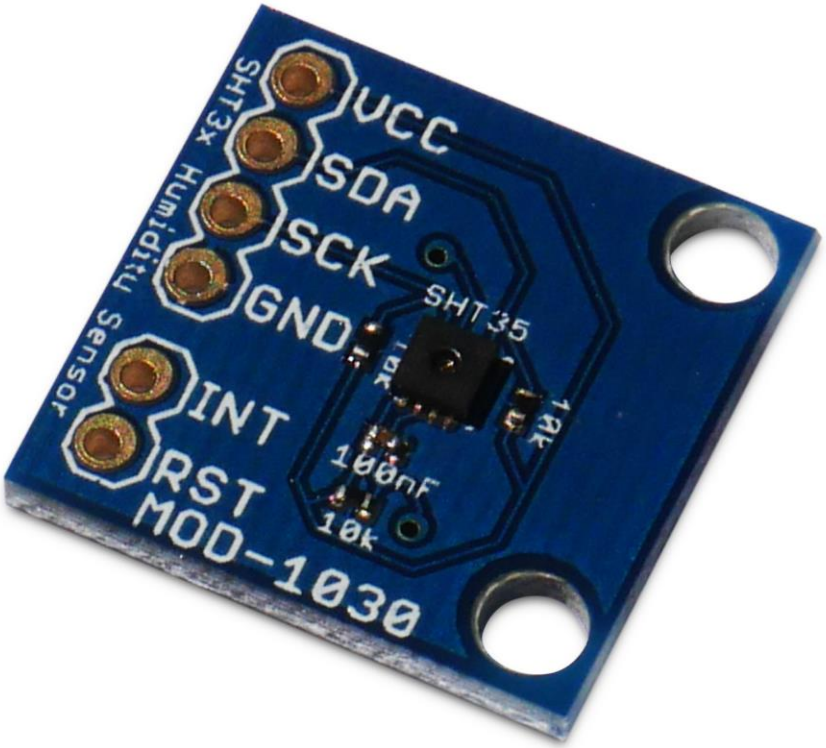
Device: MOD-1030

This document Version: 1.0

Matches module hardware version: [v1 16 Dec 2016]

Date: 29 July 2017

Description: SHT35 Humidity Sensor



Contents

Introduction

The MOD-1030 is an SHT35-based humidity and temperature sensor module.

Features

The MOD-1030 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 ±5% (which means that a 35% reading could in reality be anywhere between 30% and 40%), the SHT35 gives readings accurate to ±1.5%.

It will also tell you the temperature, accurate to ±0.2°C, which is also pretty incredible.

Hackability

We'd like to think that the MOD-1030 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-1030 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

Construction

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

Connections

The MOD-1030 has one connection port.

VDD	Positive supply (2.4V to 5.5V)
SDA	I2C data connection
SCL	I2C clock connection
GND	Ground (Vss) connection.
INT	Interrupt (alert) pin
RST	Reset pin, active low

Technical details

For more technical information about communicating with the MOD-1030, please see the SHT35 datasheet and associated documents. These are available from the Embedded Adventures product page.

Tips and Tricks

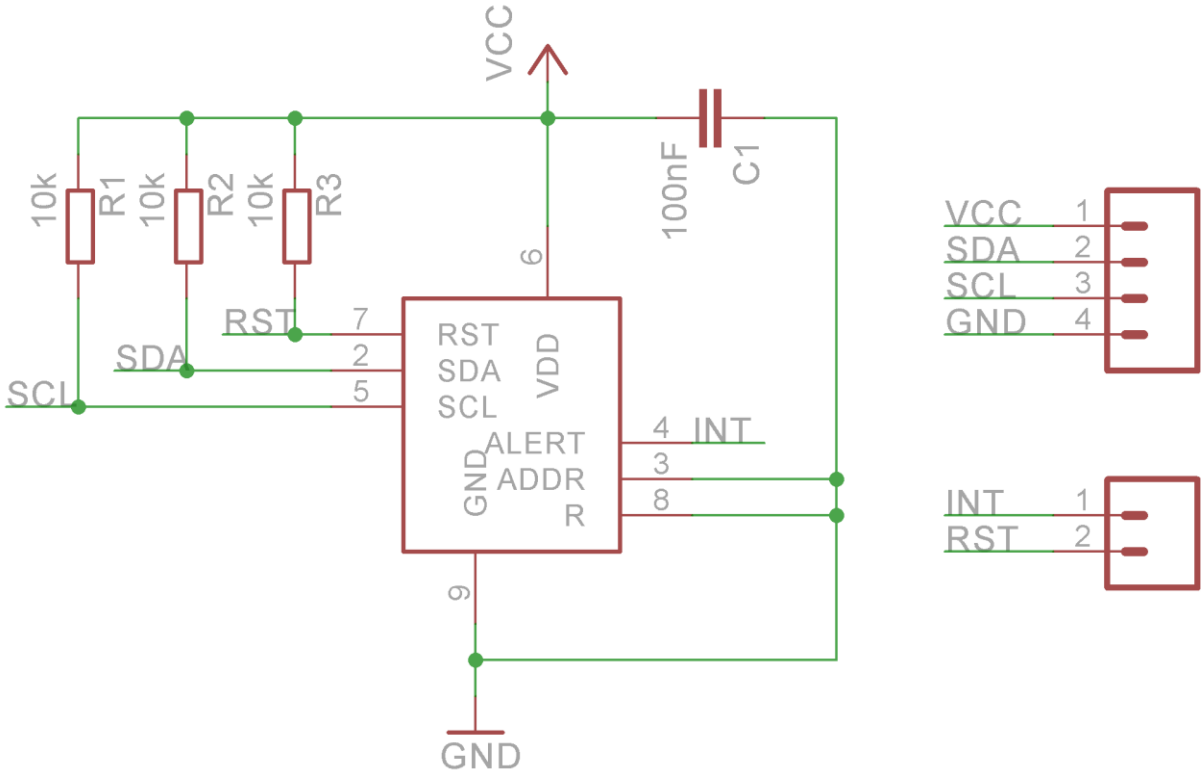
The SHT35 is commanded make a temperature or humidity reading. It will take some time to do so – and once it is done, the actual reading becomes available.

