



# RF



ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. LXI NO. 10

P.O. BOX 3454, TUSTIN, CA 92781

October 2020

## The Prez Sez...

By Dan KI6X



And it continues... The shut downs and the lack of in-person meetings that is. We have had good turnout on-line and some non-locals have been able to attend but I still miss the real people. Some things are just hard to do remotely. Collecting a slate of nominees for the Officer positions is one of those things. See the article in this RF. The Board has filled in the speakers for the rest of the year, but... December's dinner is up in the air. We can get a room at Mimi's but then would need to limit attendance. We might do an alternate in-person get together or have a "regular" meeting on Zoom instead. Decisions to be made at the November Board meeting.

Despite the lack of in-person meetings, our membership has held up quite well.

I think we are exceeding member count from the last few years or are nearly the same and even have had some new members join this Fall (welcome).

I hope with the extra in-home time you have been on the radio more. Keeps the bands busy and keeps your skills up. We have had some fun activities to encourage more operating (at home Field Day, CA QSO Party, more club nets). Maybe you have decided to take some FEMA courses for emergency preparedness. Maybe you studied for an up-grade. Whatever you found to do I hope you are doing well. It should be obvious, but if you have ideas for the club or things we could do better, I hope you contact an Officer with your thoughts. We are also always looking for speakers and ideas to pursue a certain speaker (contact the VP). Email addresses of the Officers are in each newsletter. This starts the last quarter of the year and boy has time flown despite how slow time has gone! It seems forever since we started shutting down but it was just 6 months or so ago.

Dan, KI6X - President

## NEXT MEETING

October 16, 2020

**Via ZOOM - meeting starts  
7:00 PM**

**Zoom will be on starting  
soon after 6:00 PM for  
practice/random discussions**

John Miller K6MM –

**KP5 – Palmyra Atoll  
DXpedition**

plus ICOM is going to make a  
presentation.

**All current members will  
receive an email invite**

**DURING COVID-19  
All OCARC Nets  
Remain Active!**

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**Monthly Events:****General Meeting time & location:**  
**REGULAR MEETINGS\***

**\*See ZOOM announcement on Page One**

Normally Held third Friday of the month at 7PM, located at:  
*The American Red Cross*  
600 Parkcenter Drive  
Santa Ana, CA

**Club Breakfast (Board Mtg) info:**

First Saturday\* each month 8 AM  
Marie Callender's Restaurant  
307 E. Katella Ave  
Orange, CA 92867

**\*Temporarily Cancelled ZOOM only**

**Club Nets (Listen for W6ZE):**

**10M: 28.375 ± MHz SSB**

Wed- 7:30 PM - 8:30 PM  
Net Control: Corey, KE6YHX

**2M: 146.55 MHz Simplex FM**

Mon, Wed, Fri 8:30 PM - 9:00 PM  
Net Control: Corey, KE6YHX

**75M 3.883 MHz LSB**

Wed @ 9:15 PM  
Follows right after end of 2M Net  
Net Control: Corey, KE6YHX

**Outside Nets: CARA REPEATER**

**147.090 MHz (+0.600 MHz) No PL**

(Net-At-9) Monday - Friday  
9:00 AM and 9:00 PM

NC & Prg. Director. Tom W6ETC  
NC: Jeff: KK6TRC / Don W6ZZW

**OCARC 2020 DUES****Membership period is:**

**1 January to 31 December**

|                            |       |
|----------------------------|-------|
| Individual New or Renewal: | \$30. |
| Family New or Renewal:     | \$45. |
| Teen New or Renewal:       | \$15. |

**New Member Dues are prorated quarterly and includes a badge:**  
Additional Badges: \$ 3.  
Use one of our interactive online forms to calculate current prices, join the club and/or order badges:

**Online Forms / Dues & Badges**

\*\$3. plus mailing costs if applicable  
Dues are subject to change without notice



Not a real product, but wish it was!

Submitted by Tim Goeppinger, N6GP



## RadioActivity

### September 2020

#### Upcoming Activities:

##### October

- **\*10-10 Int. 10-10 Day Sprint:** 0001 UTC to 2359 UTC Saturday Oct. 10.
- **Oceania DX Contest, Phone:** 0600 UTC Saturday Oct. 3 to 0600 UTC Sunday Oct 4.
- **Oceania DX Contest, CW:** 0600 UTC Oct. 10 to 0600 UTC Sunday Oct 11.
- **Scandinavian Activity Contest, Phone:** 1200 UTC Oct. 10 to 1200 UTC Sunday Oct 11.

##### November

- **ARRL Sweepstakes Contest, CW:** 2100 UTC Saturday Nov. 7 to 0259 UTC Monday Nov. 9.
- **10-10 Int. Fall Contest, Digital:** 0001 UTC Saturday Nov. 14 to 2359 UTC Sunday Nov. 15.
- **ARRL Sweepstakes Contest, SSB:** 2100 UTC Saturday Nov. 21 to 0259 UTC Monday Nov. 23.

\* Indicates club entries are accepted

\*\* Indicates team entries are accepted

Note: When submitting logs for ARRL Contests indicate your club affiliation as "Orange County ARC"

#### State QSO Parties:

- **Nevada QSO Party:** 0300 UTC Saturday October 10 through 2100 UTC Sunday Oct. 11.

- **Arizona QSO Party:** 1500 UTC Saturday October 10 to 0500 UTC Sunday Oct. 11.
- **Pennsylvania QSO Party:** 1600 UTC Oct. 10 to 0500 UTC Sunday Oct. 11 and 1300 UTC to 2200 Sunday Oct. 11.
- **South Dakota QSO Party:** 1800 UTC Saturday Oct. 10 through 1800 UTC Sunday Oct 11.
- **New York QSO Party:** 1400 UTC Saturday Oct. 17 through 0200 UTC Sunday Oct. 18.
- **Illinois QSO Party:** 1700 UTC Sunday Oct. 18 through 0100 UTC Monday Oct. 19.

#### Repeating Activities:

- **Phone Fry** Every Tuesday night at 0230Z to 0300Z
- **SKCC** Weekend Sprintathon (Straight Key CW) on the first weekend of the month after the 6<sup>TH</sup> of the month. 1200 Sat. to 2359Z Sunday.
- **SKCC** Sprint (Straight Key CW) 0000Z to 0200Z on the 4<sup>th</sup> Tuesday night (USA) of the month.
- **CWops Mini-CWT** Every Wednesday 1300 UTC to 1400 UTC 1900 UTC to 2000 UTC and Thursday 0300 UTC to 0400 UTC

Send an email to Ron W6WG, [w6wg@w6ze.org](mailto:w6wg@w6ze.org) to have your favorite activity or your recent RadioActivity listed in next month's column.

73, Ron W6WG

## OCARC ANNOUNCEMENTS

### Nominations for ELECTIONS

Nominations can be accepted for all positions.

President – open

Vice-President – open

Secretary – Corey KE6YHX

Treasurer – Ken W6HHC

Activities – Jim AF6N can run again

Membership – open

Public Relations – open

Technical – open

Directors at Large (2) – might be open but President and VP can assume the positions

A description of the duties is in the By-Laws. I also created articles in the **RF** in 2019 which were included continuous months regarding each position. Nominations will still be allowed at the ZOOM meeting of course. You can nominate yourself if you are a club member.

