

# *PVRC Newsletter*

## *October 2021*

**Newsletter Editor:** John K3TN [jpescatore@aol.com](mailto:jpescatore@aol.com)

**Website:** <http://www.pvrc.org>

**Meeting Info:** <http://www.pvrc.org/chapters.htm>

**Facebook:** <https://www.facebook.com/groups/PotomacValleyRadioClub/>

### **President's Letter – Dan K2YWE**

#### **Elections Notice:**

In accordance with the PVRC bylaws and the election procedures agreed upon by the Officers and Trustees, the following election schedule will be followed:

- Announcement of nominations - September 2 (completed)
- Close of nominations - October 31
- Chapter head review of eligible voter list - October 15 thru October 31
- Ballots sent out via e-mail - November 15
- Voting period - November 15, 2021 thru December 15
- Review & announce election results - December 17

Because a great deal of PVRC is not currently holding in-person chapter meetings, voting will be conducted using the same secure on-line voting service used in 2020 and under the following conditions:

1. Nominations may be made to a chapter chair at in-person, on-line or on-the air chapter meetings during the nomination period. Additionally, any member may make nominations directly to any chapter chair or officer.
2. The bylaws state that "An active member is a member who participates in club activities and has paid current dues," and "Inactive members may neither vote nor hold office." Accordingly, ballots will be distributed only to members who have evidenced "participation in club activities" by meeting either of the two following criteria
  - 1) Submitted a score in a 5M contest within the past 4 contest seasons, or
  - 2) Attended a PVRC chapter meeting in the prior calendar year or current year to Oct 1

The active member list will be given to the chapter chairs for review. They may request active member status for any chapter member not included in the list by providing a brief rationale for doing so to the officers for their approval.

A member not qualifying under these criteria may file an appeal for active member status based on their other support of PVRC. The appeal may be submitted on behalf of the appellant by any PVRC member. Appeals shall be promptly reviewed and adjudicated by the officers.

3. Ballots will be e-mailed to each member on the active member list. It is the responsibility of each member to ensure that their email address is correct in the PVRC member roster. Please check your email address in the [roster](#) and update your email address if necessary. Updates may be entered online by clicking your call in your roster listing.

4. Ballots will be tabulated by the voting service and the results will be provided to the membership of PVRC.

Positions open in this election are:

- President
- Vice President (2)
- Secretary
- Treasurer

- Trustee - MD/DC/PA Region
- Trustee - VA/WVA Region
- Trustee - At Large

Trustee elections per the PVRC By-Laws - "All active members vote for all candidates. Candidates in each Region are ranked by number of votes. The candidate or candidates residing in a specified Region with the highest number of votes is/are elected to the available positions in their Region "

An updated list of nominees for all positions will be periodically published on the PVRC reflector. It is suggested that you confirm the willingness to serve by anyone you contemplate nominating.

73, Dan K2YWE

**It's That Time of Year – Dan K2YWE**

This year's PVRC 5M plaques were recently received from our supplier as the last part of a bumper crop of seasonal 5M program awards. Ten 5M plaques, seventy-one 10M and higher endorsements, eight 1M certificates, and seventeen 1-4M endorsements have all been presented or sent to their deserving recipients. Ninety-two 2020-21 PVRC Olympics medals are expected to arrive for October distribution to complete this past season's awards. Whew!

Congratulations to all who earned an award and to those on their way to new awards and levels. Thank you for your contributions to PVRC's club competition scores. Your performance is what keeps us in the top tier of contest clubs. A big tip of the PVRC hat and thanks to AA4FU, N3QE, and N4GU for doing the necessary statistical work.

This part of the year is a good time for each member to reflect on what benefits and pleasure they derive from PVRC membership and to consider making an appropriate financial contribution to the club. PVRC has no annual dues requirement and relies on the generosity of its members to meet expenses. Advertising revenue represents less than 25% of our annual funding needs.

<b><u>PVRC Officers:</u></b>		<b><u>Trustees:</u></b>
President:	K2YWE Dan Zeitlin	K3MM, N3OC, K2AV, K7SV, W3LPL, N3KN, N4ZR, W2RU, W3LL
Vice President:	N4GU Mike Barts	
Vice President:	AA3S Doug Hart	<b><u>PVRC Charter Members (all SK):</u></b>
Secretary:	N3QE Tim Shoppa	W3GRF, W4AAV, W4KFC, N0FFZ, W4LUE, W7YS, VP2VI/W0DX,
Treasurer:	W3MMM Jay Horman	W3IKN, W4KFT

Newsletter Editor: John K3TN [jpescatore@aol.com](mailto:jpescatore@aol.com)  
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 PVRC on Facebook: <https://www.facebook.com/groups/PotomacValleyRadioClub/>

## Attracting, Mentoring and Supporting New Contesters – Bryan N3FZ

I begin this article with a plea. I beg each and every one of you to do what you can to make amateur radio a welcoming and warm place for new operators and new testers.

I was first introduced to amateur radio around 1990 when a friend did a VHF demonstration. I learned at the time he was a “No-Code Tech.” I didn’t know what that meant at the time. I wanted to get involved but neither of my parents were ham radio operators and I really didn’t have a lot of other options.

