



PVRC Newsletter

October 2019

Newsletter Editor: John K3TN 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 – Tom K3AJ

Congratulations to the following PVRC members who are recipients of PVRC President's Leadership Awards for 2019:

Eric Wagner, NR4O – Most improved contester

Eric has been a PVRC member since 2017, joining PVRC under the call KB1RI. An amateur radio operator since 1973, he went through a period of 20+ years of radio silence but returned to activity with a vengeance in 2014. He has spent a lot of time and effort improving his station and all-wires antenna farm. He has developed his skills to match. Between August 2017 and June 2019 Eric had submitted 31 5M scores and amassed 5.6 million points. He has received certificates for several high finishes in CQ WPX, ARRL SS and the ARRL 10M contest.

Alan Knight, AA4FU – Many years of dedicated service administering the 5M program

The 5M program is of bedrock importance to PVRC. It is the most sought-after award in our club, and it is open ended – supporting our mission by incentivizing members to get on the air, compete and submit scores for PVRC in club competition. Alan has been administering the 5M program since 2010. He has diligently maintained the accuracy and timeliness of the program. Alan has been an amateur radio operator since 1978, returning to activity in 2003. He has amassed over 28 million points himself in the 5M program.

Jim Bruce, W3FA – Rejuvenating the PVRC Eastern Shore Chapter

Jim accepted the challenge of rejuvenating the long dormant PVRC chapter in the Delmarva region. Within less than a year, the chapter has begun meeting regularly again, several new members in the area have joined PVRC and already started submitting scores. There was even a PVRC Eastern Shore team in NAQP SSB! Jim is very diligent in encouraging and communicating with the members in the chapter area. Jim has been an active ham since 1986. He is active in contesting, DXing, EMCOMM and is a Boy Scout Radio Merit Badge Counsellor.

Bob Zobot, K4NTO – Hard work and dedication as Web Master

When PVRC President Bud, W3LL called for someone to take up the challenge of improving the timeliness and quality of content on the PVRC web site, Bob stepped up. We all know there are a lot of stale and out of date amateur radio web sites out there. Since Bob took over as web master, PVRC's web site is at the top of the pack of amateur radio web sites from the standpoint of being current. Bob is an active member of the PVRC Tidewater Chapter and enjoys many aspects of amateur radio.

Mike Barts, N4GU – Preserving the W4KFC call

Mike was made aware that following the passing of Vic Clark's son Kenneth, W4KFC would become available as a vanity call. Vic Clark was a founding father of PVRC and had a storied career in amateur radio as a contester and as President of the ARRL. With a lot of support from a quickly assembled team (PVRC Secretary Tim, N3QE who is now the Trustee for W4KFC, played an especially key role), the Clark Memorial Amateur Radio Club was founded with Mike as president and received W4KFC as its club call. An amateur radio operator since 1977, Mike is currently a vice president of PVRC and is an active contester, with just under 20 million points in the 5M program.

73, Tom, K3AJ

PVRC Officers:		Trustees:
President:	K3AJ Tom Valenti	K3MM, N3OC, WX3B, W4ZYT, N4NW, K2AV, K4ZA, W3TB, K3ZO, K2PLF, W3LPL, N4MM, N4ZR, W3MSH, N4NQY, W2RU, K3WRY
Vice President:	N4GU Mike Barts	
Vice President:	W3MMM Jay Horman	
Secretary:	N3QE Tim Shoppa	
Treasurer:	K2YWE Dan Zeitlin	PVRC Charter Members (all SK):
		W3GRF, W4AAV, W4KFC, N0FFZ, W4LUE, W7YS, VP2VI/W0DX, W3IKN, W4KFT

