

Grove - Servo

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But if you feel more like a proto servo, check out EMAX 9g ES08A High Sensitive Mini Servo.
They are the same model, both of good quality and burden-free price.

Feature

- Small module
- Grove Compatible Interface
- Easy to use

Specification

Item	Min	Typical	Max	Unit
Working Voltage	4.8	5.0	6.0	V
Torque	1.5/1.8			Kg.cm
Speed	0.12/0.16			s/60°
Size	32X11.5X24			mm
Weight	8.5			g

Platforms Supported



Caution




The platforms mentioned above as supported is/are an indication of the module's software or theoretical compatibility. We only provide software library or code examples for Arduino platform in most cases. It is not

possible to provide software library / demo code for all possible MCU platforms. Hence, users have to write their own software library.

Getting Started

Play with Arduino

Here we will show you how this Grove - Servo works via a simple demo. First of all, we need to prepare the below stuffs:

Seeeduino V4	Grove - Servo	Base Shield
		
Get ONE Now	Get ONE Now	Get ONE Now

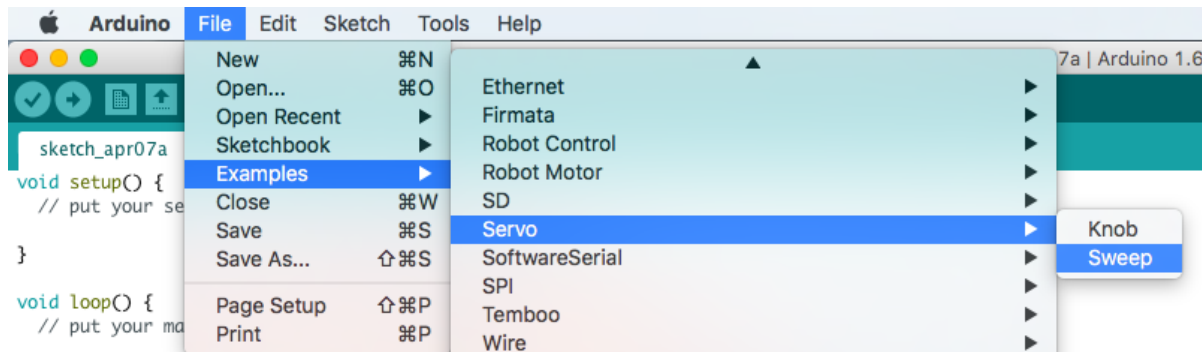
The Servo has three wires: power, ground, and signal. The power wire is typically red, and should be connected to the 5V pin on the Arduino/Seeeduino board. The ground wire is typically black or brown and should be connected to a ground pin on the Arduino board. The signal pin is typically yellow, orange or white and should be connected to **D5** on the Arduino

board. We can change to the digital port as we like. But don't forget to change the port number in the definition of the demo code at the same time.

- Connect the module to **D5** port of Base Shield.
- Plug Grove- Base Shield into Arduino.
- Connect Arduino to PC via a USB cable.

Software

- Let's sweep the shaft of a servo back and forth across 180 degrees by using [Arduino Servo Library](#).
- Open the code directly by the path: **File -> Examples -> Servo->Sweep**.



```
1  /* Sweep
2   by BARRAGAN <http://barraganstudio.com>
3   This example code is in the public domain.
4
5   modified 8 Nov 2013
6   by Scott Fitzgerald
```

```
7  https://arduino.cc/en/Tutorial/Sweep
8  */
9
10 #include <Servo.h>
11
12 Servo myservo; // create servo object to control a servo
13 // twelve servo objects can be created on most boards
14
15 int pos = 0;    // variable to store the servo position
16
17 void setup() {
18   myservo.attach(5); // attaches the servo on pin 5 to the servo object
19 }
20
21 void loop() {
22   for (pos = 0; pos <= 180; pos += 1) { // goes from 0 degrees to 180 deg
23     // in steps of 1 degree
24     myservo.write(pos);                // tell servo to go to position in v
25     delay(15);                          // waits 15ms for the servo to reach
26   }
27   for (pos = 180; pos >= 0; pos -= 1) { // goes from 180 degrees to 0 deg
28     myservo.write(pos);                // tell servo to go to position in v
29     delay(15);                          // waits 15ms for the servo to reach
30   }
31 }
```

- Upload the sketch. We can see the servo sweep.

