SHT20 I2C Temperature & Humidity Sensor (Waterproof Probe)
SKU: SEN0227

Introduction

This is a SHT20 I2C temperature & humidity sensor with waterproof probe. It comes with the 4C CMOSens® SHT20 temperature & humidity sensor chip, and the probe has gone through dual waterproof protection.

The SHT20 I2C temperature & humidity sensor adopt Sensirion new technique. Besides the capacitive type humidity sensor and the band gap temperature sensor, the chip contains an amplifier, A/D converter, OTP memory and a digital processing unit. To compare with early SHT1x series and SHT7x series, SHT20 shows better reliability and long-term stability. It can measure surrounding environment temperature and relative air humidity precisely.

The Arduino SHT20 waterproof temperature & humidity sensor adopts dual waterproof protection. The inner PCB has perfusion and encapsulation protection, and the probe enclosure is made of PE waterproof materials. This is a special waterproof breathable material that allows water molecules to seep in, blocking water droplets from seeping in. The sensor won't be damaged even if it is submerged in water for a long time. There is a built-in 10k Pull-up resistor and 0.1uf filter capacitor, so It can be used directly with the microcontroller such as Arduino. Recommend DFRobot Gravity 4Pin Sensor Adapter, it is quite convenient.'

Specification

- Operating Voltage: 3.3V/5V
- Communication Interface: I2C / IIC
- Protection Class: waterproof anti-condensation
- RH Response Time: 8s (tau63%)
- Accuracy: ±3% RH / ±0.3 ℃
- Measuring Range: 0-100% RH / -40-125 ℃
- Dimension: 73mm * 17mm / 2.87 * 0.67 inches
- Weight: 44g

Board Overview

Num	Label	Description
1	Red	VCC
2	Green	GND
3	Black	SDA
4	White	SCL

Tutorial

In this section, we'll use Arduino to drive SHT20 I2C Temperature & Humidity Sensor (Waterproof Probe)

Requirements

- **Hardware**
  DFRduino UNO (or similar) x 1
  SHT20 I2C Temperature & Humidity Sensor
  M-M/F-M/F-F Jumper wires

- **Software**
- Arduino IDE, Click to Download Arduino IDE from Arduino®
  https://www.arduino.cc/en/Main/Software%7C

Connection Diagram
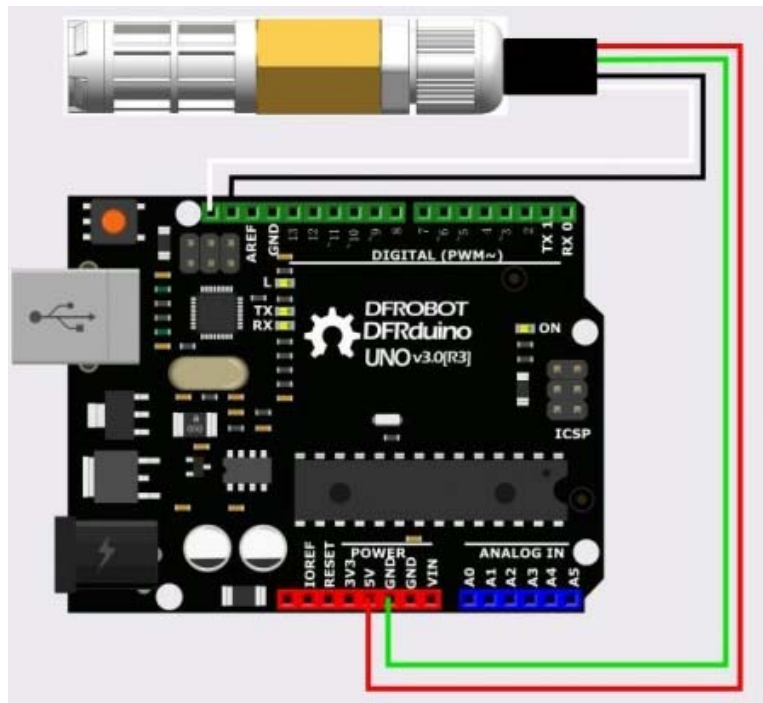
Arduino SHT20 Temperature & Humidity Sensor Connection

