

INTRODUCTION

When a servo is operated under complex circumstances such as robot and model, it may get stuck, be burned or damaged due to external forces, which could bother you a lot...

Now DFRobot is launching a series of servos with clutch function and electronic protection that can solve your problems perfectly.

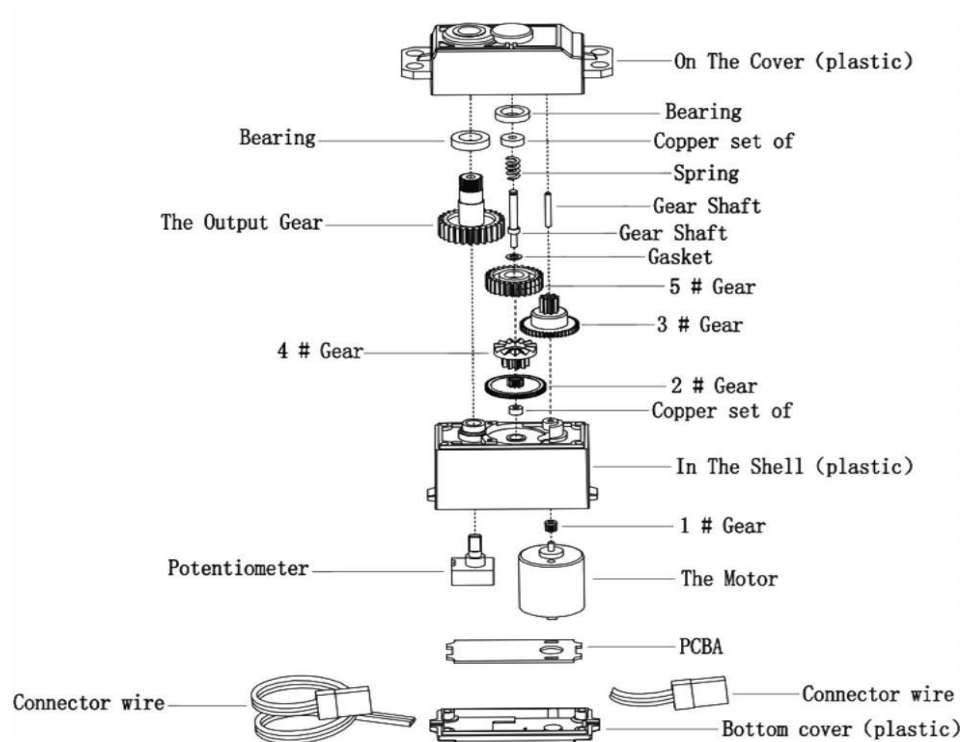
Clutch Function

When the angle of a servo is changed by external forces during normal operation, the servo can automatically reset and continue working through clutch function, which prevents it from being damaged.

Electronic Protection

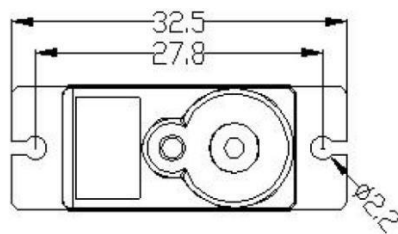
After being blocked for 5 seconds, the servo will automatically turn off its power to avoid getting burned.

Servo Internal Structure

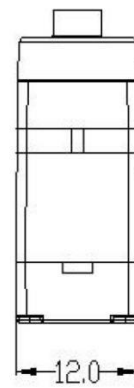
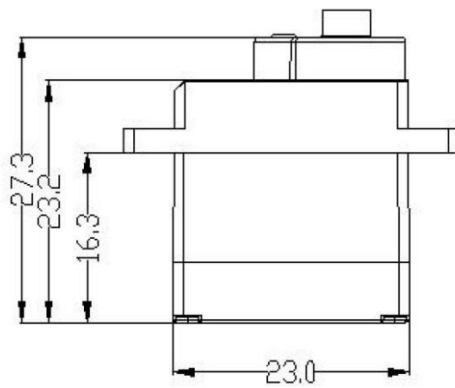


