



# *PVRC Newsletter*

## *December 2018*

**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/>

### **Kudos, and Thanks to Bud W3LL**

**T**ime flies when you are having fun. Can it really be that it has been three years since Bud, W3LL, took over as President of PVRC? For those of us who have served with him as PVRC officers during these three years, the time has certainly flown by.

Bud took over somewhat unexpectedly in January 2016 at a time when there was some disharmony in the organization. We owe him a debt of gratitude for taking up the task of righting the ship (Bud loves all those nautical references – what else would you expect from a retired Coast Guard career officer?). He now steps down from office after serving for three years, leaving PVRC in a good place.

Like all good leaders, we are sure that Bud would vigorously protest a recitation of accomplishments during these three years, noting that it was really the doing of the many others – officers, Trustees, volunteers (and there are many of them that make PVRC run) and active members – not just he – who made it all happen. But all of us know that it takes good leadership and organization to release and harness the energy of all the players to achieve success. Those accomplishments do make an impressive list, testimony to the many, many PVRC'ers who worked hard, often with little or no recognition, to move the organization forward:

- “Decentralizing” PVRC by making regional events sponsored by Chapters the focus of official PVRC activity both by policy and action.
- Establishment of the PVRC “Galactic Event” (sponsored by Colonial Capital Chapter).
- Reinforcing a sense of accountability and follow-up in the club officers by holding bi-weekly conference calls to set goals and monitor progress toward them.
- Creation of a PVRC Mission Statement.
- Establishing a PVRC presence on Facebook.
- Adding 1M through 4M Progress Certificate awards for those working towards their 5M award.
- Celebrating the 20th anniversary of the 5 Meg Award Program by the yearlong “20 for 20” one-time award.

- Establishing a relationship with a vendor to set up a self-service PVRC “Store” to make logo apparel easily available to members
- Raising over \$3,200 in support of WRTC 2018 in memory of PVRC silent keys.
- Observing PVRC’s 70th anniversary with a week-long special event operation that generated an incredible 12,000 QSO’s as participants tried to work all the PVRC-related special calls.
- Providing for a refreshed PVRC Home Page appearance and keeping the content there up to date.
- Creation of the PVRC Olympics as an annual event to encourage member participation in all aspects of the club.
- Maintaining the health of PVRC Chapters, including the creation of a new Chapter (Blue Ridge) and recruiting new Chapter Chairs when needed.

Finally, and perhaps most importantly, strengthened PVRC's leadership as a premier contesting club, achieving many, many club competition wins during the last three years including the NAQP Club Challenge in 2016, and continuing the string of 10 consecutive Sweepstakes victories.

So, kudos and thanks to all who have worked hard over the last three years to make these things happen, and especially Bud for being a good captain during his watch.

Dan, K2YWE – Vice President  
 Jay, W3MMM – Vice President  
 Tom, K3AJ – Treasurer  
 Tim, N3QE - Secretary



<b><u>PVRC Officers:</u></b>		<b><u>Trustees:</u></b>	
President:	W3LL Bud Governale	K3MM, N3OC, WX3B, W4ZYT, N4NW, K2AV, K4ZA, W3TB, K3ZO,	
Vice President:	K2YWE Dan Zeitlin	K2PLF, W3LPL, N4MM, N4ZR, W3MSH, N4NQY, W2RU, K3WRY	
Vice President:	W3MMM Jay Horman	<b><u>PVRC Charter Members (all SK):</u></b>	
Secretary:	N3QE Tim Shoppa	W3GRF, W4AAV, W4KFC, N0FFZ, W4LUE, W7YS, VP2VI/W0DX,	
Treasurer:	K3AJ Tom Valenti	W3IKN, W4KFT	
<p>Newsletter Editor: John K3TN <a href="mailto:jpescatore@aol.com">jpescatore@aol.com</a></p> <p>PVRC Website: <a href="http://www.pvrc.org">http://www.pvrc.org</a></p> <p>PVRC Meeting Info: <a href="http://www.pvrc.org/chapters.htm">http://www.pvrc.org/chapters.htm</a></p>			