Sample Code

Download the DFRobot Arduino SHT20 library
How to install Libraries in Arduino IDE https://www.arduino.cc/en/Main/Software%7C

```
/*!
 * @file   DFRobot_SHT20_test.ino
 * @brief DFRobot's SHT20 Humidity And Temperature Sensor Module
 * @n      This example demonstrates how to read the user registers to display
resolution and other settings.
 *        Uses the SHT20 library to display the current humidity and temperat
ure.
 *        Open serial monitor at 9600 baud to see readings.
 *        Errors 998 if not sensor is detected. Error 999 if CRC is bad.
 * Hardware Connections:
 * -VCC = 3.3V
 * -GND = GND
```

```
 * -SDA = A4 (use inline 330 ohm resistor if your board is 5V)
 * -SCL = A5 (use inline 330 ohm resistor if your board is 5V)
 */


#include <Wire.h>
#include "DFRobot_SHT20.h"


DFRobot_SHT20    sht20;


void setup()
{
    Serial.begin(9600);
    Serial.println("SHT20 Example!");
    sht20.initSHT20();                            // Init SHT20 Sensor
    delay(100);
    sht20.checkSHT20();                           // Check SHT20 Sensor
}


void loop()
{
    float humd = sht20.readHumidity();            // Read Humidity
    float temp = sht20.readTemperature();         // Read Temperature
    Serial.print("Time:");
    Serial.print(millis());
    Serial.print(" Temperature:");
    Serial.print(temp, 1);
    Serial.print("C");
    Serial.print(" Humidity:");
    Serial.print(humd, 1);
    Serial.print("%");
    Serial.println();
    delay(1000);
}
```
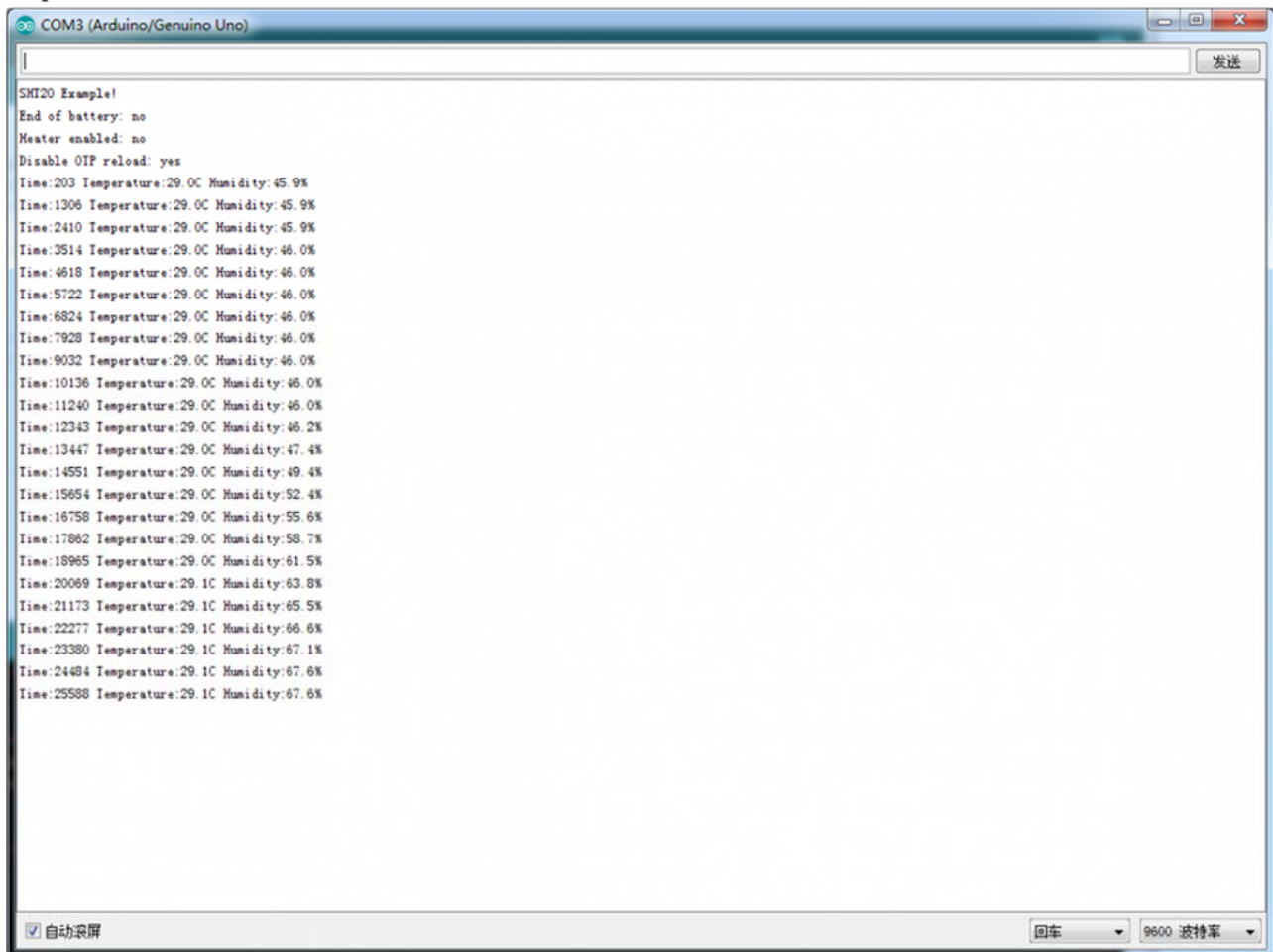
Expected Results

Arduino SHT20 Serial port Result

FAQ

Q1. How to measure the soil moisture?.

> **A.** Soil moisture is defined as: Get 1 kg soil samples, thoroughly dry it, the ratio between reduced weight (water weight) and 1 kg weight is soil moisture. It totally different to the air humidity.