

# **MHS-DL01-RS232**

## **Temperature and Humidity Sensor Manual**

## 1. Functional Characteristics

- Support for the standard Modbus RTU protocol
- Support for the RS232 interface
- Supporting波特率 1200bps~115200bps
- The temperature measurements range from -40 to 125℃
- Humidity measurements ranged from 0 to 100% RH
- The temperature and humidity sensor adopts the double-layer waterproof and dustproof process
- With anti-surge, anti-transient, anti-reverse function

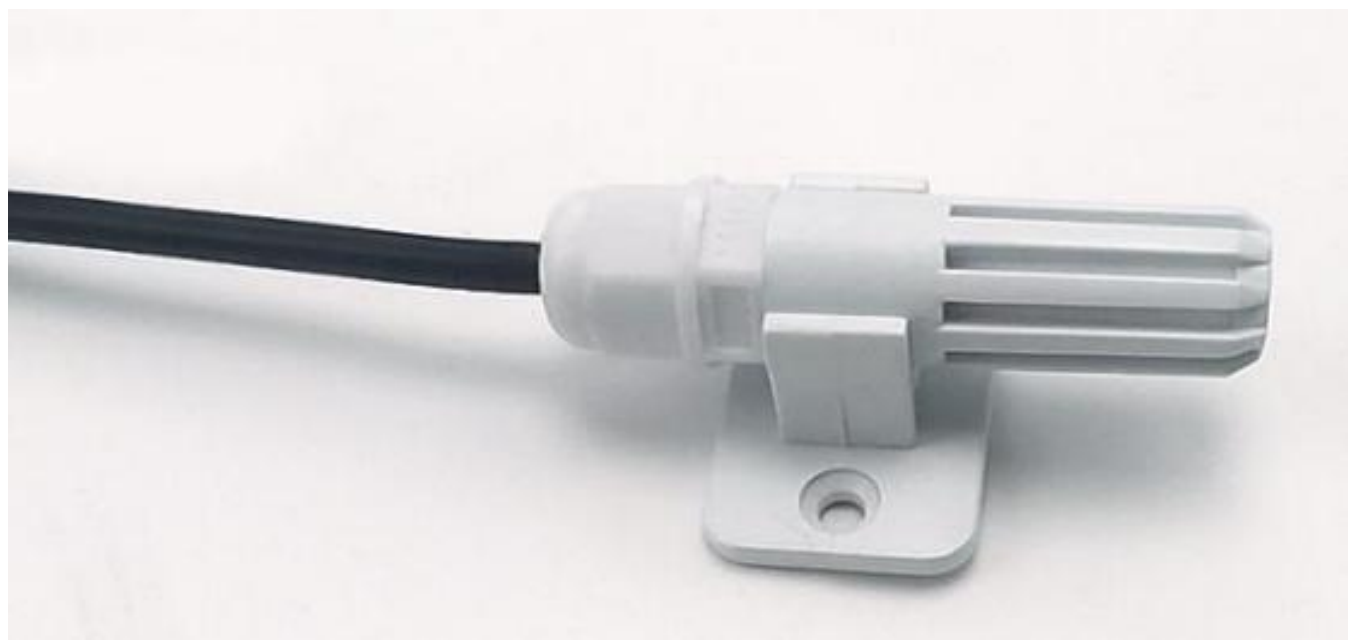
## 2. Product Overview

The temperature and humidity sensor can be communicated via an RS232 interface using the standard MODBUS RTU protocol. It utilizes the high-precision SHT40 measurement chip for stable performance. Internal parameters can be set on-site through software and saved permanently at one time. This sensor is widely applicable for refrigerated trucks, communication room, warehouse and other places that require requiring temperature and humidity detection.

