

# ***RIGrunner 4007U***



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owners.

Thank you for choosing the West Mountain Radio RIGrunner 4007U. You will enjoy having a RIGrunner with built-in high side current and voltage monitoring, USB-charging, and durable, standardized Powerpole® connections.

Having proper DC distribution should make a long overdue improvement to the convenience and safety of your station. Think of a RIGrunner as the 12 volt equivalent of a 120 VAC power panel in a house.

### **Special Features of the RIGrunner 4007U**

Unlike traditional RIGrunners, the 4007U has advanced features which are summarized below:

- Automatic supply voltage & load current measurement shown on a 3 x 7 segment display.
- Automatic shut off on high (HVD) or low voltage condition (LVD).
- Intelligent USB port for charging iPhone, Android and other USB devices.
- Adjustable 7 segment display brightness.
- External input for use with electrical/mechanical interlocks.
- Internal RF bypass capacitors on all inputs and outputs.

### **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.

Install in a cool dry place with good ventilation. For example, do not put it on top of your amplifier or room heater, or cover it with something. It is

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recommended to not put it in the engine compartment of your car, or directly on the floor of a car; rain from open windows or snow covered boots may cause water damage.

### **Connecting your equipment**

Recognizing that RIRunner comes standard with

Powerpole<sup>®</sup>, updating your cables that supply or use 12 volts DC with Powerpole<sup>®</sup> will improve the convenience of quick connections and use of your equipment. Remember, Powerpole<sup>®</sup> are genderless and the same connector arrangement works for both supply and load. Powerpole<sup>®</sup> can be used to charge or power batteries, all using the same connectors.

Powerpole<sup>®</sup> can be installed by soldering or crimping. Be sure to make good connections.

For detailed Powerpole<sup>®</sup> connector installation tips see RIRunner support pages at:

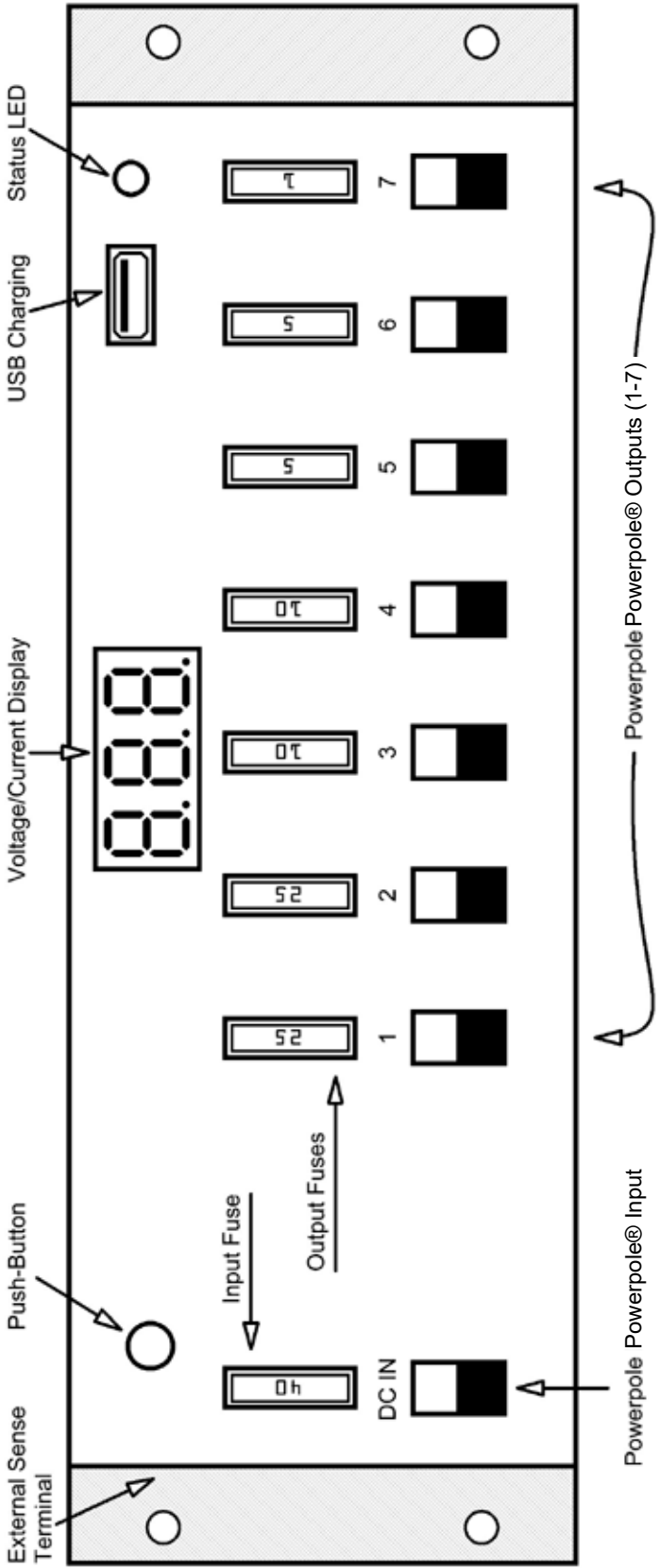
<http://www.westmountainradio.com/supportrr>

**IMPORTANT!!** It is essential that assembly of the pairs is correct. Follow the Amateur Radio standard used by the RIRunner. **DO NOT PLUG IN** without verifying that **RED + PLUS and BLACK - MINUS** is correct.