Fast forward to 2017. I decided that I wanted to get my amateur radio ticket at age 39. I have no technical experience and little scientific training, but I figured, why not? Three weeks later I had my Extra.

After battling through a number of technical problems that I really didn’t understand, I started participating intermittently with the Anne Arundel Radio Club, which was a very nice experience. It was there that I met my first Elmer. I use the term Elmer to simply mean someone who has educated me in the radio hobby or has made a significant contribution to my development.

My first Elmer was Jim N3ADF. I think I may have only spoke with Jim once in person. I very much doubt he even remembers me. Anyways, Jim is an extraordinarily kind and gentle man. He was chatting with a group of new-ish operators at the Anne Arundel Club station. Jim started talking about his love of CW. I could see the passion in his eyes when he spoke, and I wanted to explore this mode. He actively encouraged us to become CW operators. He assured us it was within our reach. So, I pulled up my bootstraps and started learning code.

After a while, I began taking the CW Academy classes to further my CW studies. I met Ron, VE3FXX, though I have never met Ron face-to-face and I regret that. I hope after COVID that is a possibility. Ron was undeterrably positive and made it his mission to ensure I was successful. He made himself available outside of class. He made up his own assignments for me to do outside of class. His kindness, skill, and compassion motivated me to become an excellent CW operator.

Eventually, I started operating and beginning contesting. I decided to check PVRC out and I attended the Northwest Chapter. There, I met Jim WX3B. Everyone knows Jim and everyone knows what Jim has contributed to PVRC and to amateur radio in general. Jim is inspiring to me because of his ability to pull in very young operators and quickly get them up to speed. Jim has always encouraged me to be better and to operate better while recognizing where I am at in my radio career. I do have one complaint about my friend, Jim: every time I speak with him about antennas, I seem to place another order on DX Engineering.

These three men took time from their day, from their families, from operating to encourage me to join the fold of ham radio and to be excellent. My CW elmers encouraged me to learn code, to get up to 5 wpm, and finally to get up around 30 wpm over the course of a couple years. WX3B has encouraged me to operate and to, where possible, improve my station....and boy I have!!!!

We need more mentors, and you must act now. Begin sharing the knowledge you have obtained over the last 5, 10, or 50 years. Set your ego aside and accept mistakes made by others as an opportunity to learn and achieve excellence. Demonstrate to our newer operators why you became and stayed a ham for so long. This may be hard if there is a 40- or 50-year age difference but you can do it. Remember, there is nothing to be gained but division and death of the hobby when new operators are unwelcomed.

Whether the Digi contest is a WW or CQ WW doesn't really matter. Whether an organization is good or bad really doesn't matter. Whether Begali or N3ZN is the better key really doesn't... well, maybe that one matters (just kidding!)

Here's what matters, my friends: attracting, mentoring, and supporting new contesters while developing a spirit of camaraderie and fun. We do this with open arms, positivity, and enthusiasm.

I will do my part too. I encourage any younger or newer operator to reach out to me. I will offer what I can. You are welcome to operate my station. I will have QRS CW skeds with you. I'll help you build your station. You can ask me really really really stupid questions (KC3JGG n/k/a N3FZ: Wait, SWR is really a thing?)

### View of W4RN QTH from Top O' Tower – Mike W4RN

My friend Jeff-KØZR came over yesterday to climb the 100' 40M tower. He got up to the top and intended to grease all the Rotating Tower Systems guy ring bearings on the way down. My brand-new grease gun from (you guessed it!) Harbor Fright broke as soon as Jeff tried to use it!!

He did grab this picture with his cellphone while at the tower top.



Lots of yard tools strewn around. View is to the NNW. The other tower is the 20M tower. In the distance is the Blue Ridge, 4 miles west of us.

The house was designed by a modernist architect and is a wonderful place to entertain.

## Ed W3EKT SK

Long time PVRCer Ed Burns W3EKT passed away on the morning of 29 September after a battle with lung cancer. *(Editor's note: My memories of Ed are of one of the most helpful and knowledgeable hams in PVRC, especially in my early days of RTTY and VHF, and night times on 40M at W3LPL when I'd look to the left and Ed was always there pulling them in at the 160M position - John K3TN)*



Ed was first licensed in April of 1961 as KN8ZSZ, and upgraded to General, K8ZSZ nine months later. After moving from Newark Ohio to the Washington DC area in October of 1967, he upgraded to Advanced and was issued W3EKT in the spring of 1968. Through the 70s, he was very active on RTTY and won most of the major contests around the world.

After a move to Glenwood, MD in 1985 Ed met Frank W3LPL and donated many hundreds of hours over six months with many other PVRCers helping Frank build his world class contest station. He joined PVRC in 1986 and became a regular at W3LPL in the big DX contests, usually on the low band positions. He also put W3LPL on RTTY first as a single op, then with K3MM, K4GMH and others helping man the station for the M/M contests.

After retiring from the US Government at the end of 1994, he purchased a small motor home and spent five seasons operating as a VHF rover with a local, Ed, K3IXD (also SK), as a partner. He continued to enjoy retirement and was a guaranteed multi-band QSO in VHF contests for many of us. Ed is already missed.



