User manual

# TPHP RS485

Thermometer and hygrometer connected via the RS485 interface

Temperature and humidity sensor connected to DC and DSC digital clock via the RS485 interface.


- Measures relative humidity within the range of 0 % to 100 %.
- Measures temperature within the range of -40 to +123.8 °C
- Possibility of temperature and humidity display on more than one device at the same time.
- Connection and communication via the RS485 bus, connection using only 4 wires (1 pair data, 1 pair power, UTP, STP or FTP cable is recommended for the distance of up to 1200 meters).
- Sensor “SD TPH”, IP 54
- Sensor is connected by a silicon cable with high temperature resistance.
- Power supply: 5 V to 30 V.
- Mountable on DIN 35 mm rail on request.

| **Engineering data** | **TPHP RS485** |
|---|---|
| Scope of measured temperatures | - 40°C to +123,8°C |
| Measuring accuracy | ±0.5 °C within the range of -10 °C to +85 °C; otherwise ±2 °C |
| Power supply | 5 – 30 VDC (max. 3mA) |
| Operating temperature | -40 .to.. +85°C |
| Humidity range | 0 % to 100 % |
| Resolution | 1% RH |
| Protection degree | IP 54 |
| Dimensions | 46 x 16 x 10 mm |
| Weight | approx. 80 g (without sensor) |
| Sensor connection cable | 3m length, (up to 20 meters upon request), silicon |
| Connectors | the terminal block (bus) for RS485 and power supply<br>Wires are connected to sensor via a removable terminal block with screws |
| Indication | green LED – power supply<br>yellow LED – data communication in progress |
| Data communication default parameters | 9600 Bd, 8 bits, 1 stop-bit, no parity |

## Possible version

### **TPHP RS485 M** – version with sensor on a cable

Electronics in an enclosure to be connected to an external sensor. The temperature and humidity sensor is separated from electronics. Sensor is in the metal box connected by highly resistant silicon cable. Sensor is sold separately.


**Electronics**

| | |
|---|---|
| Housing type | IP30 |
| Dimensions | 41.5 × 72 × 24 mm |
| Lines connection | plug-in connector |

**Sensor**

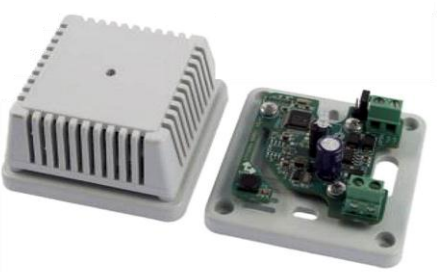
| | |
|---|---|
| Housing type | IP54 |
| Sensor mechanical | metal box |
| Design | 40 × 16 × 10 mm |

**Cable**

| | |
|---|---|
| Temperature resistivity | - 60 to + 200 °C |
| Cable sheathing | silicon cable, blue color |
| Diameter | ø 4,3 mm ( ± 0,1 mm) |
| Standard length | 3 m (maximum 20 meters) |

### **TPHP RS485 I – for indoor**

| | |
|---|---|
| Housing type | IP20 |
| Sensor design | plastic 5 x 5 x 5 mm |
| Dimensions | 62 x 62 x 28 mm |
| Lines connection | screw on terminal |



## Connection

### TPHP RS485 M

Connects with plug-in terminals, terminals are described on the box label


### TPHP RS485 I

RS 485 and supply lines connection by two separate terminal with screws inside of module (PWR, GND, RxTX+, RxTX-)

Notice: For detailed information visit the manufacturer's web site: www.papouch.com

## Connection of thermometer to the DC or DSC digital clock:

- the digital clock needs to be equipped with the RS485 interface (e.g. the SI version) and left out to the JP5 (RS485) connector
- the connection is done using four-core twisted pair cable, TP cable can be used too
- one of the twisted pairs is used for power supply, the other for data transmission
- set the DC Out output on pins 3 and 4 of the JP1 connector by configuration of JP17
- the pins will then serve as the power source to the thermometer
- using one twisted pair interconnect the pins 3 (+) and 4 (-) of the JP1 connector in the clock and + and – terminals on the thermometer, observe the polarity
- interconnect the pins A and B of the JP5 connector in the inside of the clock, and terminals Tx+ (RxTx+) and Tx- (RxTx-) on the thermometer using the other twisted pair, the A signal corresponds to Tx+ (RxTx+) and the B corresponds to Tx-(RxTx-)
- in case you need to connect other digital clock only the A, B and – signals must be connected in parallel, the + signal must not be connected

## Setting the DC and DSC digital clock

- set the P13 menu item of the clock to TPHP RS485 master, see the clock menu table of the corresponding device
- if more than one digital clock is connected then only one clock is allowed to work in the TPHP RS485 master mode, the other clocks have to be set to TPHP RS485 listener
- communication parameters P14 to P17 are set automatically to 9600 Bd, 8 data bits and 1 stop bit
- close the menu. Within approx. 20 seconds the digital clock should start displaying the measured temperature and humidity
- for temperature sensors can be set the correction of measured temperature in range -9 ÷ +9°C (°F) in the submenu of the P12 main menu item
- enter the submenu by pushing the SET button on the IR remote controller or by long push of the left button on the clock frame when the P12 item is displayed
- the c1: 0 is displayed, correction value for temperature 1 s blinking, the value can be changed using +- buttons on the IR controller or by pushing the right button on the frame
- after pushing the right arrow button on the IR controller or left button on the frame the c2: 0 is displayed, correction value for temperature 2 is displayed, value can be changed but it will not used
- saving the correction values and return to the main menu item P12 is done be pushing the OK button on the IR controller or by long push of the left button on the frame

## Warranty and repair

- device meets the following standards:
  IEC 60950-1 ed. 2 - electrical safety
  EN 55022 class B, EN 55024 - EMC
- The warranty does not apply to defects caused by
  - Improper handling or intervention
  - Chemical effects
  - Mechanical damage
  - The intervention of external events (natural disaster, etc.)

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