Dan – KI6X, OCARC Presidente

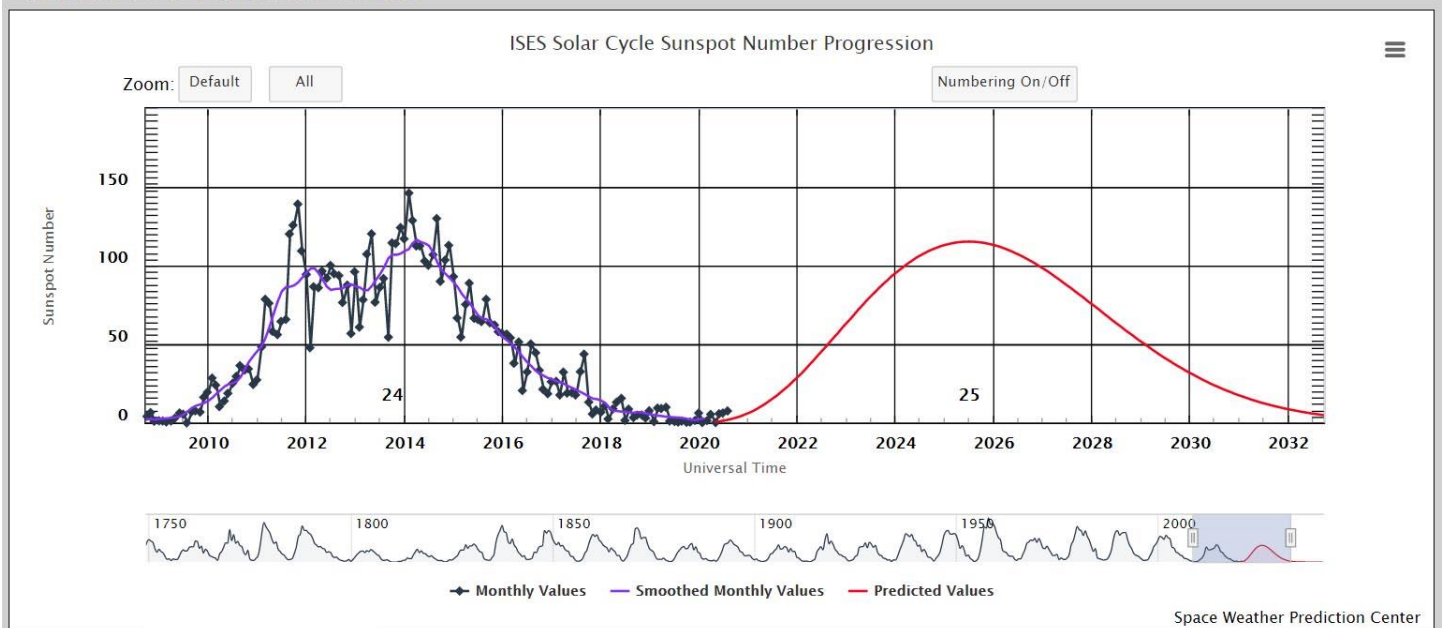
[ki6x@w6ze.org](mailto:ki6x@w6ze.org)

## SOLAR CYCLE 25 HAS BEGUN

Reprinted from  
Western Reserve ARC – Wave-Bender Newsletter  
www.WRARC.net

Solar Cycle 25 is officially underway. NASA and NOAA made the announcement during a media teleconference earlier in mid-September. According to an international panel of experts, the sunspot number hit rock bottom in Dec. 2019, bringing an end to old Solar Cycle 24. Since then, sunspot counts have been slowly increasing, heralding new Solar Cycle 25.

### SOLAR CYCLE PROGRESSION



**Sunspot-Number-Plot of last sunspot cycle (Solar Cycle 24) and predicted coming sunspot cycle**

Click here to view NOAA's interactive sunspot plotter

<https://www.swpc.noaa.gov/products/solar-cycle-progression>

"How quickly solar activity rises is an indicator on how strong the next solar cycle will be," says Doug Biesecker of NOAA's Space Weather Prediction Center, co-chair of the Solar Cycle 25 Prediction Panel. "Although we've seen a steady increase in sunspot activity this year, it is slow."

The panel believes that new Solar Cycle 25 will be a weak one, peaking in 2025 at levels similar to old Solar Cycle 24. If their prediction is correct, Solar Cycle 25 (like Solar Cycle 24 before it) will be one of the weakest since record-keeping began in 1755.

"While we are not predicting a particularly active Solar Cycle 25, violent eruptions from the sun can occur at any time," warns Biesecker. Indeed, even Solar Minimum can produce a superstorm, so Solar Cycle 25 should not be taken lightly despite the panel's low expectations.

Radio blackouts, power outages and severe geomagnetic storms are possible in the years ahead.  
<https://spaceweatherarchive.com/2020/07/29/the-solar-minimum-superstorm-of-1903/>

For now, solar activity should remain generally low. Sunspot counts still have a long way to go before they reach levels typical of Solar Maximum. For the rest of 2020, periods of quiet will be occasionally interrupted by minor solar storms, with only a slight chance of big events.



Solar Cycle 25 aurora photographed on Sept. 14, 2020,  
by Jani Ylinampa in Finland.

On the bright side, the first Northern Lights of Solar Cycle 25 are dancing around the Arctic Circle right now, and the coming season for aurora watching promises to be the best in years. Stay tuned!  
[https://spaceweath-rgallery.com/aurora\\_gallery.html](https://spaceweath-rgallery.com/aurora_gallery.html)

