



TRH03

HUMIDITY AND TEMPERATURE MODULE



Engineering manual

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INSTRUMENT DESCRIPTION

General description

TRH03 is a capacitive system for the measurement of relative humidity and temperature, all the components are installed on a single calibrated module that sends the measurements obtained via a digital communication interface.

TRH03 uses modern temperature and humidity detection technologies and sophisticated digital technologies for data conversion to ensure that the product has high reliability and excellent long-term stability.

The sensor includes a capacitive humidity sensor and high-precision temperature measurement devices connected with a high-performance 8-bit μ controller. The product has excellent quality, quick response and strong anti-jamming abilities. Each sensor is precisely calibrated in a humidity calibration chamber. The specifications of the construction procedures, the calibration coefficients stored in the microcontroller, the sensor integrated in the computer to recall the calibration coefficients allow for stable readings over time.

Standard single-bus interface, system integration quick and easy. Small size, low power consumption, long signal transmission distance, making it the best choice for all kind of applications and even the most demanding applications. Products for the 3-lead (single-bus interface) connection convenience.

TRH03 can be conveniently used in HVAC, dehumidifier, testing and inspection equipment, consumer goods, automotive, automatic control, data loggers, home appliances, humidity regulator, medical, weather stations, and other humidity measurement and control and so on.

FOREWORD



This manual contains the information necessary for the installation of the product, we therefore recommend that the utmost attention is paid to the following instructions and to save it.

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Ascon Tecnologic and its legal representatives do not assume any responsibility for any damage to people, things or animals deriving from violation, wrong or improper use or in any case not in compliance with the instrument features.



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

Disposal



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

INSTALLATION INFORMATION

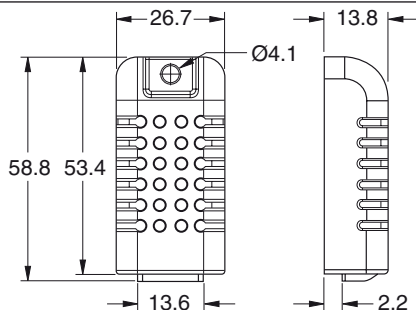
Mounting requirements

This instrument is intended for permanent installation, for indoor use only, in an electrical panel which encloses the rear housing, exposed terminals and wiring.

Select a mounting location having the following characteristics:

1. It should be easily accessible;
2. There is minimum vibrations and no impact;
3. There are no corrosive gases;
4. There are no water or other fluids (i.e. condensation).

Dimensions

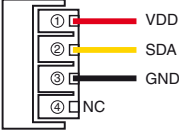


Electrical connections

General notes about wiring

- 1. Do not run input wires together with power cables.
- 2. When a shielded cable is used, the protection shield should be connected at one side only.

Pin assignement

Pin	Color	Name	Description	
1	Red	VDD	Power (3.3V-5.2V)	
2	Yellow	SDA	Serial data, Dual-port	
3	Black	GND	Ground	
4		NC	Empty	

TECHNICAL CHARACTERISTICS

Technical specifications

Characteristic	Relative Humidity	Temperature
Measuring range	0... 95%	-40... +80
Resolution	0.1% RH	0.1°C
Accuracy	±3% RH at 25°C	±0.3°C

Electrical specifications

Characteristic	Value
Supply voltage	3.3... 5.2 VDC
Power consumption	< 500 µA

General specifications

Characteristic	Value
External dimensions	26.7 x 58.8 x 13.8 (L x H x D)
Mounting	1 screws Ø4 mm max.
Sensor weight	About 14 g (without the connection cable)
Conection cable length	2 m
Work area	10... 20 m², with air circulation
Installation position	Horizontal or vertical
Working temperature	-40... 80°C
Ambient humidity	0... 95% (with no condensation)
Case material	PC + ABS

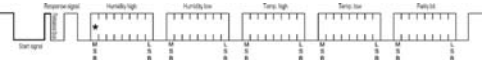
Single-bus communication

TRH03 device uses a simplified single-bus communication. Single bus because it uses only one data line.

Because the communications use the master-slave structure, only the host calls the sensor and the sensor will answer, so the host to access the sensor must strictly follow the sequence of the single bus protocol, if there is a sequence error, the sensor will not respond to the host.

Data definition

For communication and synchronization between the microprocessor and the TRH03, single-bus data format, a transmission of 40 data, the high first-out. Specific communication timing given in the image that follows.



HOW TO ORDER

TRH03 20 Relative Humidity and Temperature module with 2 m connection cable.