

9g Micro Servo

1. Basic knowledge

The 9g Metal Gear package contains Acrylic bracket, driving disc, servo bracket, M3 screws and so on. Since all of the mBot structural parts use M4 screws, the 9g Micro Servo (Metal Gear) cannot be directly connected to metal parts. They need to be connected to metal parts through an Acrylic bracket. The installation diagram is shown in Figure 1.

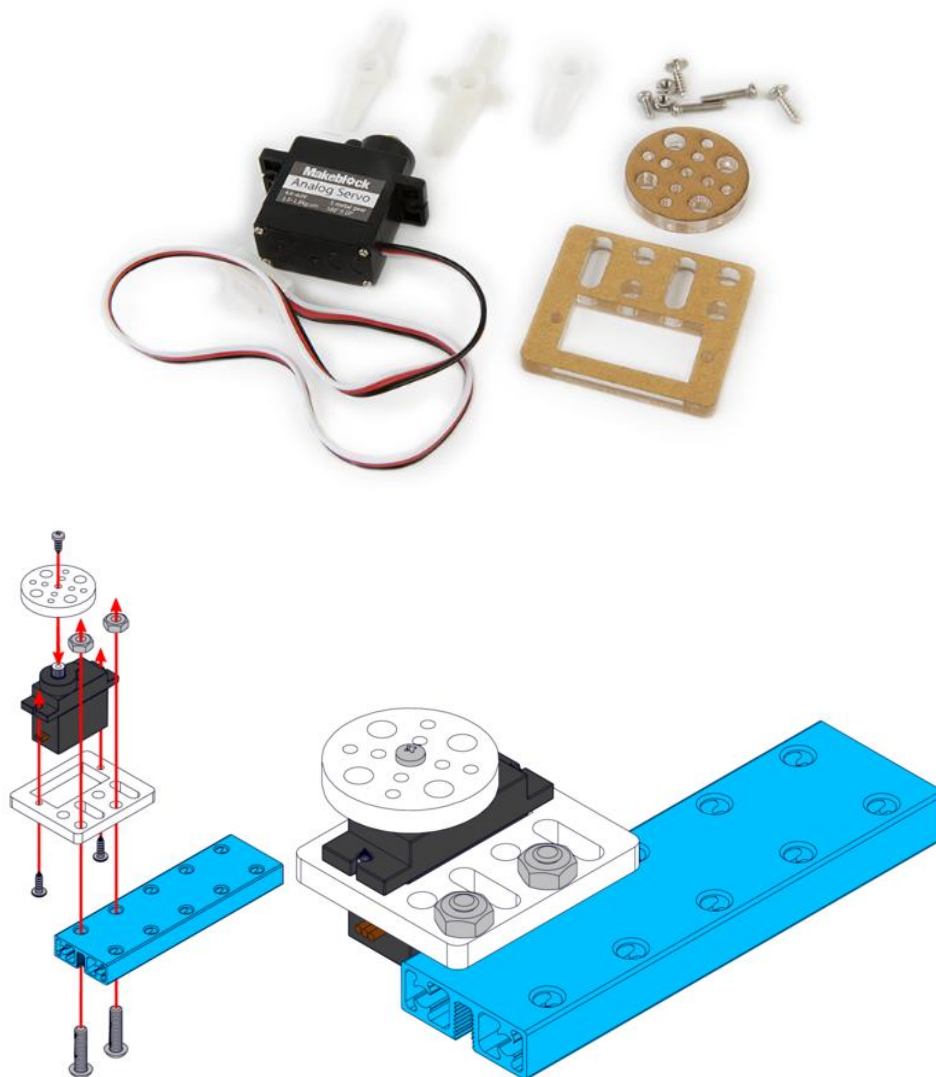


Figure 1. 9g Micro Servo and Installation of 9g Micro Servo

The 9g Micro Servo (Metal Gear) consists of a DC motor, a gear reduction unit, a sensor and a control circuit. The external red, black and white lines indicate the anode of power supply, ground line, and control signal lines respectively. The connection to

the main board needs a conversion through the RJ25 adapter, as shown in Figure 2.