## N6RA SK - Dennis K2SX

*(This obit was written by K1YT with some editing by me. Dennis K2SX)*

It is with great sadness that I report Tom Gallagher N6RA died on September 1, 2021, from complications related to Parkinson's Disease. He was two weeks short of his 79th birthday on September 15. He died quietly in his sleep at home in Santa Barbara, California.

Tom started out as a Short-Wave Listener in grade school and began his ham radio career at 13 with the novice call KN4DRO. At that time, he became the youngest ham radio operator in the state of Florida. By 15 years old, he was an Extra Class ham with the K4DRO call. His passion for radio lasted nearly 65 years. By the time he left high school in Coral Gables, Florida, he was a well-known traffic handler and DXer with 145 confirmed countries.

Tom majored in Electrical Engineering at Tulane and was a member of the ham radio club there. He was also one of the founders of WTUL (550 AM), the campus radio station, where he hosted an "oldies" show. At that time, Tom also worked as a part-time DJ on the classical radio station WWMT in New Orleans. After graduation, Tom moved to Washington, DC, where he worked days as a patent examiner, specializing in cathode-ray technology, while studying patent law at night at George Washington University. He received the JD Law degree in 1968. After graduation, Tom went to work for the Communications Satellite Corporation as a patent attorney. While there, Tom was recruited by the patent firm, Limbach & Limbach. In September of 1969, Tom and Tina Gallagher joined the firm and moved to San Francisco.

Those early years in Tom's career were busy with a new house on a hill in San Francisco complete with a 72 ft tower and a stack of monobander antennas. Tom rapidly filled in his DXCC totals and became known for his presence in the pileups and contest logs. The Gallagher house became a common place for hams from everywhere to visit.

Tom was the patent attorney for Dolby Labs and did copyright work for Lucasfilm and other tech firms. He wrote the patent for the 8080 microcontroller.

In 2010, Tom moved to Santa Barbara. He eventually retired in 2014 from the patent law profession. His ham radio activity during the last days of his life was from the UCSB radio club station (W6RFU) or from his small station at his home QTH, which was limited to hidden wire antennas. He lived in Santa Barbara with Laura, N6LRA, until his death.

Tom was a member of the ARRL (Life), CWops (Life) #109, FOC #1444, A1-Ops, DXCC (368 mixed), PVRC (former member), Northern California Contest Club to list a few. Among the calls he held were K4DRO, W6NUT, N6RA, EA6/N6RA, FP/N6RA, 5W1RA, FG0FOO, FG0FOO/FS, VP2ERA, N6RA/V44 and VP2E/N6RA. His other hobbies included running, traveling, tennis, photography, audio design, jazz. and competitive jitterbug and swing dancing.



Tom Gallagher, N6RA and Laura, N6LRA Visalia 2013  
Photo courtesy of Bob Wilson , N6TV

## Donate to Scholarship Fund - Maybe Reduce Your Taxes – Frank W3LPL

Donate to the PVRC Scholarship if you're age 72 or higher and save money on your income taxes and potentially on your Medicare premiums

Donations to the PVRC Scholarship via tax free Qualified Charitable Distributions (QCDs) from your IRAs can be an important part of your income tax and Medicare premium management strategy if you're age 72 or higher and use the IRS standard deduction. QCDs do not apply to Roth IRA and 401(k) plans.

QCDs from your IRA are fully excluded from your IRS adjusted gross income (AGI) up to the full amount of your Required Minimum Distribution (RMD) during each tax year. Your reduced AGI always reduces your income taxes and in some cases you might avoid income-based annual premium increases for Medicare Part B and Part D. Consult your tax advisor about your QCD income tax savings and potential Medicare premium savings.

While you must take your first RMD from your traditional IRA, SIMPLE IRA or SEP IRA by April 1 of the year after you reach 72, you can make your first QCD during the year you turn 72 to obtain QCD based income tax savings and potential future income-based Medicare premium savings too.

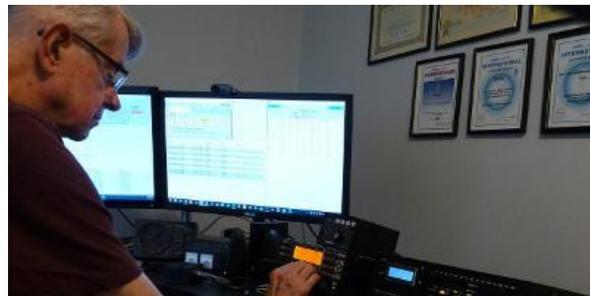
## Meet the PVRCer – Pete N4ZR

**Your Call:** N4ZR

**First Year Licensed:** 1954

**Previous Calls:** WN8QZR, W8QZR, HL9TM, K4FOK, 3B8TM

**QTH and PVRC Chapter:** Phoenix, MD  
– NW chapter



**Favorite Contest and Why:** SS, because for so many years during my townhouse period it was the only contest I could place well in.