Newsletter Editor: John K3TN jpecatore@aol.com

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

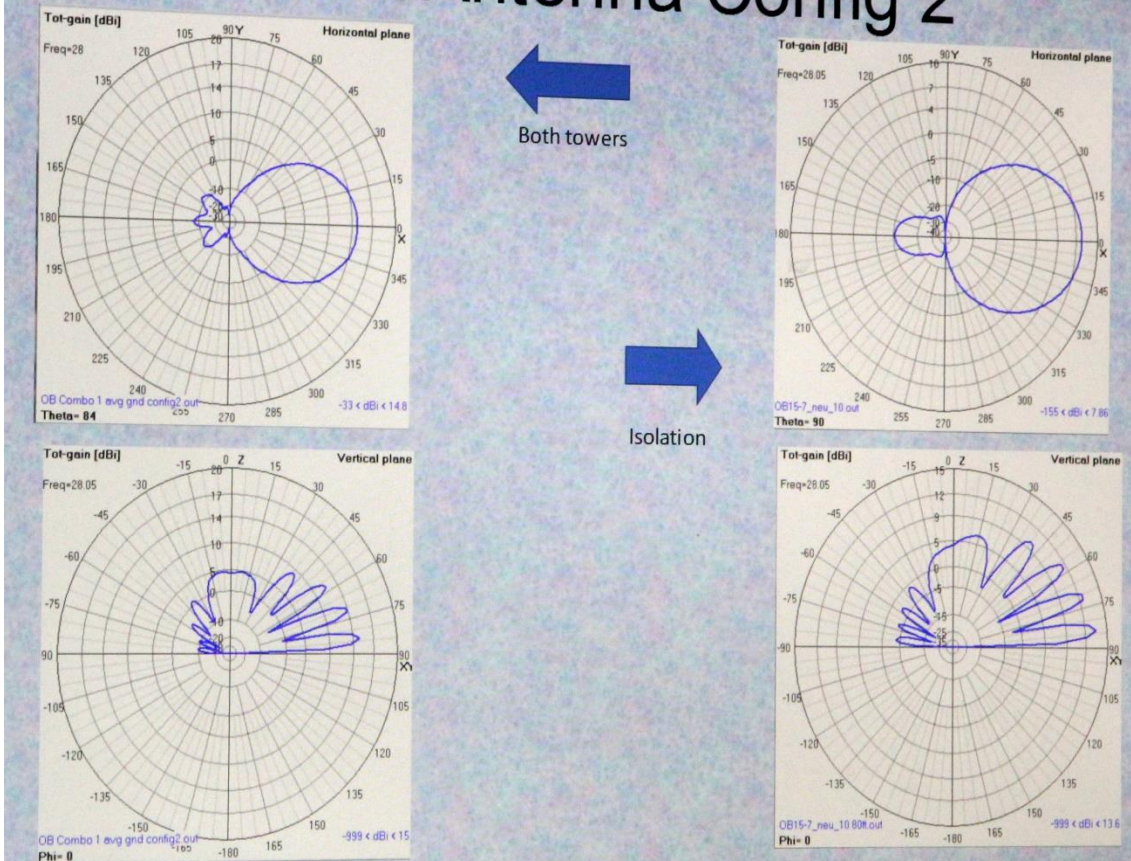
PVRC Meeting Info: <http://www.pvrc.org/chapters.htm>

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

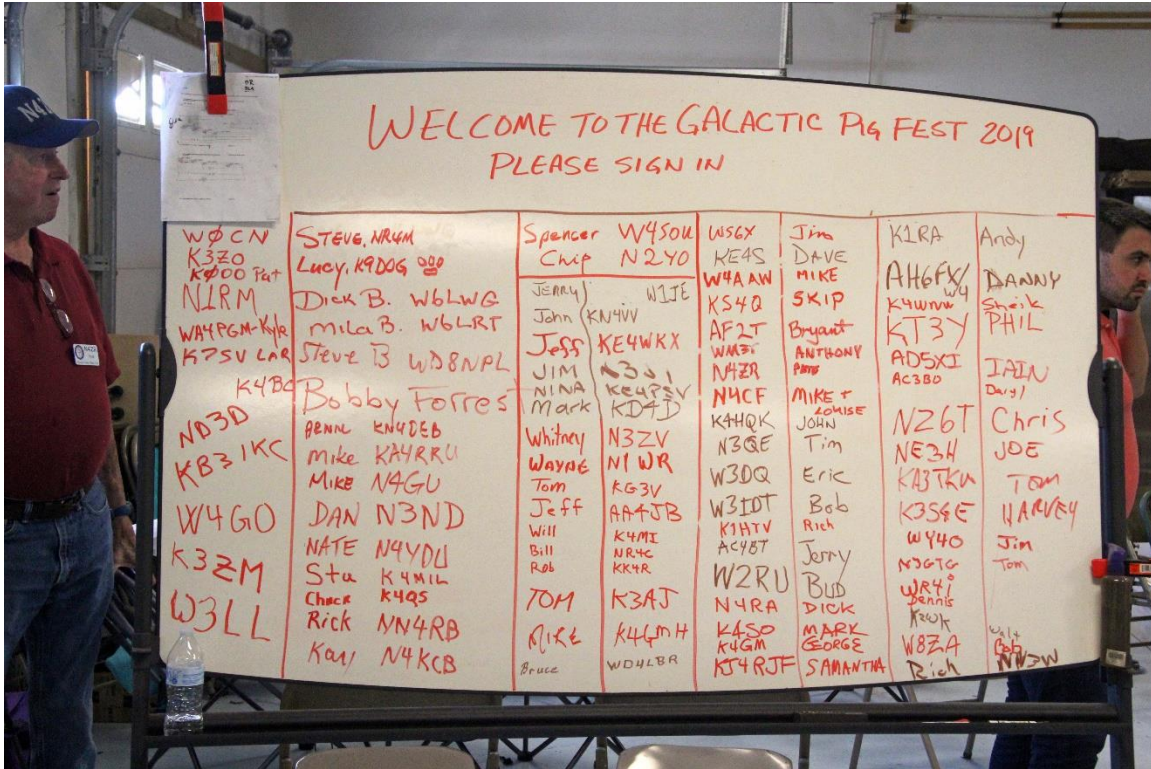
Pix from the NR4M Galactic Goat Farm Pig Fest – John K4HQK