**Jamie NS3T Wins RTCA Career Achievement Award**



*From the Radio and Television Correspondent's association:*

The Career Achievement Award for Distinguished Reporting on Congress honors the distinguished career of a Washington broadcaster who represents career achievement and dedication to Congressional coverage. The award recognizes rare, exceptional careers and signifies the admiration of the many broadcasters who follow behind and benefit from the work of the recipient.

Jamie Dupree is the Senior Washington Correspondent for the Washington Bureau of the Cox Media Group. Jamie has been around the Congress for most of his life. His parents started as staffers on Capitol Hill in 1959. Jamie was a House Page in 1980. He came back to Capitol Hill as a reporter in 1986 and has been with Cox since 1989. His radio reports can be heard on Cox stations in Atlanta, Orlando, Jacksonville, Dayton, Ohio, Tulsa, Oklahoma, and Athens, Georgia. His Washington Insider blog is also used by two Cox newspapers, the Atlanta Journal Constitution and Dayton Daily News.

Jamie's career was derailed during the middle of the 2016 campaign, when a mysterious medical issue took away his voice. While doctors have not been able to restore his voice, a company in Scotland used his years of audio archives to build a Jamie Dupree voice app, which now allows him to file radio reports again, in a computer-generated voice known as "Jamie Dupree 2.0." Jamie has been slowly writing a book about his family's time on Capitol Hill, which sometimes goes by the title, "Alcohol is a Depressant, But so is the Senate."

**Editor's note – great video [here](#). Jump to about 4:30 in to get to the good stuff.**



**The Rev. Paul E. Bittner, WØAIH, Memorial Scholarship", via the ARRL Foundation.**



Scott KA9FOX has set up a GoFundMe page [here](#) to establish a scholarship In memorial of Rev. Paul WØAIH.

**The Score: Ice 1, Inverted L 0 – Mike W3IP**



*Mike's analysis after a mid-November icing event brought down his recently erected inverted L for 160m:*

By the numbers: .875-inch radial ice = 2.4 square inches times 170 feet of wire = 2.8 cubic feet of ice times 57 pounds per cu ft = 161 pounds of ice hanging on the support rope!

1.75 inches times 66 feet of vertical wire = 9.6 square feet times 10 pounds per square feet of wind load at 50 MPH yields another 96 pounds of force on the support rope. No wonder it broke!

**PVRC Awards Presentation Roanoke Blacksburg -Anthony WM3T**



L-R: Anthony WM3T presenting medals to Riley, K4ORD and Buddy, W4YE at a local club meeting in October.

**Over The Hill Lunch Bunch VA Meeting, 25 Oct - Bob W3YY**

The OTH lunch bunch met at Anthony's restaurant in Falls Church, VA.

Roger, K5VRX, distributed PVRC election forms and collected the results. K5VRX also presented PVRC Olympic Medals (Bronze) to Jim, N3JT and John, K4HQK. N3JT also received his 25-million endorsement for the PVRC 5 Million Award.

Fred, K3ZO, has a new FTdx5000.

Jim, N3JT, departs for his winter residence in Florida 11/2. He will remotely operate his home station in VA while in Florida.

Bill, K3XA, was voted into PVRC membership. Congrats Bill! Bill is looking into additional tower/antenna work.

Luis, CX1EK/CE2ML, attended briefly before leaving for a flight to Chile.

Bob, W3YY, reported that his 4-EI SteppIR at 100 feet has finally been repaired and he is again active on all bands 160-6 Meters. K5VRX assisted him with the ground crew work.