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**Extra Credit Notes:**

See Carrington Event Solar Storm of September 1869

<https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2019SW002269>

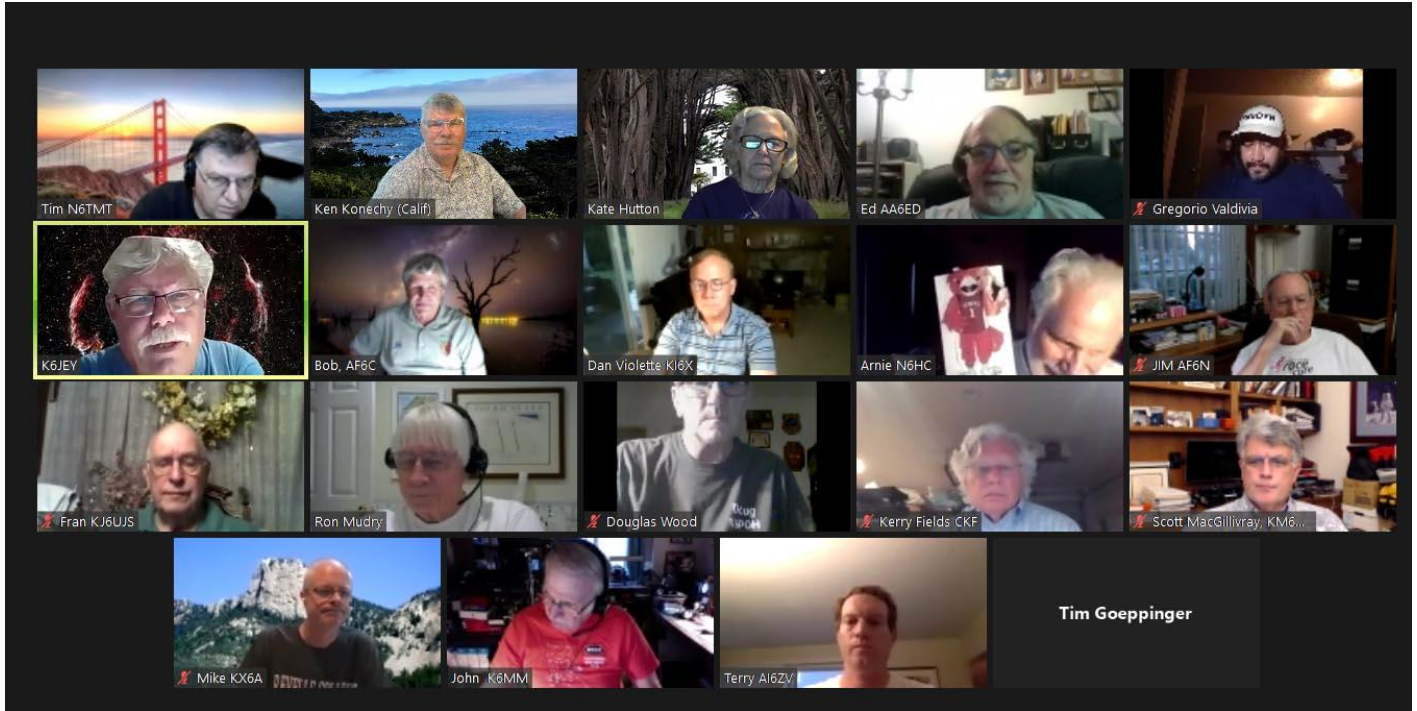
See Great Railroad Solar Storm of May 1921

<https://spaceweatherarchive.com/2020/05/12/the-great-geomagnetic-storm-of-may-1921/>

## OCARC General Meeting Minutes via ZOOM 2020-09-18

The September OCARC General Meeting was held on ZOOM via the internet on Sept 18, 2020. The meeting was called to order at 7:07pm by Dan K16X.

There were a total of 31 members and visitors in attendance. There was a quorum of officers, with all directors present, except Greg W6ATB. This was the sixth OCARC General Meeting that was completely conducted using ZOOM (due to meeting restrictions imposed by the Coronavirus).



**A typical Screen-Capture of members in attendance during the September meeting.  
The majority of attendees could provide video from their home QTH.  
But, while some sent no video, everyone could watch video on ZOOM  
and could hear the audio during the meeting.**

### September Program:

Tim N6TMT introduced Dr Kate Hutton – K6HTN, the LAX Section Traffic Manager for NTS, on ZOOM as the club program speaker for the evening, who talked on:

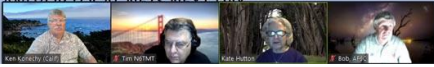
### “Radiograms, A Fun & Still Useful Ham Tradition (National Traffic System)...”

Kate K6HTN explained that the National Traffic System (NTS) was started by the founder of the ARRL, Hiram Percy Maxim. NTS is a nationwide system of nets at specific times operating in “cycles”. The NTS uses both voice and digital nets to pass messages (called RadioGrams) from all parts of the US to all parts of US. On HF, voice communications or CW are used...or digital as HF PACTOR or WINLINK communications. Kate further explained that NTS is a good training for new hams for developing the skills of passing messages...a valuable skill in emergency communications.



## TRAFFIC NET CYCLES

- CYCLE 2 AFTERNOON, MOST OFTEN SINGLE SIDEBAND
- CYCLE 4 EVENING, MOST OFTEN CW
- EXAMPLE:
  - 7 PM LOCAL NETS CYCLE 4 (CW OR VHF SIMPLEX OR REPEATER)
  - 7:45 PM REGION (RN6) NET (OUTGOING)
  - 8:30 PM AREA (WAN) NET (EXCHANGE BETWEEN REGION REPS AND IATN (TCC) OPS)
  - 9:30 PM REGION (RN6) NET (INCOMING)
  - DELIVERY AND/OR LOCAL NETS NEXT DAY



**NTS uses a system of nets at specific times operating in "cycles" to carry messages.**



## RADIOGRAM



MSG. NO. 4898 PREFERENCE R E K6HTN CHECK 18 PLACE OF ORIGIN PASADENA CA TIME (UTC) DATE AUG 6

TO: CHUCK VERDON W5KAV  
10304 189TH LN SW  
ROCHESTER WA 98579  
CHUCK DOT VERDON AT RADIO DOT RELAY DOT ORG

MESSAGE:  
MONTHLY TRIVIA TRAFFIC QUESTION X  
WHO IS BOBAK FERDOWSI AND  
WHAT IS UNUSUAL ABOUT HIS  
HAIR QUERY 73

FROM (SIGNATURE): KATE K6HTN

RECEIVED FROM (CALL) TIME DATE TRANSMITTED TO (CALL) TIME DATE

**RADIOGRAMS provide a standardized format for messages...both SSB/CW and digital**

## SO WHY RADIOGRAMS, TODAY??

- TRAINING FOR NEW HAMS (PHONETIC ALPHABET, COPYING EXACT WORDING, RESPONSIBILITY TO RELAY OR DELIVER, ETC.)
- CAMARADERIE OF THE NETS
- SETTING UP AUTOMATED DIGITAL STATIONS
- CODE PRACTICE!
- WELCOME NEW HAMS TO THE HOBBY, CONGRATULATE NEW UPGRADES, ETC.
- TRIVIA GAMES
- PREPARATION/TRAINING FOR "WHEN ALL ELSE FAILS ..."

**A list of reasons why RADIOGRAMS and NTS makes sense for hams today.**

## Questions?

- Kate Hutton K6HTN (LAX STM, LAN NM, RN6 NM) is on Winlink & receives radiograms on all the nets mentioned
- Grant Gemel KK6AHZ (ORG STM) the same
- Dave Bilitch KI6BHB (SCN/V & SCN/CW NM) the same
- DTN (Digital Traffic Net) and/or NTSD (NTS Digital) requires a bit more explanation, not enough time here ...

**Some local Points of Contact for any NTS Questions**

## Business –

- **CA QSO PARTY (CQP)** – The CQP is scheduled for Oct 3 and 4...and will be organized a lot like Summer Field day in 2020 with OCARC members operating from their homes or portable. John Miller K6MM visited our club meeting via ZOOM and gave a short presentation of CQP. John K6MM explained the number of QSOs by a station is increased by a multiplier. The multiplier for CA-based stations is the number of states and Canadian districts that you work (up to 58). The multiplier for stations outside CA is the number of California Counties that you work (up to 58).

