

DON'T FORGET!

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.

RIGrunner

owners instructions, 2nd Edition

Thank you for purchasing a RIGrunner! 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 it's function is obvious. Think of a RIGrunner as the 12 volt equivalent of a 120 VAC power panel in a house. If you have that concept, you are all set!

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. Remember that every wire has resistance, longer wires have more resistance. More than a 10' run of # 10 wire is not quite adequate to supply the RIGrunner to full output without a significant voltage drop.

Locate it in a cool dry place with good ventilation. In other words, do not put it on top of your amplifier or room heater, or cover it with something. Do not put it in the engine compartment of your car either. 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 gives easy access and is easy to see; for obvious reasons.

Connecting your equipment:

The first step is to put a pair of Powerpoles on EACH and EVERY cable that you own that supplies or uses 12 Volts DC. We are kidding, but really, the more of your 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 see our RIGrunner support pages <http://www.westmountainradio.com/supportrr.htm>.

The only thing you **ABSOLUTELY MUST DO** is to make sure that you assemble the connector pairs correctly. They must be according to the amateur radio standard used by the RIGrunner. **DO NOT EVER PLUG ANYTHING IN** unless you are **CERTAIN** that you have the **RED + PLUS, AND BLACK - MINUS, CORRECT! CHECK THIS TWICE!**

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The far left connector is labeled DC input with a 40 amp fuse, you may use any output as an input with an appropriate fuse. Normally use the DCIN to connect your power supply or battery. You may wish to have both a power supply and a battery connected; there are some precautions but this may be done. Plug in your equipment starting with the highest power connections to the left and the lower power drain units to the right, notice the supplied fuse ratings next to the connector you choose. Typically 12 volt input amplifiers and 100 watt RF output transceivers should be first, VHF radios next and smaller accessories last.

You may hook up as many amplifiers and/or transceivers as you like, even though the maximum current with them all transmitting at once would exceed the RIGrunner's 40 amp maximum. The limiting factor is the total current draw while transmitting. You may not be able to transmit with every radio at the same time. Most radios and amplifiers draw less than 3 amps in receive, but much more in transmit. The manuals for your radios should list the power consumption specs if you are concerned about this. You cannot hurt the RIGrunner or anything plugged in to it if the total current goes too high, you will simply blow a fuse or make an undersized power supply unhappy.

Using the proper fuses:

The RIGrunner comes supplied with a range of fuses installed. This assortment will probably be usable for most stations. Do not feel for any reason that you cannot change the fuses installed. Every RIGrunner output is safe up to 40 amps but the total 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 the next higher value above 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 you may match that value or go one or two values higher. Sizing each fuse for each unit is desirable 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, of course.

Note that each fuse position has a LED blown fuse indicator that will conveniently light up if an output 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 4012 and 4008 is our precision expanded scale voltage comparator display, with audible alert. You can accurately see or hear from across a room whether or not you have a voltage problem. Our model 4005 does not have this feature. To explain this feature we need to discuss 12 volt systems. What we commonly call 12 volt equipment isn't; it actually a nominal 13.8 volts. A lead acid battery is a nominal 12.6 volts when charged and not under load, and about 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.

We have provided an accurate and very unambiguous display of your voltage, that takes all of the above in to account. We have three LED's, red overvoltage, green normal, and yellow undervoltage. The points at which the LEDs change are set accurately to 11.5 and 15.0 volts. Our selection of these points gives a reliable indication of proper and safe operation of your power supply, battery or alternator. A green or normal indication is all you need to look for.

An undervoltage indication, shown by the yellow LED, is less than 11.5 volts. This should be safe for your 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 that you have a problem with your power source; a bad connection, an unregulated power supply, a bad alternator or dying battery. It is normal with most cars to have less than 11.5 volts when cranking the starter motor.

A normal indication with the green LED says, "EVERYTHING IS GOOD! You are between 11.5 and 15.0 volts, don't worry about a thing."

A red overvoltage indication is bad, DISCONNECT OR TURN OFF YOUR POWER SUPPLY IMMEDIATELY! You may overheat or damage your radio or other equipment. With overvoltage an audible alert will sound; you do not have to be watching the LED's, you will hear that you have a problem.

If you are running strictly on a 12 volt battery, you cannot have an overvoltage condition. You may wish to re-configure the RIGrunner's audible alert for a low battery warning. To do this remove the 4 cover screws and move the P14 jumper to the "LO" position. Remember to move it back to "HI" when you change back to operation from power supply or alternator.

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 LED's to change intensity as it steps through 10 precision points.

If you should have a bad power source or power connection you may see the yellow LED flash or come on during transmit. If this happens check your power source and connections. It is also 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 actually cure this problem. If you do have 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 amplifier, or poor RF immunity of the power supply regulator circuit.