K4HQK & N3JT



K3XA, N4RA, W2YE, and K6ETM

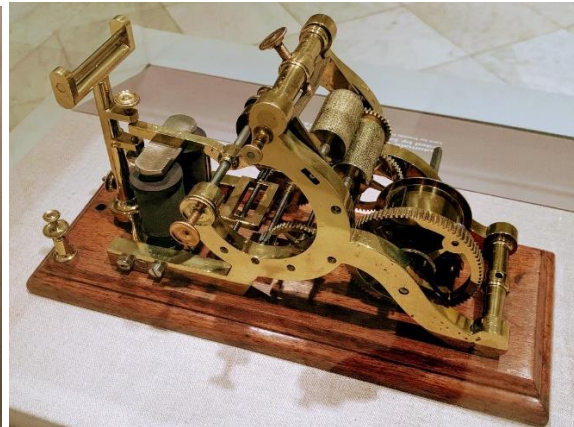
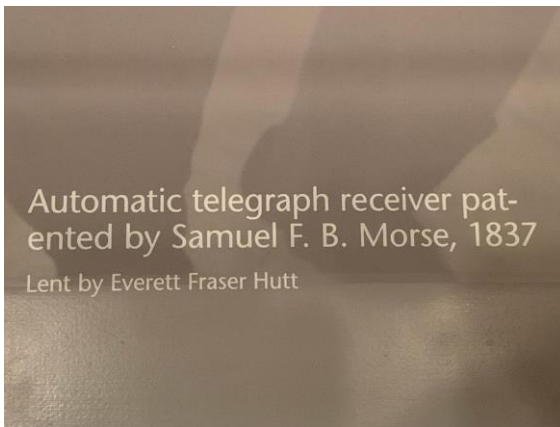


WA2BCK & K3ZO



K5VRX & CX1EK/CE2ML

**Morse Automated Telegraph Receiver – John N3AM**



This is on display at the Smithsonian American Art Gallery in Washington DC. A bit of background info [here](#).

**Tidewater Chapter Olympic Medalists - Vic, W4VIC**



Three Chapter members rose to the opportunity and earned Olympic Medals in the 2017-18 PVRC Olympics program: Vic, W4VIC (Gold); Barry, K5VIP (Gold) and Bill, WA4EUL (Bronze). The medalists were recognized at the November Chapter.

The Chapter had several notable advances in the 5M program. Chet, N4FX, who is so far ahead of the rest of the Chapter as to be in a class by himself, was awarded a plaque tag for passing the 30M milestone. Hearty congratulations, Chet. There were several certificates awarded for working 1M increments toward the 5M plaque. Congratulations to all who participate in the PVRC Awards Program.

**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**

- Nov 30 – ARRL 160M
- Dec 3 – 10M RTTY
- Dec 8 – ARRL 10M
- Dec 15 – Croatian CW
- Dec 16 – Rookie Roundup CW
- Dec 29 – RAC Winter
- Dec 29 – Stew Perry Top Ban

**Logs Due This Month**

- Nov 30 – CQ WW CW
- Dec 7 – ARRL 160
- Dec 11 – 10M RTTY
- Dec 16 – ARRL 10M

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



**From the PVRC Treasurer – Tom K3AJ**

PVRC has chosen not to implement an annual Dues requirement. We depend on the generosity of all of 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.

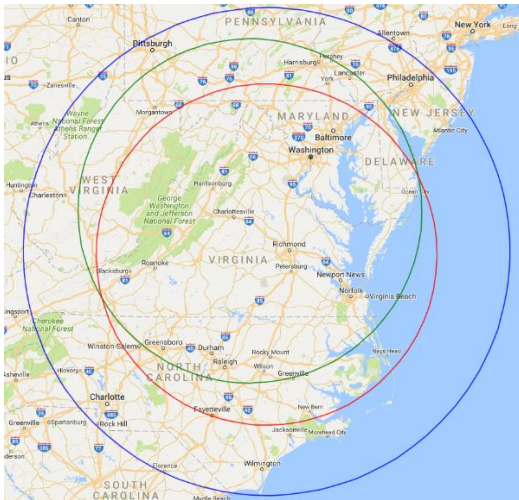
Direct donations to PVRC via Credit Card or PayPal may be made by clicking this "Donate" button and clicking the next Donate button that appears on your screen:



**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



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**HF+6M 100 Watt Linear Amplifier**

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**RMY-MLA100.....\$649.99 RMY-MLA100V....\$699.99**



**Stealth Loop Antenna**

Ciro Mazzonei's Stealth Loop Antenna by I3VHF delivers high performance without bothering your neighbors or HOA. The low-profile continuous coverage antenna (6.6-29.8 MHz) measures only 54" x 19.6" x 10.2", making it easy to hide on the ground or place on a balcony while you work the 40 to 10 meter bands. It's built from strong powdercoated aluminum alloy, requires no pole or installation, has a typical SWR of 1.3:1, boasts a 125 watt power rating, and weighs only 15.4 pounds.

**MZZ-STEALTH.....\$1,799.99**



**SOTABeams ContestConsole Switching Unit for ICOM**

Connect this easy-to-use control switch unit between your microphone and ICOM rig and take your contesting to the next level. The ContestConsole gives you instant access to voice, CW and PSK memories without the need to display them on the transceiver screen. It features a TX PTT button, TX low power tune function, pushbutton frequency control, external PTT footswitch socket and more. Specifically built for the IC-7300, the unit also supports a wide range of other ICOM transceivers. Enter "ContestConsole" at DXEngineering.com for full details.

**SBM-CONTESTCONSL...\$89.99**



TEK-PA-100U-05



TEK-PA-85V

**Toptek UHF and VHF Power Amplifiers**

DX Engineering is pleased to announce that we now carry VHF (PA-85V) and UHF (PA-100U-05) power amplifiers from Toptek, a company widely recognized for its exceptionally constructed units. The 430-460 MHz, 100 watt UHF model comes with automatically enabled silent fans; band-pass filter; and receiver Low Noise Amplifier to minimize noise figure degradation. The 138-174 MHz, 85 watt VHF model includes a built-in VSWR meter. Both units feature multiple protections and straightforward controls for easy operation and long-lasting performance.

**TEK-PA-100U-05.....\$599.99**

**TEK-PA-85V.....\$199.99**

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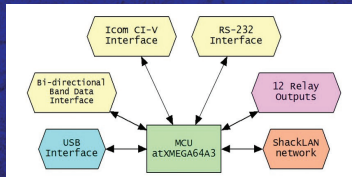
### Announcing the new BM-5 BandMaster V

The next generation of the popular BM-3 with direct USB support for FLEX Radios

**NEW!**



The BM-5 BandMaster V is a full featured unit that contains a universal band decoder and antenna switch controller. It features five communication channels. All channels are active simultaneously and provide data translation for your station accessories. In other words, if you are using an Icom radio on the CI/V interface the BandMaster V will output 4-bit band data as well as RS-232 data in Yaesu or Kenwood format. In reverse, when using a radio on the RS-232 interface the BandMaster V will output 4-bit band data as well as an Icom CI/V data stream. The USB interface may be connected to your PC for radio control. **The USB interface may be connected directly to a Flex SDR with no additional cables or interfaces required.**



### RatPack Remote Antenna Switch

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



### 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.



### TwoPak

Two antenna switch, 12V DC via wires or optional via coax cable. DC to 150 MHz. HF 5 kW rating. Metal box.



### Off-Center Fed Dipole Antenna

**AS-OCF-2K, AS-OCF-5K** Seven bands antenna (80 to 6 m). Heavy duty materials. 4:1 balun included. Ratings: 2 or 5 kW or higher available.



