

The Syncro30 – A Fully Integrated Radio Control Outboard Motor

Operation – What you need to know and Important Boat Sizing Information

With continuous heavy loads, a wet environment, and difficult mechanical requirements, outboard motoring is challenging at any scale. Full scale outboard motors are complex. They employ extensive mechanical and electrical technology. At small scale the same complexity is not practical. The Syncro30 uses modern brushless motor technology combined with simple mechanical systems to provide a unique, practical, radio control outboard motor. The Syncro30 is a bolt together design using off the shelf technology and common hardware and materials. See the specifications below for details.

Set up and operation of the Syncro30 requires...

1. Syncro30 – available at RadioControlOutboards.com
2. Suitable 2 or 3 Channel Radio – The radio receiver must fit in the Syncro30 electronics enclosure. See the Links – Buying a Radio, Battery, and Charger page on the Syncro30 page at RadioControlOutboards.com.
3. Lithium Polymer Battery – We recommend batteries with capacities 1200mah to 2200mah. This applies to both 7.4 volt and 11.1 volt operation. See the specifications below for boat size limits at 7.4v and 11.1v. The Syncro30 battery connector is a XT-60 (male contacts, female housing for mating with most XT-60 equipped lithium polymer batteries). See the Links – Buying a Radio, Battery, and Charger page on the Syncro30 page at RadioControlOutboards.com.
4. Battery Charger – With the ability to connect to batteries with XT-60 connectors. See the Links – Buying a Radio, Battery, and Charger page on the Syncro30 page at RadioControlOutboards.com.
5. Boat – You supply the boat. This may be any suitable boat. It is up to you to determine the suitability of your boat for use with the Syncro30. The motor will power larger boats at 7.4v operation. At 11.1v the boat size is limited. See the specifications below for details. Within these limits the Syncro30 can power detailed model boats to light foam boats. For examples see the videos and photos at RadioControlOutboards.com. For specific instructions about boats, see the Boats Page at RadioControlOutboards.com.
6. Suitable Body of Water – You must find an appropriate body of water. The Syncro30 is not suitable for salt water use. In order to avoid undesirable outcomes some thought must be given to the selection of a body of water. For more information see the Boating Guide on the Boats Page at RadioControlOutboards.com.

Syncro30 Description and Specification

The Syncro30 is a fully integrated scale model radio control outboard motor requiring only one external lithium polymer battery. It is configured with an upper unit containing a motor in an enclosure, a separate electronics enclosure, and a steering servo and a lower unit containing a spring as a flexible element with 70 degrees of deflection. The motor connects to the battery through a twisted pair power cable terminated with a XT-60 connector. The battery rides in the boat. Steering is provided by a built in servo rotating the motor through a pivot and tilt block attached to the transom clamp. Clamping is provided by two screw clamps backed by synthetic rubber pads. Power is provided by an outrunner brushless motor. The motor is mounted inside an aluminum enclosure. Motor cooling is accomplished by direct conduction from the motor to the enclosure and forced convection between the motor coils and the enclosure. The enclosure is externally air cooled. The motor is coupled to a solid stainless steel down shaft turning a stainless steel spring as a flexible element which turns the stainless steel propeller shaft. The upper and lower units are carried by an aluminum frame. The flexible element is housed in the aluminum lower unit enclosure. The rotation is carried by brass bushings. The motor is controlled by an Electronic Speed Control with forward and reverse. The ESC is housed in the electronics enclosure with the radio receiver. The electronics enclosure is located on top of the motor enclosure and steering servo. All hardware is stainless steel.

Performance Specifications

Minimum recommended light boat size – 8" wide x 16" long

Syncro30 Maximum Boat Size Recommendations and Amp draw

	2 Cell Lipo Operation 7.4 volt nominal (8.4 volt max)	3 Cell Lipo Operation ¹ 11.1 volt nominal (12.6 volt max)
Maximum Flat Bottom Boat ^{2,3} Total Weight – including motor and battery	4 pounds 1800 grams	1.5 pounds 680 grams
Maximum Current @ full throttle and full load	5 amps	9 amps

1 – Overloading motor at 11.1 volts will lead to overheating. See the 11.1 Volt Operation section of manual.

2 – The rating is reduced by hulls with additional shape and features. Only flat bottom boats are recommended at 11.1 volts.

3 – The use of the low pitch propeller provided will provide some improvement for these ratings.

Syncro30 actual speeds. Speed will depend on the size, weight and hull shape.

7.4 volt - 1 to 4 mph

11.1 volt – up to 6 mph

Technical Specifications

Maximum continuous power output – 0.040 horsepower (30 watts)

Peak power output – 0.107 horsepower (80 watts @ 11.1 v)

Weight – 8 ounces (230 grams)

Overall height (measure with prop shaft horizontal) – 10 ½ " (266mm)

Min and Max transom height⁴ – 2.25" (57mm) to 3.25" (82.5mm)

Min and Max transom thickness – 3/8" (9.5mm) to 5/8" (15.9mm)

Battery connector XT-60, male contacts, female housing

Battery cable length – 17" (430mm)

4 – Transom height given for light boats. With heavier boats, larger transom heights are recommended.

When under full power, performance is best when top of lower unit is even with or slightly under surface of water exiting back of boat.

Important!!! Upper bushing on lower unit must be wetted during operation. Operation out of water may over heat bushing and melt plastic bracket.