MOUNTAIN SPARK GAPS

NPARC—The Radio Club for the Watchung Mountain Area

Website: http://www.nparc.org
Club Calls: N2XJ, W2FMI
Facebook: New Providence Amateur Radio Club (NPARC)

July 2023

Volume 56 No. 7

Regular Meetings

Second & Fourth Mondays

7/10/23 - Business Meeting on Zoom
7/24/23 - Technical Meeting on Zoom

Upcoming Events

Digital Net Mondays at 9:00 PM – 28085

CW Net, Thursdays at 9:00 PM – 7050+QRM

Check www.nparc.org for details.

Meeting Schedule

Regular Meeting: 7:30—9:00 PM
2nd & 4th Monday
of each month
Watch for Emails

Everyone is Welcome
If a normal meeting night is a holiday, we usually meet the following night.
Call one of the contacts below or check the web site

—

Club Officers for 2023

President: K2UI, Jim Stekas
908-868-4970
Vice President:W2EMC Brian DeLuca
973-543-2454
Secretary: K2AL: Al Hanzl
908-872-5021
Treasurer: K2YG Dave Barr
908-277-4283
Activities: KC2MTN, John Zellhofer
973-462-2014

On the Air Activities

Club Operating Frequency
145.750 MHz FM Simplex

Sunday Night Phone Net
Murray Hill Repeater (W2LI) at 9:00 PM
Transmit on 147.855 MHz
With PL tone of 141.3 Hz
Receive on 147.255 MHz
Net Control K2AL

Digital Net
Mondays 9 PM
28,084 — 28,086
Will be using PSK and RTTY
Net control K2YG

Club Internet Address

Website: http://www.nparc.org
Webmaster KC2WUF David Bean
Reflector: nparc@mailman.qth.net
Contact KC2WUF, David

MOUNTAIN SPARK GAPS

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Acting Editor: K2UI Jim Stekas
Contributing Editors:
WB2QOQ Rick Anderson

Climatological Data for New Providence for May 2023

The following information is provided by Rick, WB2QOQ, who has been recording daily weather events at his station for the past 43 years.

TEMPERATURE -

Average temp
May 2023, 61.0 F
May 2022, 63.3 F

Maximum temp
May 2023, 84 F (May 12)
May 2022, 95 F.
Average Maximum temp
May 20232, 71.4 F

Minimum temp
May 2023, 42 F (May 18)
May 2022, 34 F
Average Minimum temp
May 2023, 50.6 F

Minimum diurnal temp range, 10 F (55 – 45 F)5/2
Maximum diurnal temp range, 30 F(78 - 48 F)5/31

PRECIPITATION -

Total precipitation
May 2023 – 1.10” rain
May 2022 – 6.76” rain

Maximum one day precip. event
May 20, 0.65” rain.

Measurable rain fell on
8 days this May
15 days last May.

YTD Precipitation – 18.45”

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Rick Anderson 6/19/2023
243 Mountain Ave.
New Providence, NJ
(908)464-8911
rick243@comcast.net

Lat = 40 degrees, 41.7 minutes North
Long = 74 degrees, 23.4 minutes West
Elevation: 380 ft.
CoCoRaHS Network Station #NJ-UN-10

BARA Hamfest

The Bergen Amateur Radio Association held their Spring Hamfest on Saturday May 27. The weather was ideal and being a native of Bergen County, I made a last-minute decision to take the trip to Washington Township.

The hamfest was held in the parking lot of a high school, just a few miles off GSP Exit 165. It was well attended. K2KJI was there selling and there was the usual fare for sale- old vacuum tubes, some vintage gear and spare parts- along with a large table full of various connectors, adapters, coax cables, grounding strap, shrink tubing etc., where I spent most of my time. I also purchased an "under the tire" mast mount for portable use. The ARRL was also there, always good for a few band plan charts.

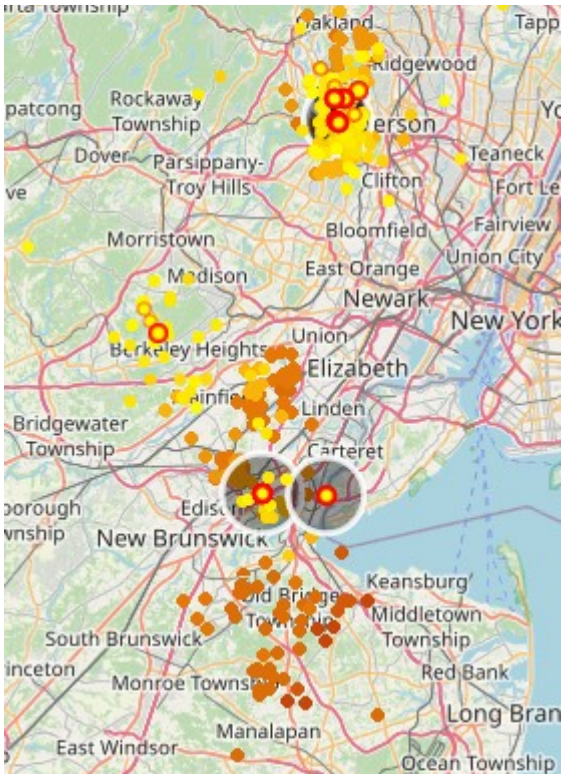
Don' forget the Sussex hamfest on July 16. NPARC will have two indoor tables, so this is a perfect time to sell some of your treasures.

