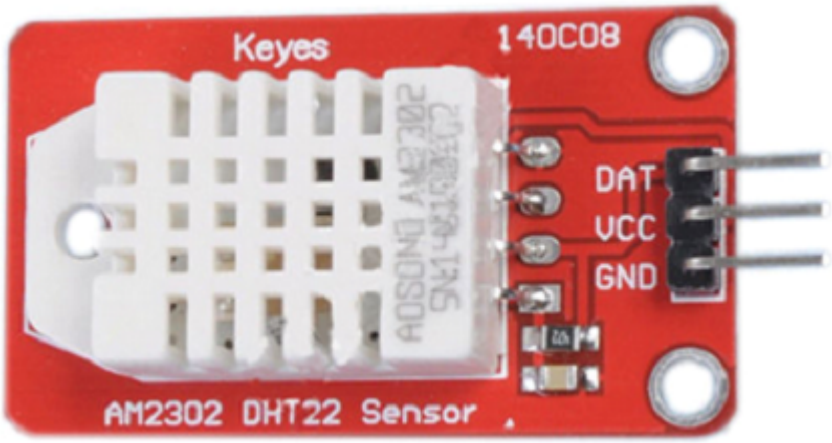
DHT22 - AM2303 temperature and humidity sensor library for Arduino

This is a calibrated AM2303 digital temperature and relative humidity sensor on a DHT22 breakout PCB.



Library features

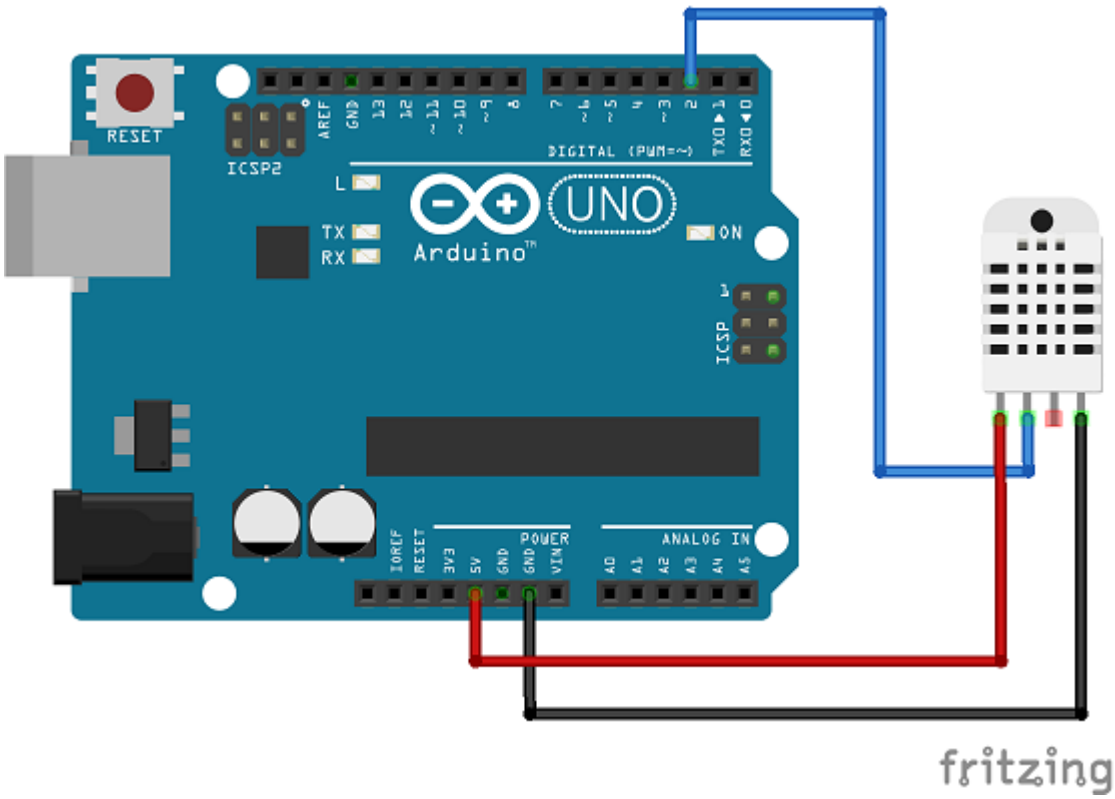
- Read 16-bit temperature (synchronous blocking)
- Read 16-bit relative humidity (synchronous blocking)