## 3. Product Parameter

|                                               |                                              |
|-----------------------------------------------|----------------------------------------------|
| <b>Rated Voltage</b>                          | 3.3~5.5VDC                                   |
| <b>Power Consumption</b>                      | <5mA                                         |
| <b>Baud rate</b>                              | Default: 9600 (1200bps~115200bps)            |
| <b>Communicating Protocol</b>                 | Default: The Modbus RTU protocol             |
| <b>Temperature Measurement Range</b>          | Default: -40℃ ~ + 85℃                        |
| <b>Humidity Measurement Range</b>             | 0~100%RH                                     |
| <b>Temperature Measurement Accuracy(@25℃)</b> | ±0.2℃ (SHT40)                                |
| <b>Humidity Measurement Accuracy (@25℃)</b>   | ± 1.8%RH(SHT40)                              |
| <b>Measurement Resolution</b>                 | Temperature: 0.1℃, and humidity: 0.1% RH     |
| <b>Sampling Period</b>                        | 1s                                           |
| <b>Sensitivity Attenuation</b>                | Temperature: <0.1℃, Humidity: <0.1% RH       |
| <b>Temperature Unit</b>                       | ℃ / °F                                       |
| <b>Effective Working Area</b>                 | Recommended for 10 – 20 m <sup>2</sup> / PCS |

## 4. Product Display



## 5. Product Wiring Instructions

| Grade          | The wiring instructions | Explain                      |
|----------------|-------------------------|------------------------------|
| RS232/TTL: TXD | white                   | The sensor emits the data    |
| RS232/TTL: RXD | yellow                  | The sensor receives the data |

## 6. Storage Conditions and Precautions

Air relative humidity is a function of temperature. Air temperature has a significant influence on the relative humidity. Various compounds such as Acids, Alkalis, and Salts have a major effect on the physical properties of water vapor. The following precautions should be paid attention to during use:

① Temperature and humidity sensors should be installed in places where the temperature is relatively stable and most representative of the environment temperature and humidity being measured.

② Avoid installation in place with drastic temperature changes.

③ Avoid installation in places with intense air flow.

④ Avoid installation in the blind angle in non-air-flowing areas.

⑤ Avoid use in a salt spray environment.

⑥ Avoid the use in the corrosive gas environment.

⑦ Sensors exposed to extreme operating conditions or chemical vapors can be restored to the calibrated state by the following treatment:

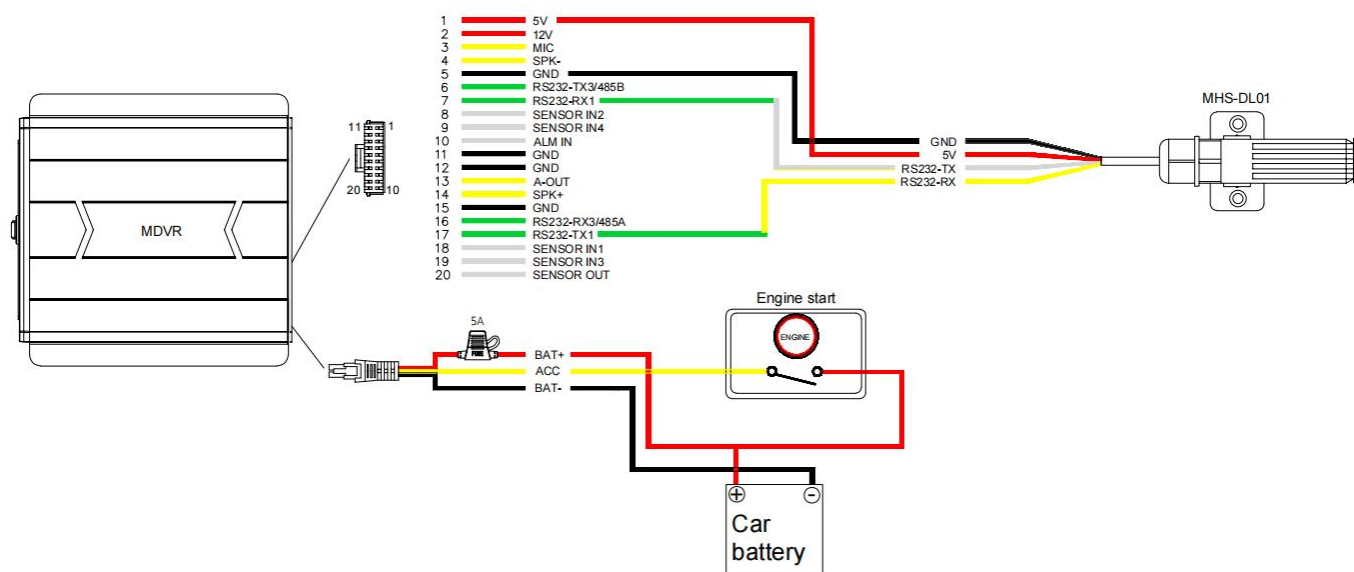
Drying: more than 10 hours at 80°C and <5% RH humidity.

