

Temperature and Humidity Module



Overview

83-17985 capacitive humidity sensing digital temperature and humidity module is one that contains the compound has been calibrated digital signal output of the temperature and humidity sensors. Application of a dedicated digital modules collection technology and the temperature and humidity sensing technology, to ensure that the product has high reliability and excellent long-term stability. The sensor includes a capacitive sensor wet components and a high-precision temperature measurement devices, and connected with a high-performance 8-bit microcontroller. The product has excellent quality, fast response, strong anti-jamming capability, and high cost. Each sensor is extremely accurate humidity calibration chamber calibration. The form of procedures, the calibration coefficients stored in the microcontroller, the sensor within the processing of the heartbeat to call these calibration coefficients. Standard single-bus interface, system integration quick and easy. Small size, low power consumption, signal transmission distance up to 20 meters, making it the best choice of all kinds of applications and even the most demanding applications. Products for the 3-lead (single-bus interface) connection convenience. Special packages according to user needs.

Applications

HVAC, dehumidifier, testing and inspection equipment, consumer goods, automotive, automatic control, data loggers, home appliances, humidity regulator, medical, weather stations, and other humidity measurement and control and so on.

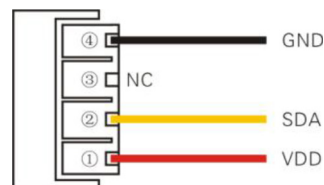
Features

Ultra-low power, the transmission distance, fully automated calibration, the use of capacitive humidity sensor, completely interchangeable, standard digital single-bus output, excellent long-term stability, high accuracy temperature measurement devices

The definition of single-bus interface

83-17985 Pin assignments

Pin	Name	Description
1	VDD	Power (3.3V - 5.5V)
2	SDA	Serial data, bidirectional port
3	NC	Empty
4	GND	Ground



Power supply pins (VDD GND)

83-17985 supply voltage range 3.3V - 5.5V, recommended supply voltage is 5V.

Serial data (SDA)

SDA pin is tri structure for reading, writing sensor data. Specific communication timing, see the detailed description of the communication protocol.

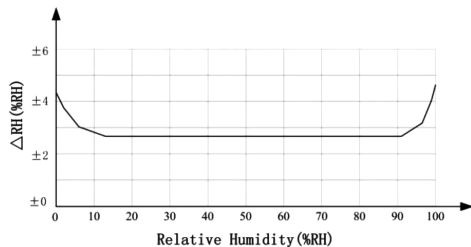
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Sensor performance

Relative humidity

Relative humidity performance table

Parameter	Condition	min.	typ.	max.	Unit
Resolution			0.1		%RH
Range		0		99.9	%RH
Accuracy [1]	25°C		±2		%RH
Repeatability			±0.3		%RH
Exchange	Completely interchangeable				
Response [2]	1/e(63%)		<5		S
Sluggish			<0.3		%RH
Drift [3]	Typical		<0.5		%RH/yr

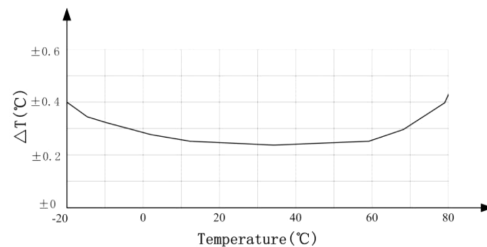


At 25°C The error of relative humidity

Temperature

Relative temperature performance

Parameter	Condition	min.	typ.	max.	Unit
Resolution			0.1		°C
			16		bit
Accuracy			±0.5	±1	°C
Range		-40		80	°C
Repeat			±0.2		°C
Exchange	Completely interchangeable				
Response	1/e(63%)		<10		S
Drift			±0.3		°C/yr



The maximum temperature error

Electrical Characteristics

DC Characteristics

Parameter	Condition	min.	typ	max	Unit
Voltage		3.3	5	5.5	V
Power consumption [4]	Dormancy	10	15		μA
	Measuring		500		μA
	Average		300		μA
Low level output voltage	IoL[5]	0		300	mV
High output voltage	Rp<25 kΩ	90%		100%	VDD
Low input voltage	Decline	0		30%	VDD
Input High Voltage	Rise	70%		100%	VDD
Rpu[6]	VDD = 5V VIN = VSS	30	45	60	kΩ
Output current	turn on		8		mA
	turn off	10	20		μA
Sampling period		2			S

Notes

[1] The accuracy of the factory inspection, the sensor 25°C and 5V, the accuracy specification of test conditions, it does not include hysteresis and nonlinearity, and is only suitable for non-condensing environment.

[2] To achieve an order of 63% of the time required under the conditions of 25°C and 1m / s airflow.

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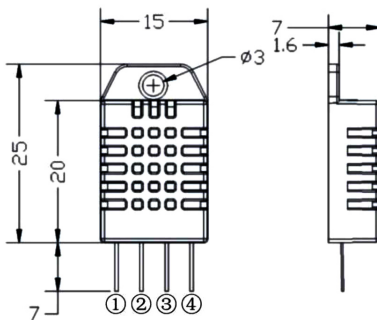
[3] In the volatile organic compounds, the values may be higher. See the manual application to store information.

[4] This value at VDD = 5.0V when the temperature is 25°C, 2S / time, under the conditions of the average.

[5] Low output current.

[6] That the pull-up resistor.

Dimensions



Dimensions : Millimetres

Part Number Table

Description	Part Number
Temperature and Humidity Module, 0-99.99%RH, -40 to 80°C, TH	83-17985

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