As such the SHT35 needs to indicate that the reading and conversion has completed.

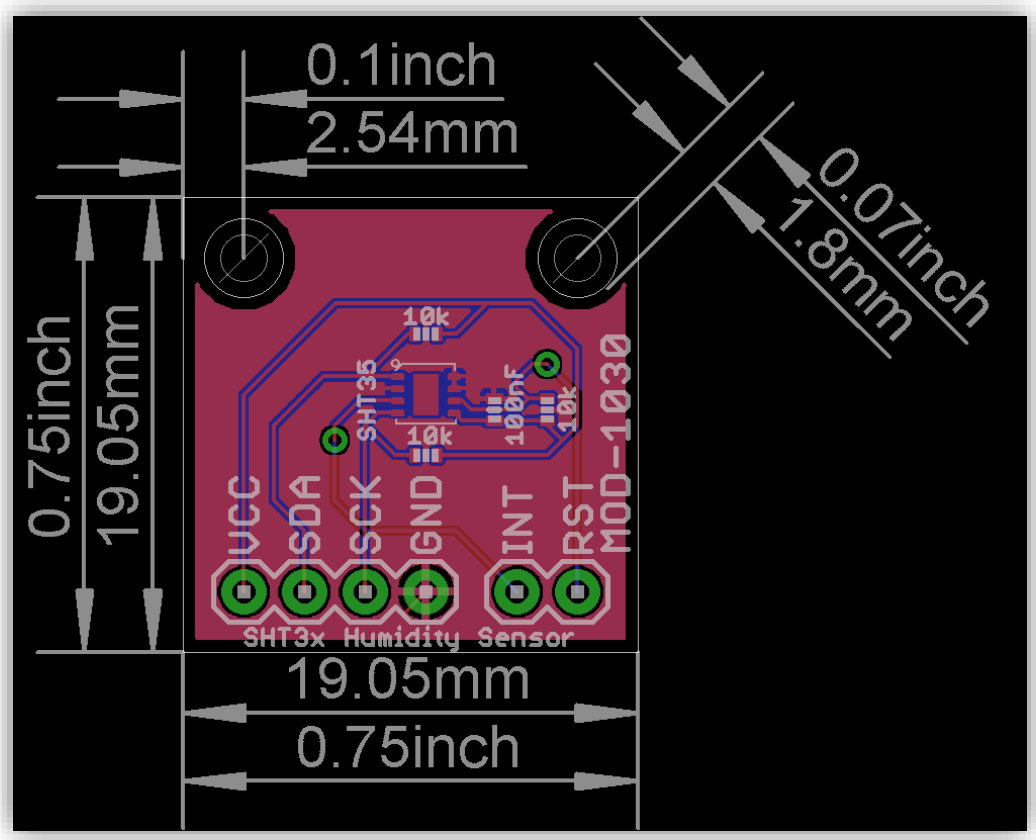
You can ask the SHT35 to do this one of two ways. The first is to use what is traditionally called "clock stretching". This is where the slave (in this case the SHT35) holds the clock line low until it is ready. If you are using a hardware I2C implementation on your microcontroller, you will need to check that it supports clock stretching. If you can turn off the hardware I2C function 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 bus that you wish to communicate with while a measurement is taking place, it may be preferable to use the other method, which the SHT35 datasheet calls "no hold". In this case, you simply need to request a read command (I2C address + read bit) and see if the SHT35 responds with a NACK or ACK to this. If it says ACK, you can continue to read the measurement out.

Schematic


VCC
10k
R1
10k
R2
10k
R3
100nF
C1
6
RST
7
SDA
2
SCL
5
RST
SDA
SCL
VDD
ALERT
GND
ADDR
R
4
INT
3
8
9
GND
VCC 1
SDA 2
SCL 3
GND 4
INT 1
RST 2

PCB



Versions

Doc Version	HW Version	Date	Comments
1	1	29 July 2017	Initial Version for board v1