DHT22 library for Arduino

1.0.0

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Contents

Chapter 1

DHT22 temperature and humidity sensor library for Arduino

This is a AM2303 temperature and humidity sensor on a DHT22 breakout.

Library features

- Synchronous 16-bit temperature read
- Synchronous 16-bit humidity read

Hardware

Connection DHT22 - Arduino UNO

DHT22	Arduino UNO
GND	GND
VCC	5V (or 3.3V)
DAT	D2

Documentation

`AM2303 datasheet`

`DHT22 datasheet`

AM2303 specifications

- Voltage: 3.3 .. 5V
- Ultra-low power:
  - Typical 15uA dormancy
  - Typical 500uA measuring

- Single wire serial interface
- 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

Examples

Examples | ErriezDH22:

- Example

Usage

Initialization

```
{c++}
#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

```
{c++}
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();

    // Print temperature
    Serial.print(F("Temperature: "));
    Serial.print(temperature / 10);
    Serial.print(F("."));
    Serial.print(temperature % 10);
    Serial.println(F(" *C"));

    // Print humidity
    Serial.print(F("Humidity: "));
    Serial.print(humidity / 10);
    Serial.print(F("."));
    Serial.print(humidity % 10);
    Serial.println(F(" %\n"));
  }
}
```

Serial output

```
DHT22 temperature and humidity sensor example

Temperature: 17.7 *C
Humidity: 41.0 %

Temperature: 17.8 *C
Humidity: 41.1 %

...
```

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 3

Class Documentation

3.1 DHT22 Class Reference

DHT22 sensor class.

```
#include <DHT22.h>
```

Public Member Functions

- DHT22 (uint8_t pin)

  Constructor DHT22 sensor.
- void begin ()

  Initialize sensor.
- bool available ()

  Check if new temperature or humidity read is allowed.
- int16_t readTemperature ()

  Read temperature from sensor.
- int16_t readHumidity ()

  Read humidity from sensor.

3.1.1 Detailed Description

DHT22 sensor class.

Definition at line 57 of file DHT22.h.

3.1.2 Constructor & Destructor Documentation

3.1.2.1 DHT22()

```
DHT22::DHT22 (
              uint8_t pin )   [explicit]
```

Constructor DHT22 sensor.

Parameters

pin	Data pin sensor.

Definition at line 36 of file DHT22.cpp.

3.1.3 Member Function Documentation

3.1.3.1 available()

```
bool DHT22::available ( )
```

Check if new temperature or humidity read is allowed.

The application should call this function and check if a new temperature and humidity can be read to prevent too fast sensor reads.

Returns

> true: Available, interval between sensor reads >= 2000 ms. false: Not available, interval between sensor reads too short.

Definition at line 78 of file DHT22.cpp.

3.1.3.2 begin()

```
void DHT22::begin ( )
```

Initialize sensor.

Call this function from setup().

Definition at line 58 of file DHT22.cpp.

3.1.3.3 readHumidity()

```
int16_t DHT22::readHumidity ( )
```

Read humidity from sensor.

Returns

> Signed humidity with last digit after the point. ∼0: An error occurred

Definition at line 120 of file DHT22.cpp.

3.1.3.4 readTemperature()

```
int16_t DHT22::readTemperature ( )
```

Read temperature from sensor.

Returns the actual temperature, or a cached temperature when read interval is too short.

Returns

Signed temperature with last digit after the point ∼0: An error occurred

Definition at line 98 of file DHT22.cpp.

The documentation for this class was generated from the following files:

- src/DHT22.h
- src/DHT22.cpp

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