

## ADDITIONAL RESOURCES

Go to our support page for more assistance:  
<http://www.westmountainradio.com/supportrr.htm>

Go to our OpTips page for connection tips:  
<http://www.westmountainradio.com/optipsrr.htm>

### RIGrunner Warranty

The RIGrunner is warranted against failure due to defects in workmanship or materials for one year after the date of purchase from West Mountain Radio or an authorized dealer. If purchased from an authorized dealer it must be returned with a copy of the original sales receipt or proof of purchase.

Warranty does not cover damage caused by abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation, alteration, lightning, or other incidence of excessive voltage or current. If failure occurs within this period, return the RIGrunner or accessory to West Mountain Radio at your shipping expense with a full explanation and necessary proof of purchase. The device or accessory will be repaired or replaced, at our option, without charge, and returned to you at our shipping expense. Repaired or replaced items are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the RIGrunner or accessory made after the expiration of the warranty period.

West Mountain Radio shall have no liability or responsibility to customer or any other person or entity with respect to any liability, loss, or damage caused directly or indirectly by use or performance of the products or arising out of any breach of this warranty, including, but not limited to, any damages resulting from inconvenience, loss of time, data, property, revenue, or profit, or any indirect, special incidental, or consequential damages, even if West Mountain Radio has been advised of such damages.

Except as provided herein, West Mountain Radio makes no express warranties and any implied warranties, including fitness for a particular purpose, are limited in duration to the stated duration provided herein.



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# RIGrunner 8012

## owner's instructions

Thank you for purchasing a RIGrunner 8012! We think that you will enjoy having a RIGrunner with Powerpole connections throughout. Having proper DC distribution should make a long overdue improvement to the convenience and safety of your station. The RIGrunner is a simple device and its basic function is the 12 volt equivalent of a 120 VAC power panel in a house except that it has a convenient on/off switching system.

There are some considerations to think about. Please read these instructions carefully before setting up your RIGrunner.

### Choosing a mounting location:

Pick a location that is close, or central to, most of your radios and accessories; especially those that draw large amounts of current. Locate your power source as close as possible to the RIGrunner. The RIGrunner 8012 comes equipped with 6 feet of 8 AWG stranded wire terminated in 1/4 inch ring terminals. This should be sufficient for most installations.

Locate it in a cool dry place with good ventilation. It is recommended to not put it on top of an amplifier or room heater, or to cover the RIGrunner. Do not put it in the engine compartment of your car. Do not put it on the floor of a car; rain from open windows or snow covered boots may cause water damage. Put it in a location that allows for easy access and use.

### Connecting your equipment:

The first step is to put a pair of PowerPoles on any cable that supplies or uses 12 Volts DC. The more 12 volt connections that have Powerpoles, the more convenient it will be to connect and make use of your equipment. Remember that Powerpoles are genderless, the same connector arrangement works on both supply and load. You can charge batteries, or power with batteries, using the same connectors.

Powerpoles can be installed by soldering or crimping. Be sure to make good connections. For detailed Powerpole connector installation instructions see our RIGrunner support pages: <http://www.westmountainradio.com/optips>

It is imperative to assemble the connector pairs correctly. They must be according to the amateur radio standard used by the RIGrunner. **DO NOT PLUG ANYTHING IN** unless **CERTAIN** that the black and red, plus and minus are correct. **CHECK THIS TWICE.**

### RIGrunner 8012

This RIGrunner has one input wire that feeds two output sections: A and B. Each section, protected by its 40 ampere fuse, has six fused outputs. The largest fuse is closest to the center, 1A and 1B, with progressively lower value fuses towards both ends, 6A and 6B. This arrangement allows 80 amperes input and a maximum of 40 amperes in each section. The input wire is 6 feet long and has 1/4 inch ring terminals. It should be securely connected to the 12 Volt power supply. This wire connects centrally within the RIGrunner at the junction of both input fuses.

Before plugging all equipment, divide the equipment so that the power drain would be similar between both sections. For instance, if using two 100 watt radios, plug one in position 1A and the other in position 1B. Continue to divide the loads similarly for the lower power devices. Typically, 12 volt amplifiers and 100 watt transceivers would use a 25 ampere fuse. VHF radios, transverters and other accessories would use lower value fuses.

