



# Grove - Temperature and Humidity Sensor Pro User Manual

Release date: 2015/9/22

Version: 1.0

Wiki:[http://www.seeedstudio.com/wiki/Grove - Temperature and Humidity Sensor Pro](http://www.seeedstudio.com/wiki/Grove_-_Temperature_and_Humidity_Sensor_Pro)

Bazaar:[http://www.seeedstudio.com/depot/grove-temperaturehumidity-sensor-pro-p-838.html?cPath=144\\_147](http://www.seeedstudio.com/depot/grove-temperaturehumidity-sensor-pro-p-838.html?cPath=144_147)

## Document Revision History

---

| Revision | Date         | Author     | Description |
|----------|--------------|------------|-------------|
| 1.0      | Sep 22, 2015 | jiankai.li | Create file |
|          |              |            |             |

## Contents

|   |   |
|---|---|
| Document Revision History .....               | 2 |
| 1. Introduction .....                         | 2 |
| 2. Specification .....                        | 3 |
| 3. Usage .....                                | 4 |
| 3.1 With Arduino .....                        | 4 |
| 3.2 With Raspberry Pi .....                   | 6 |
| 4. Resources .....                            | 8 |
| 5. Related Projects .....                     | 9 |
| 5.1 Share Your Awesome Projects with Us ..... | 9 |

### *Disclaimer*

*For physical injuries and possessions loss caused by those reasons which are not related to product quality, such as operating without following manual guide, natural disasters or force majeure, we take no responsibility for that.*

*Under the supervision of Seeed Technology Inc., this manual has been compiled and published which covered the latest product description and specification. The content of this manual is subject to change without notice.*

### *Copyright*

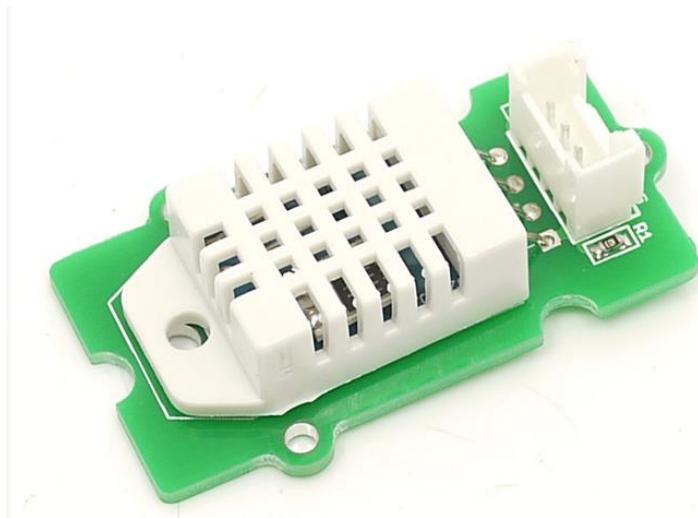
*The design of this product (including software) and its accessories is under tutelage of laws. Any action to violate relevant right of our product will be penalized through law. Please consciously observe relevant local laws in the use of this product.*

## 1. Introduction

---

Go pro in temperature and relative humidity measurement applications with this Grove gadget. This is a powerful sister version of our Grove - Temperature and Humidity Sensor. It has more complete and accurate performance than the basic version. The detecting range of this sensor is 5% RH - 99% RH, and -40°C - 80°C. And its accuracy satisfyingly reaches up to 2% RH and 0.5°C. A professional choice for applications that have relatively strict requirements.

NOTE: The warnings and wrong operations possible cause dangerous.