**Least Favorite Contest and Why:** Anything SSB except occasional NAQPs

**Favorite part of Ham Radio other than contesting:** Writing about it – something like 75 articles in QST and NCJ. Edited the PVRC Newsletter for 5 years or so, a long time ago.

**Favorite thing to do other than Ham Radio:** Hanging with kids and my great-granddaughter

**Anything else you'd like to say?** Just that PVRC and the friends made through it have been a big part of my life for the last 44 years, since I joined in 1977. In those days a single blackball could doom a nomination, so it actually had me sweating a little!

**California QSO Party Club Competition Rule Changes – John K3TN**

PVRC is the reigning champion of the [California QSO Party](#) Large Non-California club competition, which starts at 1600Z on Saturday 2 October. There have been a few rule changes around the club category this year.

The Large club category has been renamed “Yosemite” and applies to all clubs that submit more than 30 logs. PVRC, YCCC, Contest Club Ontario, the Society of Midwest Contesters and the Tennessee Contest Group were the only non-CA clubs that passed that threshold in 2020.

There are also a lot of bonus points available. Mobile, female, young and rookie PVRicers can add 50,000 points to the club scores by making at least 10 QSOs in the CQP: Or, just one young female rookie contestester member going mobile can get us all 200K bonus points!

Bonus points in CQP:

- 10,000 points for every log submitted with a unique callsign.
- 50,000 points for every California County Expedition. Can be any CA County. **Maximum of 50,000 bonus points per county.**
- 50,000 points for every California Mobile. 3 county minimum.
- 50,000 points for at least one non-California Mobile. The intent of this bonus is to inspire the mobile stations active in other QSO Parties to use CQP as a test run, which in turn could provide more QSOs from an uncommon state/province. Hypothetical example: Minnesota Wireless Association member K0JP goes mobile to North Dakota for CQP as a test run in preparation for his mobile effort in the April 2022 North Dakota QSO Party. K0JP activates rare North Dakota in CQP while Minnesota Wireless Association benefits by collecting more points than may have been possible from K0JP's home station.
- 50,000 points for at least one YL S/O log submitted.
- 50,000 points for at least one Youth S/O log submitted.
- 50,000 points for at least one New Contestester S/O log submitted.
- Note 1: See [CQP Rules](#) for definitions of a CQP Expedition, Mobile, YL, Youth and New Contestester.
- Note 2: Minimum 10 QSOs for all club bonuses above

By the way, the CQP site has lots of data and strategy tips to help you maximize your CQP score – look [here](#).



**2020 California QSO Party Club Results**

Large Non-California Clubs	Num Logs	Score <sup>4</sup>
POTOMAC VALLEY RADIO CLUB	45	895,790
FRANKFORD RADIO CLUB	30	788,455
YANKEE CLIPPER CONTEST CLUB	32	742,972
WESTERN WASHINGTON DX CLUB	10	243,177
GEORGIA CONTEST GROUP	4	45,324

### PVRC DXCC Challenge Standings – Frank W3LPL

Below are the DXCC Challenge totals for PVRC members, transcribed from the ARRL [DXCC data](#) as of the 20<sup>th</sup> of each month or so. Thanks to Frank for the data each month to make this a regular feature. Please report any omissions or errors to [Frank](#).

CALL	DXCC	CALL	DXCC	CALL	DXCC	CALL	DXCC
W4DR	3191	N4QQ	2494	N3KN	2006	WB4DNL	1506
W3UR	3156	WS6X	2493	K4WNW	2004	KU1T	1501
W3LPL	3147	W2GG	2436	W0YVA	2001	N4ZR	1491
K4CIA	3124	K5VIP	2431	K5RJ	1961	N3AIU	1461
N2QT	3085	N4TL	2406	N3KS	1906	W8AKS	1432
W4PK	3038	K1GG	2397	N3ND	1867	K3WC	1430
N4MM	2986	W4VIC	2395	K4EU	1858	N3HBX	1428
W3DF	2963	N4GG	2377	W3FOX	1816	N3MK	1420
WX4G	2949	W3OA	2344	W3KB	1815	N8II	1390
K1HTV	2930	W2YE	2334	W3DM	1791	W4PRO	1377
K5EK	2928	WA2BCK	2316	K3SX	1790	KF7NN	1377
K2PLF	2903	K1ZZI	2312	KE4S	1758	W9GE	1364
W0VTT	2891	N3RC	2302	N4GU	1738	AK3E	1348
KG7H	2889	W3YY	2297	W2CDO	1735	KM3V	1319
N3NT	2871	W2GPS	2255	N4XYZ	1720	ND3F	1319
W3LL	2852	KA4RRU	2234	W4GP	1710	N1SZ	1317
N4DB	2850	NW4V	2219	K4QE	1685	NR4M	1317
W3KX	2825	K4FJ	2214	NE3H	1668	K4ZA	1313
K3WA	2810	K3TN	2212	K3WI	1652	WA3EKL	1204
KG4W	2789	N4ZH	2188	W3UL	1627	KG4USN	1199
K1AR	2754	K1EFI	2186	K3AJ	1616	N3RR	1199
AB3CV	2722	K2BA	2153	N3OC	1608	W3NRJ	1188
N3MN	2657	N3QE	2147	K3KY	1606	W3US	1182
WB3AVN	2655	W3TN	2125	KE3X	1588	K3IXD	1090
W4FQT	2622	W3MR	2121	K3STX	1579	N3COB	1049
N3KK	2575	N4JQQ	2119	NA1DX	1564	W3OU	1046
K4SO	2559	K3PU	2107	N3AO	1527	W4ZV	1046
W3BW	2550	W3GG	2071	WB2ZAB	1522	K4ZW	1038
K5RT	2525	N4NW	2068	AA4FU	1519	NE3K	1036
K3JT	2495	AA4NC	2061	K4HQB	1518	K4VX	1021



