# SpringRC SM-S4303R Continuous Rotation Servo


**Pololu item #:** 1248 **600** in stock
**Brand:** SpringRC

| Price break | Unit price (US$) |
|---|---|
| 1 | 12.95 |
| 10 | 11.65 |
| 50 | 10.35 |

**Quantity:** 1 Add to cart

***backorders*** *allowed* Add to wish list

The SM-S4303R is a standard-sized servo that has been built by SpringRC specifically for continuous rotation, making it an easy way to get your robot moving. It features two ball bearings on the output shaft for reduced friction, and it offers easy access to the rest-point adjustment potentiometer.

**Key specs at 6 V:** 54 RPM (no-load), 71 oz-in (5.1 kg-cm), 41 g, CCW rotation for pulse widths above the rest point.

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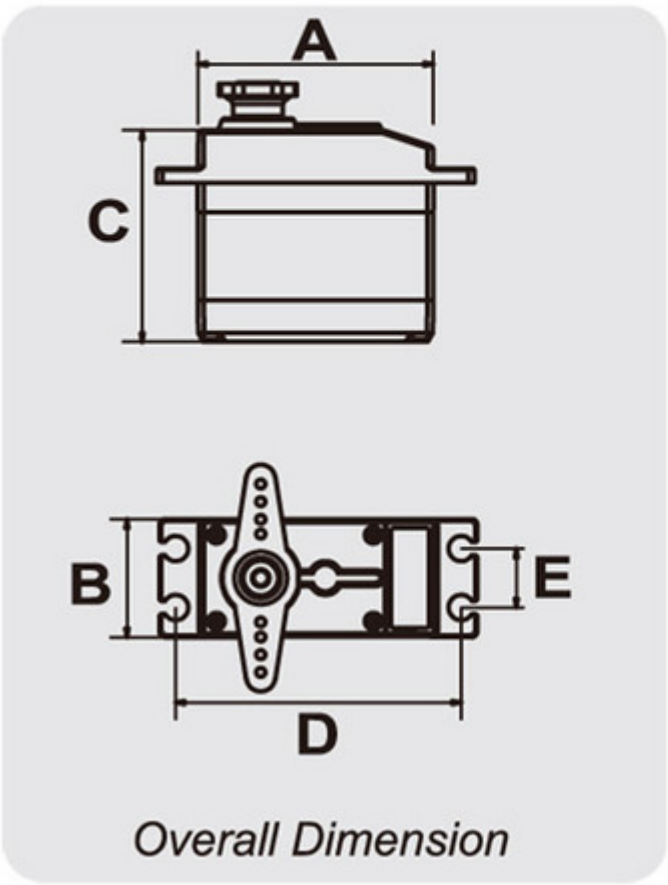
## Overview

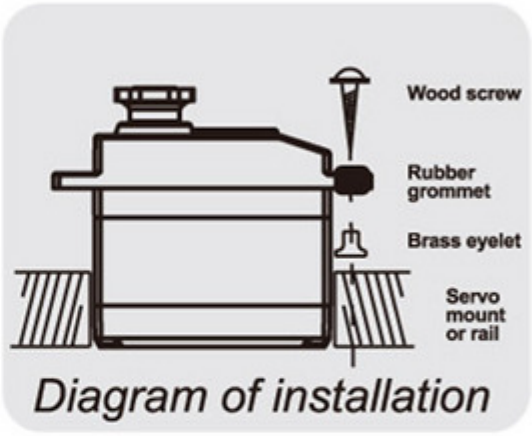

The SM-S4303R is a standard-sized servo that has been built by SpringRC specifically for continuous rotation. At 6 V, it has a maximum rotation speed of 54 RPM (no-load) and can produce up to 71 oz-in (5.1 kg-cm) of torque. It features two ball bearings on the output shaft for reduced friction, and it offers easy access to the rest-point adjustment potentiometer. The servo can be controlled using a direct connection to a single microcontroller I/O line without any additional electronics, which makes it a great actuator for beginner robotics projects.

