

FEETECH FS90R Micro Continuous Rotation Servo



Pololu item #: 2820		1951 in stock
Price break	Unit price (US\$)	
1	4.95	
10	4.46	
100	3.96	
Quantity:	<input type="text" value="1"/>	<input type="button" value="Add to cart"/>
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The FS90R is a micro servo that has been built by FEETECH (formerly known as Fitec) specifically for continuous rotation, offering an inexpensive and easy way to get your small turret spinning or miniature robot moving, especially when paired with our [60×8mm wheels](#) designed specifically for this servo.

Key specs at 6 V: 130 RPM (no-load), 21 oz-in (1.5 kg-cm), 9 g

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Overview

The FS90R is a micro-sized servo that has been built by FEETECH (formerly known as Fitec) specifically for continuous rotation. At 6 V, it has a maximum rotation speed of around 130 RPM (no-load) and can produce up to 21 oz-in (1.5 kg-cm) of torque. 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 miniature actuator for beginner robotics projects; just throw on a [pair of wheels](#) and your robot is ready to roll!

The FS90R 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 adjustment potentiometer. 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.

The servo has a 8" (200 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):





Bottom view of FEETECH FS90R micro continuous rotation servo (V1.0) showing middle-point adjustment potentiometer. FS90R V2.0 uses an SMD potentiometer.

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This robotics servo, which is a continuous rotation version of the [FEETECH FS90](#), is compatible with our [servo controllers](#). 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 FS90, which has identical dimensions and uses the same motor, or the [Power HD micro servo HD-1900A](#), which has almost the same weight, speed, and torque as the FS90.

Note: As of December 3, 2014, we are shipping V2.0 of this servo, which widens the deadband from $\pm 5 \mu\text{s}$ to $\pm 45 \mu\text{s}$ to make it easier to set a stationary neutral position. Also, the middle-point adjustment potentiometer has been changed to a lighter SMD potentiometer on the new version. The physical dimensions of the servo have not changed.

Wheels

If you want to use this servo as an actuator for your miniature robot, you will need a wheel to go with it. Fortunately, we carry a [60×8 mm wheel](#) specifically designed for use with this servo:



The wheel size is well matched to the servo's speed and torque, allowing for a top speed of around 40 cm/s (1.3 ft/s) at 6 V.

Continuous rotation servo comparison



Continuous rotation servo size comparison. From left to right: SpringRC SM-S4303R, Power HD AR-3606HB, Parallax, and FEETECH FS90R.

	 <u>SpringRC SM-S4303R</u>	 <u>PowerHD AR-3606HB</u>	 <u>Parallax (Futaba S148)</u>	 <u>FEETECH FS90R</u>
Max Speed @ 6 V:	54 RPM	71 RPM	50 RPM	130 RPM
Stall torque @ 6 V:	71 oz-in	93 oz-in	42 oz-in	21 oz-in
Max Speed @ 4.8 V:	43 RPM	62 RPM	39 RPM	100 RPM
Stall torque@ 4.8 V:	46 oz-in	83 oz-in	33 oz-in	18 oz-in
Weight:	41 g	40 g	43 g	9 g
Size (mm):	41.3×20.7×40.2	40.5×20.0×38.0	40.5×20.0×38.0	23.2×12.5×22
Price:	\$12.95	\$14.95	\$13.95	\$4.95

People often buy this product together with:



Pololu Wheel for FEETECH FS90R Micro Servo, 60×8mm Pair - Black



Micro Maestro 6-Channel USB Servo Controller (Assembled)



Power HD Continuous Rotation Servo AR-3606HB

Related products



Pololu Wheel for FEETECH FS90R Micro Servo, 60×8mm Pair - Black



FEETECH FS90 Micro Servo



Power HD Continuous Rotation Servo AR-3606HB