**Membership News – Tim N3QE**

PVRC did not add any new members in the latest reporting period.

Chapter leaders please remember to complete the [Meeting Attendance Report](#).  
 Members can check and update their roster details via the [Roster Lookup](#).

**Upcoming Contests – from [WA7BNM](#)**

October 2021	
+ Oceania DX Contest, Phone	0600Z, Oct 2 to 0600Z, Oct 3
+ California QSO Party	1600Z, Oct 2 to 2200Z, Oct 3
+ Oceania DX Contest, CW	0600Z, Oct 9 to 0600Z, Oct 10
+ Scandinavian Activity Contest, SSB	1200Z, Oct 9 to 1200Z, Oct 10
+ JARTS WW RTTY Contest	0000Z, Oct 16 to 2400Z, Oct 17
+ Worked All Germany Contest	1500Z, Oct 16 to 1459Z, Oct 17
+ Stew Perry Topband Challenge	1500Z, Oct 23 to 1500Z, Oct 24
+ North American SSB Sprint Contest	0000Z-0400Z, Oct 24
+ CQ Worldwide DX Contest, SSB	0000Z, Oct 30 to 2359Z, Oct 31

**Editor’s Last Word – John K3TN**

Thanks to Bryan N3FZ, Mike W4RN, Dennis K2SX, Frank W3LPL, and Pete N4ZR for contributions to this issue of the PVRC newsletter.

The quality and usefulness of the PVRC newsletter depends on contributions from members. If you have photos from club meetings, screen shots of new contest software, or brief writeups on station improvements or contest war stories, send them in any format to [jpescatore at aol dot com](mailto:jpescatore@aol.com).

## From the PVRC Treasurer – Jay W3MMM

PVRC has chosen not to implement an annual dues requirement. We depend on the generosity of all our club members to finance our annual budget. In addition, active PVRC members are expected to participate and submit logs for at least two PVRC Club Competition contests per year.

When contemplating your donation to PVRC, each member should consider the benefit you are receiving from PVRC and its many opportunities for your personal growth in our wonderful hobby, then donate accordingly.

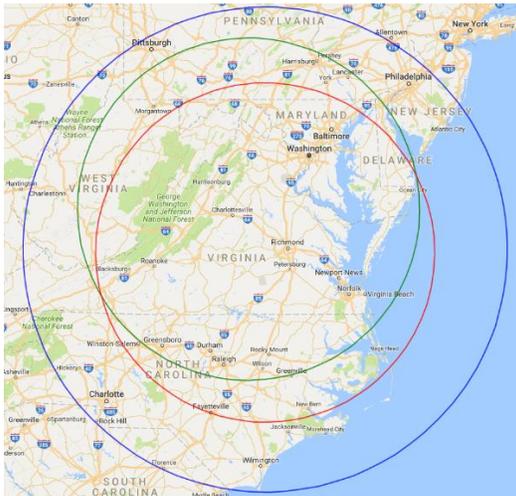
Direct donations to PVRC via Credit Card or PayPal may be made by clicking this "Donate" button and clicking the next Donate button that appears on your screen:



**Donations to PVRC are not tax deductible**

## Eyeball QSO Directions

The latest info on local club meetings and get togethers will always be sent out on the [PVRC reflector](#) and posted on the PVRC [web site](#).



**Green: ARRL VHF Circle**  
175 mile radius  
Around 38.075N,  
78.171W

**Red: ARRL HF Circle**  
175 mile radius  
Around 37.43168N,  
77.858482W

**Blue: CQ HF Circle**  
250 mile radius  
Around 37.43168N,  
77.858482W



**Now a Word From Our Sponsors**

*PVRC doesn't ask for dues, but the Club does have expenses. You can also support the Club by buying from the firms listed who advertise in the newsletter!*



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### Digital Atlas 4K

Geochron's Digital Atlas 4K gives viewers magnificent displays of the Earth with sunrise-sunset rendered in real time through a small computer that plugs directly into a 4K TV (not provided) via HDMI. Ham-friendly features include a Grey Line display; DX prefixes; and month, day, and hour of every time zone, including Zulu Time. Version II (GEO-400-1000B) comes with faster refresh rates, global weather overlays, live location of the International Space Station, and more. **Enter "Digital Atlas" at DXEngineering.com.**