Play with Codecraft

Hardware

Step 1. Connect Grove - Servo to port D5 in a Base Shield.

Step 2. Plug the Base Shield to your Seeeduino/Arduino.

Step 3. Link Seeeduino/Arduino to your PC via an USB cable.

Software

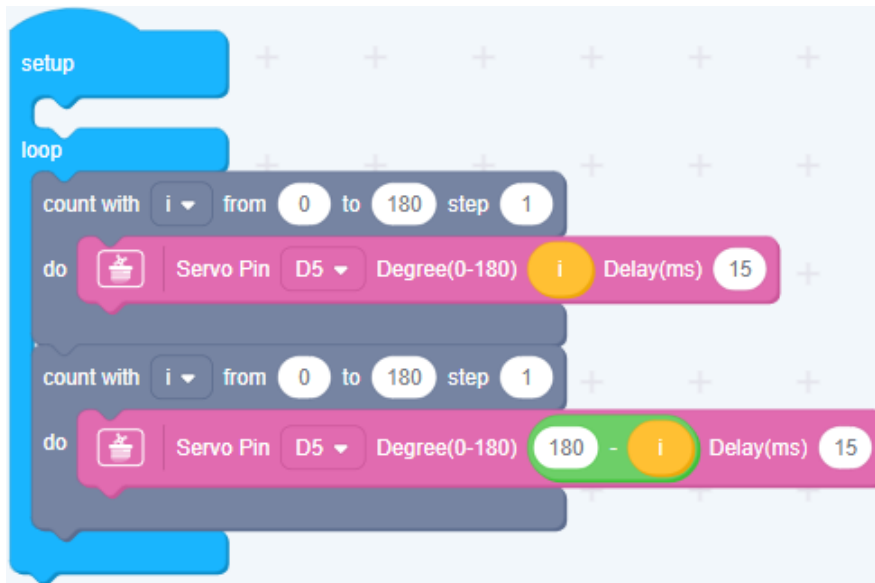
Step 1. Open [Codecraft](#), add Arduino support, and drag a main procedure to working area.



Note

If this is your first time using Codecraft, see also [Guide for Codecraft using Arduino](#).

Step 2. Drag blocks as picture below or open the cdc file which can be downloaded at the end of this page.



Upload the program to your Arduino/Seeeduino.




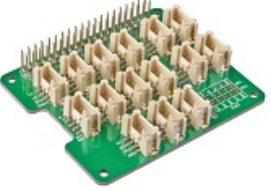

Success

When the code finishes uploaded, you will see the servo sweep.

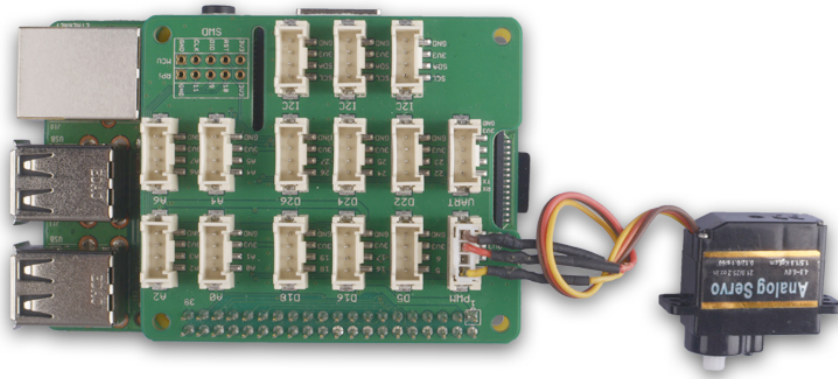
Play With Raspberry Pi (With Grove Base Hat for Raspberry Pi)