Rehydration: maintain humidity for 20-30°C and > 75% RH humidity.

⑧ The internal temperature and humidity sensor and circuit of the module are protected with silicone rubber and have a waterproof and breathable outer shell. This effectively enhances device's lifespan in high humidity environments. However, it is still to avoid sensor immersion in water or prolonged use under conditions of high humidity with condensation.

## 7. Wiring configuration report

## 1) Wiring Diagram



## 2) Dashcam & MDVR Host Configuration

After completing the wiring, power on the main unit and accessories, connect your mobile phone to the main unit's Wi-Fi, and use the configuration app (MCTool) to configure the parameters. The specific configuration is as follows:

- ① MCTool > Setting > Peripheral > COM1  
Function selected as Temp-THII  
Type selection is 232  
Baud rate selected as 9600  
Others remain as default values.

<
COM1

peripheral

|           |           |   |
|-----------|-----------|---|
| Function  | Temp-THII | > |
| Type      | 232       | > |
| Baud Rate | 9600      | > |
| Data Bit  | 8         | > |
| Stop Bit  | 1         | > |
| Parity    | None      | > |

Save

② MCTool > Setting > Serial Information

Check whether the status of COM1 is normal.

<
Serial Information

|                 |           |
|-----------------|-----------|
| <b>Name</b>     | COM1      |
| <b>Function</b> | Temp-THII |
| <b>Status</b>   | normal    |
| <b>Remarks</b>  |           |

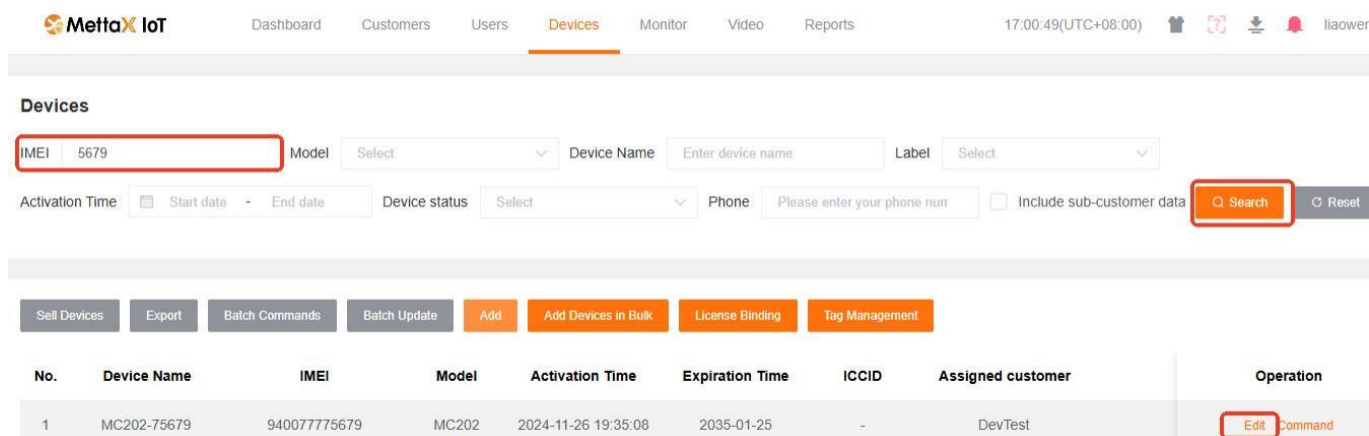
### 3) MettaXIOT Platform configuration

① Monitor

Please first ensure that the device has been launched on the MettaXIOT platform and has valid location information.