## 2. Specification

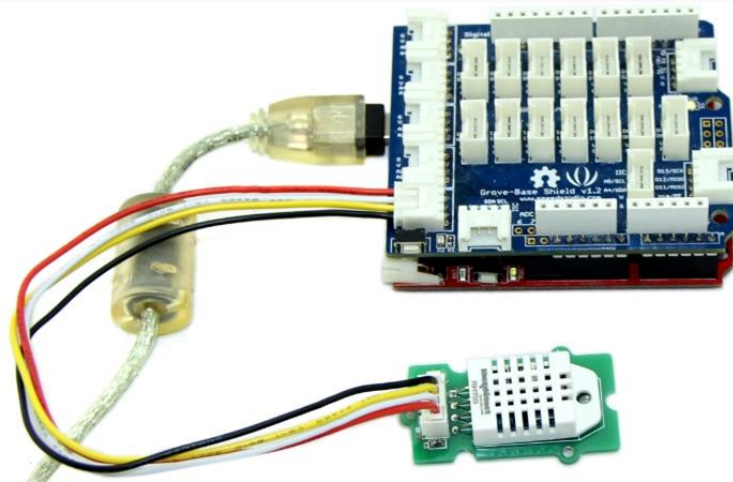
| Items                    | Conditions  | Min | Norm | Max   | Unit    |
|--------------------------|-------------|-----|------|-------|---------|
| VCC                      | -           | 3.3 | -    | 6     | Volts   |
| Measuring Current Supply | -           | 1   | -    | 1.5   | mA      |
| Standby Current Supply   | -           | 40  | -    | 50    | uA      |
| Measuring Range          | Humidity    | 5%  | -    | 99%   | RH      |
|                          | Temperature | -40 | -    | 80    | ℃       |
| Accuracy                 | Humidity    | -   | -    | ±2%   | RH      |
|                          | Temperature | -   | -    | ±0.5  | ℃       |
| Resolution               | Humidity    | -   | -    | 0.1%  | RH      |
|                          | Temperature | -   | -    | 0.1   | ℃       |
| Repeatability            | Humidity    | -   | -    | ±0.3% | RH      |
|                          | Temperature | -   | -    | ±0.2  | ℃       |
| Long-term Stability      | -           | -   | -    | ±0.5% | RH/year |
| Signal Collecting Period | -           | -   | 2    | -     | S       |
| Respond Time             | 1/e(63%)    | 6   | -    | 20    | S       |

## 3. Usage

---

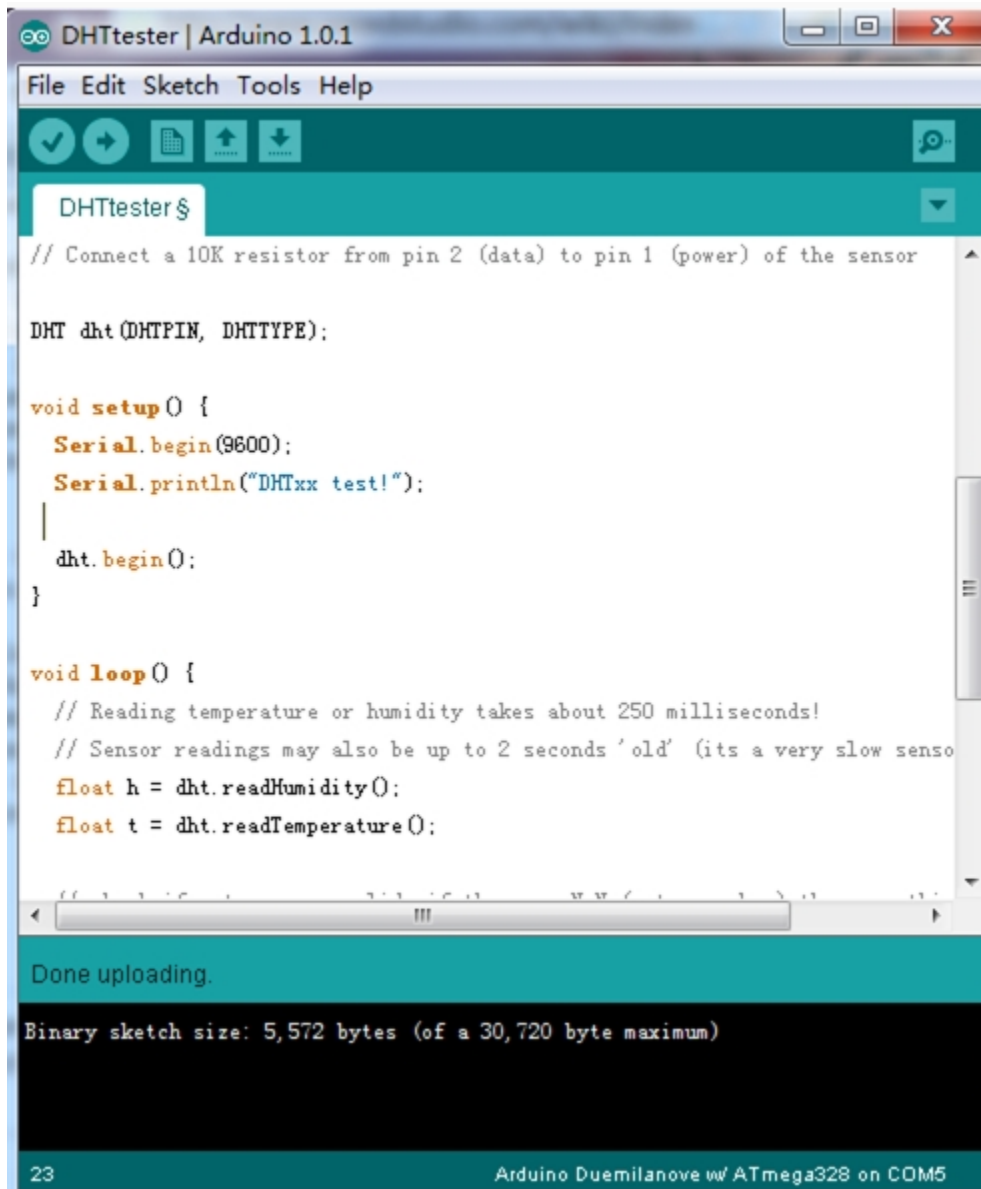
### 3.1 With [Arduino](#)