## What Are Those 58 Multipliers?

[cqp.org/cqp\\_multipliers.html](http://cqp.org/cqp_multipliers.html)

CA County Multipliers for Out-of-State Participants (58)

|      |              |      |                 |      |               |
|------|--------------|------|-----------------|------|---------------|
| ALAM | Alameda      | MARN | Marin           | SMAT | San Mateo     |
| ALPI | Alpine       | MARP | Mariposa        | SBAR | Santa Barbara |
| AKAD | Amador       | HERO | Humboldt        | SCLA | Santa Clara   |
| BUTT | Butte        | MERC | Merced          | SCRU | Santa Cruz    |
| CALA | Calaveras    | MODO | Modoc           | SHAS | Shasta        |
| COLU | Colusa       | MONO | Mono            | SIER | Sierra        |
| CCOS | Contra Costa | MONT | Monterey        | SISK | Siskiyou      |
| DELN | Del Norte    | NAPA | Napa            | SOLA | Solano        |
| ELDO | El Dorado    | NEVA | Nevada          | SONO | Sonoma        |
| FRES | Fresno       | ORAN | Orange          | STAN | Stanislaus    |
| GLEN | Glenn        | PLAC | Placer          | SUTT | Sutter        |
| HUMB | Humboldt     | PLUM | Plumas          | TEHA | Tehama        |
| IMPE | Imperial     | RIVE | Riverside       | TRIN | Trinity       |
| INYO | Inyo         | SACR | Sacramento      | TULA | Tulare        |
| KERN | Kern         | SEBN | San Benito      | TUOL | Tuolumne      |
| KING | Kings        | SBER | San Bernardino  | VENT | Ventura       |
| LAKE | Lake         | SDIE | San Diego       | YOLO | Yolo          |
| LAKE | Lassen       | SFRA | San Francisco   | YUBA | Yuba          |
| LANG | Los Angeles  | ISOA | San Joaquin     |      |               |
| MADE | Madera       | SLUI | San Luis Obispo |      |               |

**A list of the 58 California Counties.**



- **Bylaw Changes Approved** – “el Presidente” Dan KI6X explained that board members have been working on improvements to the OCARC’s Bylaws (last updated in 2012) for more than 18 months. Dan went on to explain that any proposed changes must be presented at two OCARC general meetings and then voted on at the second presentation. Secretary Ken W6HHC described to the ZOOM audience each of the 18 sets of proposed changes for a second time during the Sept 18 General Meeting. Ken allowed discussion of the proposed changes and then called for a motion to accept the changes to the Bylaws “as presented”. The motion was approved by the membership present on the ZOOM meeting.
- **Membership** - Chair Corey KE6YHX reported that there were 102 members (including 4 honorary club members).

**Submitted by: Ken W6HHC, Secretary**

**OCARC BOARD MEETING  
MINUTES  
2020-10-01**

Due to the COVID-19 restrictions on physical gatherings, the latest OCARC Board meeting was held ON-LINE via ZOOM on Friday October 02, 2020 at 6:00 PM. It was agreed at the prior Board meeting to hold the October Board meeting on Friday night to avoid a conflict with the Calif QSO Party on Saturday. In attendance were eight (8) Board Members and Directors. All board directors (except Ken W6HHC & Vijay KM6IZO) were present for a Board quorum. The ZOOM technology was hosted by Dan KI6X with screen shares by President Dan KI6X. Tim N6GP is acting recording secretary.

**Directors Reports:**

- **Treasurer** – Greg W6ATB reported that he is working on cash flows, and will send out his report for the newsletter. He received checks for dues for new members – Howard K6BFBK, and Steve KN6EBE, which cover the rest of the year and all of 2021. Paypal dues were received from Orlando KN6CCW. He checked the post office box, and found the nice certificate from the ARRL for Special Service Club. Will put it into the Treasurers Box.
- **Technical.** –Bob says he is working with a trustee from an estate that includes an old receiver, and a crank radio. Bob will evaluate them, and will offer them for sale to members.
- **Membership** – There were 31 attendees to the Zoom General Meeting last month. The September internal rosters were made and sent out. Corey KE6YHX reported that the club has a total of 103 members. One more week of “Net Notes” has been completed.

**Old Business:**

- **Newsletter Editors Oct** Greg W6ATB (this newsletter). Deadline Oct 11 for material future: **Oct** Greg W6ATB, **Nov** Tim N6GP **Dec** Bob AF6C **Jan** Corey KE6YHX
- **General Meeting Programs (Zoom meetings until further notice)**
  - Oct – John Miller K6MM – KP5 – Palmyra Atoll DXpedition, plus ICOM is going to make a presentation. Tim M thinks we can squeeze both in. (editor note: after the meeting, the ICOM presentation has been moved to January)
  - Nov – Dennis Kidder W6DQ, subject: Voice of America
  - December Dinner – Jim AF6N reports that Mimi's is changing managers, and they are not accepting reservations for banquets yet. Very dependent on what Tier we are in for COVID for how many people let in the room. We are thinking of an alternate plan outside. Even parks are still not allowing reservations for tables. Jim will continue to talk with Mimi's.
- **By-laws Update:** It was approved by the Membership at the last General Meeting. Need to post the new Bylaws on the website, with strikeouts etc. removed.

- **California QSO Party:** Ron W6WG gave some history of number of logs entering the various size club categories. He was asking the Board to decide what size category we should enter (small 10 logs vs medium 35 logs). Ron said that we have 8 firm commitments by members to operate in CQP. There was discussion of pros and cons of Small and Medium categories. The general consensus was that we should be in the Small Category. No one opposed it.
- **Unclaimed HRO Gift Certificates:** There are \$200 worth of unused HRO gift certificates raffled off over the years. This was published in the newsletter, and no one responded. The 2014 unclaimed certificate will be used again for a raffle, along with one "in-hand". It is possible that Nicholas AF6CF has \$150 outstanding. We will reimburse if someone then cannot spend it, if they have it, and the club used the funds.
- **Nominations –**  
Dan showed the current list of Officer ideas generated by the Board. Dan will send an email to these members to see if they are interested in serving.  
Board members currently running: Dan KI6X Director at Large, Ken W6HHC Treasurer, Corey KE6YHX Secretary, Ron W6WG Public Relations. Jim AF6N can run for Activities again. Send email to Dan KI6X what you want to run for next year. No formal Nominating Committee, Dan KI6X is handling because he does not have to run of office (lock on Director at Large).

#### **New Business:**

**Good of the Club Award –** Bob AF6C reminded Dan KI6X that a Good of the Club Award needs to be awarded by the end of the year. The process is that Board members send nominations to Dan, and he selects the winner.

**W6ZE Website –** Bob AF6C learning about Cascading Style Sheets (CSS), and it testing it out to spice up our website a bit. Would like to include pictures to liven things up a bit. Only 1 person (Bob) updating the website. Members could volunteer to update a particular page. Winter Field Day page added. Other alternatives for hosting discussed.

**Winter Field Day -** Tim N6GP asked if we should start thinking about Winter Field Day yet. Will be put on the agenda for next month.

