

TSH300

Humidity and temperature sensor



Short description

TSH300 is humidity and temperature sensor with an RS-485 interface. The device doesn't need external power supply, it is powered through the interface.

The humidity and temperature sensor integrates basic elements plus signals processing and provide a fully calibrated digital output. A unique capacitive element is used for measuring relative humidity while the temperature is measured by a band gap sensor. Both sensors are seamlessly coupled to a 12-bit analog to digital converter. This results in superior signal quality.

The sensor is delivered with one meter standard patch cable with RJ45 connectors. A 19" rack mount kit can be ordered separately.

Applications

- Server room and data centers humidity and temperature logging.
- Environmental quality monitoring and assessment.
- Humidity and temperature monitoring in building management systems.
- Humidity and temperature logging for mobile operator facilities, vineyards, greenhouses, etc.

Technical parameters

Parameter	Value	Units	Remark	Value	Units	Remark
Operating Range	0 to 100	%RH	non-condensing	-40 to +85	°C	
Accuracy (max)	±3.0	%RH	0 to 80 %RH	±0.4	°C	-10 to +85°C
Accuracy (max)	±5.0	%RH	80 to 100 %RH	±1.0	°C	-40 to +85°C
Resolution	0.1	%RH		0.1	°C	
Supply voltage (+VDD)	4 to 5.5	VDC	From RS-485 bus			
Max consumption	5	mA	From RS-485 bus			
Ingress protection	IP20					
Head's dimensions	85 x 35.1 x 23.5	mm				
Connectors	Two RJ-45	in parallel				

Usage

Can be used with following TERACOM controllers

- TCW210-TH



Pinout



8 1 8 1

Pin	Description	Corresponding UTP wires color
1	not connected (most left)	Orange/White Tracer
2	not connected	Orange
3	not connected	Green/White Tracer
4	Line B-	Blue
5	Line A +	Blue/White Tracer
6	not connected	Green
7	+VDD	Brown/White Tracer
8	GND	Brown

Status indicator

The status of the device is shown by single LED, located on the front panel:

- If the LED blinks on period of 1 second, sensors works properly;
- If the LED blinks on period of 3 seconds, there isn't communication with the controller;
- If LED doesn't blink, there isn't power supply.

Installation

A daisy-chained (linear) topology for multiple sensors should be used.

UTP/FTP cables with RJ-45 connectors are used for interconnection. The popular ANSI/TIA/EIA T568B wiring is used. Standard patch LAN cables are recommended.

Total cable length up to 30 m is recommended, although the RS-485 interface works over much longer distance.

The last sensor in the chain should have a terminator installed on the free RJ45 socket.



Installation tips

The location and the mounting position of sensors has a direct effect on the accuracy of monitoring the room humidity and temperature. The tips below will ensure good measuring results:

- Sensor shall be installed about 1.2-1.4 m above the floor;
- Sensor should not be installed next to windows to avoid solar radiation;
- Sensors shall be installed in a place with sufficient air circulation;
- Sensors shall be wall mounted with vent holes up/down to ensure air circulation.

RS-485 Bus

RS-485 is a standard for serial communications systems defined by Telecommunications Industry Association (TIA) and Electronic Industries Alliance (EIA).