

# embedded adventures

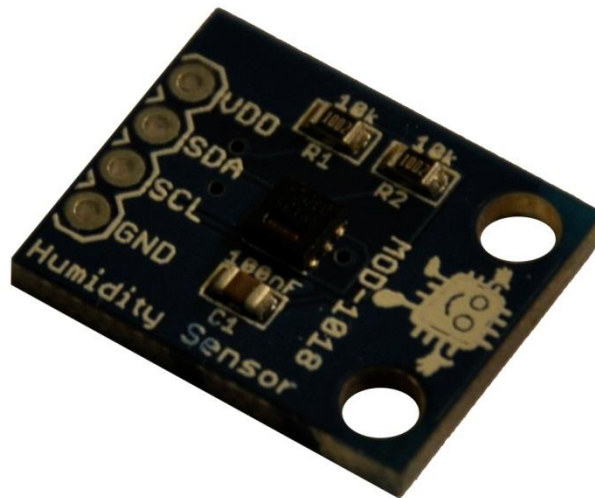
Device: MOD-1018

This document Version: 1.0

Matches module hardware version: [v1 15 Feb 2013]

Date: 31 March 2013

Description: SHT25 Humidity Sensor



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## Introduction

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The MOD-1018 is an SHT25-based humidity and temperature sensor module.

## Features

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The MOD-1018 has one of the world's smallest and most accurate humidity sensors.

While most humidity sensors give you a vague idea of the humidity and are accurate to  $\pm 5\%$  (which means that a 35% reading could in reality be anywhere between 30% and 40%), the SHT25 gives readings accurate to  $\pm 1.8\%$ .

It will also tell you the temperature, accurate to  $\pm 0.2^\circ\text{C}$ , which is also pretty incredible.

## Hackability

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We'd like to think that the MOD-1018 is 100% hackable.

At Embedded Adventures, we believe you have the most fun when you have the most control over your hardware. For the MOD-1018 we provide a datasheet, and complete schematic. After that, it's all up to you. We'd love to hear about the projects you're using it for – send us information and photos to [myproject@embeddedadventures.com](mailto:myproject@embeddedadventures.com)

## Construction

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It's all pre-built! Just add female or male header pins, or solder directly to the board, and away you go.

## Connections

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The MOD-1018 has one connection port.

VDD	Positive supply (2.1V to 3.6V)
SDA	I2C data connection
SCL	I2C clock connection
GND	Ground (Vss) connection.

## Technical details

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The MOD-1018 is a 3.3V part. Do not power it with 5V! Do not put 5V through the data or clock pins! If you do, magic smoke will come out and your MOD-1018 will not quite work the same again.

For more technical information about communicating with the MOD-1018, please see the SHT25 datasheet and associated documents. These are available from the Embedded Adventures product page.

### Tips and Tricks

The SHT25 is commanded make a temperature or humidity reading. It will take some time to do so – and once it is done, the reading is available.

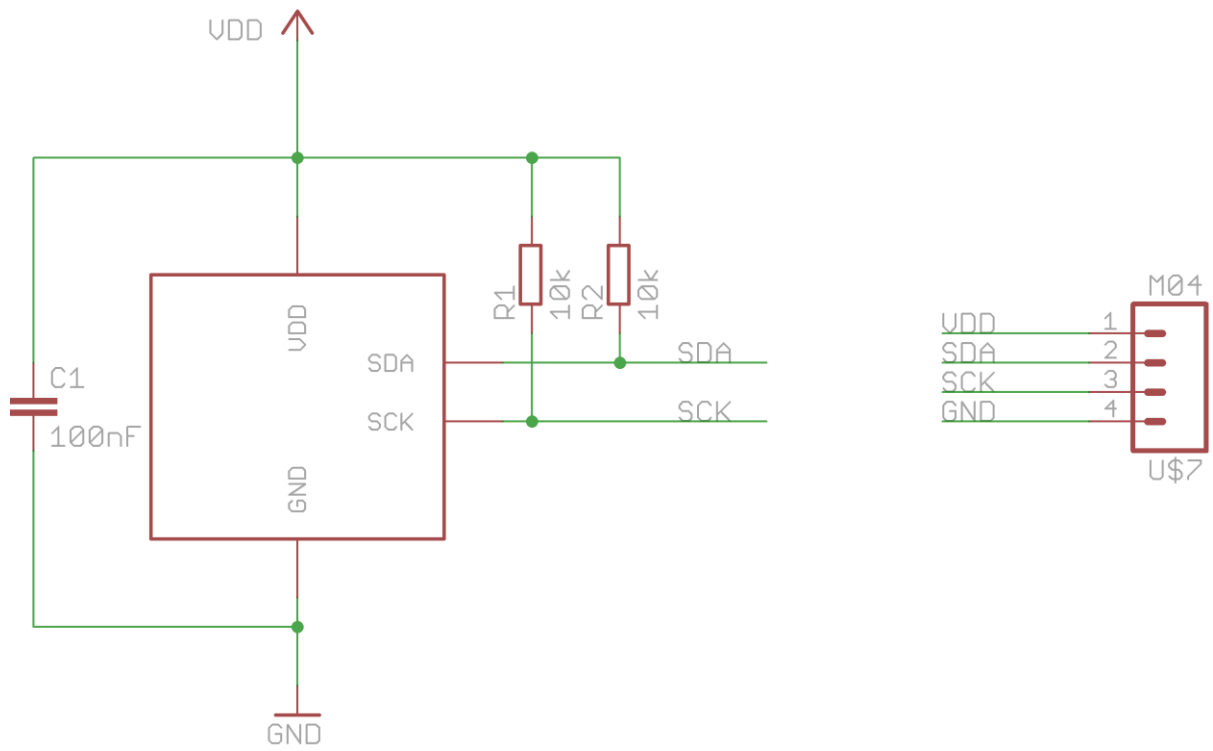
As such the SHT25 needs to indicate that the reading and conversion has completed.