1. Connect the Temperature and Humidity Sensor Pro to A0 of [Grove - Base Shield](#). Then plug Grove - Base Shield into Arduino and connect Arduino to PC using a USB cable.



2. Download [Seeed DHT library](#) for arduino boards with 16MHz XTAL; Unzip and put it in the libraries file of Arduino IDE by the path: ..\arduino-1.0\libraries; Another library - [DHTlib](#) is also available instead of Seeed DHT library. This library supports both 16MHz and 8MHz Arduino (eg. Seeeduino Stalker)

3. Restart the Arduino IDE. Open “DHTtester” example via the path: File --> Examples --> Humidity\_Temperature\_Sensor --> DHTtester. Through this demo, we can read the temperature and relative humidity information of the environment.



```

DHTtester | Arduino 1.0.1
File Edit Sketch Tools Help

DHTtester$

// Connect a 10K resistor from pin 2 (data) to pin 1 (power) of the sensor

DHT dht(DHTPIN, DHTTYPE);

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

void loop() {
  // Reading temperature or humidity takes about 250 milliseconds!
  // Sensor readings may also be up to 2 seconds 'old' (its a very slow senso
  float h = dht.readHumidity();
  float t = dht.readTemperature();

  // ... your code here ...
}

Done uploading.

Binary sketch size: 5,572 bytes (of a 30,720 byte maximum)

23 Arduino Duemilanove w/ ATmega328 on COM5

```

Note:

This Grove - Temperature and Humidity Sensor Pro and our another product [Grove-Temperature and Humidity Sensor](#) are sharing this library. No matter which product you are using, make sure that you have made the definition line of the sensor of your board into effect and commented out the definition lines of other specs. For example, the sensor we used on Grove - Temperature and Humidity Sensor Pro is DHT 22. So the definition part of the sensor spec should be:

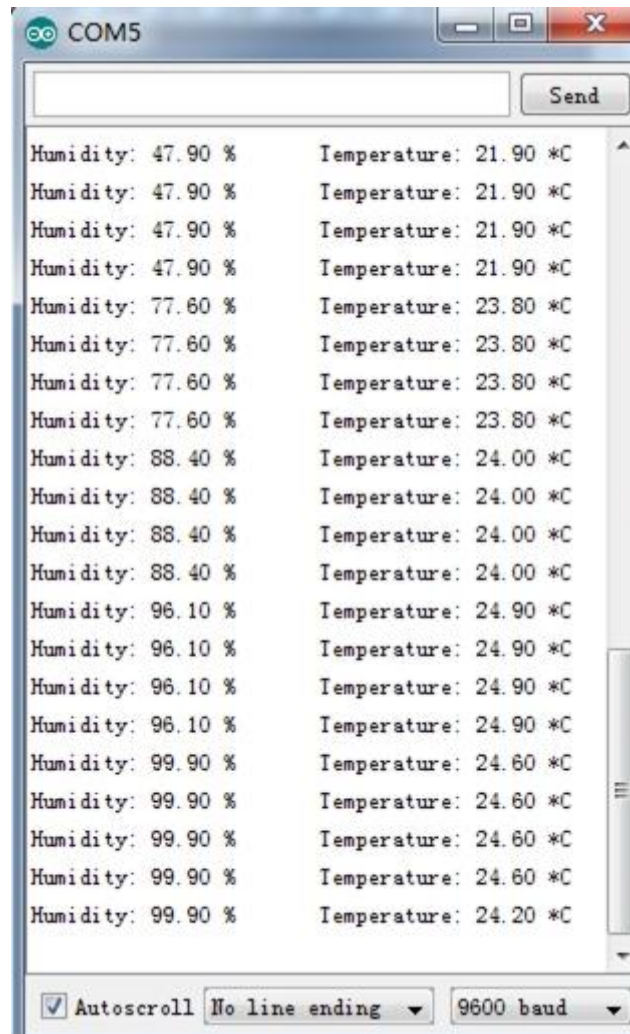
```

// #define DHTTYPE DHT11 // DHT 11 #define DHTTYPE DHT22 // DHT 22 (AM2302) // #define DHTTYPE DHT21
// DHT 21 (AM2301) or

```

4. Upload it into your Arduino board.





### 3.2 With [Raspberry Pi](#)

1. You should have got a raspberry pi and a grovepi or grovepi+.
2. You should have completed configuring the development environment, otherwise follow [here](#).
3. Connection

- Plug grove DHT pro to the socket D4 of grovepi.

4. Navigate to the demos' directory:

```
cd yourpath/GrovePi/Software/Python/
```

To see the code

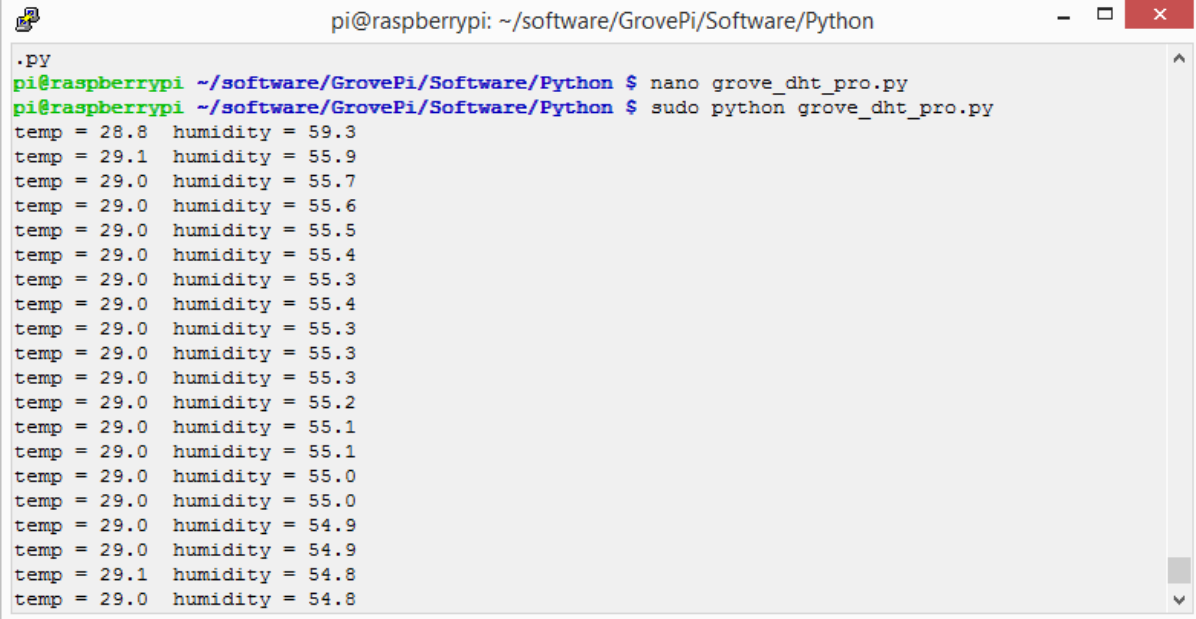
```
nano grove_dht_pro.py # "Ctrl+x" to exit #
```

```
import grovepi # Connect the Grove Temperature & Humidity Sensor Pro to digital port D4 # SIG, NC, VCC, GND
sensor = 4
while True:
    try:
        [temp, humidity] = grovepi.dht(sensor, 1)
        print "temp = ", temp, " humidity = ", humidity
    except IOError:
        print "Error"
```