② Devices > IMEI > Search > Edit

Find the device you need to configure in the platform and edit it.



**Devices**

IMEI: 5679 Model: Select Device Name: Enter device name Label: Select

Activation Time: Start date - End date Device status: Select Phone: Please enter your phone num ☐ Include sub-customer data **Search** **Reset**

**Operations:** Sell Devices, Export, Batch Commands, Batch Update, **Add**, Add Devices in Bulk, License Binding, Tag Management

| No. | Device Name | IMEI         | Model | Activation Time     | Expiration Time | ICCID | Assigned customer | Operation           |
|-----|-------------|--------------|-------|---------------------|-----------------|-------|-------------------|---------------------|
| 1   | MC202-75679 | 940077775679 | MC202 | 2024-11-26 19:35:08 | 2035-01-25      | -     | DevTest           | <b>Edit</b> Command |

③ Sensor Configuration > Add Sensors  
Add a new Sensor

**MC202-75679(940077775679)**



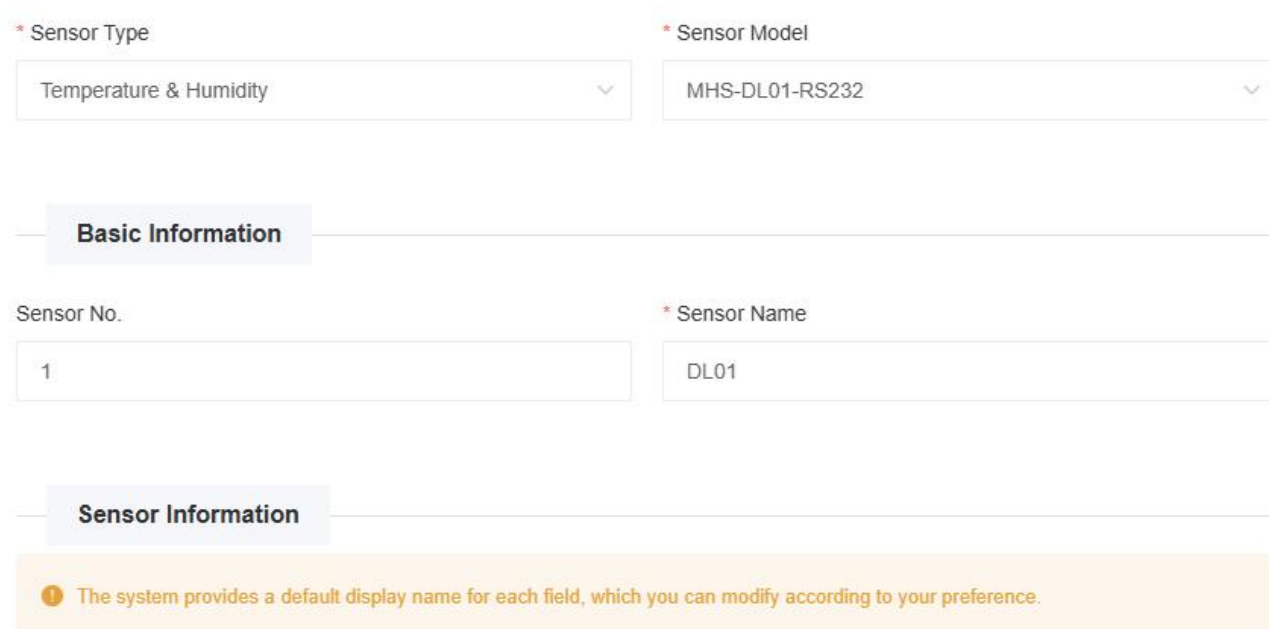
Basic Information Calculation Rules **Sensor Configuration** License Data Daylight Saving Time

