HPS-0618SG Digital Servo

1. Product Introduction

HPS-0618SG is a high speed coreless digital servo. It belongs to DC permanent magnet servo and control motor, which can also be classified as micro-motor. This servo features outstanding energy-saving, sensitive and easy control, and stable operation and highlights technical advancement. As a high-efficiency energy conversion device, it represents the development direction of motors in many fields.

When in use, a PWM signal with the period of 20ms needs to be sent in the signal terminal, and then adjust the servo angle by adjusting the pulse width. The adjustable range of the pulse width   is from 500 to 2500μs, which corresponds to the angle of 0°-270°.

The coreless servo has a structural breakthrough from the rotor structure of servo. It uses the rotor without iron core, also called coreless rotor, so it has no iron loss and features high energy conversion rate, low rotational inertia and fast respond. Compared with the tradition servo, its service life is prolonged greatly.

2. Parameter Instruction

2.1 Specification

Working Voltage	DC 6-8.4V
Quiescent current	≤25mA
Stall current	≤2.5A
Rotation speed	≤0.06sec/60°8.4V
Stall torque	6KG.cm 8.4V
Communication mode	PWM pulse control
Signal width range	500~2500μs corresponds to　0 °~ 270°
Rotation range	0°~ 180°
Gear material	stainless steel gear
Wire length	18cm
Weight	14.5g
Size	32mm*12mm*26mm
Motor	Coreless motor
Apply to	Joints of various bionic robots

2.2 Servo Dimension Diagram
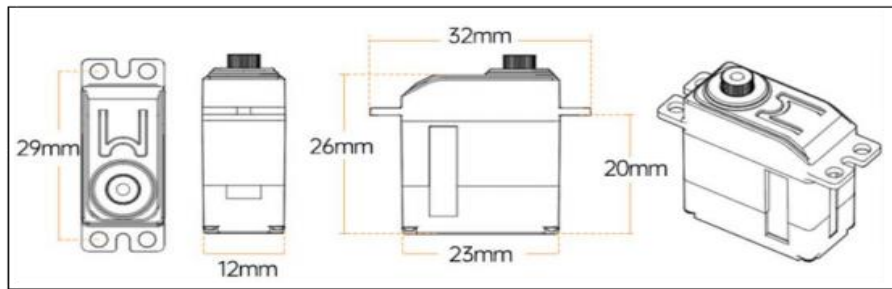
2.3 Port Instruction
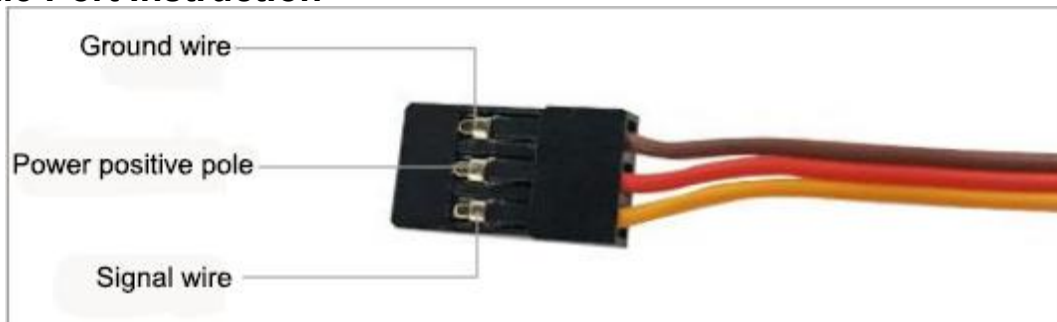
PIN	Instruction
Brown wire	ground wire（GND）
Red wire	positive pole of the power（VCC）
Orange wire	signal wire（Signal/PWM）

3. Project

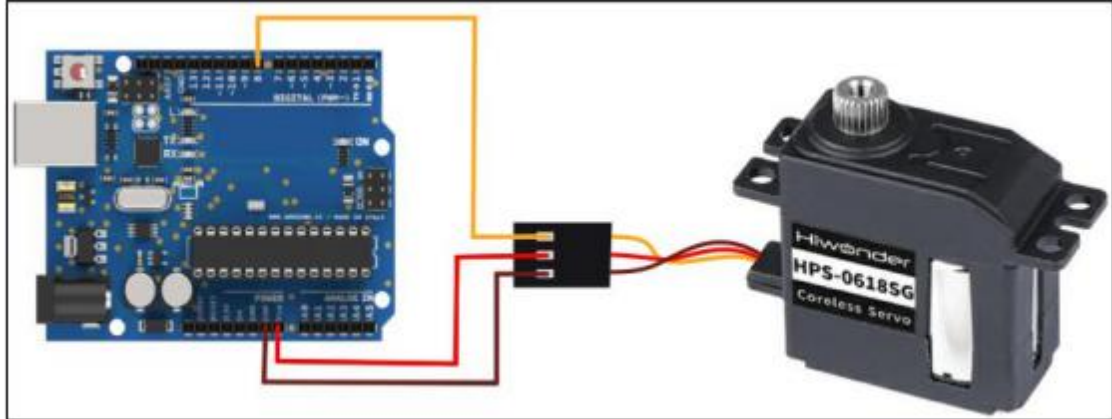Using a UNO board connecting to servo as example to help you get quick experience.

3.1 Preparation

① UNO board *1

② HPS-0618SG digital servo *1

③ USB cable *1

④ Male to male dupond line *3

3.2 Wiring diagram

Connect HPS-0618SG servo to UNO board with the male to male Dupond line and the wiring effect is as follow:

3.3 Project Process

Step 1: Download and install Arduino IDE software.   The specific installation method can refer to the file "Set Development Environment" under the same directory.

Step 2: Refer to the wiring diagram to connect HPS-0618SG servo to UNO board.

Step 3: Connect UNO board to the computer with USB cable. Then open Arduino IDE and paste "3.5 Sample Code" to "File/New".

Step 4: Select the correct development board and port, and then compile and upload the program.

3.4 Project Outcome

Servo will revolve within the range of 0°to 180°.

3.5 Sample Code

```
/*******HPS-0618SG Digital Servo Test Program*******

 * Arduino Mode： Arduino UNO

 ************************/

int servopin=8;

int pulsewidth;

int val;

void servo(int myangle)

{

pulsewidth=map(myangle,0, 180,500,2500);

digitalWrite(servopin,HIGH);

delayMicroseconds(pulsewidth);

digitalWrite(servopin,LOW);

delay(20-pulsewidth/1000);

}


void setup()

{

pinMode(servopin,OUTPUT);

}

void loop()
```

```
{

servo(0);

delay(1000);

servo(180);

delay(1000);
}
```

4. Q&A

Q1：Why the servo does not work after the code is uploaded ?

A1: Check the wiring whether the signal terminal of the servo is connected to D8 port on UNO board. (It is consistent with the settings in the code.)

Q2:How can I supply the UNO board power during testing?

A2: Connect the power adapter to the black DC end of UNO board to supply the UNO board and servo power. The supply voltage of UNO board ranges from DC 7V to 12V and the working voltage of servo ranges from DC 6V to 8.4V.

Therefore, for meeting the above two requirements, the voltage of the supply power should range from DC 7V to 8.4V.