Humidity and temperature transmitter
TH 110

KEY POINTS

- Measuring range from 5 to 95% RH and from 0 to 50°C (ambient model) or from -20 to +80°C (duct or remote model)
- 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 (duct or remote model) or IP20 (ambient model), with or without display
- Alternating display of humidity and temperature
- “¼ turn” system mounting with wall-mount plate
- Housing with simplified mounting system

FEATURES OF HOUSING

<table>
<thead>
<tr>
<th>Material</th>
<th>ABS V0 as per UL94</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection</td>
<td>IP65 (duct and remote models)</td>
</tr>
<tr>
<td></td>
<td>IP20 (ambient model)</td>
</tr>
<tr>
<td>Display</td>
<td>LCD 10 digits. Size: 50 x 17 mm</td>
</tr>
<tr>
<td></td>
<td>Alternating display of humidity and temperature</td>
</tr>
<tr>
<td>Height of digits</td>
<td>Values: 10 mm</td>
</tr>
<tr>
<td></td>
<td>Units: 5 mm</td>
</tr>
<tr>
<td>Cable gland (remote and duct models)</td>
<td>For cables Ø8 mm maximum</td>
</tr>
<tr>
<td>Weight</td>
<td>124 g (ambient model); 135 g (duct and remote models)</td>
</tr>
<tr>
<td>Cable of remote probes</td>
<td>length 2 m and Ø4.8 mm in silicone</td>
</tr>
</tbody>
</table>

PART NUMBER

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

Example: TH110 – ANS
Humidity and temperature transmitter TH110, 0-10 V active, without display, ambient model
### 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 1.2 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 mm² 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

#### CONDITIONS OF USE
- °C/%RH/m
  - From 0 to +50°C. In non-condensing condition. From 0 to 2000 m.
  - Operating temperature of the probe: From -20 to +80°C
  - Storage temperature: From -10 to +70°C

### TECHNICAL FEATURES IN HUMIDITY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range</td>
<td>From 5 to 95% RH</td>
</tr>
<tr>
<td>Analogue output</td>
<td>From 0 to 100% RH</td>
</tr>
<tr>
<td>Accuracy*</td>
<td>±1.5% RH (if 15°C ≤ T ≤ 25°C) on remote and duct models; ±1.8% RH (if 15°C ≤ T ≤ 25°C) on ambient model</td>
</tr>
<tr>
<td>Drift linked to temperature</td>
<td>±0.04 x (T-20) % RH (if 15°C ≤ T ≤ 25°C)</td>
</tr>
<tr>
<td>Unit of measurement</td>
<td>% RH</td>
</tr>
<tr>
<td>Response time</td>
<td>1/e (63%) 4 s</td>
</tr>
<tr>
<td>Type of sensor</td>
<td>Capacitive</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1% RH</td>
</tr>
<tr>
<td>Factory adjustment uncertainty</td>
<td>±0.88% RH</td>
</tr>
<tr>
<td>Type of fluid</td>
<td>Air and neutral gases</td>
</tr>
</tbody>
</table>

*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 FEATURES IN TEMPERATURE

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range</td>
<td>Ambient model: from 0 to 50°C; Remote and duct models: from -20 to +80°C</td>
</tr>
<tr>
<td>Accuracy*</td>
<td>Ambient model: ±0.4% of reading ±0.3°C; Remote and duct models: ±0.3°C (from -40°C to 70°C); ±0.5°C beyond</td>
</tr>
<tr>
<td>Unit of measurement</td>
<td>°C / °F</td>
</tr>
<tr>
<td>Response time</td>
<td>1/e (63%) 15 s</td>
</tr>
<tr>
<td>Sensitive element</td>
<td>NTC</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1°C</td>
</tr>
<tr>
<td>Type of fluid</td>
<td>Air and neutral gases</td>
</tr>
</tbody>
</table>

### CONNECTIONS

- **Inside the front housing**
  - Inactive switch
  - Active switch
- **Removable front face**
  - LCC-S connection
- **Fixed back housing**
  - Power supply terminal block
  - Cable gland
  - Output terminal block

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Produkte, Support und Service
For TH110-POS, TH110-PNS, TH110-POD, TH110-PND, TH110-POA, TH110-PNA models with 4-20 mA output – passive:

- **Configuration**
  It is possible to set the measuring ranges and the unit of the instrument either by switch and/or via software.

  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.

- **Configuration by switch**
  To configure the transmitter, unscrew the 4 screws from the housing then open it. DIP switches allowing the different settings are then accessible.

Please follow carefully the combinations beside with the DIP switch. If the combination is 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, place the DIP switches correctly, and then power the transmitter up.

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**ELECTRICAL CONNECTIONS** – as per NFC15-100 standard

- **Display/regulator/PLC passive type**
  - Power supply 24 Vac class II
  - VT GND VRH
  - N L

- **Display/regulator/PLC active type**
  - Power supply 16-30 Vdc
  - VT GND VRH
  - IT Vdc

For TH110-AOS, TH110-ANS, TH110-AOD, TH110-AND, TH110-AOA, TH110-ANA models with 0-10 V output – active:

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

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**SETTNGS AND USE OF THE TRANSMITTER**

- **On-off switch**
  - OFF On

- **Output setting**
  - 1 2 3 4

- **Unit setting**
  - 5 6 7

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- Units setting – active switch
To set a unit of measurement, put the on-off switch 4 of the units as shown below.

<table>
<thead>
<tr>
<th>Configurations</th>
<th>°C</th>
<th>°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combinations</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

- Outputs setting – active switch
To set an output, put the on-off switches 1, 2 and 3 of the measuring ranges as shown below.

<table>
<thead>
<tr>
<th>Configurations</th>
<th>From 0 to +50°C</th>
<th>From -20 to +80°C</th>
<th>From -50 to +50°C</th>
<th>From 0 to 100°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combinations</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

CONFIGURATION VIA LCC-S SOFTWARE (option)
An easy and friendly configuration with the software!
It is possible to configure intermediate ranges, an offset
Example: for a 0-100°C transmitter, minimum delta minimum is 20°C. The instrument can be configured from 0 to +20°C or from -10 to +10°C.
In order to compensate a possible drift of the sensor, it is possible to add an offset to the displayed value by the TH110 transmitter: it shows 48% RH, a standard instrument shows 45% RH. It is then possible, via the software, to integrate an offset of -3 to the displayed value by the TH110 instrument.
- 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.

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

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.

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

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.