1.About MG90S servo

First, let's learn about MG90S servo:



Classification: 180° servo

Generally, the servo has three control lines: power line, ground line and signal line. Servo pin definition: brown line - GND, red line - 5V, orange line - signal.

How the servo works:

The signal modulation chip in the servo receives the signal from the control board, and then the servo will obtain the basic DC voltage. There is also a reference circuit inside the servo, which can generate standard voltage. The two voltages will be compared with each other and output the difference. Then the motor chip will receive the difference and determine the speed, direction and angle. When there is no difference between the two voltages, the servo will stop.

How to control servo:

To control the servo rotation, it is necessary to make the time pulse about 20ms and the high level pulse width about 0.5ms~2.5ms, which is consistent with the servo angle limit.

Taking 180 degree servo as an example, the corresponding control pulse time is as follows

0.5ms	0
1.0ms	45
1.5ms	90
2.0ms	135
2,5ms	180

2.Example

Double-click to open the Servo-Test.ino file under "03 Tutorial & Code → Arduino → Lesson1 Drives a Single Servo motors → Servo-Test". Connect the NodeMcu development board and computer with USB cable, and select the correct development board, processor and port. upload the code into the NodeMcu, as shown in the figure below.

```
Servo-Test | Arduino 1.8.19
文件 编辑 项目 工具 帮助
        15
   Servo myservo; // create servo object to control a servo
16
   // twelve servo objects can be created on most boards
19⊟ void setup() {
     myservo.attach(9); // attaches the servo on GIO2 to the servo object
20
21
22
23 □ void loop() {
24
     int pos;
25
26 for (pos = 0; pos <= 180; pos += 1) { // goes from 0 degrees to 180 degrees
27
       // in steps of 1 degree
28
       myservo.write(pos);
                                       // tell servo to go to position in variable 'pos'
29
       delay(15);
                                        // waits 15ms for the servo to reach the position
30
31⊟
     for (pos = 180; pos >= 0; pos -= 1) { // goes from 180 degrees to 0 degrees
       myservo.write(pos);
32
                                       // tell servo to go to position in variable 'pos'
33
        delay(15);
                                       // waits 15ms for the servo to reach the position
34
35
```

After the code is downloaded, pull out the USB cable and connect the MG90S servo and expansion board. The connection relationship is shown below.

Insert the battery into the expansion board. If the servo is normal, it should rotate from 0 degrees to 180 degrees, and then rotate from 180 degrees to 0 degrees, and keep cycling. Disassemble the 8 servos provided in the kit and test them according to the same operation to ensure that each servo is normal and intact.

