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MFJ-259D Analyzer, \$349⁹⁵

World's best selling antenna analyzer covers 280 KHz to 230 MHz, LCD, SWR and impedance or SWR bargraph, analog meters, signal generator, freq counter.



MFJ-269D Analyzer, \$449⁹⁵

Upgraded MFJ-269D has all features of MFJ-259D plus 415-470 MHz, 12-bit A/D converter, characteristic impedance 0-600 Ohms, coax calculator, parallel equivalent R/X.



MFJ-225 VNA Analyzer, \$429⁹⁵

1.8-170 MHz. Plots SWR, Impedance, Resistance, Reactance, Phase Angle, Complex Return Loss, Smith Chart. Open-Short-Load calibration. Memories download to PC via USB.



MFJ-949E Tuner \$249⁹⁵

More hams use MFJ-949E tuners than all others in the world! Large 3" cross-needle SWR/Wattmeter, 8 position antenna switch, dummy load. Match any antenna 1.8-30 MHz.



MFJ-969 Tuner \$299⁹⁵

World's only 6-160 Meters 300 Watt *AirCore*™ Roller Inductor antenna tuner gives you absolute minimum SWR. 3" cross-needle meter, true peak reading meter, dummy load, 8 pos. antenna switch.



MFJ-962D Tuner \$399⁹⁵

Compact roller inductor antenna tuner handles popular Ameritron AL-811H/811 amps. *AirCore*™ inductor, 3" Cross-Needle meter, 6-position antenna switch, 800W SSB PEP output.



MFJ-989D Tuner \$499⁹⁵

Legal-limit antenna tuner has *Air-Core*™ inductor, 500pF air variable capacitors, fast-tune crank, high voltage balun, 3" meter, dummy load, ant. switch.



MFJ-929 AutoTuner \$299⁹⁵

Compact 200 Watt *IntelliTuner*™ tunes any unbalanced antenna ultra-fast! 20,000 Virtual Memories, Antenna Switch, Efficient L-network, Matches 6-1600 Ohms from 1.8-30 MHz.



MFJ-993B AutoTuner \$349⁹⁵

Select 300 Watts (6-1600 Ohms) or 150 Watts (6-3200 Ohms) with the world's only dual power automatic tuner. 1.8-30 MHz, 4:1 current balun, LED lighted cross meter, backlit LCD, more!



MFJ-998 AutoTuner \$769⁹⁵

Full 1500 Watts SSB/CW. Digital and analog SWR/Wattmeter, 12-1600 Ohms from 1.8-30 MHz, built-in antenna switch, auto amp bypass.



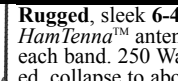
MFJ-1778 G5RV \$89⁹⁵

Efficient, all band G5RV antenna is only 102' long, has 32.5' ladder line matching section ending in an SO-239 for feedline. Operate 80-10 Meters with tuner. 1500 Watts.



MFJ-16XX HF Sticks \$47⁹⁵

Rugged, sleek 6-40M mobile *HamTenna*™ antennas, \$24.95 each band. 250 Watts, 7' extended, collapse to about 4 feet for storage. Quickly screws into any 3/8-24 female mount for quick band changing. 60-75M, \$39.95.



MFJ-1836H Cobweb \$319⁹⁵

Antenna for restricted spaces: 6-bands: 20/17/15/12/10/6 Meters. Flat 9x9x1/2 sq. ft. mounts horizontally on mast. Nearly invisible wire elements, fiberglass spreaders blend in sky. Withstands bad weather.



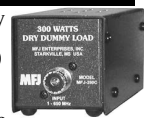
MFJ-1786 H-Q Loop \$649⁹⁵

10-30 MHz Super Hi-Q loop, remote control. 36" dia. all welded construction, butterfly tuning capacitor. ABS plastic housing. MFJ-1788, \$719.95. 7-22 MHz.



MFJ-260C Dry Load \$59⁹⁵

300W VHF/HF Dry Dummy Load handles full load for 30 seconds. Derating curve to 5 minutes. SWR below 1.1:1 to 30 MHz. 1.5:1 from 30-650 MHz. MFJ-264, \$109.95. 1.5kW load.



MFJ-1702C Ant Switch \$79⁹⁵

2-position antenna switch has center ground, auto grounding of unused position, 2.5 kW PEP and works to over 500 MHz. Lightning surge protection. SO-239 Connectors. MFJ-1704, \$129.95. 4 positions.



MFJ-915 RFI Isolator \$59⁹⁵

Prevents unwanted RF from traveling on your coax shield into your expensive transceiver. Prevents stray RF that cause painful RF "bites" and erratic operation. Heavy duty weather protected PVC is 2Wx5H inches. 1.5 kW. 1.8-30 MHz.



