# 2025-02-04 Hamlet Net - Powerpoles

**Announcements:**

- Test Session Info
    - Next VE session is Saturday, February 22nd in the Clover Building at the Boulder County Fairgrounds, and starts at 10 am. It is an ARRL session, so there is a $15 fee to test. For more info, and to pre-register, see the Licensing/Testing page on the club web site, https://w0eno.org/, under the Education menu.
- The ISS will be running another SSTV event leading up to the FRAM2Ham event. The ISS will be transmitting from Feb 13th to 17th. Transmissions will occur on 437.500 MHz at a power of 5 watts using the PD120 SSTV mode.

  PD120 transmissions are 2 minutes long, and will allow participants to practice their polarization and Doppler shift skills.
    - Fram2 will be the first polar-orbit human spaceflight mission to explore Earth. It will launch into a 90° circular orbit to the south from Florida, making it the first human spaceflight to fly over Earth's polar regions from low-Earth orbit.
    - During the Fram2 mission Rabea Rogge, LB9NJ (Norway) and KD3AID (USA), will be operating the onboard amateur (ham) radio system sending SSTV images as part of a high school and university student competition. These SSTV images will also be available to be received by the general public during her mission.
    - For more information on the event, see: https://fram2ham.com/
- There is some new functionality on the web site that allows members to send messages to other members. To use it, you must be signed into the web site. Click on the "Contact Members" link at the top of the page to get into the message system, where you will be able to send or read messages.

  There is also a Settings tab where you can select whether other members will be able to contact you, and whether you will receive an email when you receive a message via this system.

  This system was implemented as a compromise to allow club members who may hear another member on the radio to contact each other while avoiding the potential privacy issues which could arise from publishing a list of member's email addresses.

  Give it a try and send any feedback or suggestions to Chuck, k0itp@w0eno.org
- Chuck has created a survey to gauge interest in participating in a 24 to 48 hour POTA Memorial Day weekend (May 23-26th) at Jackson Lake State Park. Each site will allow 6

people, so looking to get at least 3 tents per site.  Will be interesting to hear what all Chuck has planned for this operating event.

If this sounds fun - even if the dates don't work out for you, please make your opinion heard at:  https://w0eno.org/24-48-hours-of-pota/

- The club has an email address that can be used to request assistance with any ham-related issue from a group of club Elmers.  We've also added a web form that can be used to request help as well - just click on the "Elmer Support" link on the club web page
    - **Question: Is there something better we can name the link to make it more obvious to new hams?**
- Upcoming Club Volunteer Opportunities:
    - DMR Go Box (Feb 8) - this Saturday, Feb 8 from 9am to 1pm at the Clover building at the Boulder County Fairgrounds. https://w0eno.org/other-clubs-and-radio-organizations/?sheet_id=18
    - LARCFest (April 5, 2025): https://w0eno.org/other-clubs-and-radio-organizations/?sheet_id=15 or contact Chuck at: k0itp@w0eno.org
    - Summer Field Day (June 28-29) -
    - HAMCON Colorado 2025 for Rocky Mountain Division is October 23-26, 2025 in Grand Junction.  For more information and to register, see their web site at: hamconcolorado.com
- On the 15th of this month, RMHAM-U is hosting their NerdFest, which is "An eclectic assortment of talks on topics of interest to hams."  It will take place from 8:30 am to noon-ish.  They typically publish a list of presentations, but I don't see anything listed for this year yet - hopefully they'll have that up by next weeks' Hamlet Net.

  You can attend live in Greenwood Village at the Cherry Creek Schools ESC.  It's also being held on Zoom if you can't make it, and they usually record the sessions for later viewing as well.

  To sign up, go to the RMHAM web site at: https://www.rmham.org/ and click on the "Sign Up for RMHAM University" link under the "RMHAM UNIVERSITY" menu item.
- If you are an ARRL member, remember that you have digital access to four magazines - QST, On the Air, QEX, and National Contest Journal.