Hardware

- **Step 1.** Things used in this project:

Raspberry pi	Grove Base Hat for RasPi	Grove - Servo
		
Get ONE Now	Get ONE Now	Get ONE Now

- **Step 2.** Plug the Grove Base Hat into Raspberry.
- **Step 3.** Connect the Grove - Servo to port 12 of the Base Hat.
- **Step 4.** Connect the Raspberry Pi to PC through USB cable.



Note

For step 3 you are able to connect the servo module to **any GPIO Port** but make sure you change the command with the corresponding port number.

Software

- **Step 1.** Follow [Setting Software](#) to configure the development environment.
- **Step 2.** Download the source file by cloning the grove.py library.

```
1 cd ~
2 git clone https://github.com/Seeed-Studio/grove.py
```

- **Step 3.** Excute below commands to run the code.

```
1 cd grove.py/grove
2 python grove_servo.py 12
```

Following is the grove_servo.py code.

```
1 import RPi.GPIO as IO
2 import sys
3 import time
4 from numpy import interp
5
6 IO.setwarnings(False)
7 IO.setmode(IO.BCM)
8
9 class GroveServo:
10     MIN_DEGREE = 0
11     MAX_DEGREE = 180
12     INIT_DUTY = 2.5
13
14     def __init__(self, channel):
15         IO.setup(channel, IO.OUT)
16         self.pwm = IO.PWM(channel, 50)
```

```
17     self.pwm.start(GroveServo.INIT_DUTY)
18
19     def __del__(self):
20         self.pwm.stop()
21
22     def setAngle(self, angle):
23         # Map angle from range 0 ~ 180 to range 25 ~ 125
24         angle = max(min(angle, GroveServo.MAX_DEGREE), GroveServo.MIN_DEGREE)
25         tmp = interp(angle, [0, 180], [25, 125])
26         self.pwm.ChangeDutyCycle(round(tmp/10.0, 1))
27
28 Grove = GroveServo(12)
29
30 def main():
31     if len(sys.argv) < 2:
32         print('Usage: {} servo_channel'.format(sys.argv[0]))
33         sys.exit(1)
34
35     servo = GroveServo(int(sys.argv[1]))
36
37     while True:
38         for x in range(0, 180):
39             print x, "degree"
40             servo.setAngle(x)
41             time.sleep(0.05)
42         for x in range(180, 0, -1):
43             print x, "degree"
44             servo.setAngle(x)
45             time.sleep(0.05)
46
47 if __name__ == '__main__':
48     main()
```



Success

If everything goes well, you will be able to see the servo sweep.

```
1 pi@raspberrypi:~/grove.py/grove $ python grove_servo.py 12
2 0 degree
3 1 degree
4 2 degree
5 3 degree
6 4 degree
7 5 degree
8 6 degree
9 7 degree
10 8 degree
11 9 degree
12 10 degree
13 11 degree
14 12 degree
15 13 degree
16 14 degree
17 15 degree
18 16 degree
19 17 degree
20 18 degree
21 19 degree
22 20 degree
23 21 degree
24 ^CTraceback (most recent call last):
25   File "grove_servo.py", line 81, in <module>
26     main()
27   File "grove_servo.py", line 74, in main
28     time.sleep(0.05)
29 KeyboardInterrupt
```

You can quit this program by simply press `Ctrl + C`.

Resources

- **[Document]** [Understanding RC Servos](#)
- **[Library]** [Arduino Tutorial - Servo Library](#)
- **[Library]** [CodeCraft Code](#)
- **[Demo]** [Digital/Analog Clock - Arduino + PaperCraft](#)
- **[Demo]** [Low Cost Hobby Servo XY Table](#)

Tech Support

Please submit any technical issue into our [forum](#).