## ACOM

### HF Amplifiers

ACOM has built a reputation among HF contesters and DX chasers for its outstanding RF power amplifiers, including the 700S HF+6, featuring 700 watts of output power (PEP SSB or CW); the solid state 1200S 1,000 Watt HF+6, with 5" high-resolution color display; and 2100, which boasts 1,500 watts PEP and virtually-silent QSK. **Enter "ACOM" at DXEngineering.com.**



### Digital Interfaces

It's time to Go Digital at DX Engineering! You'll find Tigertronics' Signalink™ PC/Radio Sound Card Interface, which lets you seamlessly enjoy the latest digital modes. Choose a combo which pairs the Signalink USB with a radio-specific cable. From West Mountain Radio comes the new RIGblaster DXpro Sound Card Interface, combining dual sound cards and advanced software-controlled features. RigExperts' new plug-and-play TI-3000 USB Transceiver Interface makes an ideal choice for fans of the WSJT suite. **Enter "Interface" at DXEngineering.com.**



## DX ENGINEERING

### Transceiver Amplifier Keying Cables

These well-made and handy cables connect to your transceiver accessory DIN jack for keying amplifiers, sequencers, receive-transmit interfaces, buffer relays, and other accessories. Cables are available for Kenwood and Yaesu transceivers with special DIN connector accessory ports. **Enter "Keying Cables" at DXEngineering.com.**



### V2 Receive Array Systems

Hi-Z's new three-, four-, and eight-element receive array systems let you hear the low band DX and contest stations like never before. They deliver amazingly improved low-noise reception from below the 160 through 40 meter bands and beyond. The upgraded V2 design provides enhanced signal-to-noise performance with up to 30 dB array front-to-back. Packages include phase controller, adjustable delay line, coaxial cable transformer, element amplifier, and control console. Ground-mounted vertical elements sold separately. **Enter "V2 Array" at DXEngineering.com.**



### CW Keys and Accessories

DX Engineering carries a range of iambic, single and double paddles; straight keys; key and keyer cables; dust covers; and other accessories. Choose from the best brands: N3ZN, HA8KF, Vibroplex, Bencher, Kent, GHD, and Hi-Mound. Enjoy smooth CW operation and durable performance from these finely crafted instruments. **Enter "Key Paddle" at DXEngineering.com.**



**DX Engineering's Amateur Radio Blog for New and Experienced Hams.**



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# Array Solutions Your Source for Outstanding Radio Products



## Professional Grade Equipment from Array Solutions

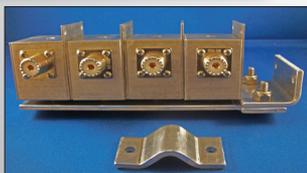
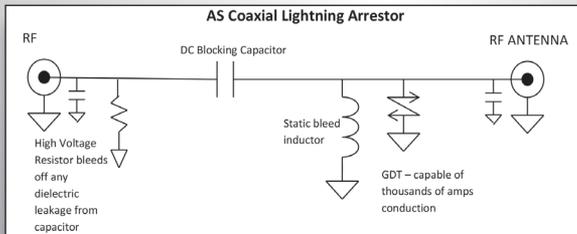
### Array Solutions Lightning Arrestors Coaxial, Ladder Line, Single wire, Control Line protection for Rotators, Switches, and Antenna Motors

AS-300 Series arrestors are known for their reliability and performance. They feature easy mounting to plates, ground rods with our stacking bracket and also a convenient screw lug. The stacking bracket can be used on plates as well to save precious room in arrestor enclosures.

- Available in SO-239, Type-N, and 7/16 DIN connectors
- DC blocked, DC pass is available as a custom option
- Unique static bleed system with a UL approved Gas Discharge Tube, also ITU K 12 tested. This system usually prevents the GDT from ever firing unless a direct hit is taken. Saves your radio from static build up on large antennas.
- Models available for 3 kW, 5 kW, 10 kW and higher, details on website. Lower power available.
- FM low power broadcast model AS-303D FM
- Model AS-309H high-power single wire or ladder line arrestor, also DC block with static bleed
- Control line Arrestors for 8, 12, and 16 wires – 65V sparkover.
- Models for HF, VHF to UHF – Extremely low loss and Low VSWR



AS-303U



### OM Power Amplifiers Sales and Service



### Switches for Six Antennas



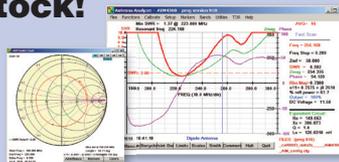
5kW - DC to 6m  
RATPAK – 1x6

Choice of Multiple Controllers  
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### VNAuhf Back in Stock!