#### **Good of the Club:**

..... None

Meeting adjourned 7:07 PM

Submitted by Tim N6GP, OCARC Director at Large for the Secretary



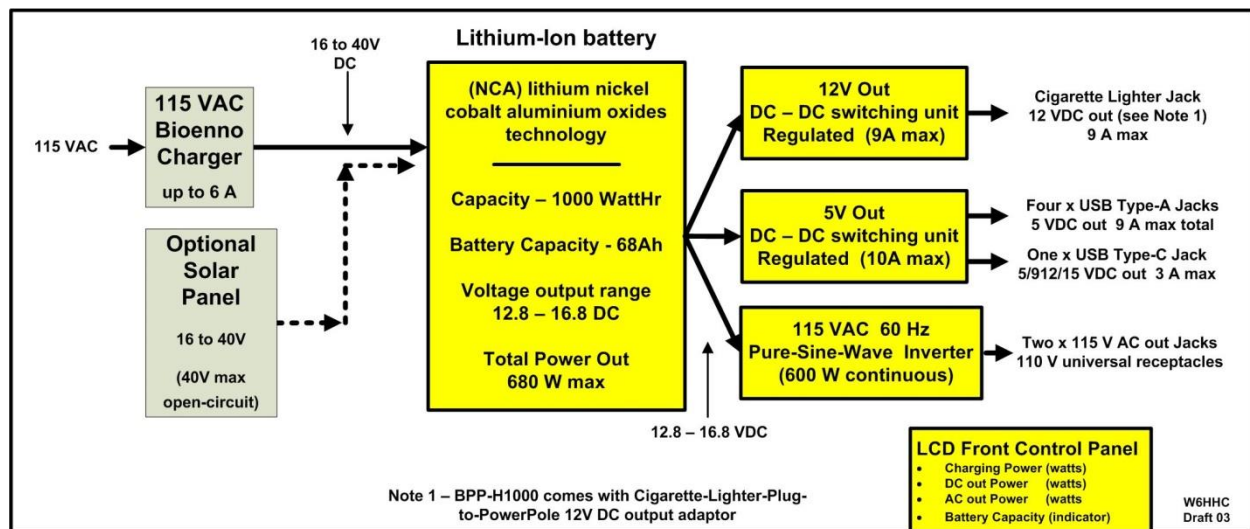
**TechTalk 126**  
**A Look at BPP-H1000**  
**Portable Battery-Backup / UPS**  
**from Bioenno Power**  
by Ken W6HHC

Because of the California power generation shortage, I have become aware that California will be suffering from one-hour rotating power blackouts for the next few years. I suffered one power blackout during August, here in the city of Orange. To solve my problem I needed a Battery Backup / UPS system that would have the capacity to supply at least two hours of DC power for my Kenwood TM-741A rig (about 100 W needed when talking on 144 or 440 MHz) and an AC output to power my internet-modem and WiFi-router (less than 10 watts each) in a UPS (Uninterruptible Power Supply) mode.



**Fig 01 - Bioenno Power model BPP-H1000  
being tested at QTH of Ken W6HHC**

The final solution to my problem is that I now have a Bioenno Power model BPP-H1000 unit that more than satisfies my requirements. The Lithium-ion battery unit can supply about 1000 W-Hrs of output (a combination of 115 VAC output and/or 12V DC output). It works exactly like I envisioned.



**Fig 02 - Block Diagram of the Model BPP-H1000 portable power station that uses a 14.8 V Lithium-ion NCA battery to provide 1000 WattHrs of back-up**

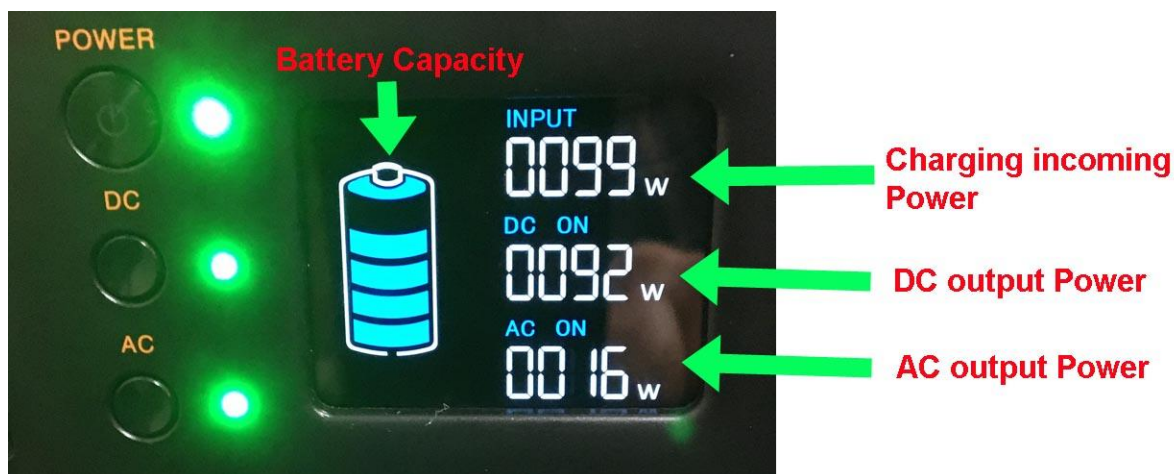
A Block Diagram of the Model BPP-H1000 portable power station in **Figure 02** shows that the heart of the unit is a 14.8V NCA Lithium-ion battery assembly. Bioenno Power, located in Santa Ana, is well known to hams in OCARC because of their many presentations on the high performance Lithium-Iron-Phosphate (LiFePO<sub>4</sub>) batteries and units. But, I was surprised to learn that the BPP-H1000 design does not use LiFePO<sub>4</sub> battery technology, but instead uses Lithium-ion NCA (Nickel Cobalt Aluminum oxides) technology. Kevin KI6DHQ of Bioenno Power explained to me that his company selected the lower-cost Lithium-ion NCA battery over the Lithium-Iron-Phosphate as a price trade-off in order to achieve the \$999 list price on the BPP-H1000 unit. The main feature traded-off was the battery-life-time charging-cycles between these two different types of battery. Kevin detailed that “Charge cycles are 1800 to 2000 cycles for the lower cost NCA. The LiFePO<sub>4</sub> can provide between 2000 to 3000 cycles”.

The Block Diagram also shows that the 12V DC power output for ham rigs can provide up to 9 Amps (120 Watts @ 13 V) from the cigarette lighter socket. The BPP-H1000 comes standard with a cigarette lighter plug assembly that provides an Anderson PowerPole connector commonly used by hams (see **Figure 01**). 5V DC power output for powering/charging cell phones is provided through a cluster of five USB sockets. The single USB Type C socket can actually be configured internally for outputting 5V, 9V, 12V, 15V, or 20V.

In addition, the internal DC-to-115VAC inverter shown in the block diagram uses a “pure sine wave” design to provide a nicely formed AC output waveform. The inverter is capable of 600W of continuous AC power out through two 110V universal output receptacles.

