



# TRH04

## HUMIDITY AND TEMPERATURE SENSOR WITH RS485 INTERFACE



### User manual

22/10 - Code: ISTR\_M\_TRH04\_E\_01\_--

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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 devices which will guarantee safety.

## 1. INSTRUMENT DESCRIPTION

### 1.1 General description

The **TRH04** temperature/humidity sensor uses the standard MODBUS-RTU RS485 protocol, easily accessible by PLCs, DCS and other instruments or systems for temperature and relative humidity monitoring.

**TRH04** uses a high-precision sensor and its conversion/re-transmission devices are of quality to ensure high reliability and excellent long-term stability.

## 2. USAGE WARNINGS

### 2.1 Admitted usage



The instrument has been projected and manufactured as a measuring and control device to be used according to EN60730-1 at altitudes operation below 2000 m.

Using the instrument for applications not expressly permitted by the above mentioned rule must adopt all the necessary protective measures.

The instrument **must not be used** in dangerous environments (flammable or explosive) without adequate protections.



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 Mounting requirements

Select a mounting location having the following characteristics:

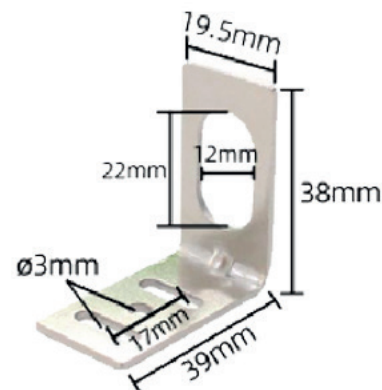
- It should be easily accessible;
- It must not be subjected to vibrations or impacts;
- Must be free from corrosive gases;
- Must be free from water or other fluids (condensation).

### 3.2 Dimensions (mm)

#### 3.2.1 TRH04



#### 3.2.2 Mounting bracket



### 3.3 Connections

#### **General notes on electrical connections**

- The probe cables must be kept separated from high power voltage wiring;
- If shielded cables are used, the protection shield must be connected to ground at one side only.

#### **3.3.1 Electrical wiring**

Colour		Connection
	Red	Power supply - Positive pole
	Green	Power supply - Negative pole
	Yellow	Terminal A+ RS485
	Blue	Terminal B- RS485

### 3.4 Communication protocol

The product uses the standard RS485 MODBUS-RTU protocol format, all operating and response commands are made up of hexadecimal data.

When the sensor is shipped, the RS485 communication settings are:

- Modbus Address: 1;
- Baud rate: 9600
- Data bits: 8;
- Parity: n (no parity);
- Bit di stop: 1.

#### **3.4.1 Variables Map**

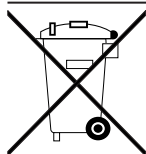
Address		Descrizione	no. of decimals	R/W
Dec.	Hex.			
0	00	Measured Temperature	2	R
1	01	Measured Humidity	2	R
102	066	Modbus Address	0	R/W
103	067	Baud rate	0	R/W
		1 2400		
		2 4800		
		3 9600		
		4 19200		
		5 38400		
		6 115200		
107	06B	Temperature offset (-10 ÷ +10)	2	R/W
108	06C	Humidity offset (-10 ÷ +10)	2	R/W

## 4. PROBLEMS AND MAINTENANCE

### 4.1 Cleaning

We recommend to clean the instrument with a slightly wet cloth using water and not abrasive cleaners or solvents only. Should it be necessary to remove the sensor, avoid to mechanical stress it and in particular avoid touching the humidity sensor.

### 4.2 Disposal



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

## 5. WARRANTY AND REPAIRS

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 Tecnologica with a detailed description of the faults found, without any fees or charge for Ascon Tecnologica, except in the event of alternative agreements.

## 6. TECHNICAL DATA

### 6.1 Technical characteristics

**Temperature range:** -30 ÷ 80°C;

**Temperature accuracy:** ±0.5°C @ 25°C;

**Humidity range:** 0 ÷ 100% RH;

**Humidity accuracy:** ±3% RH @ 25°C;

**Communication interface:** RS 485;

**Default data format:** 9600, 8, n, 1;

**Power supply:** 6 ÷ 24 VDC;

**Operating temperature** -40 ÷ 80°C;

**Operating Humidity** 5 ÷ 90% RH;

**Standard connection cable length:** 1 m.