This servo features large torque, stable performance, accurate running angle and easy to install. The operating voltage is 4.8~6V. When the servo is powered at 6V, its stall torque will exceed 1.2Kg. There are no limited switches inside the servo so it can rotate smoothly in 360 degrees (manually only). Meanwhile, the servo could operate fluently with minimal power, and you can just supply power to it by normal battery or USB. In addition, users can directly control the servo using servo libraries in Arduino IDE and let it reach a maximum 180 degrees rotation angle within the pulse range of 500-2500 μ sec.

Mechanical Dimensions



Unit: mm



Selection Guide for Clutch Servo

Selection Guide for Clutch Servo						
Model	6kg 180°	6kg 300°	9g 180°	9g 300°	2kg 180°	2kg 300°
SKU	SER0051	SER0057	SER0049	SER0053	SER0050	SER0056
Operating Voltage	4.8-6VDC	4.8-6V DC	4.8-6V DC	4.8-6V DC	4.8-6V DC	4.8-6V DC
Quiescent Current	≤10mA at 6.0V	≤10mA at 6.0V	≤8mA at 6.0V	≤8mA at 6.0V	≤8mA at 6.0V	≤8mA at 6.0V
No-load Current	≤60mA at 6.0V	≤60mA at 6.0V	≤50mA at 4.8V ≤60mA at 6.0V	≤50mA at 4.8V ≤60mA at 6.0V	≤110mA at 4.8V ≤120mA at 6.0V	≤110mA at 4.8V ≤120mA at 6.0V
Stall Current	≤1.65A at 6.0V	≤1.65A at 6.0V	≤550mA at 4.8V ≤650mA at 6.0V	≤550mA at 4.8V ≤650mA at 6.0V	≤700mA at 4.8V ≤800mA at 6.0V	≤700mA at 4.8V ≤800mA at 6.0V
Rated Torque	≥4.4kg·cm at 6.0V	≥4.4kg·cm at 6.0V	≥0.32kgf·cm at 4.8V ≤0.4kgf·cm at 6.0V	≥0.32kgf·cm at 4.8V ≤0.4kgf·cm at 6.0V	≥0.45kgf·cm at 4.8V ≥0.55kgf·cm at 6.0V	≥0.45kgf·cm at 4.8V ≥0.55kgf·cm at 6.0V
Stall Torque	≥6kg·cm at 6.0V	≥6kg·cm at 6.0V	≥1.0kgf·cm at 4.8V ≤1.2kgf·cm at 6.0V	≥1.0kgf·cm at 4.8V ≤1.2kgf·cm at 6.0V	≥1.6kgf·cm at 4.8V ≥2.0kgf·cm at 6.0V	≥1.6kgf·cm at 4.8V ≥2.0kgf·cm at 6.0V
Operating Angle	180°±10°	300°±10°	180°±10°	300°±10°	180°±10°	300°±10°
Pulse Width Range	500~2500μs	500~2500μs	500~2500μs	500~2500μs	500~2500μs	500~2500μs
Communication Mode	PWM	PWM	PWM	PWM	PWM	PWM

SPECIFICATION

- Operating Voltage: 4.8-6V DC
- Static Current: ≤8mA at 6.0V
- No-load Current: ≤110mA at 4.8V ≤120mA at 6.0V
- Stall Current: ≤700mA at 4.8V ≤800mA at 6.0V

- Rated Torque: $\geq 0.45 \text{ kgf}\cdot\text{cm}$ at 4.8V $\geq 0.55 \text{ kgf}\cdot\text{cm}$ at 6.0V
- Stall Torque: $\geq 1.6 \text{ kgf}\cdot\text{cm}$ at 4.8V $\geq 2.0 \text{ kgf}\cdot\text{cm}$ at 6.0V
- Operating Angle: $180^\circ \pm 10^\circ$
- Communication Mode: PWM
- Pulse Width Range: 500~2500 μs