You can ask the SHT25 to do this one of two ways. The first is to use what is traditionally called “clock stretching”. This is where the slave (in this case the SHT25) holds the clock line low until it is ready. If you are using a hardware I2C implementation on your microcontroller, you will need to check that it supports clock stretching. If you can turn off the hardware I2C temporarily, or you are using software I2C, it is a simple matter of sampling the clock line until it returns high. Then you can continue to request the measurement.

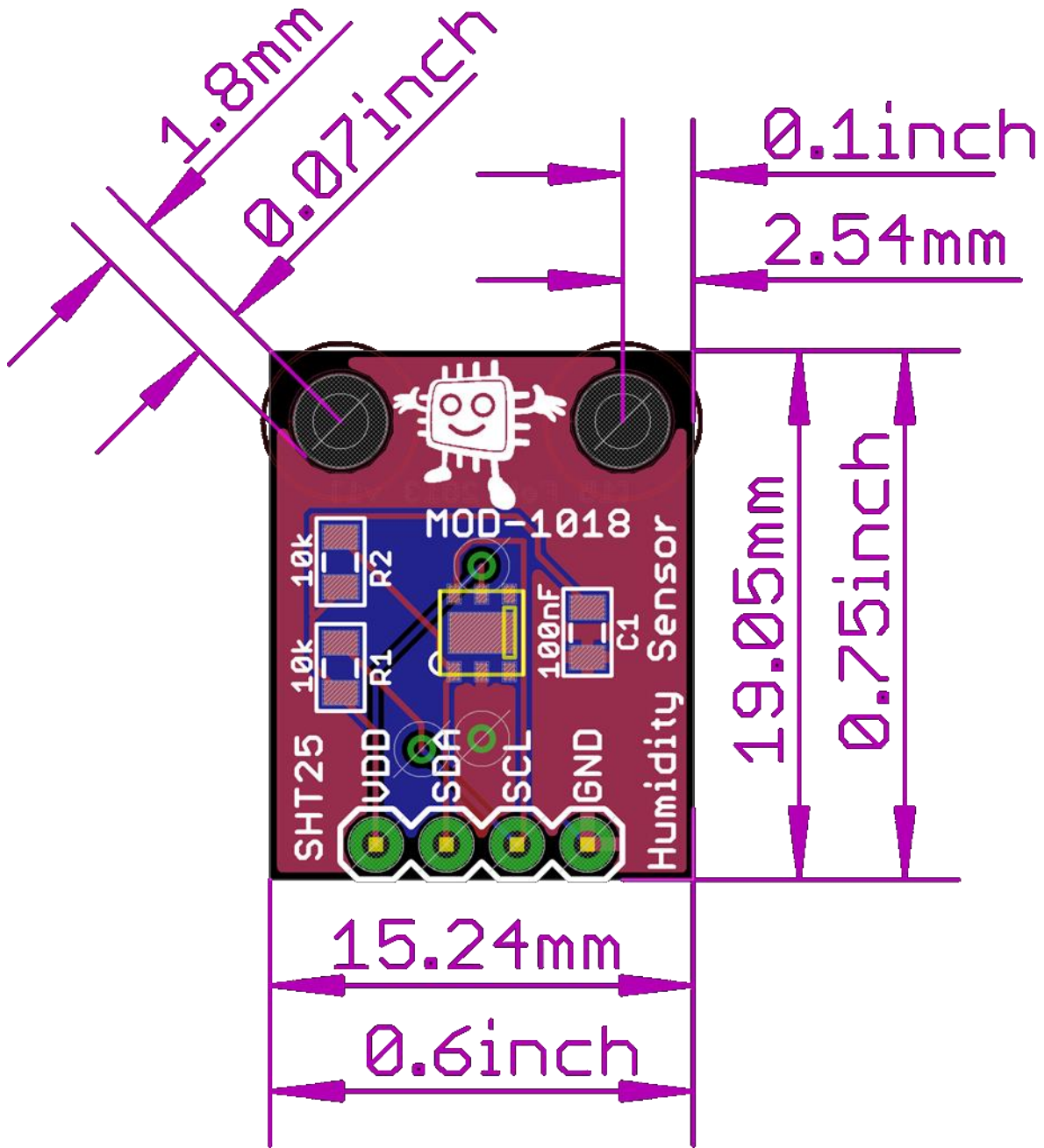
If you have other I2C devices on the buss that you wish to communicate with while a measurement is taking place, it may be preferable to use the other method, which the SHT25 datasheet calls “no hold”. In this case, you simply need to request a read command (I2C address + read bit) and see if the SHT25 responds with a NACK or ACK to this. If it says ACK, you can continue to read the measurement out.

We prefer the “no hold” method. A software implementation of I2C and routines that implement SHT25 communication are available in `i2c.c` and `sht25.c` in the PicPack library available under [Tutorials | Downloads](#) on the Embedded Adventures website.

## Schematic



PCB



Versions

Doc Version	HW Version	Date	Comments
1	1	3 Apr 2013	Initial Version for board v1