The BPP-H1000 also allows an optional external solar panel to be attached to charge up the battery. Any solar panel can be connected without a separate solar-panel-charging unit if the open-circuit output voltage of the panel does not exceed 40 VDC. However, the minimum DC voltage should be at least 16 VDC. Typically a “12V solar panel” has an open circuit voltage of about 18VDC to 21VDC which is adequate. Bioenno Power normally offers “the BSP-120 solar panel with this unit, which could charge the BPP-H1000 unit in about 4 hours if the battery is half full (500 Watt-hours /120 Watts = ~ 4 hours). If the unit was completely depleted a pair of BSP-120 panels could be used to charge the unit in 4 hours.” If the solar power that you are considering has an open-circuit voltage of >40 VDC, then Bioenno Power has solar charging units that can resolve the charging issues.

Finally, the BPP-H1000 has a nice LCD Front Panel as shown in **Figure 03**. In addition to displaying measurements of the charging input power, and the AC power out and DC power out...the front panel also has switches that allow turning off the unit, turning off the AC out and turning off the DC out.



**Fig 03 – The LCD Front Panel on the BPP-H1000**  
Provides measurements of (a) charging power, (b) DC power out, (c) AC power out, and (d) an indicator of remaining battery capacity

### Pricing and other BPP Models

The retail price of the BPP-H1000 unit is \$999. This is a higher price than I wanted to pay in order to solve my power-blackout problem. Originally, I had purchased a lower-cost Bioenno Power model BPP-160 model (160W-hours) from the HRO store discounted to less than \$200 (plus tax). I also had considered the model BPP-M300 (300W-hours) with a list price of \$325.



**Fig 04 – The lower-cost model BPP-160 (160 W-hours)**  
design currently cannot run as true UPS unit

But after testing my BPP-160 unit for a few days, I discovered that the unit would not supply AC output power if the charger was plugged in. Additionally, the power unit was designed to turn-off the AC power if the charger became active (that is: if the AC power came back on). Kevin KI6DHQ explained that both the BPP-160 and the BPP-M300 were designed to not operate the AC power inverter if the charger was plugged in, because the small wall charger (wall wart) was way too small and could not handle the inverter load. Kevin advised me that the BPP-H1000 was the lowest priced Bioenno Power model that could currently provide a true Uninterruptable Power Supply mode.

**In Conclusion:**

The Bioenno Power model BPP-H1000 unit more than satisfies my requirements at 1000 W-Hrs and works very well as a home Battery-Backup / UPS unit. The BPP-H1000 can provide hams a portable solution for operating in the field and weighs 34.4 lbs (15.6 kg). The lower cost models BPP-160 and the BPP-M300 do not currently meet my needs to function as a true UPS unit. I suspect that Bioenno Power may consider changing the design of the BPP-160 and the BPP-M300 units to work as a true UPS...since those models are more affordable for many hams.

As a final point, I am impressed by how simple it is for hams to use a solar panel to charge the BPP-H1000 in the field....or even at home. Typically no solar-charger-control unit is needed. Solar panels are ideal for providing emergency communications when power has gone-out longer-term or is not available in a remote location.

**Contact Info** – the author may be contacted at [W6HHC@W6ZE.org](mailto:W6HHC@W6ZE.org) or [W6HHC@ARRL.net](mailto:W6HHC@ARRL.net)



**New Larger Comet Antenna for W6HHC**

In the middle of August, Ken W6HHC had permanently installed a Comet GP-3 antenna for 146MHz and 440 MHz at his new QTH in Orange. Tests on the OCARC net showed he could hear most stations on the OCARC 2M simplex net OK....but not all. So at the end of September, Ken had a new larger Comet GP-6 antenna installed.



**Now a larger Comet GP-6 146/440 MHz antenna is mounted at W6HHC new QTH**

**GP-6 antenna**

Length 11.2 ft

**Gain & Wave:**

146MHz 6.5dBi 5/8 wave x 2

446MHz 9.0dBi 5/8 wave x 5

**GP-3 antenna**

Length 5.1 ft

**Gain & Wave:**

146MHz 4.5dBi 1/2 wave x1

446MHz 7.2dBi 5/8 wave x 2

On the OCARC 2M simplex nets, two stations were marginal.

Phil K6PAD in Huntington Beach could only receive me S7 when I used the older/smaller GP-3 antenna. On the GP-6, Phil says I am now "all bars".

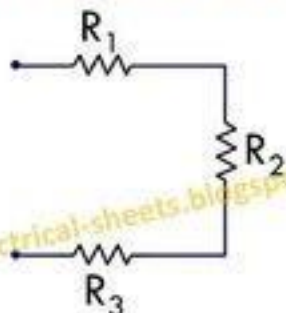
The Echo-link station used by OCARC 2M nets in Huntington Beach could only be heard faintly through the noise on the GP-3. Unfortunately, the Echo-link station was not running when Ken was testing on Sept 30..

The antenna was installed by Mike AI6WE (951.764.7534) of Temecula (recommended by Gordo WB6NOA) who did a nice job at a fair price.

By Ken – W6HHC

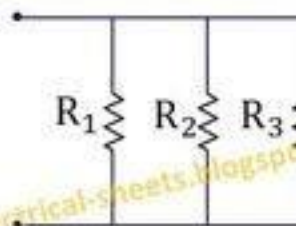
# R,L,C in Series/Parallel

## Resistors in Series



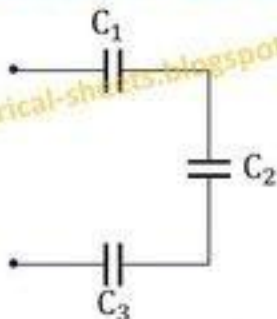
$$R_{eq} = R_1 + R_2 + R_3$$

## Resistors in Parallel



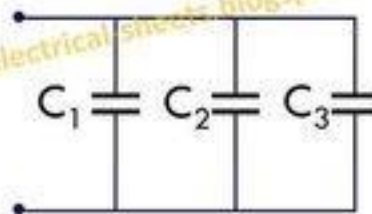
$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

## Capacitors in Series



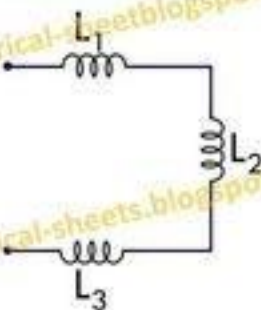
$$\frac{1}{C_{eq}} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}$$

