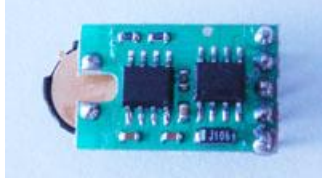


**HUMIDITY SENSOR MODULE**

- Relative humidity sensor
- Two point calibrated with capacitor type sensor, excellent performance
- Frequency output type, can be easily integrated with user application system
- Very low power consumption
- No extra components needed

**Summary**

The HH10D relative humidity sensor module is comprised with a capacitive type humidity sensor, a CMOS capacitor to frequency converter and an EEPROM used to holding the calibration factors. Due to the characteristics of capacitor type humidity sensor, the system can respond to humidity change very fast. Each sensor is calibrated twice at two different accurate humidity chambers, two unique sensor related coefficients are stored onto the EEPROM on the module. The data is used for humidity calculation.

**FEATURES**

- Relative humidity sensor
- Two point calibrated with capacitor type sensor, excellent performance
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**Applications**

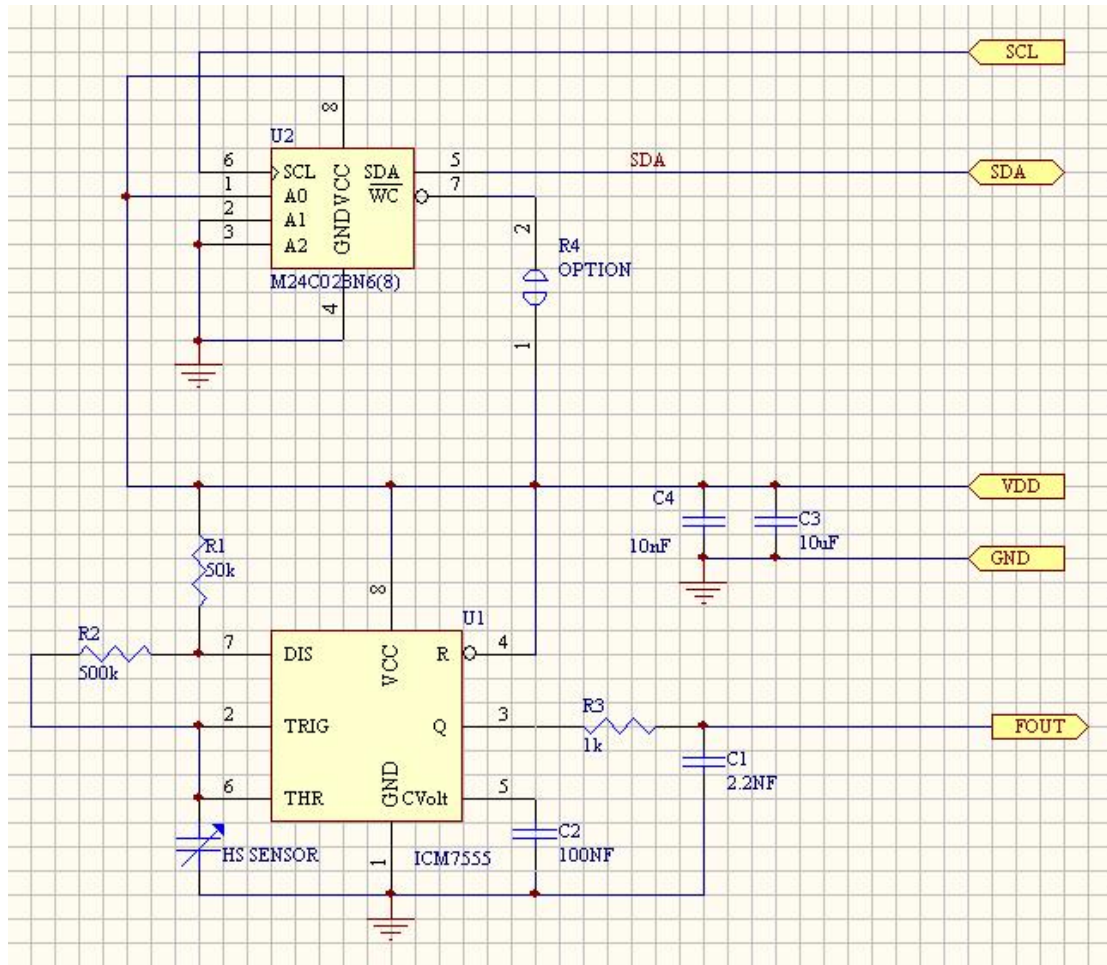
- HVAC
- Consumer Goods
- Dehumidifiers
- Test & measurement
- Automation
- Automotive
- Weather Stations
- Humidifiers
- Data Logging
- White Goods- Medical