10m Front Antenna Config 2







More Stories of Downsizing – Bill K3WA

The short version: A contester has to innovate after downsizing, taking you down new roads. And the stories one finds can be surprising. Here's a story of giving.

After years of being quasi-competitive in contests I'm finding it really difficult to adapt to contesting with a highly compromised station – compromised by inability to put up decent antennas. I knew that would be the case which I chose to downsize, but I didn't quite recognize the strength of my addiction; my rate addiction.

For sure, I can and do contest using my flagpole. I have been all this year. And it is fun - any antenna is better than no antenna, any contesting is better than no contesting. I can work lots of stations. Sometimes I could even get a fair run going. But what I can't do is generate significant sustained runs to satisfy my need, my addiction, for sustained rate.

So, what's a contester to do? Well, this contester turned to remote operating. Now I know to some of us remote operating is considered sinful. If you feel that way, please just move on to the next article.

I use [Remote Ham Radio](#) (RHR) to gain access to great stations in interesting locations and enjoy it immensely. Not all of their stations are located in Maine.

I used a RHR station in KP4 for the 2019 January CW NAQP. Made lots of QSOs and satisfied my rate addiction. In the July CW NAQP I used their station in Haiti – HH2AA and had even more fun, at least until a major thunder storm parked itself right overhead for several hours. Then I got to wondering, how in the world did the RHR guys get around to building and maintaining a RHR station in Haiti? I've been to Haiti. I knew there must be quite a story there.

So, I asked the RHR owners, Ray W2RE and Lee WW2DX. Yes, there is quite a story there. Here goes – and I loosely quote from Lee:

"The history of HH2AA started with the devastating earthquake of 2010. When the earthquake struck, Pat N2IEN immediately used his own resources and flew his personal aircraft to HH loaded with food/water/medical supplies to assist. In the aftermath he realized that the country was in dire need of medical assistance from the air and so he started the Haiti Air Ambulance. This on its own is a story worth telling. For that story, please see their [website](#).

In 2011 Ray and I met Pat while we were in the tower business. We had done a number of antennas installs and repairs for Pat and we all just "hit it off" as we all shared a strong love for the hobby. Pat, on a number of occasions, said "We need to do a DXpedition together." So, we did and still do to this day (We just went to CY9C for the 2nd time).

Shortly after we met Pat, Ray and I started to hear about the air ambulance project and how Pat was building this amazing charity service there. We thought, how can we help? Ray and I had a lightbulb go off and said, "Maybe we can build a remote station there?" And so, the seed was planted. Soon after we flew to Haiti on one of the many trips back and forth between the states and HH while the building of the helicopter base was being completed.

On our first trip down we met with the famous Jean-Robert HH2JR who took us under his wing and was instrumental in making HH2AA happen from the "political" standpoint. Once we had the legal permission, we were given HH2AA (Air Ambulance)! No turning

back now! We then met another amazing Haitian ham HH2FX Felix who just so happened to have a two-way communications company in Haiti. Felix said he had the "perfect" location for us. Well, he was right, "perfect" is probably the best adjective since the location at 6,300ASL in the Caribbean is probably the best radio location on the planet!