### 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.



**OM Power Amplifiers, The New RF Power Benchmark!**



### OM Power Amplifier Sales Program

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<b>OM4000A</b>	Automatic 160-10 m 4 kW
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<b>OM2500A</b>	Automatic 160-10 m 2.5 kW
<b>OM2000+</b>	Manual 160-6 m 2 kW
<b>OM2000A+</b>	Automatic 160-6 m 2 kW

OM Power was founded in 2004 as an initiative of two enthusiastic Slovak ham operators. Since that time OM Power has become a successful and well established company in the production of amplifiers. OM Power amplifiers can be found on all continents and in almost every country of the world. All of the amplifiers have state of the art design, and are solidly built.

### 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.

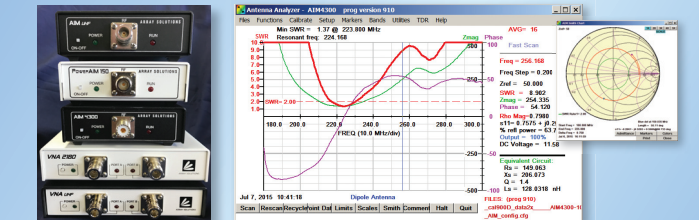
**Frequency coverage:**

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

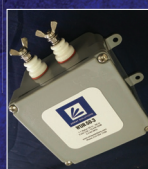


One Port Analyzers and Two Port Vector Network Analyzers ranging from 5 kHz up to 1 GHz

<b>AIM 4300</b> .....	\$495
<b>AIM UHF</b> .....	\$695
<b>VNA 2180</b> .....	\$995
<b>VNA UHF</b> .....	\$1,295
<b>PowerAim 150</b> Broadcasting Engineers Choice. 150 V peak RF capable .....	\$2,495

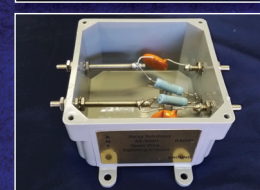
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## IC-7200 | HF Transceiver

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## IC-R8600 | Wideband Software Defined Receiver

- 10 kHz to 3 GHz Super Wideband Coverage • P25, NXDN™, dPMR™, D-STAR Mode • Large Dot Matrix LCD Display w/ Quick Spectrum Scope • SD Card Slot • Remote Control Function



## 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-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



## 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



## IC-7700 | HF/50MHz Transceiver

- The Contester's Rig • HF + 6m operation • +40dBm ultra high intercept point • IF DSP, user defined filters • 200W output power full duty cycle • Digital voice recorder



## 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-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-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-R30 | Digital/Analog Wideband Xcvr

- 100 kHz to 3.3 GHz Super Wideband Coverage • P25 (Phase 1), NXDN™, dPMR™, D-STAR Mode • 2.3" Large LCD Display & Intuitive User Interface • MicroSD Card Slot for Voice & Data Storage • USB Charging & PC Connection



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

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## ID-51A PLUS2

### VHF/UHF D-STAR Portable

- RS-MS1A, free download Android™ application
- New modes for extended D-STAR coverage • Terminal Mode & Access Point Mode allow D-STAR operation through Internet • DV & FM repeater search function • Dplus reflector link commands



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**FTDX5000MP Limited | 200W HF + 6M Xcvr**

- Internal Power Supply • Two Totally Independent Receivers
- Super Sharp "Roofing" Filters • High Performance Yaesu Custom- designed 32-bit Floating Point DSP • True Analog Meter Precision



**FTDX3000 | 100W HF + 6M Transceiver**

- 100 Watt HF/6 Meters • Large and wide color LCD display • High Speed Spectrum Scope built-in • 32 bit high speed DSP /Down Conversion 1st IF



**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



**FTDX1200 | 100W HF + 6M Transceiver**

- Triple Conversion Receiver With 32-bit Floating Point DSP • 40 MHz 1st IF with selectable 3 kHz, 6kHz & 15 kHz Roofing Filters • Optional FFT-1 Supports AF-FFT Scope, RTTY/PSK31 Encode/Decode, CW Decode/Auto Zero-In • Full Color 4.3" TFT Display