**Add Sensors**

Sensor Type Select Temperature & Humidity  
Sensor Model Select MHS-DL01-RS232  
Sensor No. Set to 1  
Sensor Name can be customized as needed  
Use default values for other options

### Sensor Configuration

Get Sensor Value



\* Sensor Type: Temperature & Humidity

\* Sensor Model: MHS-DL01-RS232

**Basic Information**

Sensor No.: 1

\* Sensor Name: DL01

**Sensor Information**

**Note:** The system provides a default display name for each field, which you can modify according to your preference.

\* Number of channels

1

Item Name

Temperature(°C)-1

\* Alias Name

Temperature(°C)-1

Item Name

Humidity(%)-1

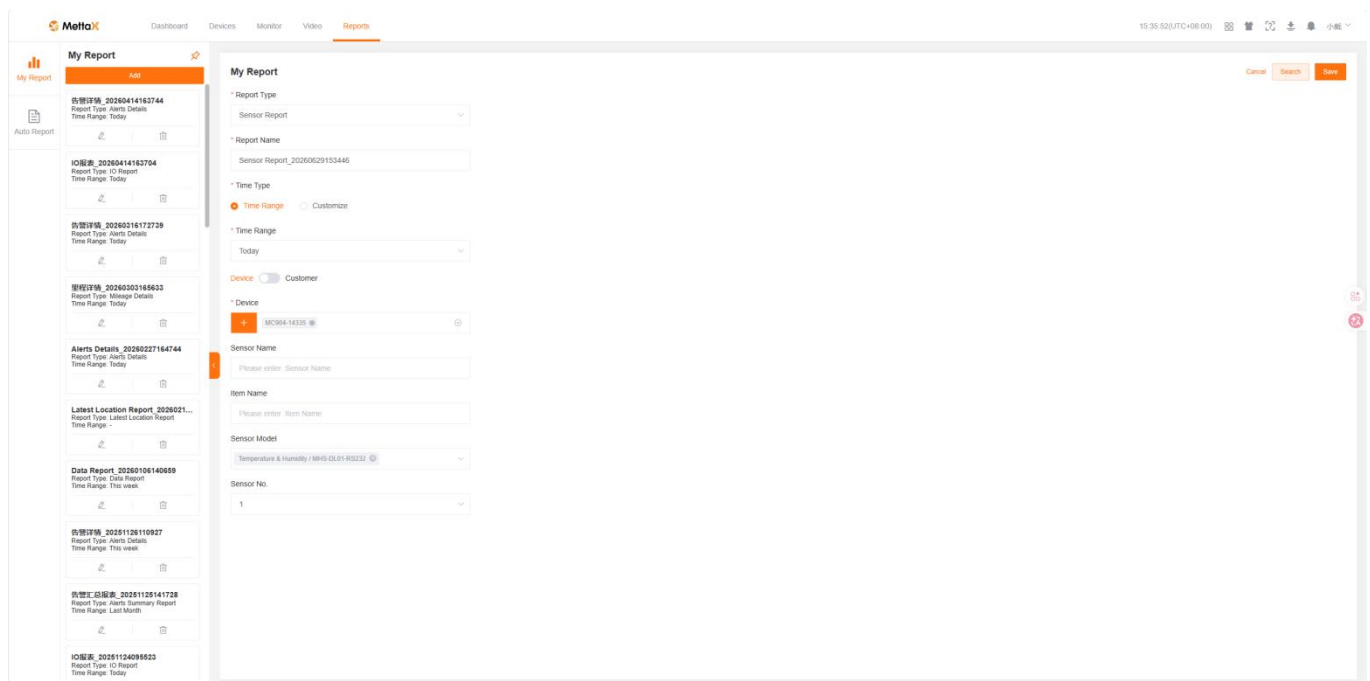
\* Alias Name

Humidity(%)-1

Save

## 4) MettaXIOT Platform Information Display

View historical records in the alcohol testing report



**My Report**

Report Type: Sensor Report

Report Name: Sensor Report\_20260629153446

Time Type: ☒ Time Range ☐ Custom

Time Range: Today

Device: ☐ Customer

Device: MC004-14335

Sensor Name: Please enter Sensor Name

Item Name: Please enter Item Name

Sensor Model: Temperature & Humidity / RHG-DL01-RS232

Sensor No.: 1

**My Report List**

| Report ID                         | Report Type                         | Time Range             |
|-----------------------------------|-------------------------------------|------------------------|
| 报警详情_20260414162744               | Report Type: Alarm Details          | Time Range: Today      |
| IO数据_20260414163704               | Report Type: IO Report              | Time Range: Today      |
| 报警详情_20260216172729               | Report Type: Alarm Details          | Time Range: Today      |
| 报警详情_20260203165633               | Report Type: Alarm Details          | Time Range: Today      |
| 报警详情_20260227164744               | Report Type: Alarm Details          | Time Range: Today      |
| Latest Location Report_2026021... | Report Type: Latest Location Report | Time Range: --         |
| Data Report_20260106140659        | Report Type: Data Report            | Time Range: This week  |
