



# TRH42

## ACTIVE HUMIDITY AND TEMPERATURE PROBE WITH 4... 20 mA OUTPUTS



## OPERATING INSTRUCTIONS

Vr 01 (ENG) - 18/11 - cod.: ISTR-MTRH42ENG01

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## PREFACE



This manual contains the information necessary for the product to be installed correctly and also instructions for its maintenance and use; we therefore recommend that the utmost attention is paid to the following instructions and to save it.

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Whenever a failure or a malfunction of the device may cause dangerous situations for persons, thing or animals, please remember that the plant has to be equipped with additional electromechanical devices which will guarantee safety.

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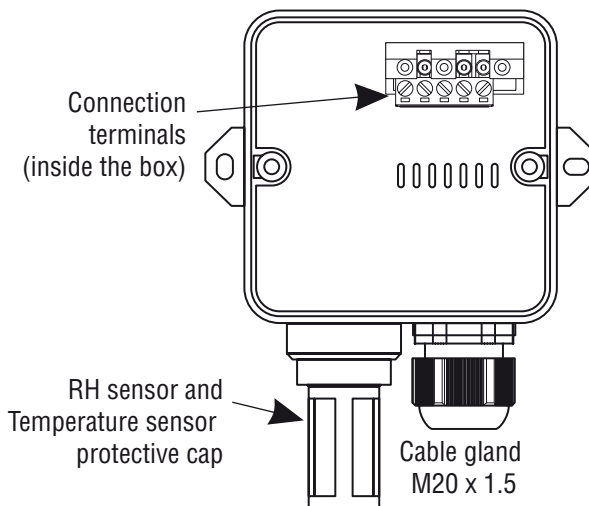
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## 1. INSTRUMENT DESCRIPTION

### 1.1 General description

TRH42 is a relative humidity and temperature probe with digital sensors and 4... 20 mA normalized current output signals.

### 1.2 Probe description



## 2. USAGE WARNINGS

### 2.1 Admitted use



The device has been designed as a measuring transducer.

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel.



The installer must ensure that the EMC rules are respected, also after the instrument installation, if necessary using proper filters.

### 3. INSTALLATION WARNINGS

#### 3.1 Mechanical mounting

The device, in an 80 x 80 mm plastic container, is designed for wall mounting using screws passing through the slotted holes on the case.

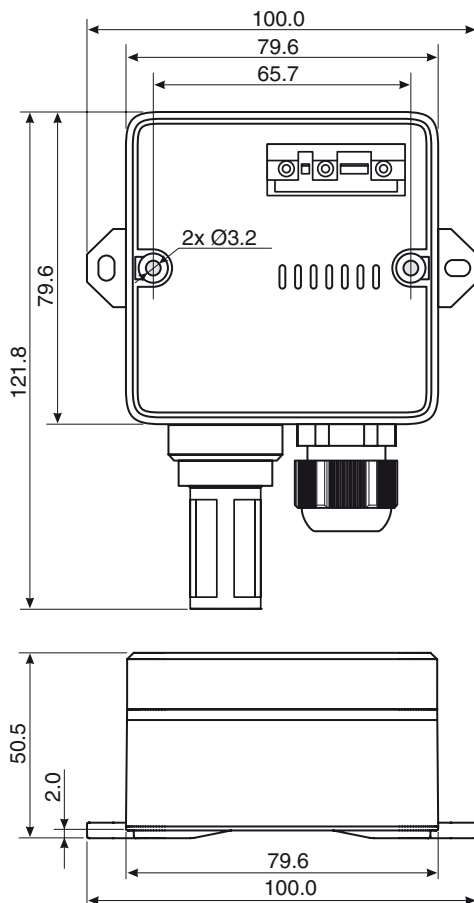
- Install the instrument as far as possible from electromagnetic sources as motors, power relay, relays, electrovalves, etc.;
- Avoid to place the probe into places where are present corrosive and polluting gases and to do so that the probe are installed in a ventilated position;
- The signal cables of the device must be routed separately from the power cables.



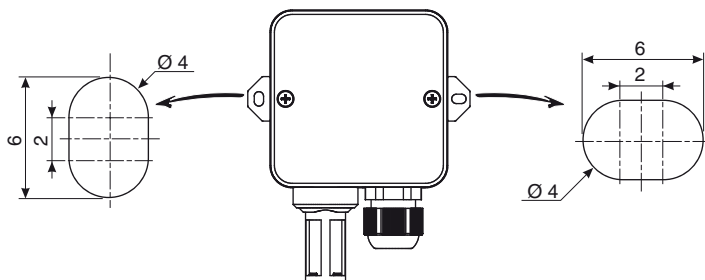
Should be necessary to remove the protective cap, do not cause any mechanical stress to the sensor and absolutely avoid touching the Humidity sensor surface.