## Capacitors in Parallel



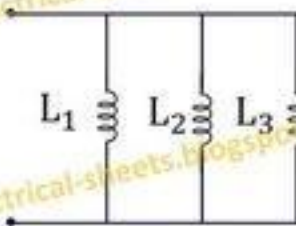
$$C_{eq} = C_1 + C_2 + C_3$$

## Inductors in Series



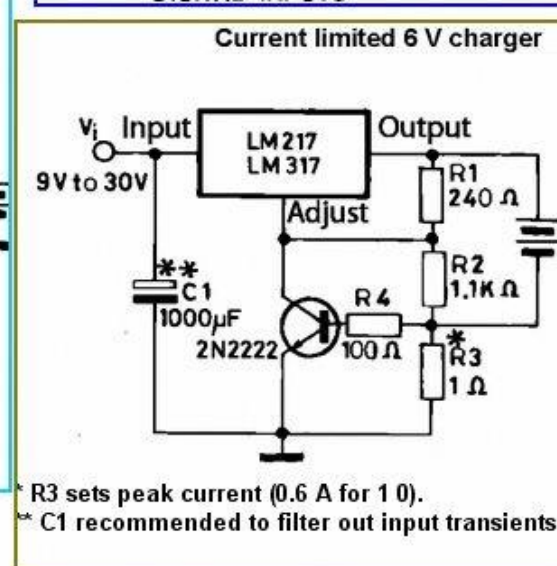
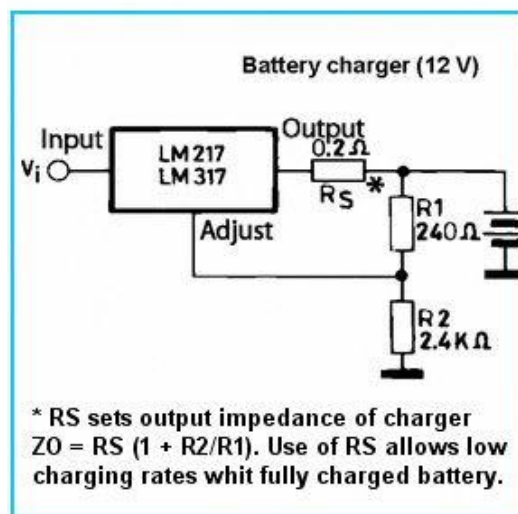
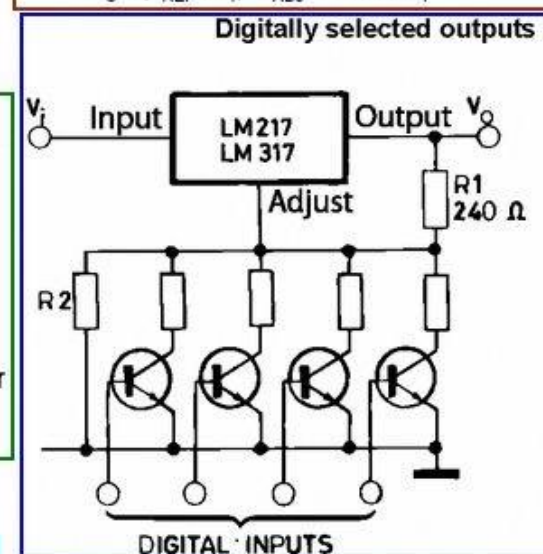
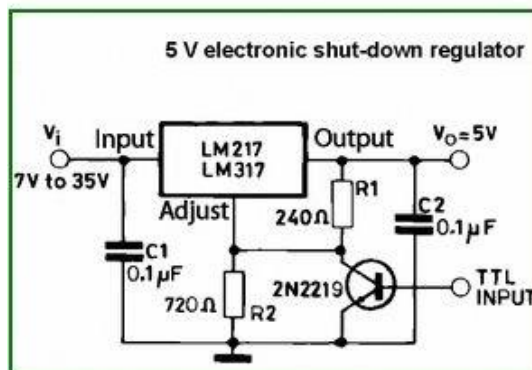
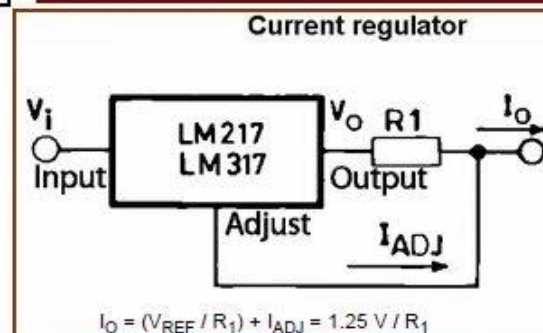
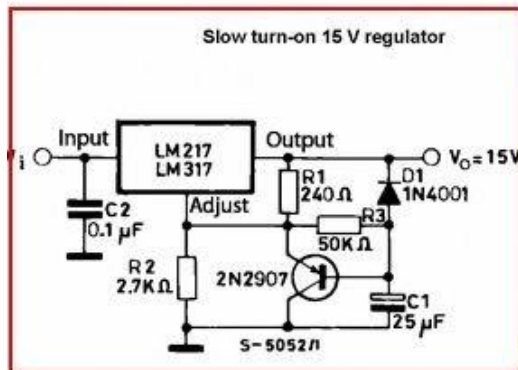
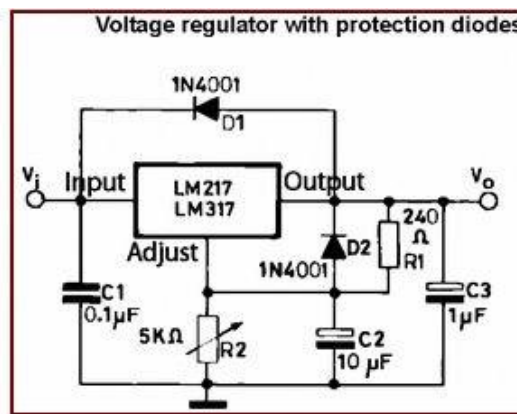
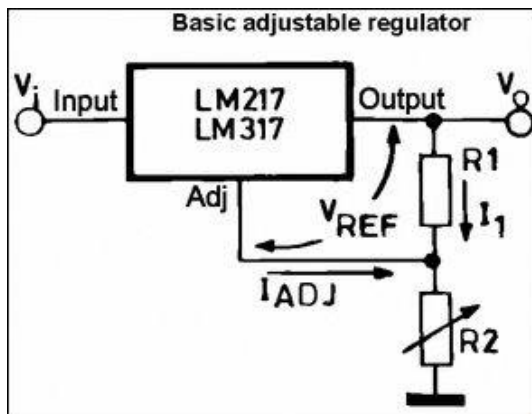
$$L_{eq} = L_1 + L_2 + L_3$$

## Inductors in Parallel



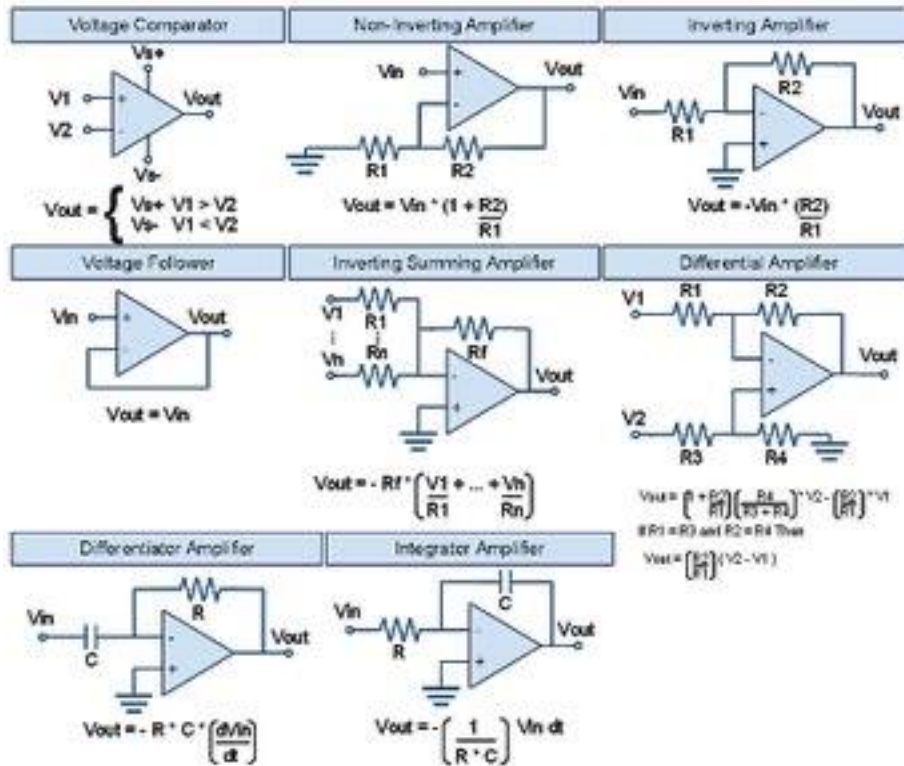
$$\frac{1}{L_{eq}} = \frac{1}{L_1} + \frac{1}{L_2} + \frac{1}{L_3}$$

