

# Spektrum VR5203 Dual Output Regulator Instructions

## Applications

Spektrum's Dual Output Step Down Regulator is primarily designed for use with gyros and tail rotor servos in helicopters. Most brands of gyros/ tail rotor servos have voltage limits of 6 volts or less. The Dual Output Regulator installs between the receiver and the gyro in the rudder and gain channels and regulates the voltage to the gyro and tail rotor servo to a constant 5.2 volts. This allows the rest of the system to operate using higher voltage, typically 5-cell NiMH 6 volts or even 2-cell LiPo 7.4 volts, if your servos are rated for such operation..

## Additional Applications

We've also discovered there are many other devices that are typically used in models which have voltage limits that the Dual Output Regulator is ideal for. Some brands of retract servos (including the JR791) have a limited voltage range and installing the Dual Output Regulator inline between the servo and the receiver allows the retract servo to function properly.

## Important

The Dual Voltage Regulator is limited to 2 amps of continuous current. It is designed to install between the receiver and the gyro, operating the gyro and tail rotor servo only (or other control devices like a retract servo, electronic switch, etc.).

**It is not intended to be installed between the battery and the receiver to power the entire system.**

## SPECIFICATIONS

**Type:** Dual input/output step down linear voltage regulator

**Voltage Input:** 5.5 to 10 volts (4-8 cell NiCd/NiMH or 2-cell LiPo)

**Output Voltage:** 5.2 volts

**Continuous current @ 8.4V:** 2.0 amps (3-amp peak)

**Dimensions WxLxH:** 23 x 32 x 12mm .85 x 1.30 x .50 in

**Weight:** 7 grams/ .3 oz

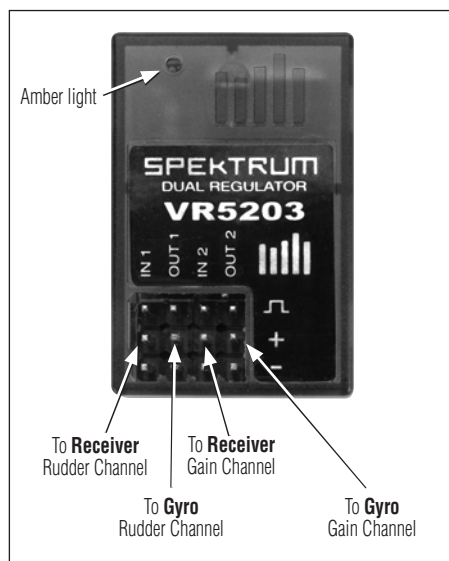
## Installation

1. Mount the regulator using double-sided foam tape in a convenient location.  
Two 6-inch leads are provided. If necessary, servo extensions can be used to mount the regulator further away from the receiver.
2. Install these leads in the input ports of the regulator, noting the polarity and connect the negative (brown) wire toward the edge of the case to the corresponding Rx channel.
3. Install the open end of the leads in the desired receiver channel ports. Typically for a gyro installation this would be the Rudder and Aux 1 (or Gear) channels in the receiver.
4. From the gyro, install the Rudder Lead and the Gain Lead in the out ports of the regulator. The Rudder Lead should go in the port next to the Input Lead that is plugged into the Rudder Channel and the Gain Lead should be installed next to the Gear Lead. See the diagram at right.
5. Turn on the system. An amber light should turn on, indicating the system is powered.  
Check Servo and Gain operation.

**Note:** If the leads are plugged in the wrong places (input vs. output) no damage will occur on power up. The system simply won't operate.

## Maximum Current Check

It's normal for the regulator to become warm during operation. Most gyros/ tail rotor servos operate well below the 2-amp range even in other applications that may heavily load the regulator. The most accurate way to determine peak operating current is to use a current meter, such as the Hangar 9 (HAN172), inline between the servo and the regulator and operate the servo with a simulated flight load. For a quick check to determine if the regulator is operating near it's maximum current/ temperature range, operate the system continuously for 10 minutes, placing a typical load on the servos. Now press on the center of the case near the amber light. If the case is soft, you are near the maximum operating current of the regulator.



## Warranty Period

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If you as the Purchaser or user are not prepared to accept the liability associated with the use of this Product, you are advised to return this Product immediately in new and unused condition to the place of purchase.

Law: These Terms are governed by Illinois law (without regard to conflict of law principals).

## Safety Precautions

This is a sophisticated hobby Product and not a toy. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the Product or other property. This Product is not intended for use by children without direct adult supervision. The Product manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or injury.

## Questions, Assistance, and Repairs

Your local hobby store and/or place of purchase cannot provide warranty support or repair. Once assembly, setup or use of the Product has been started, you must contact Horizon directly. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance. For questions or assistance, please direct your email to [productsupport@horizonhobby.com](mailto:productsupport@horizonhobby.com), or call 877.504.0233 toll free to speak to a service technician.

## Inspection or Repairs

If this Product needs to be inspected or repaired, please call for a Return Merchandise Authorization (RMA). Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as **Horizon is not responsible for merchandise until it arrives and is accepted at our facility.** A Service Repair Request is available at [www.horizonhobby.com](http://www.horizonhobby.com) on the "Support" tab. If you do not have internet access, please include a letter with your complete name, street address, email address and phone number where you can be reached during business days, your RMA number, a list of the included items, method of payment for any non-warranty expenses and a brief summary of the problem. Your original sales receipt must also be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

## Warranty Inspection and Repairs

To receive warranty service, you must include your original sales receipt verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be repaired or replaced free of charge. Repair or replacement decisions are at the sole discretion of Horizon Hobby.

## Non-Warranty Repairs

Should your repair not be covered by warranty the repair will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost. By submitting the item for repair you are agreeing to payment of the repair without notification. Repair estimates are available upon request. You must include this request with your repair. Non-warranty repair estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Please advise us of your preferred method of payment. Horizon accepts money orders and cashiers checks, as well as Visa, MasterCard, American Express, and Discover cards. If you choose to pay by credit card, please include your credit card number and expiration date. Any repair left unpaid or unclaimed after 90 days will be considered abandoned and will be disposed of accordingly. Please note: non-warranty repair is only available on electronics and model engines.

## United States:

Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Service Center  
4105 Fieldstone Road  
Champaign, Illinois 61822

All other products requiring warranty inspection or repair should be shipped to the following address:

Horizon Product Support  
4105 Fieldstone Road  
Champaign, Illinois 61822

Please call 877-504-0233 with any questions or concerns regarding this product or warranty.

## European Union:

Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Hobby UK  
Units 1-4 Ployters Rd  
Staple Tye  
Southern Way  
Harlow  
Essex CM18 7NS  
England

Please call +44 (0) 1279 641 097 or [sales@horizonhobby.co.uk](mailto:sales@horizonhobby.co.uk) with any questions or concerns regarding this product or warranty.

## FCC Information

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**Caution:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.4835GHz frequency range.

The associated regulatory agencies of the following countries recognize the noted certifications for this product as authorized for sale and use:

## Instructions for Disposal of WEEE by Users in the European Union

This product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

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Denmark	France	Finland
Germany	Italy	Netherlands
Spain	Sweden	UK