- We have a new net on the LARC repeaters. It's run by Timothy Moss, KFØLAR, on the 22nd of every month at 6pm - that's this Sunday. The 22nd was chosen to highlight the average of 22 vets who commit suicide each day. While the purpose of the net is to connect veterans, non-vets are welcome to participate as most all of us have friends or family who are or have served.

- The ARRL Colorado Section Net occurs on the second Monday of the month from 7 to 8pm. The net is run by Amanda Alden, K1DDN, our Colorado ARRL section manager, and is open to hams and non-hams alike. This net is a place where Colorado hams can ask questions of ARRL leadership and request help, guidance, club support, and technical support. This net meets on the second Monday of each month at 7:00 pm Mountain time. The net is on the Colorado Connection, Rocky Mountain Ham Radio DMR Talk Group 700, The Fun Machine, WE0FUN, and the NCARC Buckhorn Repeater 447.700 – with 100 Hz tone.

- We have some volunteer opportunities available where you can help out LARC:

    - Photographer / videographer - record team activities and upload to web site / YouTube

    - Newsletter Editor - put together the monthly Splatter newsletter

    - Event Coordinator

- Time's up for this year, but you can earn your 2026 membership or future renewal by acting as NCS for at least 5 nets next year. You can run either this Tuesday night net or the Thursday night net (or both). We have scripts available for both, so all you need is a good connection into the repeater, and somewhere to keep track of names and call signs as people check in. If you're going to be on the net anyway, why not save some dough at the same time!

- Chuck has set a goal for the Club of running at least one activity a month. This can be a hands-on construction activity, an operating activity like Field Day, a fox hunt, or a special event station. The goal is to get people together to have fun with amateur radio! We have multiple locations at our disposal, as well as lots of Club equipment, so if you have an idea for something you think others hams would like to do, please let us know, and if you're willing to run it, even better!

- The Club is also looking for presentation topics for 2025. If you have any ideas, or better yet, would like to present, please let Chuck know and we'll get you on the schedule! We would like to get some presentations from club embers on stuff they've been doing, projects they're working on, or just things that interest them.

- All club activities are open to anyone - members and non-members. If you have questions, ask them on a net or **send email to elmer@w0eno.org**

**Presenter: Bryan, AF0W**

**Powerpoles**

- You've probably seen Powerpoles in videos or on actual ham equipment. They are plastic and metal connectors that are frequently used for power cable connections in amateur stations.

- A big reason for using Powerpoles is for compatibility.

    a. I believe ARES and RACES have both standardized on them so that when various operators show up for an event, their batteries, cables, and radios can all connect to each other.

    b. Many radio manufacturers use different power connectors on their radios

    c. Most radios come with a power cable that has a connector that mates with the radio on one end, has fuses inline, and then terminates in bare wires so the end user can either directly wire it into their power supply, or add whatever connectors they use to them

    d. By using a common connector (both type and gender) for all your equipment, you make your own life easier, and using Powerpoles in the proper configuration helps you share equipment with others without running into connector issues

**Build Your Own Power Cables**

- You can purchase pre-made cables or construct your own.

    a. If you build your own cables, be sure you adhere to the standard configuration so your connectors will mate properly with others.

    b. Powerpole connectors are meant to be installed using a crimping tool. LARC has a Powerpole crimping tool that is available for members to borrow as well as some Powerpole connectors.

        - This crimper is not the same as the ones sometimes found on wire strippers that are frequently used for crimping ring and spade terminals

        - Some hams attempt to use pliers to crimp the connectors

        - The problem is that if the connectors are not crimped properly, they won't fit and lock into the shells

- If you go to the Anderson Power web site and look at their Powerpole page, you'll see that there are actually a number of different types and sizes of Powerpole connectors

- Amateur radio applications use the 1327 series connector housing along with a crimped connector which slides into and is held by the housing

    a. These housings are typically red and black, but they're actually available in other colors such as green, blue, yellow, and 6 others

    b. The housings have slots and tabs that allow them to be attached to each other, which allows you to have multiple cables running into a single connector block - for example, the ARES specification I mentioned earlier has the positive and negative connectors joined together.

    c. There are three contacts that fit this housing - each with a different current / wire size rating

- They are rated at 15, 30, and 45 amps, but the size of the actual contact area is the same for all three - the only difference is the size of the wiring connection and the size of wire they will accept.

