# Grove
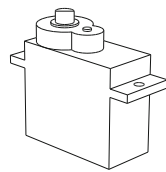# Starter
# Kit for
# LinkIt ONE

## Introduction

### · About Grove

Before we had Grove, at least three wires were needed every time a module was connected to LinkIt ONE, including power, ground and signal. Soon the LinkIt ONE would be hard to manipulate among excessive wires. Why couldn't we simplify the building process? With this goal we designed and created the Grove system. Every Grove module has one function, such as sensing light, and it has pre-installed wires. You only need to plug one Grove cord into a socket on the Base Shield for the module to function reliably in your design.

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### · About LinkIt ONE

The LinkIt ONE development board is an open source, high performance board for prototyping Wearables and IoT devices. It's based on the world's leading SoC for Wearables, MediaTek Aster (MT2502) combined with high performance Wi-Fi (MT5931) and GPS (MT3332) chipsets to provide you with access to all the features of MediaTek LinkIt. It also provides similar pin-out features to Arduino boards, making it easy for you to connect to various sensors, peripherals, and Arduino shields.

### · How to use LinkIt ONE

If this is your first time to use a LinkIt ONE, please refer to the wiki of LinkIt ONE first, where you can learn how to install driver, download LinkIt ONE IDE and the most important, learn how to get start with LinkIt ONE.

http://www.seeedstudio.com/wiki/LinkIt_ONE

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## Modules Introduction

### 1. Grove Touch Sensor

This "button" can sense the touch of your finger.

#### ※ Example

The example below shows you how to use this touch sensor to turn a led(D13) on and off.
**Connection:**
Grove - Touch Sensor connect to D2 of Grove Base Shield
**Sketchbook path:**
File -> Examples -> Grove_Starter_Kit -> Grove_Touch_Sensor
#### ※ Tips
This is an alternative to the momentary button. Grove Touch Sensor detects the change in capacitance in the circular region; the closer your finger is to the region, the larger the change in capacitance. Even if there is paper between your finger and the sensor, it will still function reliably.

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### 2. Grove Sound Sensor

This is a sensor to evaluate the intensity of sound.

#### ※ Example

This example will show you how to get data from sound sensor. You can open serial monitor, then the data appear.
**Connection:**
Grove - Sound Sensor connect to A0 of Grove Base Shield
**Sketchbook path:**
File -> Examples -> Grove_Starter_Kit-> Grove_Sound_Sensor
#### ※ Tips
The electric microphone collects sound intensity for all frequencies, and the potentiometer acts as the doorman. When you rotate it clockwise to the extreme, it lets everything go through, and when you rotate it fully counterclockwise, nothing goes through.

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### 3. Grove - Light Sensor

This is a sensor that detects the change of light.

#### ※ Example

This code of Grove - Sound Sensor will works with this module.
**Connection:**
Grove - Light Sensor connect to A0 of Grove Base Shield
#### ※ Tips
The output of the analog light sensor ranges from 0 to 1023, but it is not linear with respect to the ambient light intensity. Below is a table to help you understand what the output really means.

| Sensor Value | LUX | Description |
|---|---|---|
| 100 | <1 | |
| 200 | ~1 | Full moon overhead at tropical latitudes |
| 300 | ~3 | Twilight in the city |
| 400 | ~6 | |
| 500 | ~10 | |
| 600 | ~15 | |
| 700 | ~35 | Family living room |
| 800 | ~80 | Office building light in hallway |
| 900 | >100 | Very dark, overcast day |

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### 4. Grove - Servo

This is an actuator whose positon can be precisely controlled.

#### ※ Example

In the example, the servo will move from location 0 to location 180, then move to location 0, and follow by recycle.
**Connection:**
Grove - Servo connect to D8 of Grove Base Shield
**Sketchbook path:**
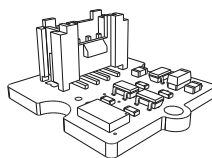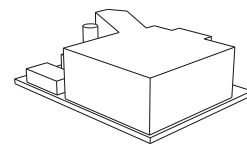File -> Examples -> Grove_Starter_Kit -> Servo
#### ※ Tips
Grove - Servo has several mounting hardware options for different purposes: you can use them to drive a small fan, lift an object, or mimic a clock hand.

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### 5. Grove - Dust Sensor

This sensor can measure air quality.

#### ※ Example

The example code can show you how to get data from the sensor. You can see the output data in the serial monitor.
**Connection:**
Grove - Dust Sensor connect to D2 of Grove Base Shield
**Sketchbook path:**
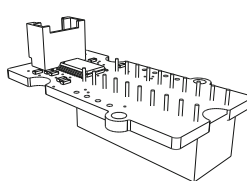File -> Examples -> Grove_Starter_Kit -> Grove_Dust_Sensor
#### ※ Tips
· 3 min preheat time is required when used at the first time.
· Pins VR1 and VR2 come preset. Please DON'T change the default configuration.

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### 6. Grove – Temperature & Humidity Sensor Pro

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.

#### ※ Example

The code in this example shows you how to get temperature and humidity from the sensor. You can see the output data in the serial monitor.
**Connection:**
Grove - Temperature & Humidity Sensor Pro connect to D2 of Grove Base Shield
**Sketchbook path:**
File -> Examples -> Grove_Starter_Kit -> Grove_Temp_Humi_Sensor
#### ※ Tips
The warnings and wrong operations possible cause dangerous. 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.

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### 7. Grove - UV Sensor

This sensor is used for detecting the intensity of incident ultraviolet(UV) radiation.