MFJ-918 4:1 Balun \$59⁹⁵

High-permeability ferrite beads on high-quality RG-303 *Teflon*™ coax. True 1:1 current balun/center insulator. 2" diameter by 6" long. 14 gauge stranded copper wire. Handles 1.5 kW 1.8-30 MHz.



MFJ-270 Surge Protect \$34⁹⁵

Safeguard your expensive equipment. Shunts to 5000 Amps of peak impulse current harmlessly to ground. SWR less than 1.1:1, less than 0.1 dB loss. Use to 1000 MHz, 400W PEP.



MFJ-392B Headphones \$49⁹⁵

Perfect for Ham Radio and shortwave listening -- SSB, FM, AM, data and CW. Super lightweight (8 oz.) padded headband and ear cushioned design. Each earphone has own volume control. 3.5mm/1/4" plugs, 9' cord.



MFJ-4230MV 30A PS \$154⁹⁵

World's most compact 30A switching power supply. V/A meter. 4-16 Volts, adjustable. 5Wx2 1/2 H x6D inches, 3 pounds! Selectable input voltage 120/240 VAC.



MFJ-4035MV 30A PS \$189⁹⁵

19.2 lb. transformer delivers 35A maximum, 30A continuous. 1-14 VDC out, 110 VAC in. Highly regulated, 1% load regulation. 1 mV Ripple. 5-way binding posts, quick connects.



MFJ-4245MV 45A PS \$199⁹⁵

Switching power supply. 45A surge/40A continuous. 9-15 VDC out. 85-260 VAC in. Low ripple, highly regulated. 5-way posts, cig lighter, quick connects. 5 lbs, 7 1/2 Wx4 1/2 Hx9D".



MFJ-4275MV 75A PS \$349⁹⁵

Switching power supply. 75A max/70A cont. Great for ALS-500M solid state amp. Adjustable 4-16 VDC. Input 110/220 VAC. Battery charger. 10.5 lbs.



Antenna Window Feedthrough Panels

Bring your antenna cables into your ham shack without drilling holes through walls! Place in window sill, closed window. Real western cedar 3/4" thick wood naturally resistant to rot, decay and insects, weather edge foam tape included.

Teflon™ SO-239s for HF/VHF/UHF antennas, ceramic feed-thrus for balanced line/random wire, ground post. Stainless steel in/out plates.



MFJ-4602, \$99⁹⁵

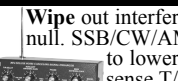
MFJ-868B Giant Meter \$199⁹⁵

Largest HF+6M SWR/Wattmeter in the world has 6.5" diagonal scale. 20/200/2000W ranges.



MFJ-1026 Noise Cancel \$269⁹⁵

Wipe out interference! 60 dB null. SSB/CW/AM/FM. BCB to lower VHF. RF sense T/R switch.



MFJ-4416C BattBoost \$229⁹⁵

Keep mobile rig operational. Boosts low battery voltage. Up to 25 Amps. 7 1/2 Wx4Hx2 1/8".



MFJ-148BRC Clock \$79⁹⁵

Two atomic 24/12 hour clocks -- single time base. UTC time, 10-minute ID timer. 1.5 inch LCD.



MFJ-281 Speaker \$24⁹⁵

Get speech fidelity you never knew existed! 3" speaker, 8W, 8 Ohms impedance, 6' cord, 3.5 mm mono.



MFJ-461 CodeReader \$129⁹⁵

Decodes and displays Morse code on two-line high-contrast LCD. Just hold close to receiver.



MFJ-557 CodeOsc/Key \$74⁹⁵

Practice sending Morse code. Telegraph key, code oscillator, speaker on heavy non-skid steel base. Volume/tone. Use 9V battery.



MFJ-564 IambicPaddles \$134⁹⁵

Deluxe Iambic paddles. Tension/contact spacing adjustments, steel bearings, precision frame, non-skid feet. Chrome or Black.



MFJ-108B 24/12 Clock \$34⁹⁵

Read both UTC and local time simultaneously. BIG 5/8 inch digits! Solid brushed aluminum frame. 4 1/4 Wx2Hx1D".



MFJ-1724B Mobile \$44⁹⁵

World's Best Selling 2Meter 440 MHz magnet mount antenna has 3.5" magnet, 19" stainless steel whip, handles 300 Watts, 15 feet coax.



MFJ-1728B Mobile \$44⁹⁵

5/8 wave 2M mobile antenna gives maximum possible gain of any single element antenna. 1/4 Wave 6M. 300W, magnet mount, 12' coax, 53" whip.