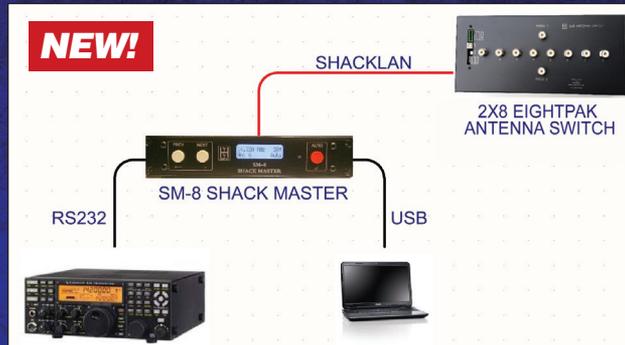
Vector Network Analyzer  
5 kHz -1.3 GHz \$1295



### Hamation Station Automation

Hamation remote and Local Station Control products allow you to automatically or manually select antennas, bandpass filters, and control accessories. Accessories can be StackMatches, Antenna switches, antenna phasing systems, SteppiR controller, turning radios on and off, etc. All of this can be done directly from the Ethernet as well!

Wiring are simple phone cables that daisy chain to all the devices. Wireless control is also available to your tower-located switches. Call us to learn how to set up simple or complex systems. Below is a simple basic system that can switch antennas as you change bands. We can interface to any radio CAT port, not just RS232.



A more complex system could be a SO2R contest station as shown.



### The Shared Apex Loop Array™!

Capture the whole band or the whole HF spectrum at once with the Shared Apex Loop Array 2nd Generation. Can be remote controlled over the internet or in your station. 8 directions of directivity.



The Shared Apex Loop Array™ is a revolutionary receiving antenna that will change the way that you listen to the radio! The patented design provides performance in a size and over a wide range of frequencies that will please both the rag-chewer and DXer alike.

Three models to choose from:

- AS-SAL-30 - optimized for VLF, BCB, 1.8-10 MHz
- AS-SAL-20 - optimized for BCB, and 1.8-30 MHz
- AS-SAL-12 - optimized for 3-30 MHz



### StackMatch

The original, not the imitations. For phasing 2, 3, 4 and even 6 antennas. Also it can be used to combine vertical and horizontal polarized antennas to diminish fading.



### PowerMaster II



RF Power and SWR meter. Couplers for 3 kW, 10 kW or higher available for HF/6 m. VHF and UHF couplers for 1.5 kW. You can connect up to 5 couplers to the display to monitor RF power on different TX lines.



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Array Solutions' products are in use at top DX and Contest stations worldwide as well as commercial and governmental installations. We provide RF solutions to the DoD, FEMA, Emcomm, UN, WFO, FAA and the State Dept. for products and installation of antennas systems, antenna selection, filtering, switching and grounding. We also offer RF engineering and PE consulting services.



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## HRO FLORIDA COMING SOON!



### IC-9700 | All Mode Tri-Band Transceiver

- VHF/UHF/1.2GHz • Direct Sampling Now Enters the VHF/UHF Arena • 4.3" Touch Screen Color TFT LCD • Real-Time, High-Speed Spectrum Scope & Waterfall Display • Smooth Satellite Operation



### IC-718 | HF Transceiver

- 160-10M\*\* • 100W • 12V operation • Simple to use • CW Keyer Built-in • One touch band switching • Direct frequency input • VOX Built-in • Band stacking register • IF shift • 101 memories



### ID-4100A | VHF/UHF Dual Band Digital Xcvr

- Compact, Detachable Controller for Flexible Installation • DV/FM Near Repeater Search Function • Apps for iOS™ and Android™ devices • Wireless Operation with VS-3 & UT-137 Bluetooth® Headset & Module • MicroSD Card Slot



### IC-7851 | HF/50MHz Transceiver

- 1.2kHz "Optimum" roofing filter • New local oscillator design • Improved phase noise • Improved spectrum scope • Dual scope function • Enhanced mouse operation for spectrum scope



### IC-705 | HF/50/144/430 MHz All Mode Transceiver

- RF Direct Sampling • Real-Time Spectrum Scope and Waterfall Display • Large Color Touch Screen • Supports QRP/QRPP • Bluetooth® and Wireless LAN Built-in



### IC-2300H | VHF FM Transceiver

- 65W RF Output Power • 4.5W Audio Output • MIL-STD 810 G Specifications • 207 alphanumeric Memory Channels • Built-in CTCSS/DTCS Encode/Decode • DMS



### IC-7300 | HF/50MHz Transceiver

- RF Direct Sampling System • New "IP+" Function • Class Leading RMDR and Phase Noise Characteristics • 15 Discrete Band-Pass Filters • Built-In Automatic Antenna Tuner



### IC-7100 | All Mode Transceiver

- HF/50/144/430/440 MHz Multi-band, Multi-mode, IF DSP • D-STAR DV Mode (Digital Voice + Data) • Intuitive Touch Screen Interface • Built-in RTTY Functions



### IC-V86 | VHF 7W HT

- 7W Output Power Plus New Antenna Provides 1.5 Times More Coverage • More Audio, 1500 mW Audio Output • IP54 & MIL-STD 810G—Rugged Design Against Dust & Water • 19 Hours of Long Lasting Battery Life • 200 Memory Channels, 1 Call Channel & 6 Scan Edges



### IC-7610 | HF/50 MHz All Mode Transceiver

- Large 7-inch color display with high resolution real-time spectrum scope and waterfall • Independent direct sampling receivers capable of receiving two bands/two modes simultaneously



