

Zig001 Temperature-Humidity Sensor



Overview

The first Ziglet designed by Zolertia is a Temperature-Humidity Sensor. The sensor selected for this purpose is an SHT1x/7x temperature/humidity sensor from Sensirion.

This sensor is factory-calibrated and provides a digital output with good accuracy and low power consumption. With this Ziglet it is possible to measure relative humidity in the range 0%-100% and operating temperatures in the -40°C - +123.8°C range.

The communication protocol for this Ziglet will be a bit different from the rest of the Ziglet family of sensors.

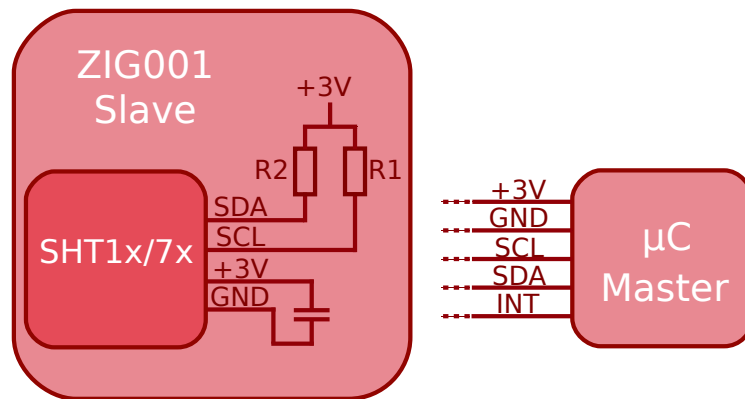
A pseudo-I2C communication is required but it is not I2C standard compliant.

Like all Ziglets, the Zig001 sensors are fully compatible out of the box with our Z1 and Z1SP development platforms under Contiki and TinyOS operating systems.

Zolertia offers the option to choose which sensor to mount in the purchasing process to suit better your requirements. Five temperature sensors can be chosen, although by default the mounted sensor will be an SHT11.

If the chosen sensor is one of the SHT7x family, it will be soldered vertically. If the chosen sensor is one of the SHT1x family, an optional external filter cap can be attached to the Ziglet.

Block diagram



Customization possibilities

| Sensor | Packaging | RH tolerance | Temp tolerance |
|--------|-----------|--------------|----------------|
| SHT10 | SMD | ±4.5%RH | ±0.5°C |
| SHT11 | SMD | ±3%RH | ±0.4°C |
| SHT15 | SMD | ±2%RH | ±0.3°C |
| SHT71 | pins | ±3%RH | ±0.4°C |
| SHT75 | pins | ±1.8%RH | ±0.3°C |

Getting started

To start using the Ziglet001, just plug the sensor into a Z1(SP) in the 5-pin Ziglet Port with the included cable you will find in the package.

The easiest way to use this Ziglet is trying one of the examples in the Zolertia wiki for both Contiki and TinyOS.

In this Ziglet, the interrupt pin is not used. However, the sensor will enter in sleep mode through pseudo-I2C commands if necessary.

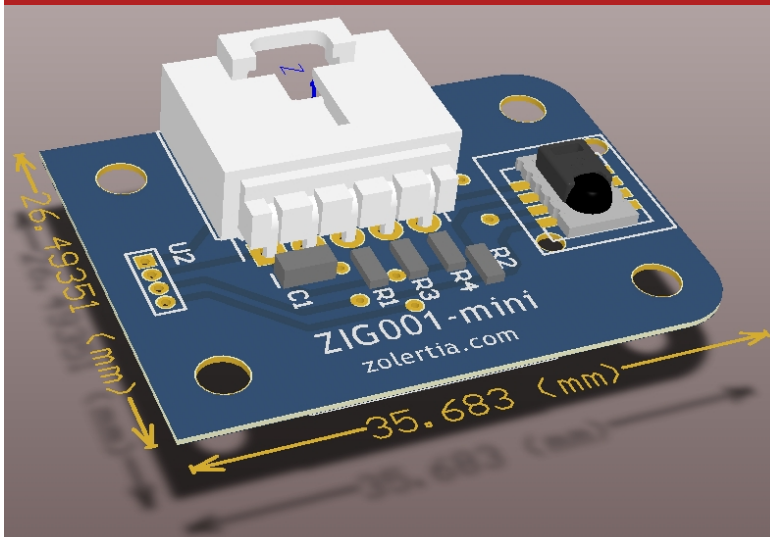
The board includes two pull-up resistors in SCL and SDA lines, for this reason is not necessary use the internal pull-up in the msp430.

It is encouraged to read the specific datasheet of the mounted sensor in the Ziglet, because each sensor may have slight differences that the final user may need to take into account.

Technical data

| | |
|--|---|
| Supply voltage | 2.4V to 5.5V |
| Current consumption (vdd=3.3V at 25°C) | Sleep Typ. 0.3µA Measuring Typ. 0.55mA |
| Pseudo-I2C frequency bus | Typ. 100KHz Max. 1MHz |
| Operating temperature range | -40 to +123.8°C |
| Board dimensions | 35.7x26.5x8.6mm |

Mechanical overview (option SHT1x)



Documentation

[Ziglet Specifications document](#)

[Zolertia wiki](#)

[SHT1x/7x code examples](#)

[Sensirion SHT1x/7x documentation](#)