MFJ-1729 Mobile \$59⁹⁵

Ham radio's most powerful magnet mount dual band 2M/440 mobile. Get whopping GAIN. 300 Watts, 27.5" stainless steel whip, 12' coax.



www.mfjenterprises.com

hy-gain. Antennas and Rotators

HF Verticals

Work amazing DX with these extremely low radiation angle omnidirectional antennas. All self supporting, 1500 Watts PEP SSB, low SWR. Heavy duty, slotted, tapered, swaged, aircraft quality aluminum tubing. Stainless steel hardware. Two year limited warranty.

AV-680, \$739.95. 9 Bands: (6, 10, 12, 15, 17, 20, 30, 40, 80 Meters). 26 ft., 18.5 lbs. Our most popular vertical now has 75/80 Meters! Lets you work exciting DX with a low 17 degree radiation angle! Easily mount on decks, roofs, patios. No ground or radials needed. Extra wide 2:1 SWR bandwidths. Each band tunable. Auto band-switching, handle 1.5kW, 80 MPH wind survival, low 2.5 sq. ft. wind surface. Aircraft aluminum tubing, stainless steel hardware.

AV-640, \$659.95. Like AV-680 less 80M. 25'1/2', 17'1/2 lbs.

AV-620, \$599.95. Like AV-640 less 40M. 22'1/2'/10'1/2 lbs.

AV-14AVQ, \$299.95. (10, 15, 20, 40 Meters). 18 ft., 9 lbs. Classic AV-14AVQ uses same trap design as famous Hy-Gain Thunderbird beams. 3 air dielectric Hi-Q traps with oversize coils give superb stability and 1/4 wave resonance on all bands. Automatic bandswitching.

AV-12AVQ, \$219.95. (10, 15, 20 Meters). 13 ft., 9 lbs. Lowest priced automatic bandswitching tri-band vertical! Uses Thunderbird beam design air dielectric traps for extremely hi-Q performance in limited space.

AV-18VS, \$199.95. (10,12,15,17,20,30,40,80M). 18 ft., 4 lbs. hy-gain's lowest priced vertical gives you 8 bands. Easily tuned to any band by adjusting base loading coil.

See our website for even more hy-gain vertical antennas!

HF Beams

Hy-gain beams are *stronger, light-er, have less wind surface and last years longer.* Why? Hy-gain uses durable *tooled* components -- massive boom-to-mast bracket, heavy gauge element-to-boom clamps, thick-wall swaged tubing -- no failures!

TH-11DX, \$1799.95.

11-element, 4.0 kW PEP, 10,12,15,17,20

Meters. The choice of top DXers. With

11-elements, excellent gain and 5-bands, the super rugged TH-11DX is the "Big Daddy" of all HF beams! Features low loss log-periodic driven array on all bands with mono-band reflectors, BN-4000 high power balun, corrosion resistant wire boom support, hot dipped galvanized and stainless steel parts.

TH-7DX, \$1599.95. 7-Element, 1.5 kW PEP, 10, 15, 20 Meters.

7-Elements gives you the highest average gain of any Hy-gain tri-bander! Dual driven for broadband operation without compromising gain. SWR less than 2:1 on all bands. Combined monoband and trapped parasitic elements give you an excellent F/B ratio.

TH-3MK4, \$769.95. 3-Element, 1.5 kW PEP, 10, 15, 20 Meters.

Gives most gain for your money in full-power, full-size hy-gain tri-bander! Impressive gain and a whopping average front-to-back ratio and still fits on an average size lot. 95 MPH wind survival.

TH-3JRS, \$529.95. Compact 3-Element, 600 W PEP, 10, 15, 20 Meters. Hy-gain's most popular and lowest-priced tri-bander fits smallest lot, 14.75 ft turning radius, 21 lbs. Excellent gain and front-to-back let you compete with the "big guns"! 80 MPH wind survival.

hy-gain Rotators . . . the first choice of hams around the world!

HAM-IV . . . \$799.95

The most popular rotator in the world! For medium communications arrays up to 15 sq. feet wind load area. 5-second brake delay! Test/Calibrate function. Low temperature grease permits normal operation down to -30° F. Alloy ring gear gives extra strength up to 100,000 PSI for maximum reliability. Indicator potentiometer. Ferrite beads reduce RF susceptibility. Cinch plug plus 8-pin plug at control box. Dual 98 ball bearing race for load bearing strength and electric locking steel wedge brake prevents wind induced antenna movement. North or South center of rotation scale on meter, low voltage control, max mast size of 2'1/4".

HAM-VI, \$1099.95. For medium arrays up to 15 sq. ft. wind load.

Like HAM-IV but has new DCU-2 Digital Rotator Controller. Just dial in your beam heading or let your computer control your antenna.

HAM-VII, \$1299.95. Like HAM VI but with DCU-3 digital controller with six programmable memories.