### IC-2730A | VHF/UHF Dual Band Transceiver

- VHF/VHF, UHF/UHF simultaneous receive • 50 watts of output on VHF and UHF • Optional VS-3 Bluetooth® headset • Easy-to-See large white backlight LCD • Controller attachment to the main Unit



### ID-5100A Deluxe VHF/UHF Dual Band Digital Transceiver

- Analog FM/D-Star DV Mode • SD Card Slot for Voice & Data Storage • 50W Output on VHF/UHF Bands • Integrated GPS Receiver • AM Airband Dualwatch

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2<sup>ND</sup> Place IC-7610    3<sup>RD</sup> Place IC-2730A    4<sup>TH</sup> Place \$50 GC



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### FTDX101MP | 200W HF/50MHz Transceiver

• Hybrid SDR Configuration • Unparalleled 70 dB Max. Attenuation VC-Tune • New Generation Scope Display 3DSS • ABI (Active Band Indicator) & MPVD (Multi-Purpose VFO Outer Dial) • PC Remote Control Software to Expand the Operating Range • Includes External Power With Matching Front Speaker



### FTDX10 | HF/50MHz 100 W SDR Transceiver

• Narrow Band and Direct Sampling SDR • Down Conversion, 9MHz IF Roofing Filters Produce Excellent Shape Factor • 5" Full-Color Touch Panel w/3D Spectrum Stream • High Speed Auto Antenna Tuner • Microphone Amplifier w/3-Stage Parametric Equalizer • Remote Operation w/optional LAN Unit (SCU-LAN10)



### FT-991A | HF/VHF/UHF All Mode Transceiver

Real-time Spectrum Scope with Automatic Scope Control • Multi-color waterfall display • State of the art 32-bit Digital Signal Processing System • 3kHz Roofing Filter for enhanced performance • 3.5 Inch Full Color TFT USB Capable • Internal Automatic Antenna Tuner • High Accuracy TCXO



### FTDX101D | HF + 6M Transceiver

• Narrow Band SDR & Direct Sampling SDR • Crystal Roofing Filters Phenomenal Multi-Signal Receiving Characteristics • Unparalleled - 70dB Maximum Attenuation VC-Tune • 15 Separate (HAM 10 + GEN 5) Powerful Band Pass Filters • New Generation Scope Displays 3-Dimensional Spectrum Stream



### FT-891 | HF+50 MHz All Mode Mobile Transceiver

Rugged Construction in an Ultra Compact Body • Stable 100 Watt Output with Efficient Dual Internal Fans • 32-Bit IF DSP Provides Effective and Optimized QRM Rejection • Large Dot Matrix LCD Display with Quick Spectrum Scope • USB Port Allows Connection to a PC with a Single Cable • CAT Control, PTT/RTTY Control



### FTM-300DR | C4FM/FM 144/430MHz Dual Band

• 50W Reliable Output Power • Real Dual Band Operation (V+V, U+U, V+U, U+V) • 2-inch High-Res Full Color TFT Display • Band Scope • Built-in Bluetooth • WiRES-X Portable Digital Node/Fixed Node with HRI-200



### FT-2980R | Heavy-Duty 80W 2M FM Transceiver

• Massive heatsink guarantees 80 watts of solid RF power • Loud 3 watts of audio output for noisy environments • Large 6 digit backlit LCD display for excellent visibility • 200 memory channels for serious users



### FT-818ND | HF/6M/2M/440 All Mode Portable Xcvr

• Ultra-Compact/Portable • Multi-Color Easy to See LCD • 208 Memory Channels/10 Memory Groups • Built-in Electronic Keyer • Internal Battery Operation Capability • Two Antenna Connectors • Built-in High Stability Oscillator ±0.5 ppm



### FTM-400XD | 2M/440 Mobile

• Color display-green, blue, orange, purple, gray • GPS/APRS • Packet 1200/9600 bd ready • Spectrum scope • Bluetooth • MicroSD slot • 500 memory per band



### FT-70DR C4FM/FM 144/430MHz Xcvr

• System Fusion Compatible • Large Front Speaker delivers 700 mW of Loud Audio Output • Automatic Mode Select detects C4FM or Fm Analog and Switches Accordingly • Huge 1,105 Channel Memory Capacity • External DC Jack for DC Supply and Battery Charging



### FT-3DR C4FM/FM 144/430 MHz Xcvr

• High Res Full-Color Touch Screen TFT LCD Display • Easy Hands-Free Operation w/Built-In Bluetooth Unit • Built-In High Precision GPS Antenna • 1200/9600bps APRS Data Communications • Simultaneous C4FM/C4FM Standby • Micro SD Card Slot



### FT-65R | 144/430 MHz Transceiver

Compact Commercial Grade Rugged Design • Large Front Speaker Delivers 1W of Powerful Clear Audio • 5 Watts of Reliable RF Power Within a compact Body • 3.5-Hour Rapid Charger Included • Large White LED Flashlight, Alarm and Quick Home Channel Access



### FT-60R | 2M/440 5W HT

• Wide receiver coverage • AM air band receive • 1000 memory channels w/alpha labels • Huge LCD display • Rugged die-cast, water resistant case • NOAA severe weather alert with alert scan



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