

Using Diodes to Drop Voltage on A123 Batteries for RCEXL Ignition Systems

By Henry Zwolak

Lots of fellas ask how to use diodes to drop the voltage on A123 batteries so they can be used to power the RCEXL ignition system.

RCEXL recommends a voltage of 4.8v to get great performance from the ignitions – Nicads or Nmh are the standards here. They are easy to get and inexpensive. That said.....

Guys want to standardize using batteries in their airplanes which is a great idea. They also want to follow the directions issued with the RCEXL ignitions systems that recommend a battery voltage of 4.8 volts. What to do?

One can purchase a rc aircraft specific regulators, or power distribution systems from a variety of manufacturers. If you want to consider one of the least expensive ways then that is to use diodes – in series. Here's the how to.....

So what diodes are needed to drop the voltage of A123 batteries?

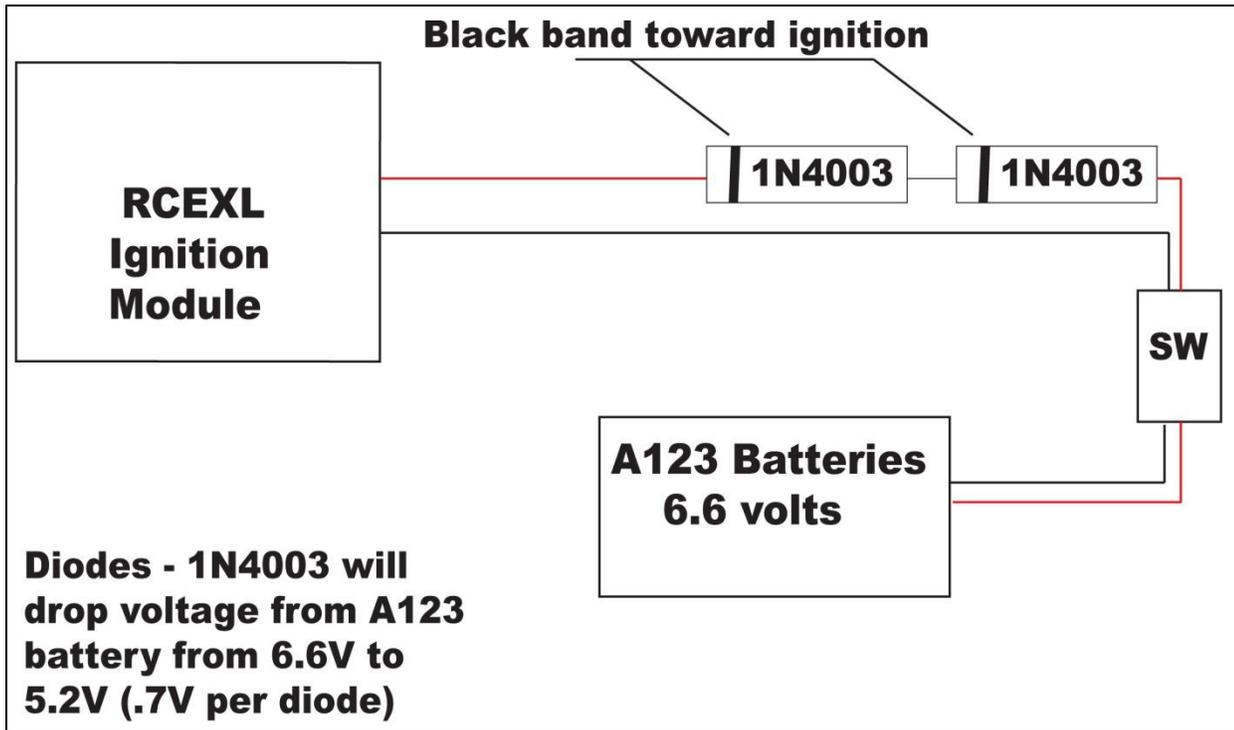
Any diode that will handle the current will work. They all have about a 0.7 volt drop. Look for "rectifier diodes." DigiKey, local supply houses, maybe even Radio Shack.

1N4001 through 7 diodes are silicon based and have approximately .7 volt drop. It's physics. Vfm is rated 1.0 volt at 1 Amp.

Any 1N400x diode will work ie 1N4002 1N4007 1N5402the last number is a reference for the max or breakdown voltage (which the batteries are nowhere near). Each diode has about .7v drop so if you wanted 1.4v drop, you would put two in series. It is recommended that 2 diodes would be sufficient.



Make sure you reference the "line" on the diode in the right orientation. The line denotes the cathode or the "negative" side. You want this cathode line facing the ignition.....the side without the line going to the battery or supply voltage.



Summary

If possible, use nicad and Nmh batteries for the ignition system. The batteries are relatively low cost and work extremely well in this application. If you really really really want to use the A-123 battery packs, using diodes as explained above will work. Or you can also purchase ready made professional grade regulators. They are EXCELLENT choices to make too!