We now had the legal blessing from the Haitian radio regulators and an amazing QTH. Ray W2RE, Rock WW1X and I got to work. We started with a simple Off Center Fed Dipole off one of the high towers on the mountain to a Elecraft K3 with the RHR remote technology. We started with a 4G LTE modem, solar panels on the roof and a battery bank. I think this may have been the first remote ham radio station of its kind in the world. From the initial install we have since done many upgrades of the station like installing another tower, more yagi's, etc. We have more plans to expand HH2AA in the future.

The goal of HH2AA was always to "give back" to Haiti. RHR donates all the hardware, time and resources to keep HH2AA up and running. All the usage from HH2AA on the RHR network goes directly to the Haiti Air Ambulance. So, each time a RHR member operates HH2AA, that usage goes directly to the air ambulance. It's pretty amazing to think that while U.S. hams are operating as "DX" they are literally helping to save lives!

That's HH2AA in a nutshell. There are of course more details but this is the high level story of HH2AA. We are all very proud of that station and we have even more future plans for HH2AA."



Thanks to RHR for sharing this story and providing a rate junky the opportunity to satisfy his habit.

Rotor Work at N3JT – Jim N3JT



N3JT installed a new JK WARC beam (2 el on 30m, 3 el on 17m, 4 el on 12m) and while at it replaced the Orion rotor-mast clamp with a K7NV clamp. He also shifted from center-south to center-north rotation for faster rotation between NW and NE. You can see the clamp in the photo. NR4M generously cleaned and painted the clamp that Jim got from WA2BCK, who moved to SC.

Why is that one bolt sticking out? When the clamp is removed or loosened it assures that the clamp embrace is expanded sufficiently to allow for release. That bolt when turned presses against the far side of the clamp, forcing it open somewhat. So, it's a tool of sorts.

Higher Rate Coming When Running VKs – from [Southgate Amateur News](#)

The Radio Amateur Society of Australia (RASA) has successfully negotiated the issue of 2 x 1 callsigns (e.g. VK2A) for VK contest stations.

“RASA developed terms of reference for a cross-sector committee to review options and make recommendations on how 2 x 1 callsigns could be implemented. Calls for

expressions of interest to join the committee were promulgated widely. The committee was comprised of experienced testers from across Australia” RASA President, Glenn VK4DU said. “The committee developed a series of recommendations, which we discussed with the Australian Communications and Media Authority (ACMA).”

“I am very pleased to report that ACMA have agreed to our recommendations and that the VK 2 x 1 block (i.e. VK0A-VK9Z) will be made available for contest stations” Glenn said.

The block will be managed directly by the ACMA’s outsourced provider, the Australian Maritime College (AMC). AMC will issue a letter of authorisation to each successful applicant. There will be no separate licence issued. 2 x 1 callsigns will be available for Advanced licence holders, and each callsign will be issued for 12 months. The callsigns are only for use in contests – they are not available for general use.

“Because of the limited number of callsigns available, the applicant must illustrate an ongoing commitment to contest operation by making a minimum 750 contacts over 4 contests in a 12-month period.” Glenn said. The AMC is currently preparing for implementation of the new callsign block. A further announcement will follow when AMC is ready to start issuing callsigns.

Contesting Youth in Action – Mike W4AAW

John, N0JSD, 14 years old, visited my shack to operate in the ARRL RTTY Roundup. Activity was slow, so John went to CW and happened across several stations in the CVA contest, a Contest for Brazilian Army personnel and veterans. We read the rules and found there was a teen category. John found the CVA contest among the N1MM Logger+ supported contests. He set up his exchange as, "599 TEEN." With 1500 watts and a five-element monoband Yagi, his CQs got a lot of responses. He's quite a good CW operator. John forwarded this message he received after the contest:

Hi John! - My name is Alisson. I'm a Brazilian ham and my call sign is PR7GA, but in CVA DX Contest I was using the call PR7CP, from our local Amateur Radio Club. We have made a QSO at Sunday, in CVA, by 20:37 UTC. You can hear the exact moment when I started to hear you at 20 meters in this YouTube [video](#).

I have recorded my entire operation in CVA. It's in my channel. I'm writing to you because I just want to say: Congratulations!!!! When I heard your exchange, I was amazed...It's not easy to see young men like you in the bands...Specially in CW.

