

# Duct Temperature & Humidity Sensor

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



### Product Type

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

### Application

Obtaining air duct and air vane 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>HDM-324P</b>	DC 15...30V	0...50 °C 0...120 °C -40...70 °C 0...100% r.h.	1...10V 4...20 mA	Sensing rod -20...80 °C	~ 3 min
				Body -20...60 °C	

## Function

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The sensor monitors the air duct / air channel 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 units have been designed for duct or vane mounting via its three-screw mounting brackets.

Mounting bracket is fitted to the duct by means of three self-drilling screw then sensor rod is inserted to bracket and fixed with a clamping screw.

## 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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Sensor tube inside air duct shall be exposed to air flow and not dead or circular air. Hereby prevent around duct bends installation.

The unit must not be exposed to direct solar radiation.

The permissible ambient conditions should be observed.

Do not tighten holding brackets screw extremely because it may unshapen the steel tube.

## Technical Data

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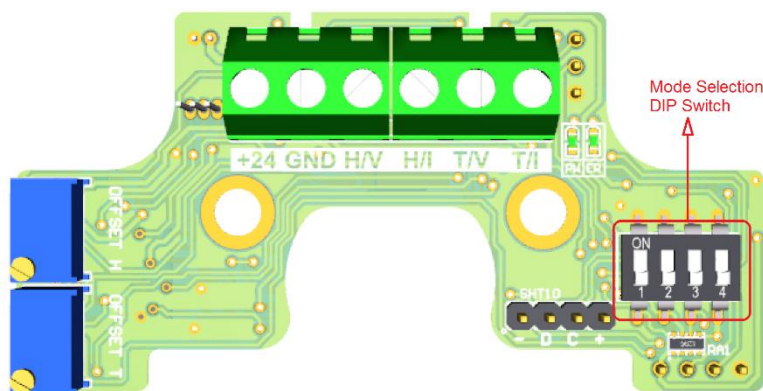
Power supply	Operating voltage	15...30Vdc
	Power consumption	<2VA
Functional data	Range of use	Refer to "Page 1"
	Type of measurement & output	Temperature 1...10V & 4...20mA 3-Wire
	Measuring range: Temp.	0...50°C 0...120°C -40...70°C
	Measuring range: Hum.	0...100% r.h.
	Probe length	30cm
Degree of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



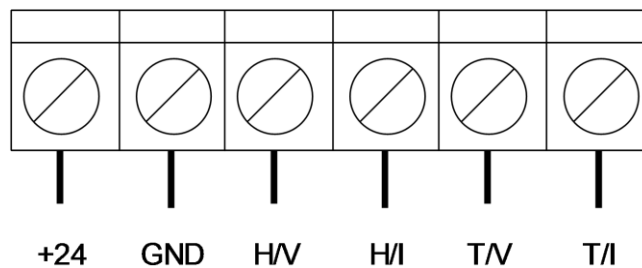
### Scale Table

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)

