Temperature-Humidity Sensor User Manual

1. Features

Sensor	DHT11 (Temperature & humidity sensor)
Operating voltage	3.3V-5.5V
Humility measuring range	20%-95%（0℃-50℃）
Humility measuring error	+-5%
Temperature measuring range	0℃-50℃
Temperature measuring error	+-2℃
Dimensions	29.0mm*18.0mm
Fixing hole size	2.0mm

Table 1.   Product features

Operating principle:

DHT11 Digital Temperature & Humidity Sensor is a temperature-humidity compound sensor with calibrated digital signal output. The sensor includes a resistive humidity-sensing component and a NTC temperature-sensing component. Each DHT11 sensor is calibrated in an extremely accurate humidity-calibration chamber. The calibration coefficients are stored in the OTP memory in the form of programs, and these calibration coefficients are called during the internal signal detection process of the sensor, so that there is no need to recalibrate them. The single-wire serial interface provides easy and fast system integration. Its smart size, low power-consumption and signal transmission distance up to 20 meters makes it an ideal option in various applications.

2. Applications

This module can be applied to environmental temperature & humidity measurement.

3. Interfaces

Pin No.	Symbol	Descriptions
1	DOUT	Communication port
2	GND	Power ground
3	VCC	Positive power supply (3.3V-5.5V)

Table 2.   Interface specification

4. How to use

We will illustrate the usage of the module with an example of temperature-humidity measurement by connecting a development board.
① Download relative codes to the development board.
② Connect the development board to a PC via a serial wire and the module to the development board. Then, power up the development board and start the serial debugging software. The configuration of the connection between the module and the development board are shown in Table 3 and Table 4.

Port	STM32 MCU pin
DOUT	GPIOA.0
GND	GND
VCC	3.3V

Table 3.   The connection between STM32 development board and DHT11

Port	Arduino pin
DOUT	D2
GND	GND
VCC	5V

Table 4.   The connection between Arduimo and DHT11

The configuration of the serial port is listed in Table 5.

Baud rate	115200
Data bits	8
Stop bit	1
Parity bit	None

Table 5.   Serial port configuration

③ Run the serial debugging software, then you can see relative data of humility and temperature are outputted. For example:
Humidity=33
Temperature=28