AM2303 sensor specifications

- Voltage: 3.3 .. 5V
- Ultra-low power:
  - Typical 15uA dormancy
  - Typical 500uA measuring
- Single wire digital serial interface
- Calibrated digital signal
- Outstanding long term stability
- No additional electronic components needed
- Humidity:
  - Range: 0 .. 99.9 %RH (Relative Humidity)
  - Resolution: 0.1 %RH
  - Accuracy: +/-2 %RH (at 25 degree Celsius)
- Temperature:
  - Range: -40 .. +125 degree Celsius
  - Resolution: 0.1 degree Celsius
  - Accuracy: +/- 0.4 degree Celsius
- Minimum read interval: 2000 ms

- ~31ms to synchronous read humidity, temperature and parity data from sensor (5 Bytes)

Hardware



Connection DHT22 - Arduino

DHT22	Arduino UNO/Nano/Leonardo/Mega2560
GND	GND
VCC	5V (or 3.3V)
DAT	D2

Connection DHT22 - ESP8266

Some ESP8266 boards uses Arduino pin 2 -> GPIO4 which is D4 text on the board. Make sure you're using the right pin.

DHT22	ESP8266 / WeMos D1 R2 / ESP12E / NodeMCU
GND	GND
VCC	3.3V
DAT	Arduino pin 2 -> GPIO4 = D4

Connection DHT22 - Lolin32

DHT22	WeMos Lolin32
GND	GND
VCC	3.3V
DAT	2

Supported Arduino Boards

- All ATMega328P MCU's:
  - Arduino UNO
  - Arduino Nano
- All ATMega32U4 MCU's:
  - Arduino Leonardo
  - Pro Micro
- All ATMega2560 MCU's:
  - Arduino Mega2560
- All ESP8266 boards:
  - WeMos D1 R2
  - NodeMCU
- All Lolin32 boards:
  - WeMos Lolin32
- Other MCU's may work, but are not tested.

Library dependencies

- None

Documentation

Doxygen PDF (Documentation source code)

AM2303 datasheet

DHT22 datasheet

Examples

Examples | Erriez DH22 | Example

Usage

Initialization

```
#include <DHT22.h>

// Connect DTH22 data pin to Arduino DIGITAL pin
#define DHT22_PIN   2

DHT22 sensor = DHT22(DHT22_PIN);

void setup()
{
    // Initialize serial port
    Serial.begin(115200);
    Serial.println(F("DHT22 temperature and humidity sensor example\n"));

    // Initialize sensor
    sensor.begin();
}
```

Read temperature and humidity

```
void loop()
{
    // Check minimum interval of 2000 ms between sensor reads
    if (sensor.available()) {
        // Read temperature from sensor
        int16_t temperature = sensor.readTemperature();

        // Read humidity from sensor
        int16_t humidity = sensor.readHumidity();

        if (temperature == ~0) {
            // Print error (Check hardware connection)
            Serial.print(F("Temperature: Error"));
        } else {
            // Print temperature
            Serial.print(F("Temperature: "));
            Serial.print(temperature / 10);
            Serial.print(F("."));
            Serial.print(temperature % 10);
            Serial.println(F(" *C"));
        }

        if (humidity == ~0) {
            // Print error (Check hardware connection)
            Serial.print(F("Humidity: Error"));
        } else {
            // Print humidity
            Serial.print(F("Humidity: "));
            Serial.print(humidity / 10);
            Serial.print(F("."));
            Serial.print(humidity % 10);
            Serial.println(F(" %"));

        }
```

```
34
35          Serial.println();
36        }
37  }
```

Serial output

```
1  DHT22 temperature and humidity sensor example
2
3  Temperature: 17.7 *C
4  Humidity: 41.0 %
5
6  Temperature: 17.8 *C
7  Humidity: 41.1 %
8
9  ...
```