I'm the editor of a weekly news BLOG of our club, called [QTC ECRA](#). It's also transmitted in our VHF repeaters and 80 meters, and also in YouTube. I'll talk a little about you by tomorrow, to inspire other teens like you here in Brazil to discover our beloved hobby.

Nice to meet you! Hope to hear you again in the bands!

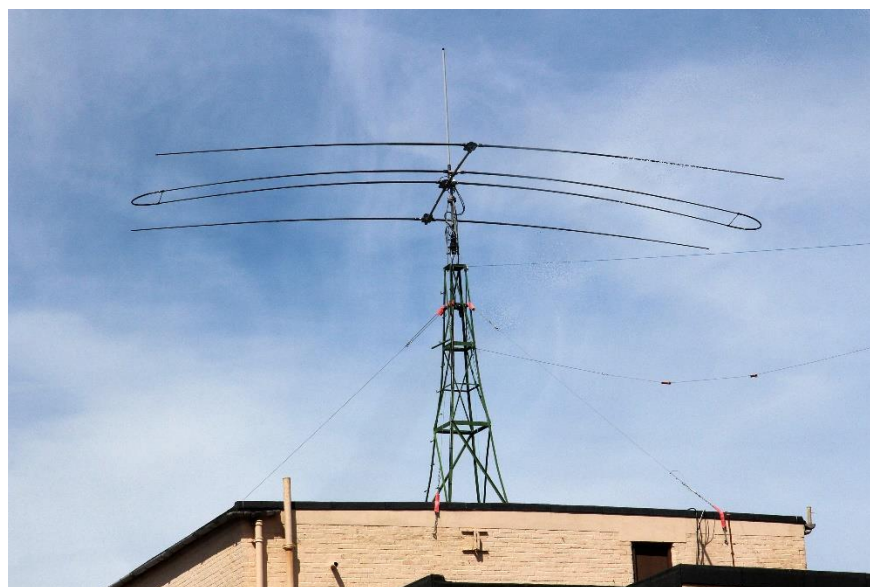
73s from Brazil! - Alisson, PR7GA

A Visit to Bletchley Park – John K4HQB



L to R: John K4HQB, Dave G4UFS and Brian, G4BIP

Early last June during a Normandy-invasion-themed Viking River cruise, we began with four days in London visiting significant WWII sites before boarding our river boat on the Seine at Paris. One of those London days was spent at Bletchley Park, famous for its role cracking German Enigma and Japanese Purple enciphered messages. To my surprise they had a ham station in one of the buildings. I stopped and said hi to the two fellows manning it that day, and my wife take a picture of us.



The SteppIR at GB3RS

Coffee Cups Will Be Harder to Earn In Sweepstakes

From Gerry W1VE, via [CQ-CONTEST](#):

"I am sad to report that my dear friend J Allan, VY1JA, is having many health difficulties and has retired from ham radio. J's final QSO was with KA4UPI on September 14. He has uploaded his log to LoTW and sent a copy to his QSL managers, JA3JM for JA only, and N3SL for others. He will be taking down his antennas soon.

J was a great supporter of CW from the Yukon, making well over 100,000 QSOs in his decades there. Over the past four years, our VY1AAA remote team has made over 35,000 QSOs worldwide. We will be holding on to our gear and are exploring other possibilities of a remote in YT/NT or other rare location in Canada. Our QSL Manager Marty, NN1C has retired from his duties (thanks for your hard work, pal!), and Geoffrey, NE3K, will be taking over. Any questions should be directed [here](#).

Thank you all for the many 1000s of Sweepstakes and DX QSOs over the past few years. VY1 will certainly become a harder multiplier for SS this year! I will probably operate from K2LE/1 in Vermont.

Until Saturday, please listen for VY1AAA on the air -- 20m CW mostly -- perhaps some SSB. 2100z or later weekdays, perhaps earlier on Saturday.

73 and thanks for the memories,"

Gerry Hull, W1VE/VE1RM
Trustee, VY1AAA
The Yukon CanAm Contest Club.



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 and Log Due Dates

Contests This Month

- Oct 5 – CA QSO Party
- Oct 5 – Oceania DX SSB
- Oct 12 – Oceania DX CW
- Oct 19 – Worked All Germany
- Oct 26 – CQ WW SSB

Logs Due This Month

- Oct 3 – All Asian DX SSB
- Oct 11 – SARTG RTTY
- Oct 16 – ARRL UHF

See WA7BNM's [Contest Calendar](#) for more detail and the latest information.