Tailtwister T-2X . . . \$999.95

For large medium antenna arrays up to 20 sq. ft. wind load. Choose DCU-2 digital controller (T-2XD2) or analog control box (T-2X) with new 5-second brake delay and new Test/Calibrate function. Low temperature grease, alloy ring gear, indicator potentiometer, ferrite beads on potentiometer wires, new weather-proof AMP connectors plus 8-pin plug at control box, triple bearing race with 138 ball bearings for large load bearing strength, electric locking steel wedge brake, N or S center of rotation scale on meter, low voltage control, 2'1/16" max. mast.

T-2XD2, \$1129.95. Tailtwister with DCU-2 digital controller.

T-2XD3, \$1199.95. Tailtwister with DCU-3 digital controller with six programmable memories.

AR-40, \$499.95. For compact antenna arrays and FM/TV up to 3.0 sq. ft. wind load. Dual 12 ball-bearing race. Fully automatic.

CD-45II, \$599.95. For antenna arrays up to 8.5 sq. ft. Bell rotator design gives total weather protection. Dual 58 ball bearing race.

Digital Rotator Controller with 6 Programmable Beam Headings



**DCU-3
\$599.95**

New DCU-3 Digital Controller lets you program 6 beam headings! Gives you fully automatic or manual control of your hy-gain HAM or Tailtwister Rotators.

Push a memory button or dial in your beam heading or let Ham Radio Deluxe (or other program) control your DCU-3. Your antenna automatically rotates precisely and safely to your desired direction.

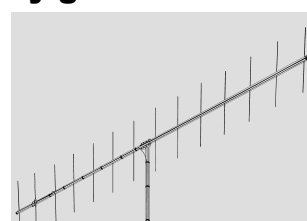
Replace Your Yaesu Rotator Controller

**YRC-1
\$429.95**



Replace your Yaesu rotator controller. More features and a much more robust controller that is far less prone to lightning damage. YRC-1 costs less than repairing your original controller!

hy-gain VHF/UHF Antennas



VB-214FM, \$219.95. 14-element 2-Meter FM beam antenna provides exceptional front-to-back ratio and maximum obtainable gains.

VB-23FM, \$99.95. 3-element.

VB-25FM, \$119.95. 5-element.

VB-28FM, \$179.95. 8-element. Threaded stub for feed-points. Accepts up to 2 inch mast.

DB-2345, \$159.95.

Dual band 144 (3-elements) 440 (5-elements) MHz.

hy-gain.

Antennas, Rotators & Towers 308 Industrial Park Rd, Starkville, MS 39759 USA

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Pull Out the Muscle!



Hear the roar and feel the **POWER!** Get that **POWER** you need to really bust through the pileups, win a few contests, work the world!!! Ameritron amplifiers will go a long way towards making those dreams a reality. We got an amplifier for every budget!

AMERITRON . . . 800 Watts . . . \$1499!

More hams use Ameritron AL-811/H amplifiers than any other amplifier in the world!



AL-811H
\$1499
Suggested Retail

4-Tubes, 800 Watts

AL-811
\$1399
Suggested Retail

3-Tubes, 600 Watts

Only the Ameritron AL-811H gives you four fully neutralized 811A transmitting tubes. You get absolute stability and superb performance on higher bands

that can't be matched by un-neutralized tubes.

You get a quiet desktop linear that's so compact it'll slide right into your operating position -- you'll hardly know it's there until QRM sets in. And you can conveniently plug it into your nearest 120 VAC outlet -- no special wiring needed.

You get all HF band coverage (with license) -- including WARC and most MARS bands at 100% rated output. Ameritron's Adapt-A-Volt™ hi-silicon core

power transformer has a special buck-boost winding that lets you compensate for high/low power line voltages.

You also get efficient full size heavy duty tank coils, slug tuned input coils, operate/standby switch, transmit LED, ALC, dual illuminated meters, QSK with optional QSK-5, pressurized cooling that you can hardly hear, full height computer grade filter capacitors and more. 13 3/4" W x 8" H x 16" D inches.

AL-811, \$1399.

Like AL-811H, but has three 811A tubes, 600 Watts output.