- The 15 and 30 amp connectors have a round tube into which the wire is inserted, while the 45 amp contacts have an open channel for the wire.

- The 15 amp are for 20 to 16 gauge wire, the 30 amp are recommended for 14-12 gauge wire, and the 45 amp versions are for 10 gauge wire

- The contacts are meant to be used without solder.  You may think that adding solder will help solidify the wire to connector connection, but there are a few problems with this.

    a. First, if the solder extends past the edges of the connector, it can actually prevent the connector from properly seating in the housing

    b. The other issue if that if you are using stranded wire, the solder can tend to wick back up your wire making the wire inflexible and raising the chances of it breaking

- These connectors aren't only for low voltage applications.  The housings are rated for up to 45 amps at 600 volts

- Some characteristics of the connectors are:

    a. The actual contact surfaces are flat and wipe against each other when connecting and disconnecting - this helps maintain a clean contact surface.

    b. The connectors are of an interchangeable, genderless design, making assembly more straightforward, and not requiring you to maintain different connector types in inventory

    c. Silver or tin-plated contact surfaces support long life and high power applications

- I actually saw another application of Powerpoles when they were reconfiguring some of the modular furniture at my workplace. The outlets and lighting built into the partitions were actually connected using Powerpoles where the partitions were joined together

- There are also a lot of optional components available for Powerpoles

    a. I mentioned that the individual connector housings can be joined together. You do this by sliding the tabs and grooves together. To prevent them from coming apart, you can either glue the two connectors together, or install a pin into a hole formed between the two connectors. This pin prevents them from sliding apart.

    b. One issue you may encounter is that while the Powerpole connectors snap together when making a connection, they can also be pulled apart without too much force. If you want to keep them together, you can get a retention clip that uses the holes I just mentioned to join the two sets of connectors together. The clip also replaces the pin for keeping the connectors on the same side of the connection together

    c. Panel mount housings are available so that you can install a set of Powerpole connectors on something like a battery box by either drilling a round hole in the box, or by making a rectangular cutout, depending on the type of mount you get

    d. A rubber dust cover can be used to cover the connector ends when not being used

    e. There are also covers for the wire end of the connectors to make it look cleaner, or you can use heat shrink

    f. There are also connectors made for mounting on a circuit board instead of a wire

    g. Finally, there is a tool that makes removing the connectors from the housings easier

- They also have larger versions - I've got a set that I plan to use to connect to my car battery - they will support up to 75 amps with connectors for 8 gauge wire

- I've also seen larger versions of the Powerpole connector used in uninterruptible power supplies for battery connections

- As with just about everything nowadays, there are cheaper knock-off Powerpoles. The originals are made by Anderson Power, and while you may have good luck with the knock-offs, you may also find that the housings may not mate together soundly, or that the connectors may tarnish and corrode

- To see many of the Powerpole options available, take a look at the Powerwerx web site at https://powerwerx.com/ (that's papa-oscar-whiskey-echo-romeo-whiskey-echo-romeo-xray-dot-com) - Click on the link for DC Power Products, and then click on the link for Anderson Powerpole Connectors

- They also have a bunch of adapter cables, panel mounts, and Powerpole power distribution devices

- For example, you can get an adapter that plugs into your vehicle's cigarette lighter that has Powerpoles on the back for connection to your equipment. Or a cable that has Powerpoles on one end, and large alligator clips on the other for temporary connection to a vehicle battery.

- The distribution blocks allow connecting multiple Powerpole cables together. For example, you could have one connection running to your station power supply, and then have multiple radios and other station equipment with Powerpole connectors connect into the distribution block and all be tied together

- Some distribution systems (such as the Rig Runner series) even have individual fuses for each Powerpole connection and may include voltage monitoring, overvoltage protection, and USB power ports.

- I've also seen a few kits available where you can solder together your own distribution box. One of my first ham radio projects was making a box with a volt amp meter and Powerpole connectors. I wired them all individually point-to-point, and it was a bit of a mess. If I had it to do over again, I think I'd just put the meters in the box and use the RigRunners for the actual power distribution.