#### ※ Example

The example will show you how to get UV value from the sensor. You can see the output data in the serial monitor.
**Connection:**
Grove - UV Sensor connect to A0 of Grove Base Shield
**Sketchbook path:**
File -> Examples -> Grove_Starter_Kit -> Grove_UV_Sensor
#### ※ Tips
Go out into the sunlight, you will find the UV value increase. The Grove - UV Sensor is based on the sensor GUVA-S12D which has a wide spectral range of 200nm-400nm.

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### 8. Grove – Barometer

This sensor can is used for detecting the baro and temperature.

#### ※ Example

The example will show you how to get baro and temperature from the sensor, You can see the output data in the serial monitor.
**Connection:**
Grove - Barometer connect to I2C Port of Grove Base Shield
**Sketchbook path:**
File -> Examples -> Grove_Starter_Kit -> Grove_Barometer
#### ※ Tips
The unit of barometer is KPA. It can widely measure pressure ranging from 300hPa to 1100hPa, AKA +9000m to -500m above sea level, with a super high accuracy of 0.03hPa(0.25m) in ultra-high resolution mode.

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### 9. Grove - 3-Axis Digital Accelerometer(±16g)

This is a high resolution digital accelerometer providing you at max 3.9mg/LSB resolution and large ±16g measurement range.

#### ※ Example

The example will show you how to get accelerator from the sensor, You can see the output data in the serial monitor.
**Connection:**
Grove - 3-Axis Digital Accelerometer connect to I2C Port of Grove Base Shield
**Sketchbook path:**
File -> Examples -> Grove_Starter_Kit -> Grove_Acclerometer
#### ※ Tips
It's based on an advanced 3-axis IC ADXL345.Low power 0.1 µA in standby mode at VS = 2.5 V.

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### 10. Grove - Led Bar

Grove – LED Bar is comprised of a 10 segment LED, you can use it as an indicator.

#### ※ Example

The example will show you how to control every led of Grove - LED Bar.
**Connection:**
Grove - Led Bar connect to D2 of Grove Base Shield
**Sketchbook path:**
File -> Examples -> Grove_Starter_Kit -> Grove_Led_Bar
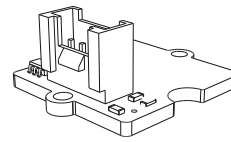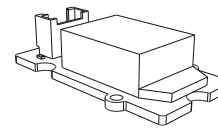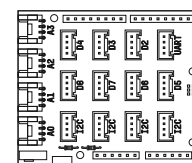#### ※ Tips
10 segment LED means there're 10 LEDs. It can be used as an indicator for remaining battery life, voltage, water level, music volume or other values that require a gradient display.

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### 11. Grove - Base Shield

Base Shield is an interface between Arduino and Grove modules. There are 16 Grove sockets on the base shield, whichcan be divided into three different functional areas:  digital ports (8), analog ports (4), and I2C ports (4).
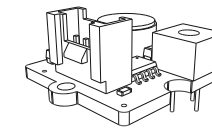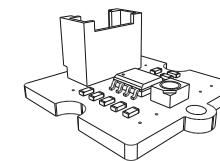
The Grove modules communicate via different protocols, and you can quickly figure out how to use them by familiarizing yourself with the communication methods of each module.

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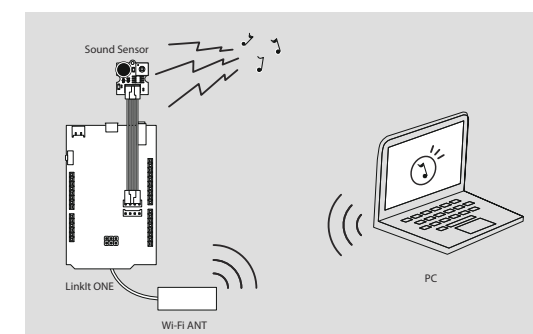
## Demo

### 1. Noise Finder

Noise Finer can show you the sound intensity around you. Then you can judge if the noise is too large or not.
#### ※ Materials List:
· Grove - LED Bar
· Grove - Sound Sensor
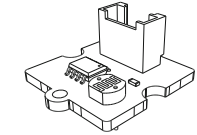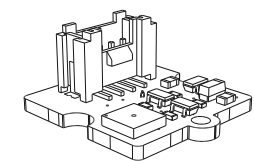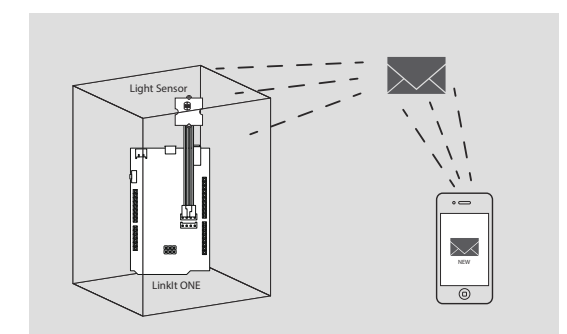· Base Shield
· LinkIt ONE
**Find the complete recipe here:**
http://www.seeedstudio.com/wiki/Noise_Finder



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### 2. Secret Box

When some guys open this secret box, you will get an SMS.
#### ※ Materials List:
· Grove - Light Sensor
· Base Shield
· LinkIt ONE
**Find the complete recipe here:**
http://www.seeedstudio.com/wiki/Secret_Box



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# Grove-Starter Kit for LinkIt ONE

seeed
Grow the Difference

LinkIt ONE

Grove

http://www.seeedstudio.com/wiki/LinkIt_ONE

LinkIt ONE
labs.mediatek.com

LinkIt
by MediaTek

LinkIt ONE
v1.0 08/08/2014
by Seeed Studio
www.seeedstudio.com