

Organize your workbench with West Mountain Radio

RIGrunner Simpler, safer e-power management

The model 4008 RIGrunner has LED lights that indicate normal status or under (11.5V) or overvoltage (15V) conditions (an audible beep supplements these lights; it can be set to beep at over or under voltage, or you can disable it).

With the proliferation of new batteries, connectors and chargers, safely managing electric connections on your work bench is more important than ever. What is the best approach?

If you are into electric flight, you probably have multiple chargers, power sources (12V lead acid batteries or power sources with AC adaptors), a host of flight packs and more connector types than you'd want to keep in a single cookie jar. Whether you are an experienced modeler or just beginning in this great hobby, you'll naturally want to know the safest and most convenient way to connect your power source to your chargers.

West Mountain Radio's RIGrunners offer one of the safest and simplest ways to connect your 12V battery or power source to your chargers. The RIGrunner uses Anderson Powerpole connectors, so there are no external hot contacts that could result in an accidental short. Using this gear is not the only "good" way to manage power—there are a variety of excellent connectors and alternate techniques for creating power strips on your bench or in your fieldbox. In any case, the RIGrunner is one of the simplest and handiest solutions we have found to date, and using one will also save you time.

SPECS**PRODUCT:** RIGrunner**MANUFACTURER:** West Mountain Radio**DISTRIBUTOR:** West Mountain Radio**MODEL 4005**

- 5 always-on outlets, Powerpole connectors

- 40 amp ceiling

PRICE: \$49.95**MODEL 4008**

- 8 always-on outlets, Powerpole connectors

- 40 amp ceiling

- audible and visual undervoltage and overvoltage indicators

PRICE: \$79.95**RIGRUNNER BASICS**

Most 12V DC power supplies feature one or two ports for output connectors. You may have a number of chargers and other accessories to connect to your power source. You can braid and twist the wires to organize their connections, but you'll wind up using alligator clips, banana plugs and other bare connectors that can accidentally touch and cause a short. Worse yet, the tangled bird's nest of wires can be a hassle to untangle and rewire as you remove and add chargers.



BEFORE: This is often the way basic 12V power source wiring looks on many workbenches. Too much opportunity for alligator clips to accidentally hit each other and cause a short. Moreover, using an auto battery has its own unique risks—a dead short can pull hundreds of amps and vaporize a hobby lead in a flash. It's best to fuse a primary lead from an auto battery near the battery terminal so that any accidental short downstream will simply blow the fuse.



AFTER: Using the RIGrunner and Anderson Powerpole connectors, there are no exposed hot contacts. In this example, an Astro Flight power source powers four chargers. The Astro Flight Whattmeter indicates the volts, amps, watts and amp hours consumed by the four chargers. With such a setup, you will easily see whether adding more chargers will push the power source toward its power ceiling (in this case, 13.6V and 12A).

West Mountain Radio's RIGrunners expand your power connection options to as many as 12 ports, depending on which model you buy. A single cable connects the power source or 12V auto battery to the RIGrunner, and the RIGrunner utilizes a bank of Anderson Powerpole connectors to distribute power to your chargers. ATC/ATO auto fuses are used to protect each connection.

The smallest RIGrunner is the five-socket model 4005, which is shown providing

power to four chargers. We are also featuring the 8-outlet model 4008, which includes audible as well as visual over and under-voltage warnings. All RIGrunners have LED indicator lights on each fuse that show whether a fuse has blown.

Using a RIGrunner saves time in multiple ways. Connecting and unconnecting devices and moving your gear from workbench to fieldbox is simpler and faster. Using Anderson Powerpoles as the standard on your workbench (with appropriate patch cords for Astro Zero Loss, Deans Ultra Plugs, Hobby Lobby "gold bullet" and other popular connectors) will save you many hours a year because Anderson Powerpoles are crimped not soldered to wires (see Using Anderson Powerpole Connectors, April 2005, or visit www.flyrc.com).