AMERITRON no tune Solid State Amplifiers

ALS-500M 500 Watt Mobile Amp



ALS-500M 500 W
PEP/ 400 W
CW out
\$1199
Suggested Retail

put, 1.5-22 MHz, instant bandswitching, no tuning, no warm-up. SWR, load fault, thermal overload protected. On/Off/Bypass switch. Remote on/off control. DC current meter. Extremely quiet fan. 13.8 VDC. 9Wx3 1/2" Hx15D in., 7 lbs. **ALS-500RC, \$84, Remote Head.**

Desktop Kilowatt Amplifier



AL-80B
\$2399
Suggested Retail
Whisper quiet desktop amp plugs into 120 VAC to give full kilowatt SSB PEP output. Ameritron's exclusive DynamicALC™ doubles average SSB power out and gives cooler operation. All HF bands. 850 Watts CW out, 500 Watts RTTY out, extra heavy duty power supply, 3-500G tube, 70% efficiency, tuned input, Pi/Pi-L output, inrush current protection, dual Cross-Needle meters, QSK compatible, 48 lbs. 14Wx8 1/2" Hx15 1/2" D". **2-year Ameritron warranty.**

Near Legal Limit™ Amplifier



AL-572
\$2399
Suggested Retail
Near Legal Limit™ amp gives you 1300W PEP SSB power output for 60% of the price of a full legal limit amp! Four rugged 572B tubes. Instant 3-second warm-up, 120 VAC. Desktop 14 1/2" W x 8 1/2" H x 15 1/2" D". 160-15M. 1000 Watt CW output. Tuned input, instantaneous RF Bias, dynamic ALC, parasitic killer, inrush protection, cross-needle meters, multi-voltage transformer.

ALS-606S 600 Watt 160-6M Amp

ALS-606S 600 Watts
PEP/ 500W
\$2399
Suggested Retail

CW output, 160-6M with automatic instant bandswitching. Desktop. 9 1/4" W x 7 1/4" H x 14 1/2" D". 14.2 lbs. Only 4 dB below 1500W -- less than an S-unit! **ALS-606, \$2599**, like ALS-606S above, but has transformer power supply.

ALS-1306 1200W 1.5-54 MHz Amp



ALS-1306
\$3999
Suggested Retail
Ameritron's highest power solid state FET amplifier gives you automatic bandswitching! Get 1200W PEP output on all bands, including 6-Meters. No tuning, no warm-up, no tubes to baby and no fuss! Eight rugged MRF-150 power FET's give outstanding reliability. Just 100 Watts drive gives full rated power MHz. Compact 10Wx6 1/2" Hx18D in., just 22 lbs. **ALS-1300, \$3499.** Like ALS-1306 but less automatic bandswitching and 6-M coverage.

HF Amps with 3CX800A7 tube



AL-800
\$4199
Suggested Retail
Desktop 3CX-800A7 tubes cover 160-15M, WARC bands. Adjustable slug tuned input, grid protection, ALC control, vernier reduction drives, hefty 32 lb. transformer, high capacitance computer grade filter capacitors. Multi-voltage, dual cross-needle meters. 14 1/4" W x 8 1/2" H x 16 1/2" D".

AL-800H
\$5399
Suggested Retail
2 tubes, 1.5 kW Plus Eimac® tubes

AMERITRON full legal limit amplifiers

AMERITRON legal limit amps use a super heavy duty power transformers capable of 2.5 kW!

Most powerful -- 3CX1500/8877



AL-1500F
\$5999
3CX1500/8877 Tube

Ameritron's most powerful amplifier uses the herculean 3CX1500/8877 ceramic tube. 65 watts gives full legal output -- loafing with a 2500W power supply.

Toughest -- 3CX1200Z7



AL-1200
\$5999
Suggested Retail

Ham radio's toughest tube -- the Eimac® 3CX1200Z7. 50-Watt control grid dissipation. Super heavy duty power supply loads at legal power -- delivers more than 2500 Watts PEP two tone output for a 1/2 hour.

Classic -- Dual 3-500Gs



AL-82
\$3999
Suggested Retail

Gives full legal output using a pair of genuine 3-500Gs. Competing linears using 3-500Gs can't give you 1500 Watts because their lightweight power supplies can't use these tubes to their full potential.

Ameritron brings you the finest high power accessories!

ARB-704 amp-to-rig interface . . . \$89⁹⁵

Protects rig from keying line transients. Easy rig hookup.

RCS-4 Remote Coax Switch . . . \$29⁹⁵

Use 1 coax for 4 antennas. No control cable needed. SWR <1.25, 1.5-60 MHz. Useable to 100 MHz.

RCS-8V Remote Coax Switch . . . \$29⁹⁵

Replace 8 coax with 1! 1.2 SWR, 250 MHz. Useable to 450 MHz. <1 dB loss, 1kW@150MHz.

RCS-10 Remote Coax Switch . . . \$29⁹⁵

Replace 8 coax with 1! SWR<1.3 to 60 MHz. RCS-10L, \$309.95 with lightning arrestors.

AMERITRON®

. . . the world's high power leader!

