## DHT11 Humidity & Temperature Sensor Module

DHT11 Temperature & Humidity Sensor features a temperature & humidity sensor with calibrated digital output. By using the exclusive digital-signal-acquisition technique and temperature & humidity sensing technology, it ensures high reliability and excellent long-term stability. This sensor includes a resistive-type humidity measurement component and an NTC temperature measurement component with 8-bit microcontroller, offering excellent quality, fast response, anti-interference ability and cost-effectiveness.
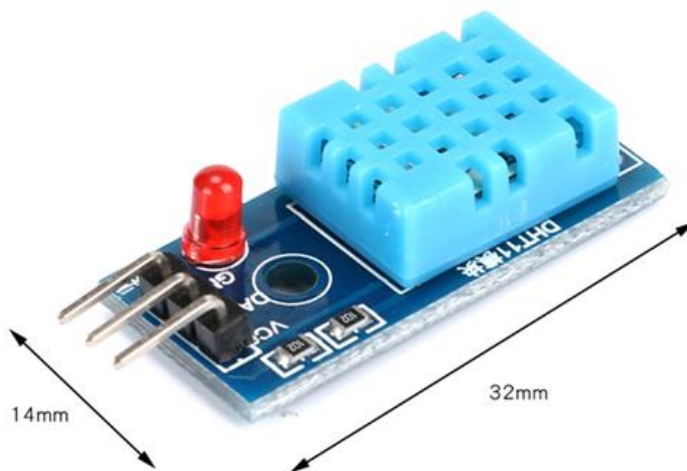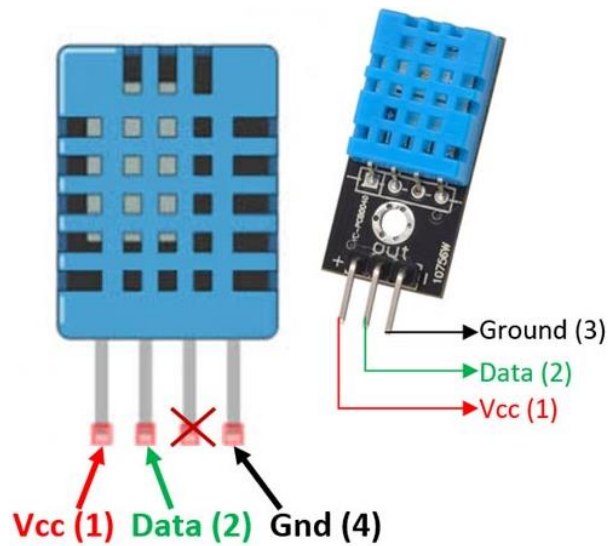

SKU: SSR1006

Brief Data:

- Operating voltage: 3.5~5.5V.
- Humidity Range: 20~90% ± 5%.
- Humidity Resolution: 1%.
- Temperature Range: 0~50℃ ± 1℃.
- Temperature Resolution: 1℃.
- Operating Current: 3mA (Max).
- Standby: 0.15mA.
- Sampling Period: 1s.
- Mounting Hole: M3.
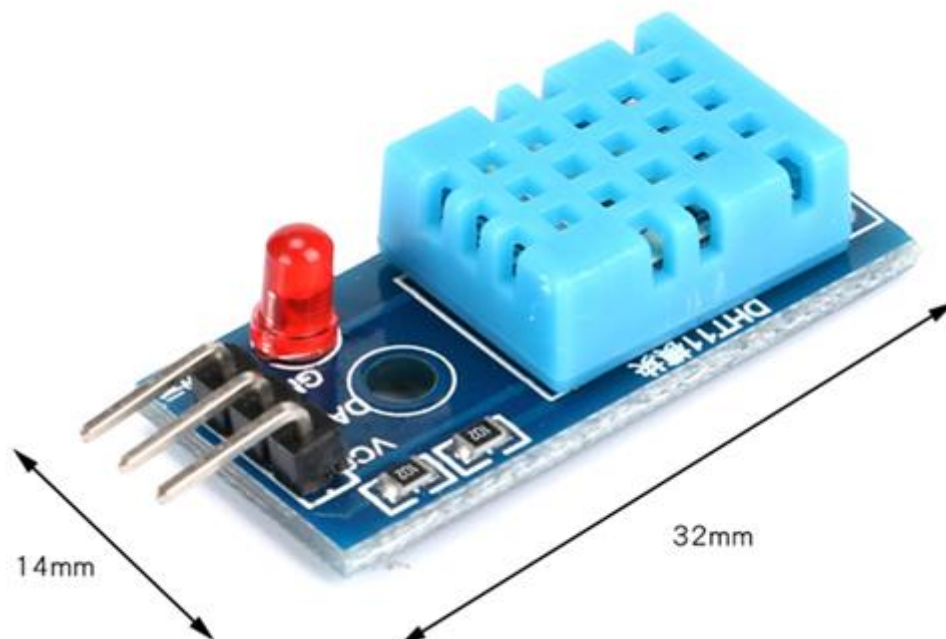- 2.54mm breadboard friendly header pin connector.

