Device: MOD-1002

This document Version: 1.0

Date: January 2011

Description: TimZim Temp Sensor Module

Matches module version: v2

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Introduction

The MOD-1002 is an i2c based temperature sensor module. It was inspired by Embedded Adventures customer TimZim, who made a very good point that we didn't have an addressable temperature sensor.

Features

The MOD-1002 features a TMP75 from TI. The module makes both available over an I2C serial buss and includes pull-up resistors and available connection for terminal connection.

Hackability

The MOD-1002 is 100% hackable.

At EA, we believe you have the most fun when you have the most control over your hardware. For the MOD-1002 we provide a datasheet, complete schematic and complete source code. 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 built! There's nothing to do, unless you want to install terminals instead.

Connections

The MOD-1002 has one duplicated connection ports.

VCC	Positive supply. 3V – 5V.
SDA	I2C serial data
SCL	I2C serial clock
GND	Ground (Vss) connection.

Power

The MOD-1002 can be powered from 3V – 5V.

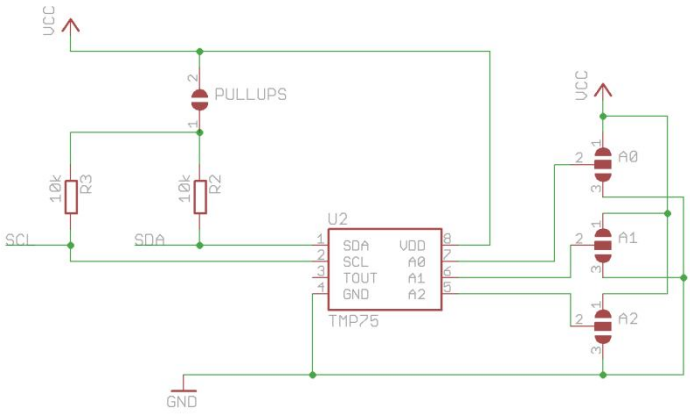
Pull up resistors

I2C requires the use of pull-up resistors. If you are connecting to an existing I2C buss that already has pull-up resistors, or you are using internal pull-ups in your microcontroller, you can disable the pull-up resistors by clearing the solder jumper on the MOD-1002 board.

Addressing

The MOD-1002 has three address solder jumpers. As shipped, it comes set to address 0b000. To set it to another address (for example, if you have several temperature MOD-1002 sensors connected together), you can resolder the jumpers. Soldering the middle and right pads of any one jumper together gives '0'. Soldering the middle and left pads of any one jumper together gives '1'. This gives you a range of 0b000 to 0b111 (that is, 0 to 7).

Schematic

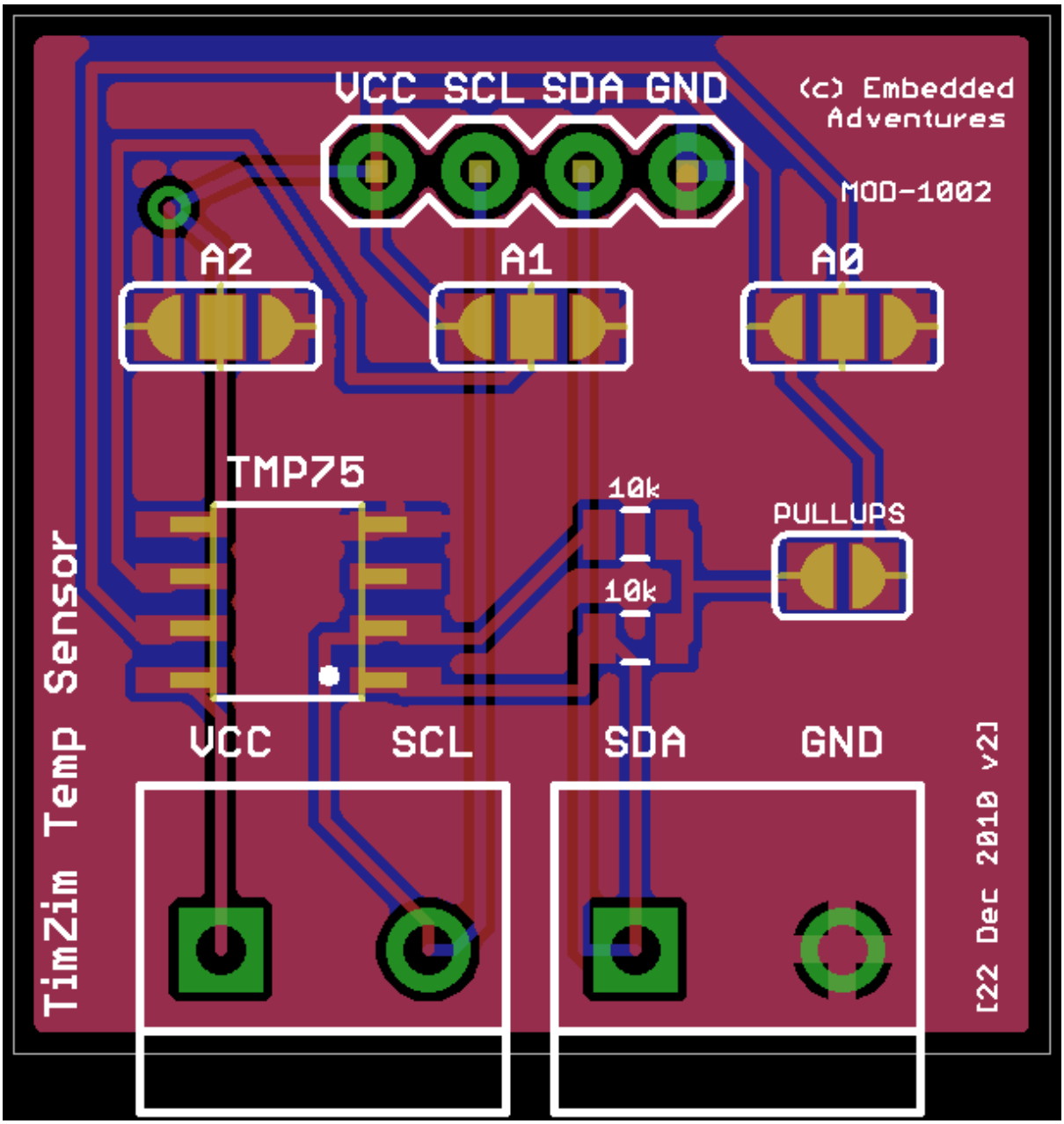


The TMP75 is a good value temperature sensor, and while it's not the most accurate chip available, it does a perfectly sufficient job for displaying the local temperature.

Programming

See tmp75.c and tmp75.h available in the PicPack library. These rely on the i2c.c and i2c.h software i2c libraries. The PicPack library can be downloaded from the Tutorials | Downloads section of www.embeddedadventures.com

PCB



Versions

Version	Date	Comments
Version 1.0	22 Jan 2011	Initial Version for board v2