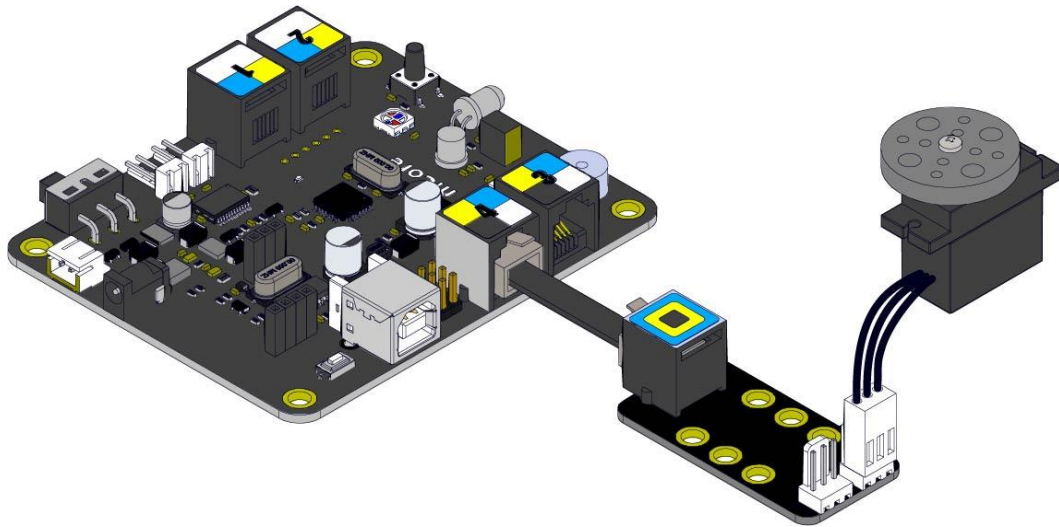


Figure 2. Connection of 9g Micro Servo (Metal Gear)

2. Technical specifications

Working voltage: 4.8V to 6V DC

Working current: 80 to 100mA

Standby current: 5mA

Limit angle: $210 \pm 5\%$

Torsion: 1.3 to 1.7kg/cm

Working temperature: -10 to 60 centigrade

Humidity range: $60\% \pm 10\%$

Rev: 0.09 to 0.10 sec/60 degrees (4.8V)

Signal cycle: 20 ms

Signal high level time range: 1000 to 2000 us/ cycle.

Dimensions: 32.3 x 12.3 x 30.6 mm (length x width x height)

3. Functional Properties

Small volume, light weight;

Adopt anti - plug interface;

It has reverse connection protection and power reverse will not damage IC.

Support Arduino IDE programming, and provide runtime to simplify

programming.

Support mBlock graphical programming, suitable for users of all ages.

4. Pins Definition

The 9g Micro Servo module has three pins, each of which has the following functions.

No	Pin	Function
1	GND	Ground Line (Black)
2	VCC	Power Supply (Red)
3	SIG	Signal Control Line (White)

Table 1: Pins Definition

5. 9g Micro Servo Program and Example

Use mBlock to program the 9g Micro Servo. Figure 3 shows the module.


Coding blocks	Description
	Parameter 1: RJ25 adapter connects to the port of main board;
	Parameter 2: 9g Micro Servo is inserted on the RJ25 adapter, indicated by S1 and S2;
	Parameter 3: Angle of rotation of 9g Micro Servo(Metal Gear)

Figure 3. Programming Coding Blocks of 9g Micro Servo

Figure 4 shows how to use mBlock to program the 9g Micro Servo to reciprocate between 0 degrees and 180 degrees.

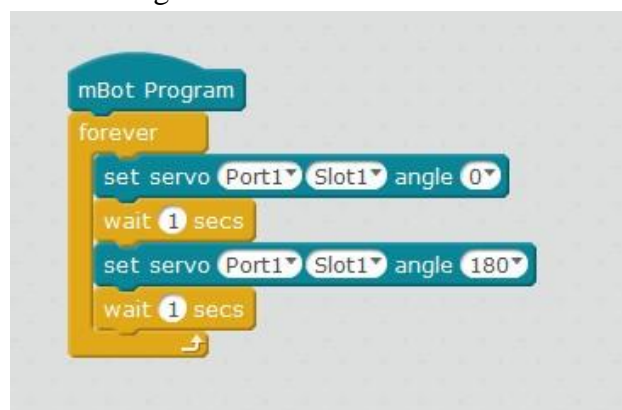


Figure 4. Programming of 9g Micro Servo