To really see what your power source is delivering to your RIGrunner, install an Astro Flight Whattmeter between the power source and RIGrunner, as shown in the photos. Safety tip: configure your charger input Powerpoles differently from your battery charging Powerpoles so that it is impossible to plug the charger output leads into the RIGrunner (see photo).

FUSES, FUSES, FUSES

The fuse that protects the power-in port should have a current ceiling that matches or is just above the nominal current ceiling of your DC power source plugged into the wall. The Astro Flight power source has a nominal power-out current ceiling of 12 amps, so I placed a 15A fuse at the RIGrunner's power input port to ensure that current delivered to the RIGrunner would not significantly exceed the nominal ceiling of the power source for continuous current delivery.

The RIGrunner has a 40A ceiling, so if you are using an auto battery as a source, use a



This workbench hints at the future of electric flight: the 5-socket model 4005 RIGrunner is at stage center, and is powered by an Astro Flight power source. An Astro Whattmeter specifies volts, amps, watts and amp-hours delivered to the RIGrunner.

- (1) **Upper left:** the Astro Flight Model 110 NiCd/NiMH charger charges a KAN 900mAh NiMH battery available from Readytoflyfun.com. These are superior NiMH packs used in the Readytoflyfun.com T-Hawk, an RTR park flyer reviewed in our March 2005 issue.
- (2) **Upper right:** the FMA Direct Scorpion 2s lithium polymer charger is "forming" (conditioning) a Scorpion 7.4V 3200mAh Li-Poly car pack, which includes two Kokam 3.2Ahr cells and weighs only 7.5 oz. The Scorpion 2s charges at a 3C rate and balances pack cells while it charges; on a fast-charge setting, the 7.4V 3.2Amp-hour pack can be 90% charged and balanced within hundredths of a volt in only 20 minutes!
The new Scorpion Li-Poly pack outperformed a 13-oz. matched NiMH racing pack (see the May 2005 *RC Driver* magazine, our sister publication, for the details). A version of this charger for up to 6S packs will be coming to the airplane market.
- (3) **Lower right:** a Multiplex MULTI charger brings a Multiplex LI-BATT 2,000mAh Li-Poly pack up to capacity (the MULTI charger, which charges up to 4S packs, was reviewed in our April 2005 issue).
- (4) **Lower left:** the Astro Flight 109 Lithium charger pumps energy into a Kokam 3S 11.1V 3200mAh Li-Poly pack distributed by FMA Direct.

40A fuse or lower. It is very important to fuse 12V battery connections because of the huge surge in current that can result in the event of an accidental short. If you run a cable from your car battery to a RIGrunner in your fieldbox, insert the fuse as close as you can to the battery (if you fuse at your fieldbox, a short developing between the box and the car because something cut through your cabling could cause havoc).

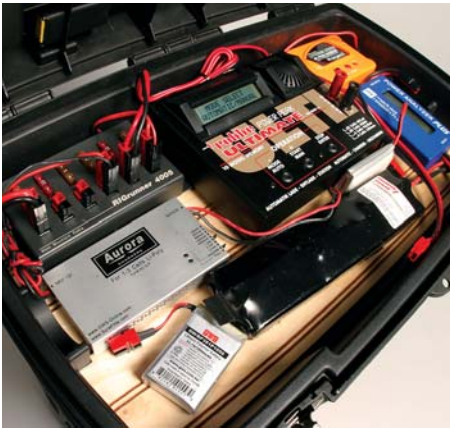


Note the different orientations of the Anderson Powerpoles. Using this technique can prevent accidentally plugging the output (charging) leads from your charger into the RIGrunner (this could damage some chargers).

The chargers or other accessories that you attach to the RIGrunner will have nominal input power ceilings in their specifications.

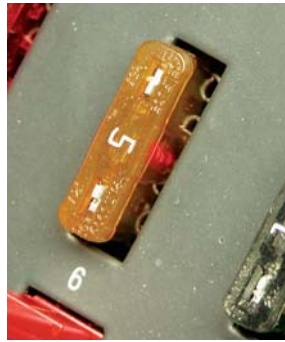


When you convert your chargers or other accessories to Anderson Powerpole connectors, make a patch cord so that the original alligator clips or banana plugs that came with the accessory can be used, one-off, as originally intended. In this example, we have deliberately altered the length of the wires so as to inhibit accidental touching of the clips after they are clamped to hot leads.