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## Basic Operational Amplifier Configurations



**Cash Flow - Year To Date**

1/1/2020 through 10/2/2020

| <b>Category</b>                    | <b>1/1/2020-<br/>10/2/2020</b> |
|------------------------------------|--------------------------------|
| <b>INFLOWS</b>                     |                                |
| Auction In, Jan 2020               | 1,696.25                       |
| Donation - Michael K6GTE           | 30.00                          |
| Donation - N6GP                    | 20.00                          |
| Dues, Family (PayPal) 2020         | 131.78                         |
| Dues, Membership (PayPal) 2020     | 1,312.56                       |
| Dues, Membership (PayPal) 2021     | 228.55                         |
| Dues, Membership 2020              | 576.33                         |
| Dues, Membership 2021              | 97.50                          |
| Refunds Received                   | 15.53                          |
| <b>TOTAL INFLOWS</b>               | <b>4,108.50</b>                |
| <b>OUTFLOWS</b>                    |                                |
| Auction Flyer Printing             | 21.55                          |
| Auction Payout, Jan 2020           | 1,359.23                       |
| Donations - Red Cross              | 250.00                         |
| Field Day Winter - Tent Rental     | 130.00                         |
| OCARC Historian                    | 29.29                          |
| Opportunity Drwg - Monthly Exp     | 438.71                         |
| PO Box Rental                      | 92.00                          |
| Refreshments Expense               | 32.65                          |
| Refund paid                        | 7.50                           |
| Storage Locker                     | 475.00                         |
| Storage of Equipment - Ann Millard | 250.00                         |
| Supplies                           | 15.85                          |
| Web Site Hosting                   | 101.94                         |
| Web Site Hosting - PayPal          | 202.99                         |
| <b>TOTAL OUTFLOWS</b>              | <b>3,406.71</b>                |
| <b>OVERALL TOTAL</b>               | <b>701.79</b>                  |

# MiniTiouner-Express

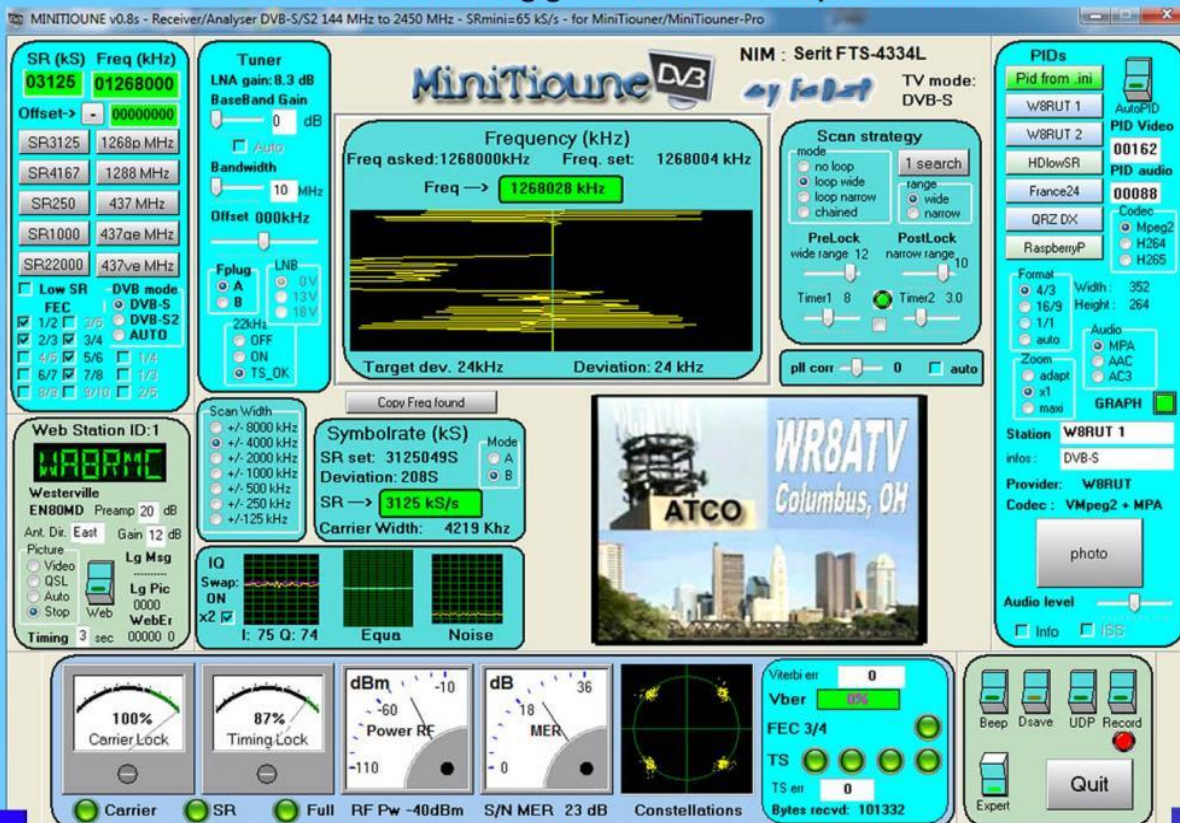
## Digital Amateur Television DVB-S/S2 Receiver / Analyzer



Available at [DATV-Express.com](http://DATV-Express.com)

- Operates with Windows PC using free MiniTioune software from Jean-Pierre F6DZP
- Smaller than a stack of 2 decks of cards (picture above is full size)
- Two independent simultaneous RF inputs with internal preamps
- High sensitivity -100dBm @1288MHz – at 1/2 FEC
- Fully assembled/tested in aluminum enclosure
- Covers 144-2420MHz (ideal for Space Station DATV reception)
- Symbol rates from 75 KSymb/s to >20 MSymbols/sec
- Uses external 8-24VDC supply or +5V from USB-3 port (with small modification)
- Real time signal modulation constellation & dBm signal strength display
- Price: US \$75 + shipping – order with PayPal

For details & ordering go to [www.DATV-Express.com](http://www.DATV-Express.com)



(MiniTioune display above is the ATCO 1268MHz DVB-S repeater signal at WA8RMC QTH 15 miles away).