| 报警详情_2025126110927                | Report Type: Alarm Details          | Time Range: This week  |
| 报警汇总数据_20251125141728             | Report Type: Alarm Summary Report   | Time Range: Last Month |
| IO数据_20251124095523               | Report Type: IO Report              | Time Range: Today      |

Sensor Report

\* Date  -  Device ☐ Customer \* Device  Sensor Name  Item Name

Sensor Model  Sensor No.

| No. | Device Name  | IMEI         | Sensor No. | Sensor Model   | Sensor Name | Item No | Item Name       | Item Value | Report Time         |
|-----|--------------|--------------|------------|----------------|-------------|---------|-----------------|------------|---------------------|
| 1   | MC202X-19165 | 806070419165 | -          | MHS-DL01-RS232 | TEMP        | 1       | Humidade (%)    | 53.0       | 2026-06-27 00:39:25 |
| 2   | MC202X-19165 | 806070419165 | -          | MHS-DL01-RS232 | TEMP        | 1       | Temperatura(°C) | -10.6      | 2026-06-27 00:39:17 |
| 3   | MC202X-19165 | 806070419165 | -          | MHS-DL01-RS232 | TEMP        | 1       | Humidade (%)    | 51.6       | 2026-06-27 00:39:15 |
| 4   | MC202X-19165 | 806070419165 | -          | MHS-DL01-RS232 | TEMP        | 1       | Temperatura(°C) | -11.1      | 2026-06-27 00:39:20 |
| 5   | MC202X-19165 | 806070419165 | -          | MHS-DL01-RS232 | TEMP        | 1       | Humidade (%)    | 50.6       | 2026-06-27 00:39:15 |
| 6   | MC202X-19165 | 806070419165 | -          | MHS-DL01-RS232 | TEMP        | 1       | Temperatura(°C) | -11.4      | 2026-06-27 00:39:15 |
| 7   | MC202X-19165 | 806070419165 | -          | MHS-DL01-RS232 | TEMP        | 1       | Humidade (%)    | 50.0       | 2026-06-27 00:39:10 |
| 8   | MC202X-19165 | 806070419165 | -          | MHS-DL01-RS232 | TEMP        | 1       | Temperatura(°C) | -11.6      | 2026-06-27 00:39:10 |
| 9   | MC202X-19165 | 806070419165 | -          | MHS-DL01-RS232 | TEMP        | 1       | Humidade (%)    | 49.8       | 2026-06-27 00:39:05 |
| 10  | MC202X-19165 | 806070419165 | -          | MHS-DL01-RS232 | TEMP        | 1       | Humidade (%)    | 49.7       | 2026-06-27 00:39:00 |