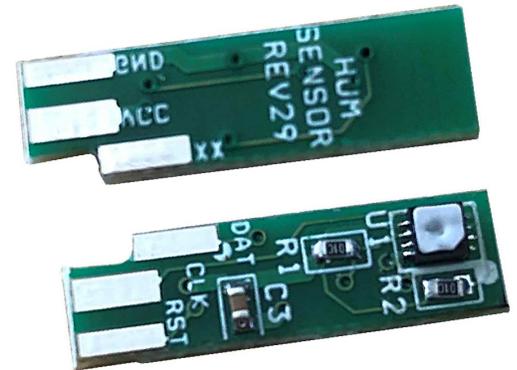


HUM-M2 Humidity Sensor Module

Description

Humidity Sensor Modules are designed for environment monitoring and controlling in industrial, commercial and other buildings. These transmitters can be used for indoor air temperature and humidity monitoring in various industrial plant, clean room, lab, machine room, office and commercial building, airport, station, library and stadium.



Humidity Sensor Module
HM-M2

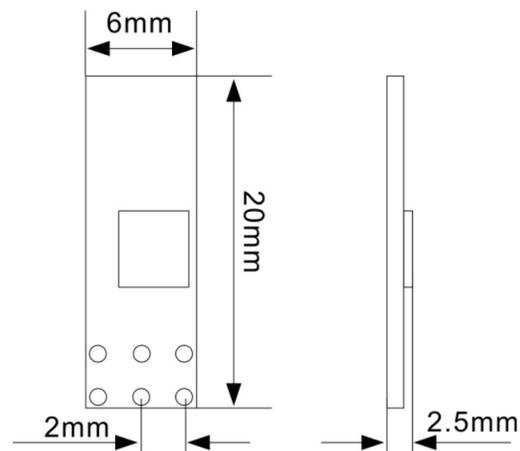
Features

- I²C Interface
- Precisely calibrated
- Low Hysteresis, compensated Linearity error and Temperature drift
- Plug-in type, RM 2.0 mm
- Miniature construction, fully interchangeable
- Optimum price performance ratio
- RoHS conformance

Typical Areas of Applicatins:

- Handheld measurement instruments
- Humidity transmitters
- Industrial applications
- Measuring & Sensor Technology

Dimension



This digital humidity sensor with only 20 x 6 x 2.5 mm size offers the widest application window and an optimal price performance ratio. Precisely calibrated, the humidity sensor module delivers an accuracy of < 5% RH (@ 25 deg C and 50% RH, after nine point calibration), ideal for sophisticated large volume applications, industrial handheld devices and precise humidity transmitters. The sensor combines the advantages of a precise, capacitive polymer humidity sensor with the high integration density and functionality of an ASIC. The signal processing integrated in the sensor completely processes the measured data and directly delivers the physical parameters of relative humidity and temperature over the I²C interface.

The humidity sensor has a feature which protects against condensation during prolonged periods of high humidity, over 95%, for more than one hour. When this condition is met the sensor will go to heating mode every 20 minutes, adjustable by the user. During heating, the sensor temperature will rise by 5 DegC over the ambient temperature. During this time the temperautre reading from before heating started will be assumed until the temperature falls back to normal or five minutes time, whichever comes first.

Specifications

Humidity Measurement	
Humidity Measuring Range	0 to 100% RH (max. DP = 80 degc)
Humidity Accuracy	< 5% RH (@ 25 deg C and 50% RH, after nine point calibration)
Hysteresis	< 1.5% RH
Loss Factor	< 0.01
Recovery Time	< 6 s (50% 0% RH; Vair = 2 m/s; response time < 3 s typ.)
Temperature Measurement	
Sensor Type	10K SMD NTC thermistor
Accuracy	< ±0.5°C @ 25°C
General	
Operating voltage	3 to 5.5V DC
Current consumption (Nominal)	normal state: 3mA;heating state: 100mA
Application temperature	-40 °C to 85 °C
Humidity application range	0 to 100% RH
Storage temperature	-50 °C to 150 °C

Communicatin Protocol

1) Pin Description

PIN1	CLK
PIN2	NC
PIN3	RST
PIN4	GND
PIN5	+5V
PIN6	DAT

2) Command

read operation use 16 bits data, write operation use 8 bits data

a) read humidity value & temperature value & heating state:

- i2c start condition
- send command 0xC1(8 bits)
- get ACK
- read data1 (16 bits), spare for user or factory test
- give ACK
- read data2 (16 bits), humidity value, for example, if current humidity is 45.0%, then data will be 450
- give ACK
- read data3 (16 bits), temperature value, for example, if current temperature is 25.2°C/77.4°C, then data will be 252/774
- give ACK
- read data4 (16 bits), heating state, if sensor is on heating processing, return 1, if not return 0
- give ACK
- read data5 (16 bits), checksum, should equal to data1+data2+data3+data4
- i2c stop condition

b) read sensor software version:

- i2c start condition
- send command 0xC2(8 bits)
- get ACK
- read data1 (16 bits), will return software version
- give ACK
- read data 5 (16 bits), checksum, should equal to 0x69
- i2c stop condition

c) write start heating command:

- i2c start condition
- send command 0xD5(8 bits)
- get ACK
- read data 5 (16 bits), checksum, should equal to 0xD5
- i2c stop condition

d) write stop heating command:

- i2c start condition
- send command 0xD6(8 bits)
- get ACK
- read data 5 (16 bits), checksum, should equal to 0xD6
- i2c stop condition

e) write temperature calibration command:

- i2c start condition
- send command 0xE5(8 bits)
- get ACK
- send data1 (8 bits), high byte of the temperature calibration value
- get ACK
- send data2 (8 bits), low byte of the temperature calibration value
- get ACK
- read data (16 bits), checksum, should equal to data1 + data2
- i2c stop condition

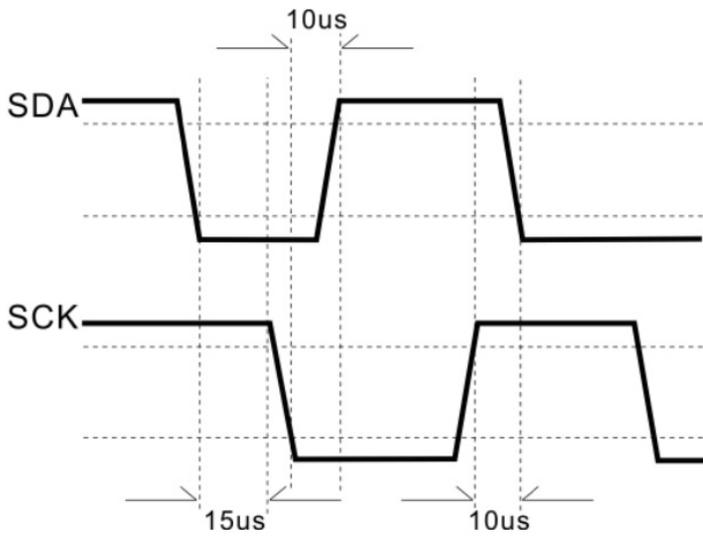
f) write humidity calibration command:

- i2c start condition
- send command 0xE6(8 bits)
- get ACK
- send data1 (8 bits), high byte of the humidity calibration value
- get ACK
- send data2 (8 bits), low byte of the humidity calibration value
- get ACK
- read data (16 bits), checksum, should equal to data1 + data2
- i2c stop condition

g) write change degree unit command:

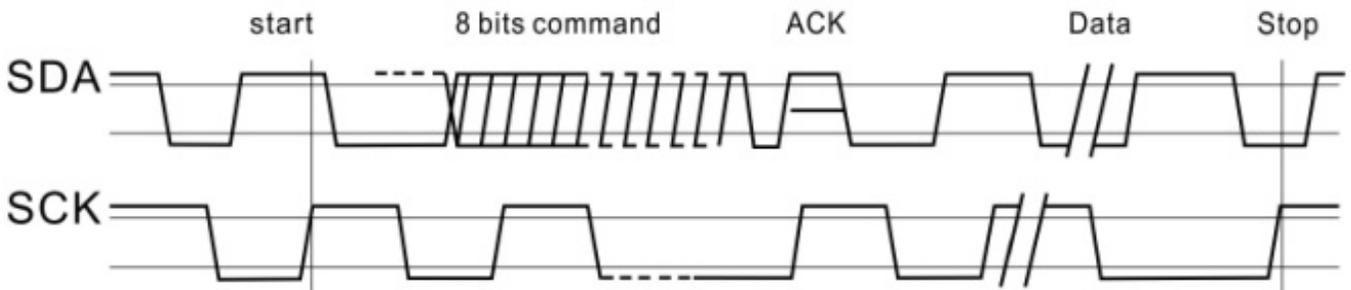
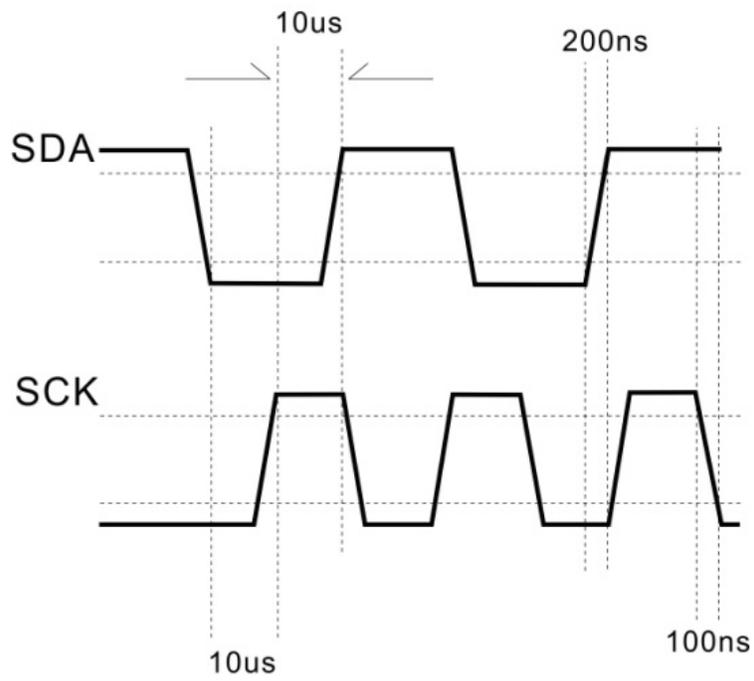
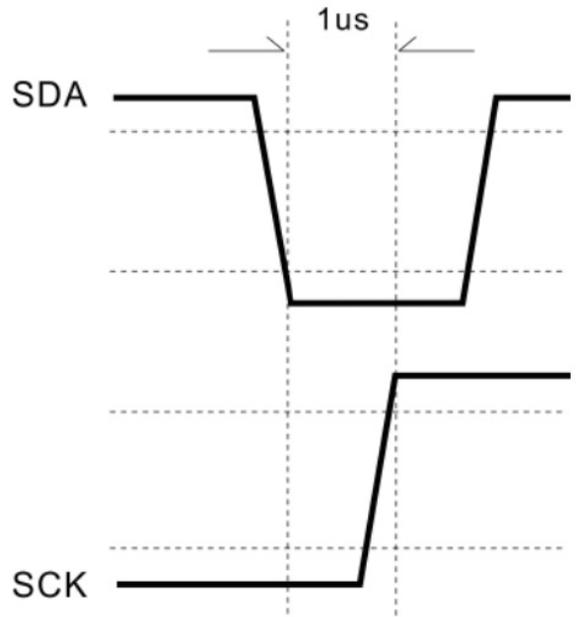
- i2c start condition
- send command 0xE7(8 bits)
- get ACK
- send data1 (8 bits), 1 means degree F and 0 means degree C

3) I2C Timing Start Condition



One bit W/R timing

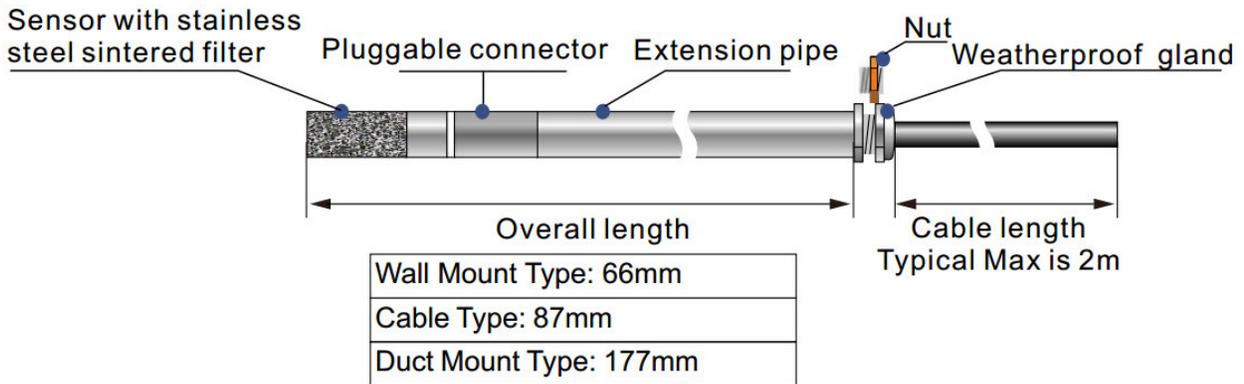
Stop Condition



Description

There will be a few accessories as well such as extension pipe, stainless steel sintered filter, pluggable connector, high temperature silicon cable, etc.

HM-P-C



HM - M2 - D - 2m

Code	Description
HM	Hum Sensor Module

Code	Cable Length
—	—
2m	2m cable

Code	Module
M2	PCB module
P	Pluggable sensor module with filter

Code	Probe Type
—	—
C	Cable type
D	Duct type

Here following one picture to show HM-P-C-2m use