5. Run the demo.

```
sudo python grove_dht_pro.py
```

## 6. Result



```
pi@raspberrypi: ~/software/GrovePi/Software/Python
.py
pi@raspberrypi ~/software/GrovePi/Software/Python $ nano grove_dht_pro.py
pi@raspberrypi ~/software/GrovePi/Software/Python $ sudo python grove_dht_pro.py
temp = 28.8  humidity = 59.3
temp = 29.1  humidity = 55.9
temp = 29.0  humidity = 55.7
temp = 29.0  humidity = 55.6
temp = 29.0  humidity = 55.5
temp = 29.0  humidity = 55.4
temp = 29.0  humidity = 55.3
temp = 29.0  humidity = 55.4
temp = 29.0  humidity = 55.3
temp = 29.0  humidity = 55.3
temp = 29.0  humidity = 55.3
temp = 29.0  humidity = 55.2
temp = 29.0  humidity = 55.1
temp = 29.0  humidity = 55.1
temp = 29.0  humidity = 55.0
temp = 29.0  humidity = 55.0
temp = 29.0  humidity = 54.9
temp = 29.0  humidity = 54.9
temp = 29.1  humidity = 54.8
temp = 29.0  humidity = 54.8
```

## 4. Resources

---

- [File:Temp Humi Pro eagle files.zip](#)
- [File:Humidity Temperature Sensor pro.zip](#)
- [File:AM2302.pdf](#)

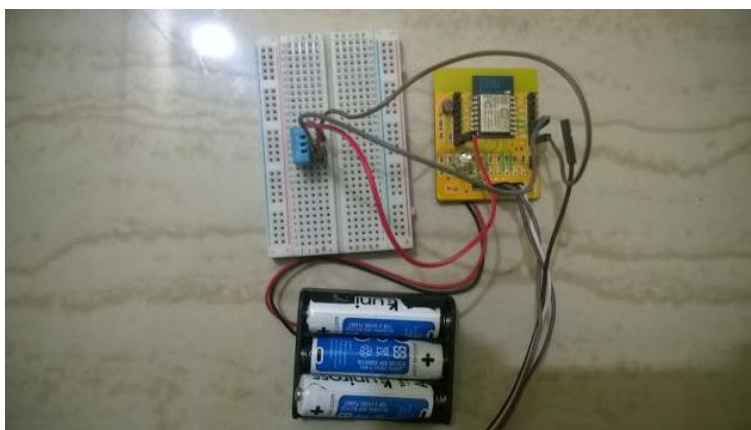
## 5. Related Projects

---

It's a pity that we don't have any demo about Grove - Temperature and Humidity Sensor in the [Recipe](#) yet.

Post your awesome project about Grove - Temperature and Humidity Sensor to win \$100 Coupon! Please feel free to contact us: [recipe@seeed.cc](mailto:recipe@seeed.cc)

Here we introduce some projects about Temperature and humidity data acquisition.



This is a recipe about transfer temperature and humidity data to a website and stores your real time data for monitoring.

[I want to make it.](#)

### 5.1 Share Your Awesome Projects with Us

Born with the spirit of making and sharing, that is what we believe makes a maker.

And only because of this, the open source community can be as prosperous as it is today.

It does not matter what you are and what you have made, hacker, maker, artist or engineers.

As long as you start sharing your works with others, you are being part of the open source community and you are making your contributions.

Now share your awesome projects with us on [Recipe](#), and win a chance to become the Core User of Seeed.

- Core Users, are those who show high interests in Seeed products and make significant contributions on Recipe.
- We cooperate with our Core Users in the development of our new product, this, in another word, the Core Users will have the chance to experience any new products of Seeed before its

official launch, and in return we expect valuable feedback from them to help us improve the product performance and user experience. And in most cases when our Core Users have some good ideas of making things, we'll offer hardware pieces, PCBA services as well as technical support. Besides, further commercial cooperation with the Core Users is highly possible.

Get more information about Core User please email to: [recipe@seeed.cc](mailto:recipe@seeed.cc)

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)

[www.lifeelectronics.ru](http://www.lifeelectronics.ru)