

# Outside/Room Temperature & Humidity Sensor

## 1...10V / 4...20mA: HOM-324P



### Product Type

Voltage & current output temperature & humidity sensor.  
 Range of operation: Sensor: -20...60 °C, 0...100 % r. h.

### Application

Obtaining open area/room temperature & humidity in heating, ventilation and air conditioning plants.

### Type

| Order number    | Operating Voltage | Measuring Range   | Output Signal        | Operating limits           | Response time (No Air Move) |
|-----------------|-------------------|---|----------------------|----------------------------|-----------------------------|
| <b>HOM-324P</b> | DC 15...30V       | 0...50 °C<br>0...120 °C<br>-40...70 °C<br>0...100% r.h. | 1...10V<br>4...20 mA | Sensing rod<br>-20...80 °C | ~ 3 min                     |
|                 |                   |   |                      | Body<br>-20...60 °C        |                             |

## Function

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The sensor monitors surrounding temperature & humidity via its sensing element.

Temperature & humidity effects sensing element signal parameters. These parameters converted to standard signals in output by appropriate electronic circuitry.

There is a fine tune potentiometer to adjust zero-temperature or zero-humidity corresponding output signal (1 volt / 4mA) precisely.

## Mechanical design

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The unit has been designed for wall mounting.

The units consist of a base and cover. The base carries the connection terminals. The body material is flame-retardant.

Cable entry is via a PG-9 gland. Be careful of tightening cable gland sufficiently in order to assure housing IP55 protection.

## Disposal

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The devices are considered electronics devices for disposal and may not be disposed of as domestic waste.

Dispose of the device via the channels provided for this purpose. Comply with all local and currently applicable laws and regulations. Plastic and metal sections are better to recycle separately.

## Engineering notes

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The permissible cable lengths are dependent on the type of controller with which the sensor is used. They are specified in the Data Sheet of the relevant controller.

Screened and twisted-pair cable is necessary for noisy environments. Cable screen shall be connected to earth from controller side and consider gland size while assembling sensor.

## Mounting notes

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Prevent installation of sensor exposed to water or any liquid drain.

The unit must not be exposed to direct solar radiation.

The permissible ambient conditions should be observed.

## Technical Data

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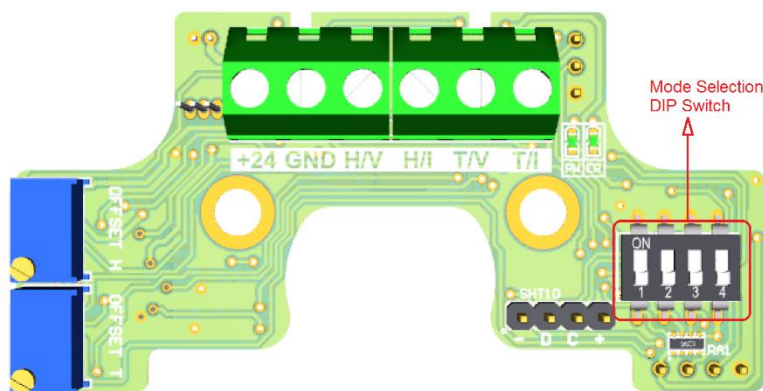
|                          |                                  |                              |
|--------------------------|----------------------------------|------------------------------|
| Power supply             | Operating voltage                | 15...30Vdc                   |
|                          | Power consumption                | <2VA                         |
| Functional data          | Range of use                     | Refer to "Page 1"            |
|                          | Type of measurement & output     | Temperature                  |
|                          | Measuring range: Temp.           | 1...10V & 4...20mA 3-Wire    |
|                          |                                  | 0...50°C                     |
|                          |                                  | 0...120°C                    |
| Measuring range: Hum.    | -40...70°C                       |                              |
|                          | 0...100% r.h.                    |                              |
| Probe length             | 30cm                             |                              |
| Temperature sensor       | SHT Series                       |                              |
| Degree of protection     | Safety class                     | Not defined                  |
|                          | Degree of protection for housing | IP55                         |
| Electrical connections   | Screw terminals                  | Max. 4x1mm <sup>2</sup>      |
|                          | Perm. Cable lengths              | Refer to "Engineering notes" |
| Environmental conditions | Operation condition              | Temperature: -20...60°C      |
|                          |                                  | Humidity: 0...<100% r.h.     |

## DIP switches setting

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A four-row DIP switch is located on the electronic circuit of the sensor to specify type of output signal and change the scale for temperature value. Test mode capability as well as normal current / voltage signal in relative to temperature & humidity value is considered to be used in controller or PLC program evaluation.

Humidity scale is fixed to 0...100% r.h. for 4...20mA or 1...10V.



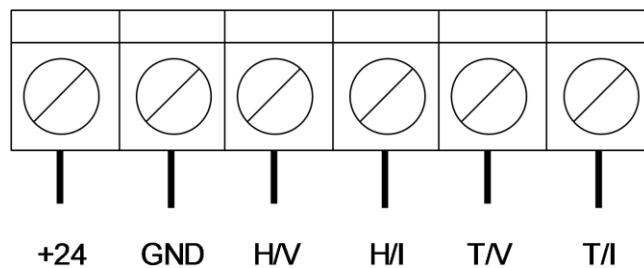
Scale Table

| DIP switches status |    |          |    | Output current                   | Test Function |
|---------------------|----|----------|----|----------------------------------|---------------|
| 1                   | 2  | 3        | 4  |                                  |               |
| █                   | -- | --       | -- | 4mA fixed Both T & H Terminal    |               |
| █                   | -- | --       | █  | 12mA fixed Both T & H Terminal   |               |
| █                   | -- | █        | -- | 20mA fixed Both T & H Terminal   |               |
| █                   | -- | █        | █  | 10V fixed Both T & H Terminal    |               |
| --                  | -- | --       | █  | Temp. Scale: 0...50°C 4...20mA   |               |
| --                  | -- | █        | -- | Temp. Scale: 0...50°C 1...10V    |               |
| --                  | -- | █        | █  | Temp. Scale: 0...120°C 4...20mA  |               |
| --                  | █  | --       | -- | Temp. Scale: 0...120°C 1...10V   |               |
| --                  | █  | --       | █  | Temp. Scale: -40...70°C 4...20mA |               |
| --                  | █  | █        | -- | Temp. Scale: -40...70°C 1...10V  |               |
| █ = On              |    | -- = Off |    |                                  |               |

Fixed current / Voltage outputs are used only for test.

Select one of scaled outputs in relative to area temperature. (Consider sensor body limitations)

### Internal diagram



+24: +24Vdc power supply

GND: power supply ground

HV: 1...10Vdc output for 0...100% r.h. humidity

HI: 4...20mA output for 0...100% r.h. humidity

TV: 1...10Vdc output for temperature (consider scale table)

TI: 4...20mA output for temperature (consider scale table)

Output voltage / current signal are in relative to GND terminal.

## Dimensions (mm)