#### 3.2 Dimensions [mm]

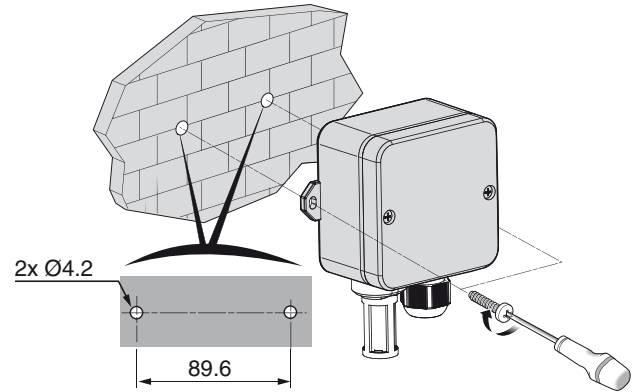
##### 3.2.1 Mechanical dimensions



##### 3.2.2 Dimensions of the mounting slotted holes

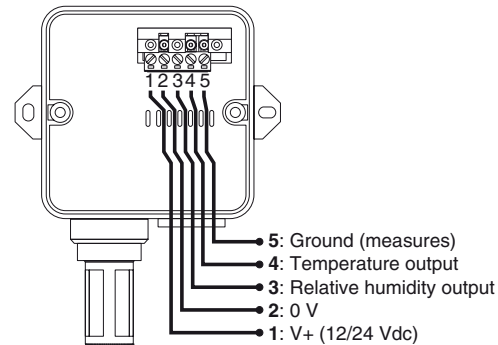


##### 3.2.3 Mounting holes

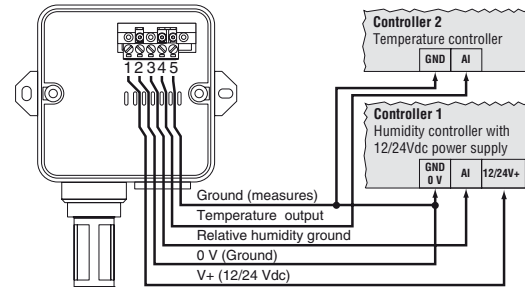


#### 3.3 Electrical connections

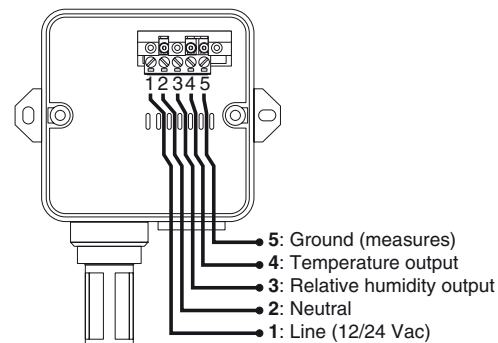
##### 3.3.1 Vdc power supply



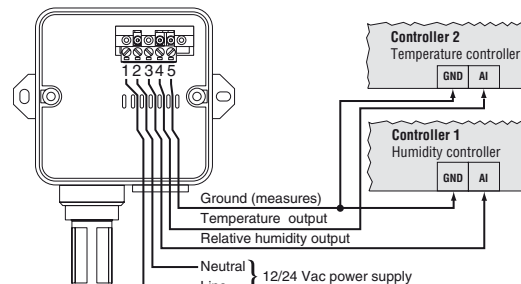
##### Connection example



##### 3.3.2 Vac power supply



##### Connection example



## 4. OPERATING MODE

The controller(s) to which the probe must be connected must be provided with 4... 20 mA current inputs.

To have a correct measure indication is necessary to set the lower and upper input limits.

These limits determine the values that the instrument must display when 4 mA (lower limit or start of scale) and when 20 mA (upper limit or full scale limit) circulates in the input circuit.

Consult the controller user manual to see for how these limits are to be set.

### 4.3.1 Values to be set on the controller

- Lower humidity measurement limit (4 mA): **0%**;
- Humidity measurement upper limit (20 mA): **100%**;
- Lower temperature measurement limit (4 mA): **-40°C**;
- Upper temperature measurement limit (20 mA): **+ 60°C**.

## 5. PROBLEMS AND MAINTENANCE

### 5.1 MeaDisposalsurements errors

Reading errors can occur if settling time is too short, or be caused by steam, sprayed water, air drafts, direct exposure to sunlight, or presence of condensation on the sensor.

To obtain accurate measurements the sensor should be left to settle in the existing atmosphere for some time.

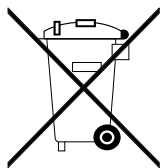
To reduce the possibility of condensation on the humidity sensor place the probe in ventilated position and where there is not a quick and elevation variation of temperature (from cold to warm).

### 5.2 Cleaning

It is recommended to clean the box only with a cloth wetted with water or with a detergent neither abrasive nor containing solvents.