Functional Diagram:

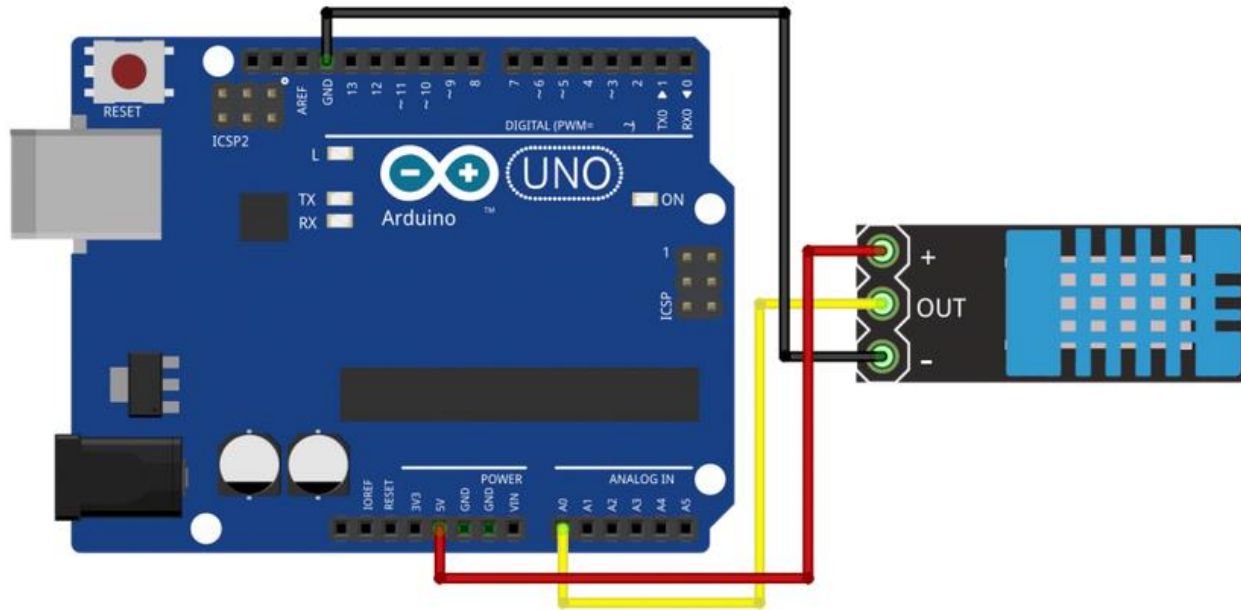| Vcc	Power Supply 3.5~5.5Vdc
Data	Serial Data Outputs for Temperature and Humidity
Ground	Power Ground

Mechanical Dimension:

Unit: mm

Application Example with Arduino Uno:

This is a real simple set up. Wire up the schematic as shown below:

Upload the below sketch to Arduino Uno Board.

In order for the below sketch to compile, we need the below two library. Down these library and extract it to the Arduino libraries folder:

- Adafruit Unified Sensor Driver
- Adafruit DHT Humidity & Temperature Unified Sensor Library

```
/********************************************************
   Name: DHT11 Humidity & Temperature Sensor with Arduino
   Description: Example testing sketch for various
                DHT humidity/temperature sensors
   Website: www.handsontec.com
   Email: techsupport@handsontec.com
 ********************************************************/

#include "DHT.h"

#define DHTPIN A0    // what pin we're connected to

// Uncomment whatever type you're using!

#define DHTTYPE DHT11 // DHT 11

//#define DHTTYPE DHT22   // DHT 22  (AM2302), AM2321
//#define DHTTYPE DHT21   // DHT 21 (AM2301)

// Connect pin 1 (on the left) of the sensor to +5V
// NOTE: If using a board with 3.3V logic like an Arduino Due connect pin 1
// to 3.3V instead of 5V!
// Connect pin 2 of the sensor to whatever your DHTPIN is
// Connect pin 4 (on the right) of the sensor to GROUND
// Connect a 10K resistor from pin 2 (data) to pin 1 (power) of the sensor
```

```
// Initialize DHT sensor.
// Note that older versions of this library took an optional third parameter to
// tweak the timings for faster processors.  This parameter is no longer needed
// as the current DHT reading algorithm adjusts itself to work on faster procs.

DHT dht(DHTPIN, DHTTYPE);

void setup() {
  Serial.begin(9600);
  Serial.println("DHTxx test!");

  dht.begin();
}

void loop() {
  // Wait a few seconds between measurements.
  delay(2000);

  // Reading temperature or humidity takes about 250 milliseconds!
  // Sensor readings may also be up to 2 seconds 'old' (its a very slow sensor)
  float h = dht.readHumidity();
  // Read temperature as Celsius (the default)
  float t = dht.readTemperature();
  // Read temperature as Fahrenheit (isFahrenheit = true)
  float f = dht.readTemperature(true);

  // Check if any reads failed and exit early (to try again).
  if (isnan(h) || isnan(t) || isnan(f)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
  }

  // Compute heat index in Fahrenheit (the default)
  float hif = dht.computeHeatIndex(f, h);
  // Compute heat index in Celsius (isFahreheit = false)
  float hic = dht.computeHeatIndex(t, h, false);

  Serial.print("Humidity: ");
  Serial.print(h);

  Serial.print(" %\t");
  Serial.print("Temperature: ");
  Serial.print(t);
  Serial.println(" *C ");

  }
```
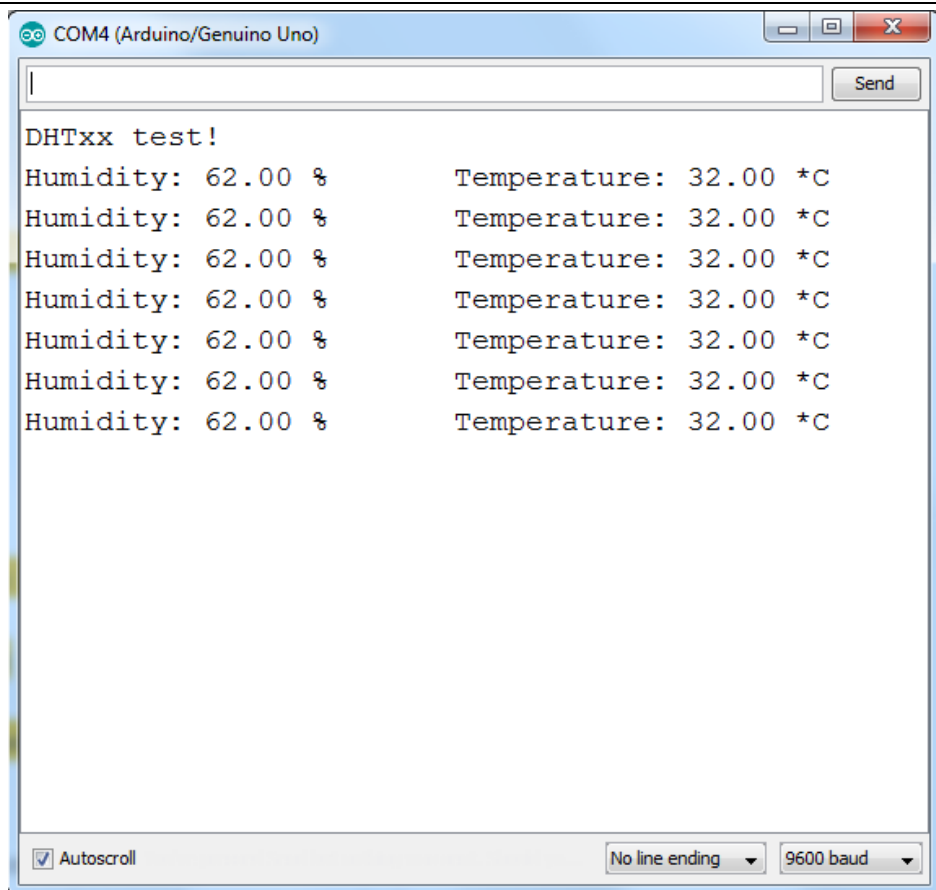
Once the sketch had successfully uploaded, you can also observe the humidity & temperature from the module output by opening the Serial Monitor:

```
DHTxx test!
Humidity: 62.00 %        Temperature: 32.00 *C
Humidity: 62.00 %        Temperature: 32.00 *C
Humidity: 62.00 %        Temperature: 32.00 *C
Humidity: 62.00 %        Temperature: 32.00 *C
Humidity: 62.00 %        Temperature: 32.00 *C
Humidity: 62.00 %        Temperature: 32.00 *C
Humidity: 62.00 %        Temperature: 32.00 *C
```

Web Resources:

- https://howtomechatronics.com/tutorials/arduino/dht11-dht22-sensors-temperature-and-humidity-tutorial-using-arduino/

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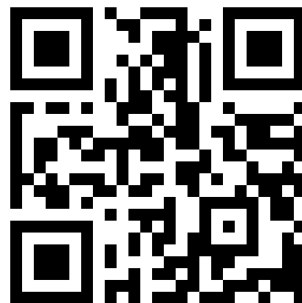
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