Editor's Last Word – John K3TN

Thanks to John K4HQK for loads of great photos for this edition of the newsletter and to Bill K3WA, Jim N3JT and Mike W4AAW for their contributions.

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 jpscator@aol.com.



From the PVRC Treasurer – Dan K2YWE

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.

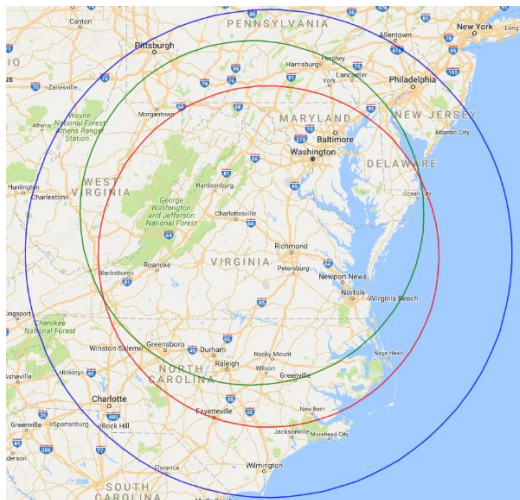
Direct donations to PVRC via Credit Card or PayPal may be made by clicking this "Donate" button and clicking the next Donate button that appears on your screen:



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!



Your source for DX News!

Get a free two week trial of The Daily DX and The Weekly DX by sending a request to bernie@dailydx.com.

The Daily DX
3025 Hobbs Road
Glenwood, Maryland 21738
Phone: 410-489-651



PVRC QSL Cards
by
LZ1JZ QSL Print



GREEN HERON ENGINEERING LLC

(585) 217-9093
www.greenheronengineering.com

RT-21 DIGITAL ROTATOR CONTROLLERS
Unmatched Performance for any Rotator

RT-21



RT-21D



RT-21 AZ/EL



Rotator Packages



FREE Shipping for PVRC Members
At Checkout Enter Coupon Code "PVRC"

Heavy Duty Custom Mast Clamps
-for G-2800 and Orion



Wi-Fi Option
-control your rotator from any web browser device

GH EVERYWARE WIRELESS CONTROLS

- Internet access for switches and rotators
- Eliminate cables and tethered control boxes
- Create customized on-screen controls
- Great circle maps

GH Everywhere Base and Remote

- USB and wireless relay controls
- Utilizes your existing antenna switches

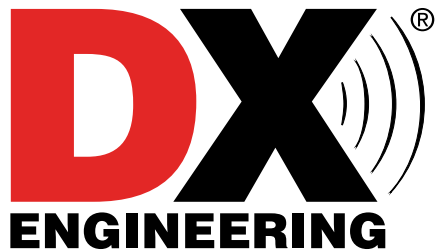


Select-8 Wireless Remote Coax Switch

- Built-in GHE Wireless
- Powered through the coax
- Tower leg Mount
- Amphenol RF connectors





Showroom Staffing Hours:
9 am to 5 pm ET, Monday-Saturday

Ordering (via phone):
8:30 am to midnight ET, Monday-Friday
9 am to 5 pm ET, Weekends

Phone or e-mail Tech Support: 330-572-3200
8:30 am to 7 pm ET, Monday-Friday
9 am to 5 pm ET, Saturday
All Times Eastern | Country Code: +1
DXEngineering@DXEngineering.com

800-777-0703 | DXEngineering.com

Earn Your DXCC with DX Engineering!



DXE-2X7



DXE-3X10

DX Engineering Antennas

When you demand durability, superior construction and proven performance, DX Engineering antennas rank high on all fronts. Select from the Skyhawk™ Tri-Band Yagi and Skylark™ Dual-Band Yagi; 75/80 meter monoband verticals; 160 meter monoband vertical; 2-, 6- and 9-band Butternut HF verticals now made by DX Engineering; the THUNDERBOLT® 80/40 meter high-performance vertical; low-SWR, wide-bandwidth HEXX beams; and others. Plus, get every accessory you'll ever need at one convenient place.

AOM-2100



ACOM

Make a serious upgrade to your shack with ACOM's state-of-the-art amplifiers, including the 2100—the company's most user-friendly model to date. Featuring intuitive controls, OLED display and straightforward operation, the 2100 delivers virtually silent QSK and withstands up to 400 watts of reflected power. ACOM's 1200S is a solid state RF 1,000 watt amplifier with full HF and 6 meter coverage. It's compatible with virtually all modern radios, requiring less than 50 watts of drive power—a solid choice for DXpeditions. Enter "ACOM" at DXEngineering.com for the full lineup.