The RIGrunner is shown installed in an electric flight fieldbox.

Use fuses that match or slightly exceed the nominal ceilings. If any one unit malfunctions and begins drinking more power than it was designed to consume, its fuse will blow and the rest of the accessories connected to the RIGrunner, and your AC power source, will be unaffected. I used 10 amp fuses for two of the chargers shown in the layout, and one 15 amp fuse—even though their upper limits could exceed the current ceiling of the



Note the 5 amp fuse has been blown and is identified by a small red LED that lights it up from within the RIGrunner

power source. However, I calculated the current requirements for each charger given the batteries being charged, and ensured that the charge rates would not exceed the power source's output ceiling. In other words, select your fuses wisely and also think about what you are doing when you turn the system on.

Finally, you can up-grade your RIGrunner and use circuit breakers that drop into the fuse sockets if you wish.

CONCLUSION

The RIGrunner is attractively designed, rugged and easy to use. It saves time, pro-



A 40A fuse has been spliced into the power cable near the battery terminal.

protects you from accidental shorts, and cleans up your workbench. We give this unit two thumbs up! ☺

Links

- Astro Flight Inc., www.astroflight.com, (310) 821-6242.
- FMA Direct, www.fmadirect.com, (800) 343-2934.
- Multiplex, www.multiplexusa.com, (858) 748-6948.
- ReadyToFlyFun, www.readytoflyfun.com, (866) 472-8697.
- West Mountain Radio, www.westmountainradio.com, (203) 853-8080.

For more information, please see our source guide on pg. 161.

 <p>Kadet Seniorita BIY Order No. SIGRC60 Requires .15 - .25 2-Stroke Glow and 3 Channel Radio Wingspan - 63 inches</p>	 <p>Kadet LT-25 BIY Order No. SIGRC74 Requires .25 - .32 2-Stroke Glow and 4 Channel Radio Wingspan - 63 inches</p>	 <p>Kadet LT-40 Kadet LT-40 BIY - Order No. SIGRC67 Kadet LT-40 ARF - Order No. SIGRC67ARF For .40 - .46 2-Stroke Glow and 4 Channel Radio Wingspan - 70 inches</p>	 <p>Kadet Mark II BIY Order No. SIGRC49 For .25 - .40 2-Stroke Glow and 4 Channel Radio Wingspan - 57.25 inches</p>
 <p>Kadet EP-42 ARF White w/Trans. Blue - Order No. SIGRC97ARFB White w/Trans. Blue - Order No. SIGRC97ARFR Includes Electric Motor and ESC Requires 4 Channel Radio w/4 Micro Servos Wingspan - 42 inches</p>	 <p>Kadet Senior ARF White w/Trans. Blue - Order No. SIGRC58ARFB White w/Trans. Red - Order No. SIGRC58ARFR Requires .40 - .46 2-Stroke Glow and 4 Channel Radio Wingspan - 80 inches</p>	 <p>Kadet Senior BIY Order No. SIGRC58 Requires .29 - .40 2-Stroke Glow and 3 Channel Radio Wingspan - 78 inches</p>	

How Many Kadets Have You Flown?

There's something about a SIG Kadet that draws you back time after time. Maybe it's the great looks of a high wing classic, or the inherent flight stability found in every version. To some, it's the versatility of being able to add options such as cameras or bomb drops without fear of wing overload. To others, it's the satisfaction of a rewarding flight every time. Whatever the reason, modelers have been taking to the air with Kadets for over thirty years. Sure, they're great trainers. But Kadet pilots know they're much more. One thing is certain. The only flight better than your last Kadet

flight is your next one. Available as a conventional kit, BIY (Build It Yourself), or ARF (Almost Ready To Fly). Stop by your local hobby dealer and pick up what could very well be your first... and last... airplane.



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