The far left connector is labeled DCIN with a 40 amp fuse. Unlike other RIRunners, the 4007U can only use the connector marked DCIN for input supply.

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 chosen. Typically 12 volt input amplifiers and 100 watt RF output transceivers should be first, VHF radios next and smaller accessories last.

Multiple amplifiers and/or transceivers may be connected to the RIRunner. There is a 40 amp maximum that would be exceeded if trying to transmit all connected units at once. Most radios and amplifiers draw less than 3 amps in receive, but require many more amps in transmit. Therefore, the limiting factor is total current draw while transmitting. To determine



how many radios may be used to transmit at one time, consult the radio manual for power consumption specifications. In the event that the total current goes over the 40 amp maximum, a fuse will blow or make an undersized power supply unhappy. The RIGrunner and any equipment plugged into the RIGrunner should go unharmed.

### **Using the proper fuses**

The RIGrunner comes supplied with a range of fuses installed. This assortment should be suitable for most stations, but can be changed easily. Every RIGrunner output is safe up to 40 amps, but the total allowable is also 40 amps.

A fuse **MUST** be in each position in use. **ANY ATTEMPT TO BYPASS OR SHORT ACROSS THE FUSES IS DANGEROUS AND VOIDS 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. Choose the correct fuse for your equipment. Standard ATC/ATO automotive blade fuses are used. 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 the power supply rating. If using a smaller power supply, consider using 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 using a power cord with a fuse, 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 offer less protection for the unit, too low a value and the fuse will blow out prematurely.

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.

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## **Using the RIGrunner 4007U**

Refer to the RIGrunner 4007U diagram on the next page. The display will cycle continuously between input voltage and load current every 5 seconds. When displaying current the last digit will be an "A".

### **Push-button**

The push-button is used for the following functions:

1. Pressing the button momentarily (while the RIGrunner is turned ON) will toggle the display mode to show voltage (locked), current (locked) or a continuous cycling of voltage and current changing every 5 seconds
2. Holding the button down for approximately 1/10th second (when the RIGrunner is currently turned OFF) will turn the RIGrunner 4007U ON.
3. Holding the button down for approximately 2 seconds (when the RIGrunner is currently turned ON) will turn the RIGrunner OFF. Continuing to hold the button for another 4 seconds will enter the display brightness adjustment mode.
4. Holding the button down for approximately 2 seconds (while in the display adjustment mode) will enter the LVD trip mode. In this mode you can disable or enable the low voltage trip point.

When in the display adjustment mode, a short tap of the push-button will cycle to the next brightness level. There are a total of 10 brightness levels and a long press of the button will save the current level and enter the LVD trip mode.

When in the LVD trip mode the display will read "tr" and either a "0" which signifies OFF or a "1" which signifies ON. A long press of the button will save the "tr" setting and return to the normal voltage/current display mode.

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## **Status LED, Low Voltage Disconnect (LVD) & High Voltage Disconnect (HVD)**

### **Operation**

When the RIGrunner 4007U is ON and the input voltage is within the normal range the status LED will be GREEN.

If the input voltage is outside of the range, the LED will change to RED and the Powerpole® outputs will be switched OFF. When input voltage returns to the normal range the LED will change to green and the outputs enabled. When the RIGrunner 4007U is turned OFF the LED will also be OFF.

### **External Sense Input**

The external sense terminal is comprised of two pins on the left side of the unit accessible through a “knockout” panel. The terminal provides a sense input and +5VDC through a 330 ohm resistor and is suitable for a variety of mechanical and electrical interlock circuits.

With the RIGrunner facing you (Powerpole® at the bottom) the orientation of the terminal is:

Top Pin: 5VDC

Bottom Pin: Sense Input

External voltage may be used for the sense input or you can use the supplied 5VDC.

The included RED lockout jumper may be installed to prevent the unit from being turned on.

### **USB Charging**

The USB port may be used to provide power to USB devices, such as phones and tablets. The USB port follows both the USB Organization’s dedicated charge port (DCP) specification and Apple’s unique charge port - meaning both Apple or Android phones and tablets or DCP devices may be charged.

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The USB port contains a 5V regulator that can provide up to 2A current. However, the USB DCP and Apple devices are requested by the 4007U to limit their load currents; Apple devices are limited to 1A and DCP devices are limited to 1.5A.

### **Internal USB Programming Port**

Units manufactured in 2019 and later have a USB port that can be used to monitor and control the RIGrunner state and to change the PWRguard parameters.