**ARES standard**

- I've mentioned that there is a standard used by ARES and RACES for Powerpole connectors.

- This is needed because the Powerpole connectors can be assembled multiple ways.

- The connectors only mate in one orientation, but the two housings can be assembled either vertically or horizontally, and the red housing can either be on the top or bottom (or right or left) of the pair.

- Since the connectors will all mate with each other, there is nothing preventing you from connecting a red connector to a black connector

- In fact, when my wife and I were taking the training for using the club GoBox, when we tried to connect the inverter, there was a snap and a flash from the inverter, and then it

went dead. The person training us replaced the fuse in the inverter, and the same thing happened again.

    a. Upon inspection with a multimeter, he had swapped the positive and negative wires on one end of the power extension cable, causing the inverter fuse to blow. If he had used black and red zip wire, it would have been trivial to spot, but these cables were wired with white lamp cord, so it was harder to tell which was which.

    b. Luckily, once we switched to using another cable, everything worked fine and there was no permanent damage to the inverter.

- When connecting the red and black connectors together, if you are viewing them from the front connector side (and not the back wire side), you want the tongue facing down, the hood facing up, and the RED connector on the LEFT.

- This is a case where a picture is definitely worth 1000 words, so I highly recommend a quick Internet search before putting your cable together.

- If using zip cord, you also want to get your wires and connectors into the proper orientation before you crimp them on, otherwise they'll be difficult to orient properly in the housings.

- Place the wire on the table in front of you with the red / positive wire on the right with the end of the wire facing away from you. Place the contact pins on the wires with the end of the contact facing down. Then after you have crimped the connectors, just slide the wires and connectors into the housings until they click.

- The ARES standard also includes the use of 30 amp connectors, presumably to support current requirements of typical radios

- I'll put a copy of these notes with a couple of URLs on to the club web page so you can see how this all works.

**Questions:**

- **The question for the week is:** Do you use Powerpole connectors for your radio equipment, and if so, have you made any of your own cabling?

- **In my case,** I use Powerpoles for my home station. I've got a couple of RigRunner distribution systems for all my equipment. I added Powerpole connectors to all of the power cables for my equipment, and it's been working great.

- I plan to use Powerpoles for my mobile installs as well. My plan is to use the larger 75 amp connectors and 8 gauge cable to run from my battery to inside the vehicle - probably underneath the seats where I will install my radios. In that location, I'll have a Powerpole block from Powerwerx which has a single 75 amp Powerpole connection and 4 pairs of the smaller connectors to which I'll connect the radios. The radio power cables

have fuses in them already, so I didn't use a RigRunner type device with integrated fuses.

**More Info:**

- ARES/RACES Powerpole Info: https://www.qsl.net/w2vtm/powerpole.html
- https://www.steelecountyemergency.com/races-ares-anderson-powerpoles/
- PowerWerx: https://powerwerx.com/anderson-power-powerpole-sb-connectors
- Anderson Power: https://www.andersonpower.com/us/en/resources/PowerPoleResourcesPage.html
- How to Spot Fake Anderson Powerpoles: https://www.youtube.com/watch?v=IfMfy-Po-eo&t=465s
- ARES/RACES Powerpole Info: https://www.qsl.net/w2vtm/powerpole.html
- https://www.steelecountyemergency.com/races-ares-anderson-powerpoles/
- PowerWerx: https://powerwerx.com/anderson-power-powerpole-sb-connectors

**Notes:**

- If you have ideas for net topics or general meeting topics / presenters, please let us know! Tell us on a net, or send email to k0itp@w0eno.org

**Email to elmer@w0eno.org**

1. KØITP - Chuck - Firestone
2. WAØJJC - Bob - Boulder
3. WB4FAW - Charlie - Longmont
4. KCØCT - Joe - Broomfield
5. W7PGF - Philip - Frederick
6. AFØW - Bryan - Longmont

**End:** 7:55pm

RigRunner overvoltage protection. Pigtail for Molex connector.