## Using Proper Fuses:

The RIGrunner comes supplied with a range of fuses installed. This assortment will probably be usable for most stations. Change any fuses to fit your needs. Every RIGrunner outlet is safe up to 40 amps, but the total for the entire RIGrunner is also 40 amps.

You **MUST** have a fuse in each position that is in use. **ANY ATTEMPT TO BYPASS OR SHORT ACROSS THE FUSES WILL BE DANGEROUS AND VOID THE RIGRUNNER WARRANTY.** Since the maximum available automotive fuse is 40 amps, the RIGrunner will be protected as long as any value ATC/ATO fuse is installed. You should choose the correct fuse for your equipment.

Standard ATC/ATO automotive blade fuses are used. They are available at auto stores, super markets and even drug stores. These fuses are available in 10 values ranging from 1 amp to 40 amps.

The DC input should have a fuse that is appropriate for your power supply's rating. If you will be using a smaller power supply you may wish to use a lower value fuse than the 40 amp value supplied. Ideally, all of the outlets should have a fuse that is equal to, or just over the maximum current draw of the unit on that fuse. If the unit to be plugged in already has a fuse on its power cord, match that value or go one value higher. Sizing each fuse for each unit is desirable especially on the master outlet but not absolutely necessary. Having a higher value than the minimum will simply give less protection for that unit, too low a value will blow out prematurely.

Note that each fuse position has a LED blown fuse indicator that will conveniently light if that fuse is blown. There must be power to the RIGrunner and a load on the circuit that has the blown fuse for the blown fuse LED to light.

## The Voltage Comparator and Audible Alert:

A feature of the RIGrunner 4010S is our precision expanded scale voltage comparator display, with audible alert. To explain this feature, a quick explanation of 12 volt systems follows. What is commonly referred to as 12 volt equipment is a nominal 13.8 volts. A lead acid battery is a nominal 12.6 volts when charged and not under load, and should be approximately 14.0 volts under charge. A quality 12 volt power supply will have its regulated output set to 13.8 volts. Most radios are specified to require 13.8 volts plus or minus 15%. 12 volt automobile or aircraft alternators have voltage regulation set between 13.5 and 14.3 volts depending on temperature.

The RIGrunner provides an accurate and very unambiguous display of the voltage, that takes the above in to account. There are three LEDs: Red overvoltage, Green normal, and Yellow undervoltage. The points at which the LEDs switch colors are set accurately to 11.5 and 15.0 volts. The selection of these points gives a reliable indication of proper and safe operation of the power supply, battery or alternator. A Green LED, or normal indication, is all that is necessary to look for.

An undervoltage indication, shown by the Yellow LED, is less than 11.5 volts. This should be safe for a radio, but may cause improper operation. Low voltage on a modern radio can cause a loss of phase lock and a frequency error. This is a definite indication there may be a problem with the power source; a bad connection, an unregulated power supply, a bad alternator or dying battery.

A normal, Green LED indicates the voltage to be between 11.5 and 15.0 volts.

A Red overvoltage indication is bad, **DISCONNECT OR TURN OFF THE POWER SUPPLY IMMEDIATELY!** Overheating or damage a radio or other equipment may occur. As supplied there is an audible alert, unlike other RIGrunners, on both undervoltage and overvoltage.

The audible alert may be configured for only undervoltage or only overvoltage, or may be disable altogether. Simply place the P14 jumpers on under, over, both or none. Store the unused jumpers on a single pin to not lose them for later use.

**NOTE:** Because of the characteristics of the comparator chip it is normal for the undervoltage LED to glow very dimly with a normal or overvoltage indication. It is also normal for the LEDs to change intensity as it steps through 10 precision points or to flicker on the edge of these points. Two LEDs may be on on if exactly at the switchover point.

If there is a bad power source or power connection, the Yellow LED may flash or come on during transmit. This happens with most automobiles when running the starter motor. Check the power source and connections. It is possible for RF from a transmitter to cause an electronically regulated power supply to lose regulation and cause an overvoltage alert during transmit. The RIGrunner is extensively RF bypassed and should minimize the possibility of this problem. In the case of an overvoltage condition during transmit, especially with a VHF high power amp, it is due to inadequate RF filtering on the DC lead of the VHF amplifier, or poor RF immunity of the power supply regulator circuit.