



The

# **Broadcasters' Desktop Resource**

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... edited by Barry Mishkind – the Eclectic Engineer

## **TOOLS YOU CAN USE**

### **PowerGenix – Rechargeable AA Batteries That Stand Up in Use**



*by Kevin Raper*

*[May 2010] Can rechargeable batteries be useful to the broadcaster? Many have thought not – and, for example, install new batteries for each remote, rather than chance a loss of power halfway through the day. Kevin Raper tried out a new generation of rechargeables, and found that battery technology has brought new choices.*

When I agreed to test the PowerGenix Rechargeable AA batteries, I just *knew* they would not work for my needs. Boy was I *wrong*! I have tried PowerGenix batteries in everything from a "Battery Hog" Grundig YB-400PE Shortwave Radio, to a Kodak Easy-Share Camera, and even my Garmin GPS is happy with them.

#### **THE RECHARGEABLE PROBLEM**

The biggest problem with most rechargeable batteries is the lower voltage of even fully-charged batteries. Most rechargeables like the common nickel-cadmium (NiCad) products typically reach a "full charge" at approximately 1.2 Volts. This is right at the edge of useful power for many products, hence many devices just do not like it, often "thinking" rechargeables are already nearly dead when they are installed – and thus reduce performance, or kick off completely.

On the other hand, this is not a problem with the higher voltage PowerGenix. A fully-charged unit will measure up at 1.6 Volts (spec) or more, and stay there, much like the best standard alkaline batteries. The secret is in the nickel-zinc (NiZn) battery chemistry used by PowerGenix to achieve that higher voltage. Even better NiZn batteries are non-toxic, non-explosive, and 100% recyclable.

#### **A DIFFERENT EXPERIENCE**

The surprises with the PowerGenix started immediately. When product first got here, I noticed they would not activate the charger. The reason was, I found out, that they were shipped already charged! (A

benefit of the NiZn formulation is that they hold their charge for quite a while – up to one year at 90% of capacity.)

To give them a solid test, I installed them in my "Battery Killer" Grundig YB-400PE Radio, a radio that is *very picky* about batteries. Normally this radio will die in about 15 minutes on fully-charged "old technology" Energizer brand rechargeable batteries. It ran for almost six hours before it kicked off! That is about an hour longer than new alkalines.

OK, on the first day, I was impressed!



**Using a nickel-zinc chemistry, PowerGenix rechargeables produce stable power at 1.6 Volts**

Later, when I popped the batteries out of the charger, I dragged out my Fluke meter. First, I checked a brand-new Panasonic brand AA battery with an expiration date of 2015. It had 1.59 Volts. The PowerGenix had 1.8 Volts! (As I mentioned, the specification is 1.6 Volts, but it will charge to as much as 1.8 V.)

## **TRYING DIFFERENT APPLICATIONS**

I put a pair into my GPS and it booted right up - it and stayed running for my one hour drive to work. In fact the GPS lasted about 12 hours; it normally dies after nine hours on alkalines.

Then I put a pair of batteries into the "Ultimate test" - my Kodak Easy Share. Again, it booted right up and snapped a flash picture. It is important to know that my Easy Share will *not* even boot up on most brands of rechargeables. It will boot up, snap *one* picture, and die on Energizer's rechargeables.

With PowerGenix batteries, not only did it stay on, it took 45 more pictures - and stayed *on!* It will normally take about 35 flash pictures on a set of alkalines.

## **HIGH CAPACITY**

PowerGenix not only gives higher voltage, the AA batteries I tested are very conservatively rated at 2500 mWh and will run anything I could find that takes AA-sized batteries.

As one might expect, the typical battery rechargers will not work correctly with these batteries. The PowerGenix rechargers come in two flavors, a fast charger and a quick charger, capable of topping up batteries in as little as 1 to 1.5 hours. The chargers will prevent damage by detecting incorrect insertion, over-temperature, and charge levels.

I could detect no "Memory Effect," a common problem with NiCad Batteries, and they do not seem to self-discharge like other rechargeables. Depending upon the charger, they take about the same time, maybe a little less to recharge from dead, so you are not wasting time waiting forever for them to charge. I just plug them into the charger overnight, and they are good when I get up in the AM. The Charger turns itself off before it cooks the batteries, so no worries there.



**Chargers have built-in sensors to provide optimum charging**

In addition to my tests, my wife has run them in her Walkman CD player, her mp3 player, and an iTrip to play her mp3s on her FM radio. I even have them in my Mag Mini-light with a Nite-Ize LED converter kit in it. I have found the performance to be as good, if not better than Name Brand alkaline batteries.

Now I am wanting the AAA Version and C Versions to run in some of my other high-drain electronics. I am *very impressed* with the PowerGenix AA Batteries, and my wife is too - after using the PowerGenix batteries in her stuff, she will not give them back!

My request to the guys at PowerGenix: How about cooking up a 12 Volt battery back-up for my Sine Systems Remote?

*More information and FAQ's on the environmentally safe PowerGenix NiZn rechargeable batteries can be found on their website at: [www.powergenix.com](http://www.powergenix.com)*

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