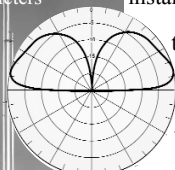
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For power amplifier components call (662) 323-8211
<http://www.ameritron.com>

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New! Cushcraft R9 . . . 80-6 Meters

R-9
\$799⁹⁵
80-6 Meters

R-8
\$699⁹⁵
40-6 Meters



Omnidirectional
low angle radiation
gives incredible
worldwide DX.

80 Meters... No Radials... 1500W

Cushcraft's world famous R8 now has a big brother!

Big Brother R9 now includes 75/80 Meters for local ragchewing and worldwide low band DX *without radials*!

It's omni-directional low angle radiation gives you exciting and easy DX on all 9 bands: 75/80, 40, 30, 20, 17, 15, 12, 10 and 6 Meters with low SWR. QSY instantly -- no antenna tuner needed.

Use full 1500 Watts SSB/CW when the going gets tough to break through pileups/poor band conditions.

The R9 is super easy to assemble, installs just about anywhere, and its low profile blends inconspicuously into the background in urban and country settings alike.

Compact Footprint: Installs in an area about the size of a child's sandbox -- no ground radials to bury with all RF-energized surfaces safely out of reach.

Rugged Construction: Thick fiberglass insulators, all-stainless steel hardware and 6063 aircraft-aluminum tubing is double or triple walled at key stress points to handle anything Mother Nature can dish out.

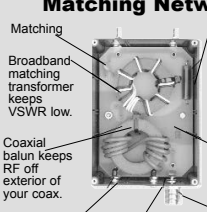
31.5 feet tall, 25 lbs. Mounting mast 1.25 to 2 inches. Wind surface area is 4 square feet.

R8, \$699.95. Like R9 antenna but less 75/80 Meters.

R-8TB, \$119.95. Tilt-base lets you tilt your antenna up/down easily by yourself to work on.

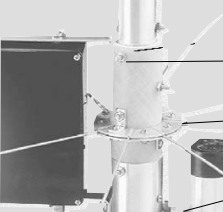
R-8GK, \$99.95. Three-point guy kit for high winds.

Matching Network



- Matching
- Broadband matching transformer keeps VSWR low.
- Coaxial balun keeps RF off exterior of your coax.
- All Stainless Steel Hardware
- Moisture Release vent
- RF Choke DC grounds radiator to prevent static electricity from entering your shack.
- High strength, high power, low dielectric PC board material
- SO-239 Feedpoint

Super Rugged Design



- Stainless steel machine screws guarantee base integrity.
- Dual plate mount makes it easy to install counterpoises.
- Heavy duty stainless steel/aluminum interface plate mount keeps your antenna up for years to come.

MA-5B 5-Band Beam Small Footprint -- Big Signal

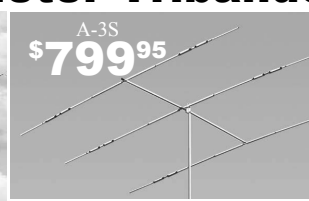
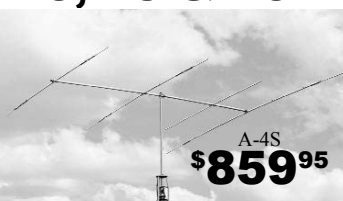


The MA-5B is one of Cushcraft's most popular HF antennas, delivering solid *signal-boosting directivity* in a bantam-weight package. Mounts on roof using standard TV hardware. Perfect for exploring exciting DX without the high cost and heavy lifting of installing a large tower and full-sized array. Its 7 foot 3-inch boom has less than 9 feet of turning radius. Contest tough -- handles 1500 Watts.

The unique MA-5B gives you 5-bands, automatic band switching and easy installation in a compact 26-pound package. On 10, 15 and 20 Meters the end elements become a two-element Yagi that delivers solid power-multiplying gain over a dipole on all three bands. On 12 and 17 Meters, the middle element is a highly efficient trap dipole. When working DX, what really matters are the interfering signals and noise you *don't hear*. That's where the MA-5B's impressive side rejection and front-to-back ratio really shines. See cushcraftamateur.com for gain figures.

Cushcraft 10, 15 & 20 Meter Tribander Beams

Only the best tri-band antennas become DX classics, which is why the Cushcraft World-Ranger A4S, A3S, and A3WS go to the head of the class. For more than 30 years, these pace-setting performers have taken on the world's most demanding operating conditions and proven themselves every time. The key to success comes from attention to basics. For example, element length and spacing has been carefully refined over time, and high-power traps are still hand-made and individually tuned using laboratory-grade instruments. All this



It goes without saying that the World-Ranger lineup is also famous for its rugged construction. In fact, the majority of these antennas sold years ago are still in service today! Conservative mechanical design, rugged over-sized components, stainless-steel hardware, and aircraft-grade 6063 make all the difference.