**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



**FT-857D | Ultra Compact HF/VHF/UHF**

- 100w HF/6M, 50W 2M, 20W UHF • DSP included • 32 color display • 200 mems • Detachable front panel (YSK-857 required)



**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



**FTM-100DR | C4FM FDMA/FM 144/430 MHz Xcvr**

- Power Packed System Fusion Transceiver • High Audio Output Power • Rugged Powerful Transmitter • Integrated 66ch High Sensitivity GPS • 1200/9600 APRS Data Communications



**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-2DR C4FM/FM 144/430 MHz Xcvr**

- Analog/C4FM Dual Monitor (V+U/U+U+U) • System Fusion compatible • 1200/9600 APRS Data Communications • Integrated 66ch High Sensitivity GPS • Wide Band Receiver • Snapshot Picture Taking Capability With Optional MH-85A11U



**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 Flash-light, 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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# HAM RADIO OUTLET

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**\*FREE 1 OR 2 DAY DELIVERY TO MOST OF US!**



### TS-990S | 200W HF + 6M Transceiver

- World's first dual TFT display • 200W output on all bands
- ±0.1ppm TCXO ensures both high stability and reduced power consumption • Triple 32-bit DSP's dedicated to main/sub receivers and band scope • Main receiver employs full down conversion, new mixer & narrow band roofing filters • Third order intercept point (IP3) +40dBm for highest level of RX performance ( main receiver)

**Call For Special Price!**



### TM-D710G | 2M/440 Dualband

- V+V/V+U/U+U operation • Built-in GPS • Built-in TNC for APRS & DX-Cluster operation • 50W 2M & UHF • 1,000 memories • Dual receive • Green or amber backlight colors • Latest APRS firmware w/new features • Sky Command II remote functions

**Call For Special Price!**



### TS-480SAT/HX | HF + 6M Transceiver

- 480HX 200W HF & 100W 6M (no tuner) • 480SAT 100W HF & 6M w/AT • Remotable w/front panel/speaker • DSP built-in

**Call Now For Low Price!**



### TS-590SG | HF/50MHz Transceiver

- Equipped with 500 Hz/2.7 kHz roofing filter as standard • ALC derived from TS-990S eliminating spike issues • Antenna output function (shared with DRV connector) • CW - morse code decoder function • Improved 1st mixer • New PFB key with multi-function knob • New split function enabling quick setting • LED backlight with selectable color tone



### TM-V71A | 2M/440 DualBand

- High RF output (50W) • Multiple Scan • Dual receive on same band (VxV, UxU) • Echolink® memory (auto dialer) • Echolink® Sysop mode for node terminal ops • Invertible front panel • Choice of green/amber for LCD panel • 104 code digital code squelch • "Five in One" programmable memory • 1000 multifunction memory

**Call Now For Your Low Price!**



### TH-D72A

2M/440 HT w/extended RX

- 5W TX, RX 118-524 MHz, VxU, VxV, UxU
- APRS w/built-in 1200/9600 TNC • Built-in GPS, Built-in USB, digipeater • Echolink® compatible, • Mil-Spec STD810

**Call For Special Low Price!**



### TS-2000/2000X | HF/VHF/UHF Transceiver

- 100W HF, 6M, 2M • 50W 70CM • TS-2000X 10W 1.2GHz
- Built-in TNC, DX packet cluster • IF Stage DSP • Backlit front key panel

**Call For Special Price!**



### TM-281A | 2 Mtr Mobile

- 65 Watt • 200 Memories • CTCSS/DCS • Mil-Std specs • Hi-quality audio

**Call For Special Low Price!**



### TH-D74A

2M/220/440 HT w/D-STAR!