The internal USB programming port may be accessed by removing the four screws and the case cover. The port is a micro-USB connector on the right side near the port 7 fuse. Use a micro-USB cable, such as might be used with a camera to connect the PC.

A PC COM port terminal program may be used to see the data or the WMR Device Diagnostics Utility program for RIGblasters may be used. Drivers are not needed for Windows 10. If using an older version of Windows, download and install the drivers before plugging the cable into the USB port on the PC.

Download the FREE WMR Diagnostics Utility software including drivers at:

<http://www.westmountainradio.com/diagnostics>

In the diagnostics program double click on the RR4007U line to open a terminal window. Resize the window to see all the data if needed. Click on the black area of the screen to allow keyboard entry.

When the USB port is connected to the RR4007U, the device status is shown. This includes the voltage and current as well as the port on/off status. Press "S" to set the operating parameters. Press "O" then "N" to force the unit on. Press "O" then "F" to force the unit off.



## USB Settable Parameters

Parameter	Default	Range
High trip point	15.00V	10 to 27
High restart voltage (after a trip)	14.85V	10 to 27
Low trip point	11.00V	7 to 27
Low restart voltage (after a trip)	13.00V	7 to 27
Brightness	100.00%	10 to 100
Enable low trip point	Y	Y or N

Note, to leave the parameter unchanged, press ENTER.

### Example Output:

```
West Mountain Radio RIGrunner 4007U R3 2.0
```

```
Press S to Review/Edit settings,  
Typing ON will turn unit on,  
Typing OF will turn unit off
```

```
Outputs On Power= 13.75V, 0.12A
```

```
Outputs On Power= 13.75V, 0.12A
```

```
Outputs On Power= 13.75V, 0.12A
```

```
S
```

```
Reset all settings to default (Y,N) <N>?
```

```
High trip: <15.00>: 14.5
```

```
High restart: <14.85>:
```

```
Low trip: <11.00>:
```

```
Low restart: <13.00>:
```

```
Brightness (10%-100%): <100>:
```

```
Enable low trip (Y,N) <Y>?
```

```
Save Changes (Y,N) <Y>?
```

## **Specifications**

Overall Dimensions (max., w/o cables)	0.9"H x 9.7"W x 3.2" D
Weight	12.75 oz.
Voltage Readout Accuracy	+/- 2% +1 Count
Current Readout Accuracy	Less than 5A: +/- 0.25A, A to 40A: +/- 1A
High Trip	15V Typical
Low Trip	11V Typical
Auto Re-Start	13V Typical
Switching time, High Trip	15 milliseconds
Switching Time, Low Trip	3.3 seconds
USB Charging Current	2A Max. Continuous
Supply Current, Standby	1.4mA Typical
Supply Current, Operating	19mA Typical

## RIRunner Accessories

### Order Sku#

**Fuse Assortment Low Value (8pcs)** #58537-1085  
3- 1A, 3- 5A & 2- 10A

**Fuse Assortment High Value (8pcs)** #58537-1086  
2 ea. of 15A, 20A, 30A, 40A

Buss 10A ATC Circuit Breaker #58537-1087

Buss 15A ATC Circuit Breaker #58537-1088

Buss 20A ATC Circuit Breaker #58537-1089

Buss 25A ATC Circuit Breaker #58537-1090

Buss 30A ATC Circuit Breaker #58537-1091

**Powerpole® Extension Cable, 3 ft.** #58531-1082  
#12 Red/Black Wire w/ powerpole ends

**Powerpole® Extension Cable, 6 ft.** #58531-1083  
#12 Red/Black Wire w/ powerpole ends

**Powerpole® Extension Cable, 10 ft.** #58531-1084  
#12 Red/Black Wire w/ powerpole ends

**15A. Powerpole® Connector-12 Pair** #58257-1093

**30A. Powerpole® Connector-12 Pair** #58257-1095

**45A. Powerpole® Connector-12 Pair** #58257-1099

**Powerpole® Retention Clips - 12 Pack** #58257-1092

**PowerLock - RIRunner Retainer Kit** #58512-1060

**PWRcrimp Crimp Tool** #58568-1049

*To purchase or view other accessories available,  
call or go online at:*

**[www.westmountainradio.com/shop](http://www.westmountainradio.com/shop)**

### **ADDITIONAL RESOURCES**

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

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

## 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.

## Powerpole® Wiring Guide

Powerpole® Series Contact	Recommended Wire Gauge
15 A	20-16 AWG
30A	20-12 AWG
45A	14-10 AWG

**Additional Resources for Anderson Powerpole®  
go to: [www.andersonpower.com](http://www.andersonpower.com)**

**Details and a video demonstration for using PWRcrimp  
Tool with Powerpole®, go to:  
[www.westmountainradio.com/crimptool](http://www.westmountainradio.com/crimptool)  
[www.westmountainradio.com/videos](http://www.westmountainradio.com/videos)**