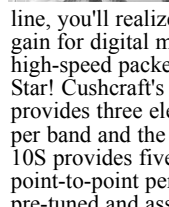
The 3-element A3S/A3WS and 4-element A4S are world-famous for powerhouse gain and super performance. A-3WS, \$649.95, 12/17 M. 30/40 Meter add-on kits available.

Cushcraft Dual Band Yagis

One Yagi for Dual-Band FM Radios

Dual-band VHF rigs are the norm these days, so why not compliment your FM base station with a dual-band Yagi? Not only will you eliminate a costly feed

line, you'll realize extra gain for digital modes like high-speed packet and D-Star! Cushcraft's A270-6S provides three elements per band and the A270-10S provides five for solid point-to-point performance. They're both pre-tuned and assembly is a snap using the fully illustrated manual.



Cushcraft Famous Ringos Compact FM Verticals

W1BX's famous *Ringo* antenna has been around for a long time and remains unbeaten for solid reliability. The Ringo is broad-banded, lightning protected, extremely rugged, economical, electrically bullet-proof, low-angle, and more -- but mainly, it just plain works! To discover why hams and commercial two-way installers around the world still love this antenna, order yours now!

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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

- Stable 100 Watt Output • 32-Bit IF DSP • 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 Output Power • Real Dual Band Operation • 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

- 80 watts of RF power • 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 • 208 Memory Channels • Internal Battery Operation Capability • Two Antenna Connectors • Built-in High Stability Oscillator ± 0.5 ppm



FTM-200DR | C4FM/FM 144/430MHz Dual Band

- 1200/9600bps APRS® Data Communications • 2" High-Res Full-Color TFT Display • High-Speed Band Scope • Advanced C4FM Digital Mode • Voice Recording Function for TX/RX



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-5DR C4FM/FM 144/430 MHz Dual Band

- 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 • Supports Simultaneous C4FM Digital • 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



FTM-6000R | 50W VHF/UHF Mobile Transceiver

- All New User Operating Interface-E20-III (Easy to Operate-III) • Robust Speaker Delivers 3W of Clear, Crisp Receive Audio • Detachable Front Panel Can Be Mounted in Multiple Positions • Supports Optional Bluetooth® Wireless Operation Using the SSM-BT10 or a Commercially Available Bluetooth® Headset

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IC-V3500 | 144MHz FM Mobile

• 65W of Power for Long Range Communications • 4.5 Watts Loud & Clear Audio • Modern White Display & Simple Operation • Weather Channel Receive & Alert Function



IC-7851 | HF/50MHz Transceiver

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

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IC-V86 | VHF 7W HT

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IC-7610 | HF/50 MHz All Mode Transceiver

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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



IC-T10 | Rugged 144/430 MHz Dual Band

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IC-R8600 | Wideband SDR Receiver