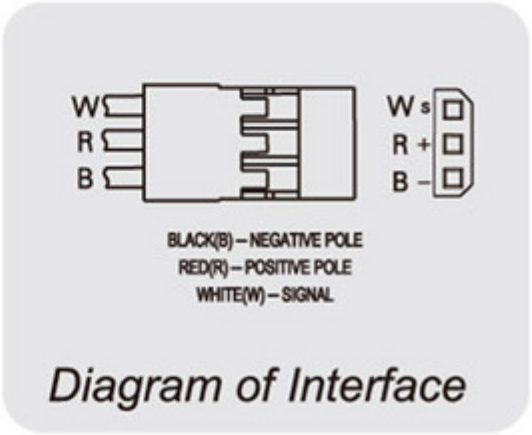
The SM-S4303R continuous rotation servo converts standard RC servo position pulses into continuous rotation speed. The default rest point is 1.5 ms, but this can be adjusted by using a small screwdriver to turn the middle-point positioner. Pulse widths above the rest point result in counterclockwise rotation, with speed increasing as the pulse width increases; pulse widths below the rest point result in clockwise rotation, with speed increasing as the pulse width decreases.

| Products specification | | | | | | | | Technical parameters | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size (mm) | | | | | Weight | | Wire | 4.8V | | | 6V | | | Rotation angle |
| | | | | | | | | Speed | Torque | | Speed | Torque | | |
| A | B | C | D | E | g | oz | cm | rpm | kg·cm | oz·in | rpm | kg·cm | oz·in | |
| 41.3 | 20.7 | 40.2 | 50.3 | 10.0 | 41 | 1.45 | 30.0 | 43 | 3.3 | 45.91 | 54 | 5.1 | 70.95 | 360° |

(Specifications are subjected to change without notice.)




The servo has an 11″ (270 mm) lead that is terminated with a JR-style connector and includes additional servo horns and mounting hardware. The following picture shows an example of the hardware that might be included (actual hardware could vary):


This robotics servo is compatible with our **servo controllers** and has a Futaba-compatible output shaft, which means it works with our **servo wheels** for standard servos (25T, 5.8 mm spline). This servo is also compatible with our **Mounting Bracket for Standard-Size Servos**:

If you are looking for a similar servo that is capable of limited-range position control as opposed to continuous rotation speed control, consider the **FEETECH FS5106B servo** or **Power HD standard servo 6001HB**, which have comparable size, weight, speed, and torque.

> **Note:** The spline on this servo is slightly bigger than on our other **continuous rotation servos**, so some servo horns and wheels might have a tight fit. If you find it difficult to push a compatible servo horn or wheel on by hand, please try the installation method

shown in the video below. Similarly, the servo's mounting tabs are a tight fit with our **mounting bracket**, so you might consider filing them or the mounting bracket down a little if you want to use them together.


Note that, as with most hobby servos, stalling or back-driving this servo can damage it.

**Note:** This servo is SpringRC part number SM-S4303R-CCW.

## Continuous rotation servo comparison

**Continuous rotation servo size comparison. From left to right: SpringRC SM-S4303R, Power HD AR-3606HB, FEETECH FS5106R, Parallax Feedback 360°, Parallax (Futaba S148), and FEETECH FS90R.**

| | 6 V | | 4.8 V | | Weight (g) | Size (mm) | Direction vs pulse (1ms → 2ms) | Digital? | Feed-back? | Price |
|---|---|---|---|---|---|---|---|---|---|---|
| | Max speed (RPM) | Stall torque (oz·in) | Max speed (RPM) | Stall torque (oz·in) | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SpringRC SM-S4303R | 54 | 71 | 43 | 46 | 41 | 41.3 × 20.7 × 40.2 | CW→CCW | | | $12.95 |
| PowerHD AR-3606HB | 71 | 93 | 62 | 83 | 40 | 40.5 × 20.0 × 38.0 | CW→CCW | | | $14.95 |
| FEETECH FS5106R | 95 | 83 | 78 | 70 | 39 | 40.8 × 20.1 × 38.0 | CW→CCW | | | $13.95 |
| Parallax Feedback 360° | 140 | 35 | – | – | 41 | 40.0 × 20.0 × 37.2 | CW→CCW | ✓ | ✓ | $27.99 |
| FEETECH FT90R | 135 | 21 | 108 | 18 | 9 | 22.9 × 12.1 × 26.5 | CW→CCW | ✓ | | $7.95 |
| FEETECH FS90R | 130 | 21 | 100 | 18 | 9 | 23.2 × 12.5 × 22.0 | CW→CCW | | | $4.95 |

## People often buy this product together with:


0.100" (2.54 mm) Breakaway Male Header: 1×40-Pin, Straight, Double-Sided


4-AA Battery Holder

Micro Maestro 6-Channel USB Servo Controller (Assembled)