AOM-2100 \$4,399.99

AOM-1200S \$3,699.99



Outstanding HF Power Products



Headsets and Headphones

DX Engineering is proud to carry lightweight, hands-free headsets and state-of-the-art headphones from legendary Heil Sound. Choose from PRO 7 Series Headsets with audio balance controls for easy adjustments; Pro Set Elite iC Boom-Mic Headsets with Heil's HC 6 wide-response element; and the 3 oz. BM-10-IC Headsets made for comfortable contesting and DXing. Enter "Heil" at DXEngineering.com for more details.



Antenna Tuners

DX Engineering offers high-performance manual and automatic desktop antenna tuners from HA8DU. Solidly built and featuring exceptional-quality switches, capacitors, inductors and other components, HA8DU L- and T-type tuners deliver 1.8 MHz to 30 MHz coverage and smooth tuning in a rugged, reliable unit that will make a long-lasting addition to your station. Enter "HA8DU" at DXEngineering.com for complete specs.



We're All Elmers Here! Ask us at: Elmer@DXEngineering.com

YAESU **iCOM** **KENWOOD** **ALINCO**

Free Standard Shipping for Orders Over \$99*. If your order, before tax, is over 99 bucks, then you won't spend a dime on shipping. (Additional special handling fees may be incurred for Hazardous Materials, Truck Freight, International Orders, Next Day Air, Oversize Shipments, etc.).

Email Support 24/7/365 at DXEngineering@DXEngineering.com / Check out our blog, OnAllBands.com, for articles on upcoming DXpeditions, what's new in contesting, digital operations, and a range of other topics.



Array Solutions Your Source for Outstanding Radio Products

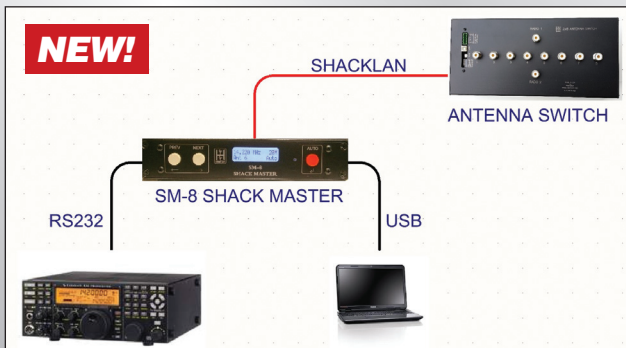
Professional Grade Equipment from Array Solutions



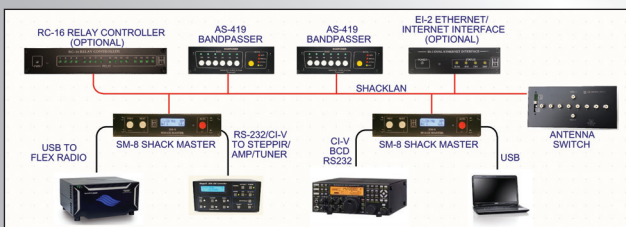
Hamation Station Automation

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 chains 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.



JK Antennas Are Now Sold by Array Solutions

High Quality HF Antennas for the Contester and DXER. We Focus on Quality and it Shows in Everything We Do. Call or email for antenna systems.



RatPack Remote Antenna Switch

Six antenna remote switch with rotary switch controller. Push button controllers available. HF and 50 MHz. Power rating 5 kW CW.

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.

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.



OM Power Amplifiers, The New RF Power Benchmark!



OM Power Amplifier Sales Program

Lower prices than the competition's equivalents, most modern design, and strongest warranty in the market!



OM10C amplifier combiner

The automatic amps can drive an antenna switch of up to 10 antennas and select up to ten bandpass filters applies to all automatic models

OM4000HF	Manual 160-10 m 4 kW
OM4000A	Automatic 160-10 m 4 kW
OM4000HF MARS	MARS and Commercial HF
OM2500HF	Manual 160-10 m 2.5 kW
OM2500A	Automatic 160-10 m 2.5 kW
OM2000+	Manual 160-6 m 2 kW
OM2000+ MARS	MARS and Commercial HF
OM2000A+	Automatic 160-6 m 2 kW
OM10C Combiner	Combiner for two OM amplifiers
OM10C 4000HF MARS	Two OM4000HF manual tuned amps and combiner package
OM10C 4000A MARS	Two OM4000A automatic tuned amps and combiner package

OM4000A - OM4000HF OM2500A - OM2500HF

The A-series are automatic band change amplifiers.