Should be necessary to remove the protective cap, do not cause any mechanical stress to the sensors and absolutely avoid touching the Humidity sensor surface.

### 5.3 Disposal



The appliance (or the product) must be disposed of separately in compliance with the local standards in force on waste disposal.

## 6. WARRANTY

The instrument is under warranty against manufacturing flaws or faulty material, that are found within 18 months from delivery date. The warranty is limited to repairs or to the replacement of the instrument.

The eventual opening of the housing, the violation of the instrument or the improper use and installation of the product will bring about the immediate withdrawal of the warranty effects.

In the event of a faulty instrument, either within the period of warranty, or further to its expiry, please contact our sales department to obtain authorisation for sending the instrument to our company.

The faulty product must be shipped to Ascon Tecnologic with a detailed description of the faults found, without any fees or charge for Ascon Tecnologic, except in the event of alternative agreements.

## 7. TECHNICAL DATA

### 7.1 Electrical characteristics

**Power supply:** 9... 28 Vac, 9... 40 Vdc [Use only SELV type CLASS 2 power supplies ( $\leq 15$  W)];

**Power consumption:** 50 mA max.;

**Maximum load resistance for 4...20 mA output:** 350  $\Omega$  at 9 Vdc;

**Software class:** A;

**Relative humidity sensor type:** Digital;

**Temperature sensor type:** Digital;

**Relative humidity signal output:** 4... 20 mA (0... 100%RH);

**Temperature signal output:** 4... 20 mA (-40... +60°C).

### 7.2 Mechanical characteristics

**Housing:** Plastic;

**Dimensions:** 80 x 80 mm, depth 50 mm;

**Weight:** 160 g approx.;

**Mounting:** Wall mounting (with sensor towards the bottom);

**Connections:** Screw terminals with 5 mm pitch;

**Connection wires:** 0.32... 2.0 mm (AWG 22...14);

**Recommended multipolar cable:** Cable  $\varnothing 6.0$ ... 12.5 mm (for UL 9... 12 mm/0.35... 0.47 in.);

**Enclosure rating:** IP 65;

**Action type:** 1;

**Environmental rating:** Internal usage, Type 1 enclosure;

**Pollution degree:** 2;

**Over-voltage category:** I;

**Rated impulse voltage:** 330 V;

**Period of electrical stress on the insulating parts:** Long period (IEC EN 60730);

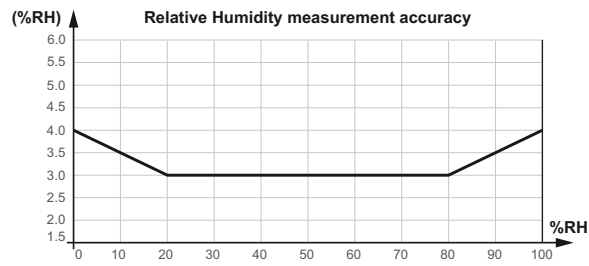
**Shipment and storage temperature:** -40... +80°C.

**Storage humidity:** 0... 100 RH% (without icing or condensation).

### 7.3 Functional features

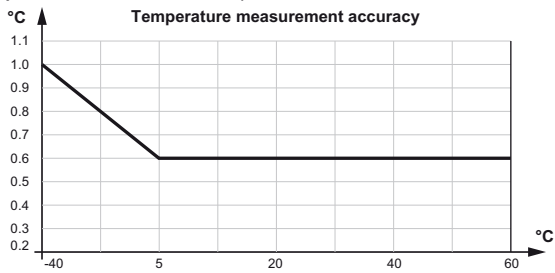
**Humidity range:** 0... 100%RH (4... 20 mA);

**Humidity overall accuracy:**  $\pm 3\%$  between 20... 80%RH  
(typical values at 25°C);



**Temperature range:** -40... 60°C (4... 20 mA);

**Temperature overall accuracy:**  $\pm 0.6^\circ\text{C}$  between 5... 60°C  
(typical values at 25°C);



**Response time in steady conditions** (Signal: 63%;  
%RH: 33...75 %; T: 25°C; Air flow: 1 m/s): 10 s;

**Humidity measurement recovery time after saturation:**  
Depending on the airflow;

**Current delivered in the event of sensor malfunction:** 3 mA;

**The product complies with the following harmonised standards:** UL/CSA/IEC/EN 60730-1 (Automatic electrical controls for household and similar use);

**Construction of control:** Operating (non-safety related)  
Independently mounted control;

**Purpose of control:** Humidity and/or temperature sensor;

**Conformity:** *UN EMC 2004/108/CE directive*  
(EN 61326, Electromagnetic compatibility),  
*UN LV 2006/95/CE directive*  
(Instrument operating under 50 VAC and 75 VDC).