AL, K2AL

President's Column

NPARC Field Day 2023 will be a memorable one, and not in a good way. We assigned tasks, tracked their status, but Mother Nature threw us curve ball: bad weather.

Looking back, the weather at the FD site wasn't too bad except for some nearby lightning strikes during our normal "tear down" period (see figure). One strike hit on Mountain Ave. in front of the Bell Labs site. But mostly the lightning passed by us to the East and West.



The National Weather Service gets a lot of grief when their predictions aren't "accurate". In this case, NWS predicted scattered thunderstorms, and that's exactly what NJ got. Nearby Edison, Plainfield and Elizabeth got walloped while we were pretty much unscathed. But if the front had been 10 miles further west, we would have been the ones to get clobbered.

The only thing worse than canceling FD because of a forecast of bad WX would be to risk holding FD and having someone get hurt.

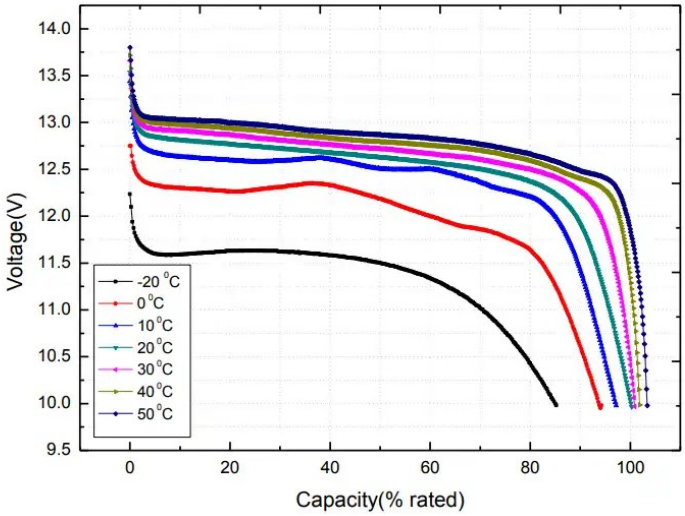
73,
Jim - K2UI

A Power Supply Monitor

Jim Stekas - K2UI

Imagine you are out operating SOTA with your IC-705 and your shiny new 12V LiFePO4 that you bought for $100. Six hours and 250 contacts later your rig shuts down. You pull your trusty Harbor Freight freebie DVM out of your backpack and measure 10V at the battery terminals. The battery is completely discharged and at risk of being damaged.

Every battery has voltage and current specifications for safely charging and discharging. The LiFePO4 voltage drops slowly from 13V to 12.5V as it discharges. (See figure) At 12.5V the battery is almost completely discharged and the voltage drops like a bomb. Completely discharging a Li-ion or lead-acid battery will damage or destroy it.



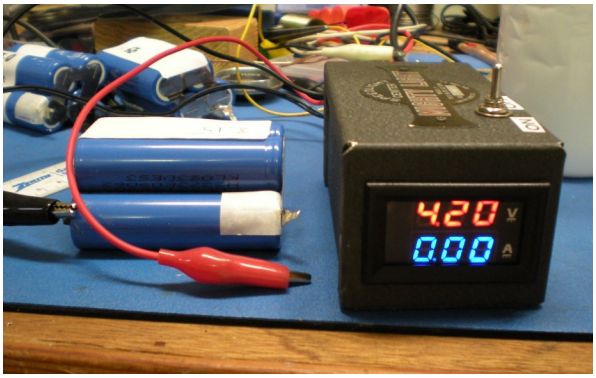
LiFePO4 Discharge Curve

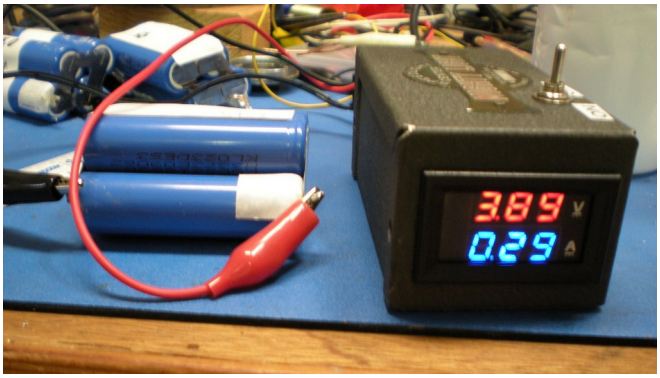
On Amazon, I discovered a module[1] (figure left) that displays voltage and current simultaneously. It's a perfect way to monitor the voltage and current delivered to or from a battery. The price is $3 each for quantity five.

The module can measure 4-30V and 0-10A running off the monitored supply. The measured voltage range increases to 0-100V if the module is powered from a dedicated battery.