The HF-series are manual band change and tuning amplifiers.

OM4000: 4 kW SSB and CW, 3 kW RTTY, AM and FM

OM2500: 2.5 kW SSB and CW, 2 kW RTTY, AM and FM

OM2000A+ - OM2000+

The **OM2000A+** is the lightest and smallest 2000 W fully automatic HF/6 m power amplifier in the market. Its manual tuning version, the **OM2000+**, is our affordable unmatched best-seller.

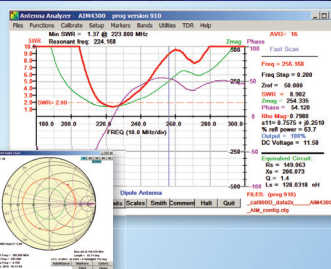
Frequency coverage:

Amateur bands 1.8 - 29.7 MHz including WARC + 50 MHz

Power output: 2000+ W in SSB/CW on HF bands, 1500 W in RTTY
1500 W CW/SSB on 50 MHz



Laboratory Grade Antenna and Vector Network Analyzers



One Port Analyzers and Two Port Vector Network Analyzers ranging from 5 kHz up to 1 GHz

AIM 4300	\$599
VNA UHF	\$1,295

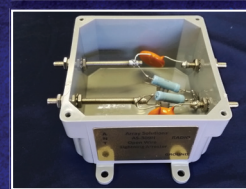
Surge Arrestors

AS-302, AS-303 Coaxial cable arrestors. DC to 500 MHz. N-type or SO-239 connectors. **AS-300SB** Stacking fixture available. **AS-309H**, ladder line arrestor. All have static bleed function. **AS-8SP, AS-12SP** and **AS-16SP** control cable arrestors. Protect your rotator's and other control cables.



Baluns & RF Transformers

Ratios 1:1, 1:2, 2:1, 4:1 and more. RF line isolators. Ratings 3, 5, 10 kW+. Get the most out of your antenna by stopping the coaxial cable from becoming part of it.



www.arrayolutions.com

2611 North Beltline Rd., Suite 109
Sunnyvale, Texas 75182 USA
sales@arrayolutions.com
Phone 214-954-7140 Fax 214-954-7142

Check our Website for more new products!

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.

HAM RADIO OUTLET

MULTI-STORE BUYING POWER!

ICOM



IC-7610
All Mode Transceiver



IC-7300
HF Transceiver



IC-7100
All Mode Transceiver



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



ID-51A Plus2
VHF/UHF D-STAR Portable

KENWOOD



TS-590SG
HF/50MHz Transceiver



TM-D710G
2M/440 Dualband



TM-V71A
2M/440 DualBand



TM-281A
2 Mtr Mobile



TH-D74A
2M/220/440 HT

YAESU
The radio



FT-991A
HF/VHF/UHF Transceiver



FTDX1200
100W HF + 6M Transceiver



FT-450D
A100W HF + 6M Transceiver



FTM-400XD
2M/440 Mobile



FT-70DR
C4FM/FM 144/430 Xcvr

5 Ways to Shop!

- RETAIL LOCATIONS – Store hours 10:00AM - 5:30PM - Closed Sunday
- PHONE – Toll-free phone hours 9:30AM - 5:30PM
- ONLINE – WWW.HAMRADIO.COM
- FAX – All store locations
- MAIL – All store locations

HRO is family owned and operated by active hams!

ANAHEIM, CA
(800) 854-6046

OAKLAND, CA
(877) 892-1745

PORTLAND, OR
(800) 765-4287

PHOENIX, AZ
(800) 559-7388

MILWAUKEE, WI
(800) 558-0411

WOODBIDGE, VA
(800) 444-4799

PLANO, TX
(877) 455-8750

BURBANK, CA
(877) 892-1748

SAN DIEGO, CA
(877) 520-9623

DENVER, CO
(800) 444-9476

ATLANTA, GA
(800) 444-7927

NEW CASTLE, DE
(800) 644-4476

SALEM, NH
(800) 444-0047

ONLINE STORE
WWW.HAMRADIO.COM