- D-STAR compatible • APRS ready w/built in GPS • Color weather station information • Built-in KISS mode TNC • High-performance DSP voice processing • Standard compatibility for Bluetooth

**Call For Low Price!**



### TH-K20A | 2M Handheld

- 2M 5.5W • VOX • CTCSS/DCS/1750 Burst built-in • Weather alert

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**NOBODY BEATS AN HRO DEAL!**



## ACOM-1000

- HF and 6 Meter 1KW Amplifier • Match 3:1 SWR with No Tuner • User Friendly QSK Operation • LCD Message Display
- Single 4CX800a Tube • Vacuum Antenna Relays

**Call For Additional ACOM Products!**



## 218XATC-PL-(length) RG8x (240UF) w/PL259 Connectors Each End. Weather-Proof Heat Shrink Tubing.

- Stranded Center Conductor.
- 95% TC Braid + bonded 100% Foil Shield.
- Very Flexible, Light Weight, and Smaller than RG8 sizes.
- Non-Contaminating-UV Resistant-Direct Burial-Black Jacket.



## 233/2-G4-(length).

- Unique design (Nickel Grommets 4" Spacing) allows for easy attachment to a vehicle's body or truck bed to create a "ground-plane".
- Good option as a "buss-bar" in the shack.
- 1/2" wide tinned copper 38x48x8/384 10ga 53 Amps.
- Stocked in 1.5', 3', 5', and 10' foot lengths.



## The SDRplay RSP FAMILY

### THE WORLD'S FAVORITE SDR RECEIVERS

- Continuous SDR coverage from 1kHz to 2GHz (NO GAPS!)
- Now includes the new RSPduo 14-bit Dual-Tuner SDR
- RSPduo can simultaneously receive on 2 totally independent 2MHz spectrum windows, anywhere between 1kHz & 2GHz
- All RSPs can receive, monitor and record up to 10MHz spectrum at a time
- Visualise all the signals in multiple bands simultaneously
- S/W pre-sets for all the bands from the new LF2200m to 23cm
- Excellent dynamic range for challenging reception conditions
- Built-in High performance Front-end Filters
- Use as a stand-alone general coverage receiver, or as a high resolution Panadapter
- SDRuno Windows SDR software provided free-of-charge
- Also works with other platforms and popular SDR Software
- The perfect gift for newcomers & returners to the radio hobby
- Calibrated S meter/RF power & SNR measurement with SDRuno
- Only needs a computer and an antenna
- Backed by the biggest and best SDR support community



## TX-455

- 55' freestanding crank-up • Handles 18 sq. ft. @ 50 mph
- No guying required • Extra-strength construction
- Can add raising and motor drive accessory • Towers rated to EIA specifications • Other models available at great prices!



## MA-40

- 40' Tubular Tower

**Call For Latest Pricing!**

## MA-550

- 55' Tubular Tower • Handles 10 sq. ft. at 50 mph • Pleases neighbors with tubular streamlined look

**Call For Latest Pricing!**

All US Towers shipped by truck; freight charges additional.

**BUY FROM HRO. The World's Largest US Tower Dealer**

## REMOTE RIG



### RRC-1258 MkII-S-Set

This set of interfaces allows remote control of your Amateur Radio Station via Internet in a user-friendly and cost effective way! RemoteRig gives you control of the radio coupled with crystal clear TX & RX audio and sending CW with your own Paddle!

**New!** Now Stereo Version for Dual Receiver radios.

Works with all Computer-controllable radios from: **Alinco - Elecraft - ICOM - Kenwood - Yaesu**

**For radios with detachable front panels no PC is required for:** TS-480HX/SAT; TS-2000 (RC-2000 req'd); IC-703/Plus; IC-706 series; DX-SR8T; IC-2820H; IC-R2500

Just simply insert your control box in place of your front panel interconnect cable, place the body of the radio on the remote end and you are on the air as if you are there! Extra Controller and Remote interface units sold individually for multiple sites/users.

Now includes 12V power supply, \$12.95 value!

**Available exclusively from all HRO locations!**

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