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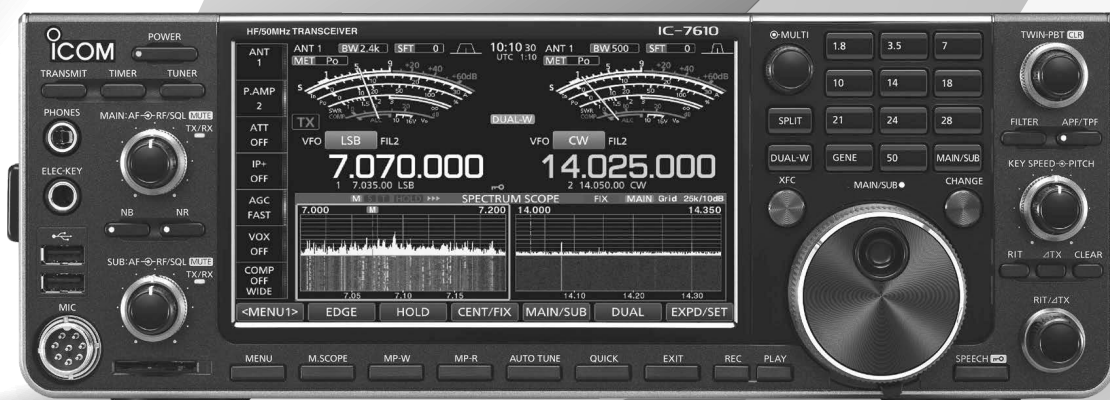
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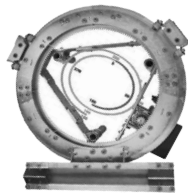
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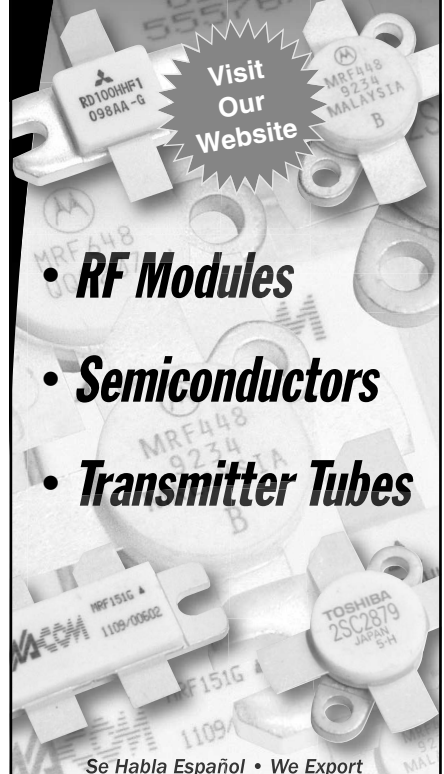
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1	144.00000	144.00000		Simplex	FM		None	88.5 Hz	88.5 Hz	023	Both N	Skip	5 kHz		
2	145.70000	145.10000	600 kHz	-DUP	FM	Windhoel	None	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz		
3	145.71250	145.11250	600 kHz	-DUP	FM	Windhoel	None	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz		
4	146.01000	146.01000		Simplex	FM		None	88.5 Hz	88.5 Hz	023	Both N	Off	5 kHz		
5	148.00000	147.40000	600 kHz	-DUP	FM		None	88.5 Hz	88.5 Hz	023	Both N	Skip	5 kHz		
6															
7	440.00000	440.00000		Simplex	FM		None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
8	438.10000	438.10000		Simplex	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
9	444.85000	443.85000	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
10	445.86000	440.86000	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
11	444.35000	443.35000	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
12	442.68750	447.68750	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
13	443.60000	448.60000	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
14	442.00000	447.00000	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
15	443.92500	448.92500	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
16	442.70000	447.70000	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
17															
18	443.22500	448.22500	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
19	442.95000	447.95000	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
20	448.62500	443.62500	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
21	448.32500	443.32500	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
22	442.00000	447.00000	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
23	442.00000	447.00000	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
24	446.15000	441.15000	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		
25	443.81250	448.81250	5.00 MHz	-DUP	FM	Orangevil	None	88.5 Hz	88.5 Hz	023	Both N	Off	25 kHz		

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How do you make a great product even better? You listen to your customers. The heart of an MLA is the tuner. We made so many improvements to it that we now call it the HG3 QRO-A. The HG3 Plus Controller also received new firmware and an improved SWR function. *Some limitations may apply or are optional.

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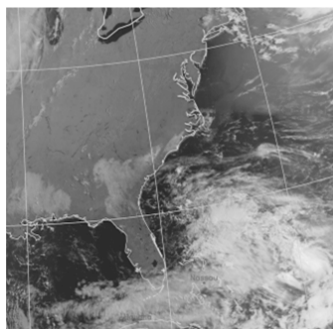
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*1 3DSS: 3-Dimensional Spectrum Stream

*2 ABI: Active Band Indicator

*3 MPVD: Multi-Purpose VFO Outer Dial

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Model	Bands	Length Ft.	Max Pwr. Rating	Conn.
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X700HNA (4 section)	2m/70cm	24	200	N
X510HD (3 Section)	2m/70cm	17.2	330/250	UHF or N
X300A (2 Section)	2m/70cm	10	200	UHF or N
X200A (2 Section)	2m/70cm	8.3	200	UHF
X50A (1 Section)	2m/70cm	5.6	200	UHF or N
X30A (1 Section)	2m/70cm	4.5	150	UHF
Monoband Base Station/Repeater Antennas				
F23H (3 Section)	144-174 MHz (W/ Cut Chart)	15	350	UHF
F22A (2 Section)	2m	10.5	200	UHF
CP22E (Aluminum)	2m	8.9	200	UHF
F718A (Coax Element)	70cm	15	250	N
Dualband Mobile Antennas				
SG7900A	2m/70cm	62.2 in.	150	UHF or NMO
SG7500A	2m/70cm	40.6 in.	150	UHF or NMO
NR770H Series	2m/70cm	38.2 in.	200	UHF or NMO
MR77 Series	2m/70cm	20 in.	70	Mag Combo
AZ504FXH	2m/70cm	15.5 in.	50	UHF
AZ504SP	2m/70cm	15.5 in.	50	UHF
NR7900A	2m/70cm	57 in.	300/250	UHF
Monoband Mobile Antennas				
NR22L	2m	96.8 in.	100	UHF
M285	2m	52.4 in.	200	UHF or NMO



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Editor's Note: Except for commonly used phrases and abbreviations, topics are indexed by their noun names. Many topics are also cross-indexed.

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