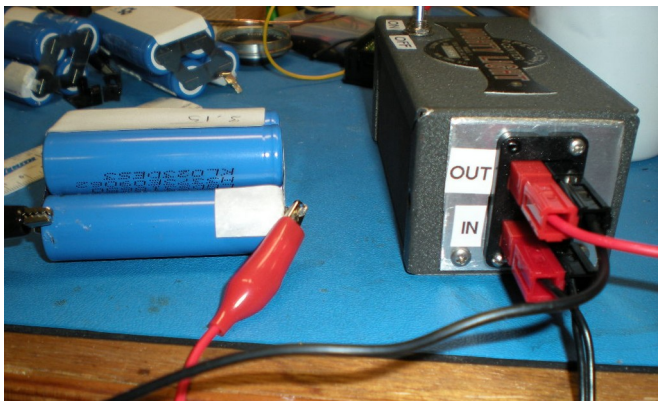
1 Search for DSN-VC288 for specifications and circuit diagrams.

I used one of these modules to build a power monitor with Powerpole input and output. (I accidentally ordered two large kits of Powerpoles and now use them profligately.) The power meter was built into a box was salvaged from 1950's vintage flash kit used for countless family pictures.



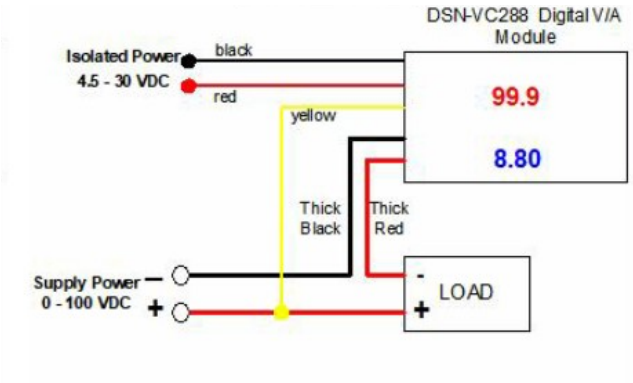


The above pictures were taken while charging a Li-ion battery pack from my regulated bench supply set at 4.2V with a current limit of 0.5A. This combination of settings will assure that the battery will not be overcharged[2]. The picture on the left with the battery disconnected shows the supply voltage at 4.2V with zero current being draw. On the right, the battery is connected and being charged with 0.29A. Once the battery is charged to 4.2V, the charging current will drop to 0A, and the battery is "fully" charged.



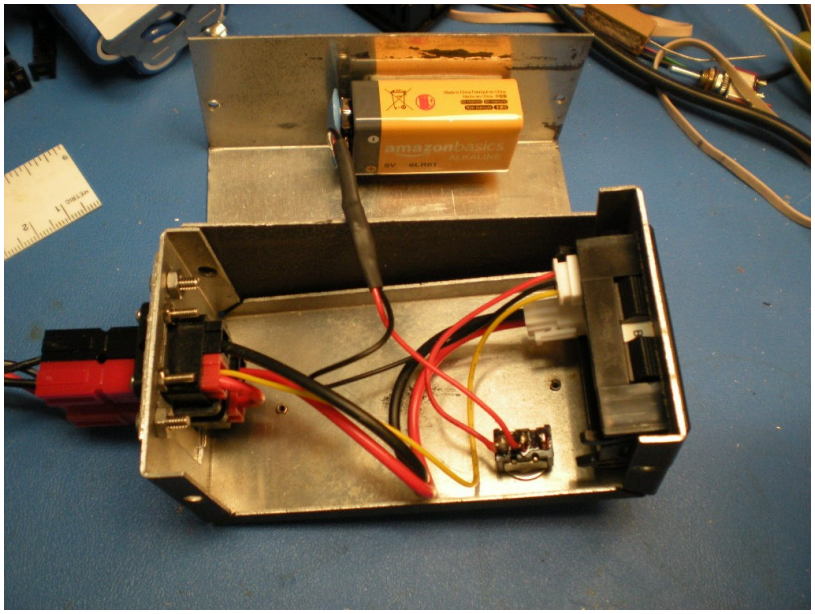
Powerpole connectors are provided for power input and output, making the monitor easy to insert in a DC power circuit. Note that the output connection to the battery is made with alligator clip to Powerpole jumpers.

The monitor is wired as shown in the schematic (right). The "isolated power" is provided by a 9V battery. Wiring up the circuit was a bit confusing since both wires going to the load are red. The thick red and black wires are connected to a 10A shunt, so ***both*** thick wires are at 0V (supply power) .



2 ***Don't attempt to charge a Li-ion battery if you aren't sure how to do it safely.*** Improperly charging or discharging a Li-ion battery can result in a fire. Special circuits are available to manage charging safely, and are the recommended way to go.

The picture below shows what is inside the box, and it isn't very much. The battery positioned so as not interfere with the wiring and is held in place with double sided tape. An On/Off switch disconnects the battery when to maximize its life. With the switch in the off position, the display shut off, but power will still flow from input to output Powerpole connections. So you can leave the monitor in the power circuit of a QRP rig and switch it on and off whenever you want.



This little gadget is cheap, easy to build, and is much more convenient to use than a DVM. I don't know how I got along without it.