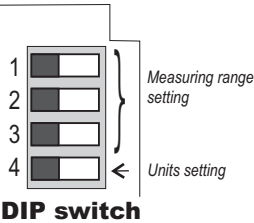
To configure the transmitter, **it must not be energized.** Then, you can make the settings required, with the DIP switches (as shown on the drawing beside). When the transmitter is configured, you can power it up.
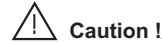
⚠ **Caution !**

Please follow carefully the combinations beside with the DIP switch.
If the combination are wrongly done, the following message will appear on the display of the transmitter **"CONF ERROR"**.
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	°C	°F
Combinations	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 measuring range as shown beside.

Configurations	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

▪ Initialization **the transmitter**

When the transmitter is powered up, it initializes and displays the digits `0.0.0.0.`, and then its configuration including :
- the measuring range   - the analog output.

1- The measuring range
The following message is displayed : `Lo`. This is the low value of the measuring range, and its digit value : *ex :* `0`.
The following message is displayed : `HI`. This is the high value of the measuring range and its digit value : *ex :* `100`.
The arrow displayed (at the bottom or on the right of the screen) is relative to the unit of measurement : *ex :* from 0 to 100 %RH.

2 - The analog output
If the analog output is in 4-20mA, then the following message will appear `4-20A`.
If the analog output is 0-10 V, then the following message will appear `0-10V`.

The transmitter can measure several parameters (TH 100 => humidity + temperature). The transmitter will first display the configuration of humidity parameters, and secondly the configuration of temperature parameters.

After the display of the configurations, the transmitter displays `- - - - -`, which confirms that the initialization is finished and you can start the measurements.

■ *Configuration by **software*** (LCC100 coming in option)

An easy and friendly configuration with the software !
You can configure your own intermediary ranges, the offset...

Example :
• For a transmitter from 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...
• In order to avoid any eventual drift of the transmitter, you can add an offset to the value displayed by the TH 100. For example : the TH100 displays 48%RH, a standard instrument displays 45%RH. Then, you can integrate an offset of -3 to the value displayed by the TH 100, thanks to the LCC100 software.
To have access to the configuration with software, **first of all,** it is required to **set the DIP switch as shown below,** then to connect the cable to the transmitter (see beside and see "Connection").
**To make the configuration, please refer to the user manual of the LCC 100.**
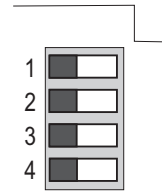
⚠ **Caution !**

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

1
2
3
4
DIP switch

■ *Mounting*

To make the wall-mounting, install the ABS plate onto the wall (this plate is supplied with the transmitter). Drilling : Ø 6 mm (with the screws and pins supplied with the transmitter).
Insert the transmitter on the plate (see A on the drawing beside) and make its housing rotated in clockwise direction till you hear a "click", which confirms that the transmitter is correctly installed).
For the model with duct want an additional drilling of Ø 14 mm must be done.

ABS plate

73 mm
A
Ø 8 mm
Ø 4,5 mm
50 mm
68 mm
40 mm
7 mm
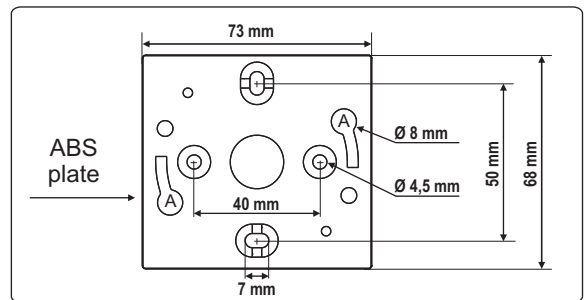
■ *Maintenance*

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 cable RS 232

■ *Accessories*

- ■ Stainless steel connection
- ■ PC connection gland
- ■ ABS connection with connection gland
- ■ Stainless steel connections
- ■ Wall-mount plate for humidity remote probe

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