# HUMIDITY SENSOR MODULE

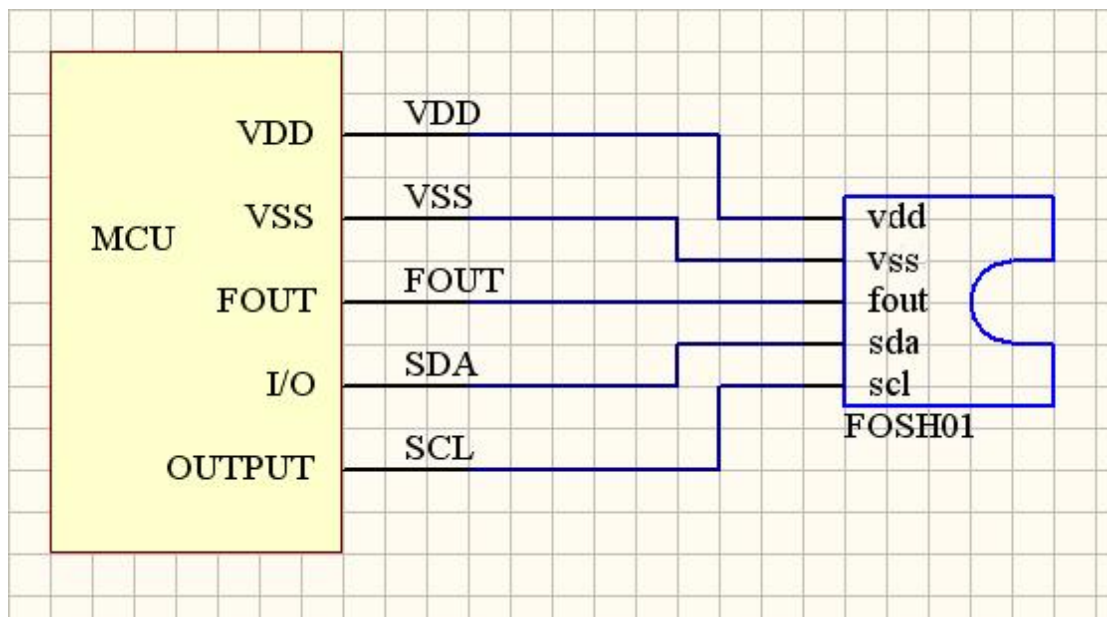
2010-5-31

PRELIMINARY

Version: 2.0



Circuit Diagram



Application Circuit

**HUMIDITY SENSOR MODULE****Sensor Performance Specification**

Parameters	Conditions	Min	Typ	Max	Units
Resolution		0.3	0.08	0.05	%
Accuracy			3		%
Repeatability		-0.3		0.3	%
Uncertainty			2		%
Range		0		99	%
Response Time			8		S
Hysteris			1		%
Long Term Stability		-0.5		0.5	%
Interchangeability		Fully Interchangeable			

**HH10D Humidity Module Characteristic**

Parameter	min	nominal	max	unit
humidity range	1		99	%
accuraccy	-3		+3	%
temperature range	-10		+60	C
working voltage	2.7	3	3.3	V
stability versus time		1%		per year
power consumption	120	150	180	uA
Output Frequency Range	5.0	6.5	10	KHZ

**Calculation**

In order to read out the correct humidity, 4 calibration factors need to be read out from the EEPROM at address of 10 and 11,12 and 13 for sensitivity, offset.

Once the frequency output from the sensor is measured, then the correct humidity value can be calculated in the following method:

**HH10D Humidity Calculation Algorithm**

Data Definition		eeeprom address
<b>sensitivity</b>	<b>Sens(2byte value)</b>	<b>10</b>
<b>Offset</b>	<b>2 byte value</b>	<b>12</b>
<b>RH(%)=</b>	<b>(offset-Soh)*sens/2^12</b>	

- \* RH(%) linear humidity value
- \* RH\_corr temperature compensated humidity value
- \* Soh is the measured frequency value at Fout port
- the eeeprom physical address is fixed to 01.

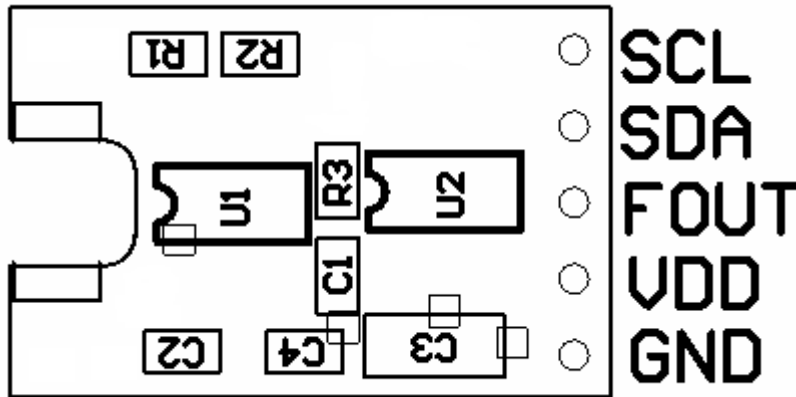
**HUMIDITY SENSOR MODULE**

2010-5-31


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**Module PCB Layout:**



L: 24mm  
 W: 8mm  
 Pin Pitch: 2.54mm

 <p><b>HOPE MICROELECTRONICS CO.,LTD</b>                  Add:4/F, Block B3, East Industrial Area,                  Huaqiaocheng, Shenzhen, Guangdong,                  China                  Tel: 86-755-82973805                  Fax: 86-755-82973550                  Email: <a href="mailto:sales@hoperf.com">sales@hoperf.com</a>  <a href="mailto:trade@hoperf.com">trade@hoperf.com</a>                  Website: <a href="http://www.hoperf.com">http://www.hoperf.com</a>  <a href="http://www.hoperf.cn">http://www.hoperf.cn</a>  <a href="http://hoperf.en.alibaba.com">http://hoperf.en.alibaba.com</a></p>	<p>This document may contain preliminary information and is subject to change by Hope Microelectronics without notice. Hope Microelectronics assumes no responsibility or liability for any use of the information contained herein. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Hope Microelectronics or third parties. The products described in this document are not intended for use in implantation or other direct life support applications where malfunction may result in the direct physical harm or injury to persons. NO WARRANTIES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MECHANABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE OFFERED IN THIS DOCUMENT.</p> <p>©2006, HOPE MICROELECTRONICS CO.,LTD. All rights reserved.</p>
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