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Amateur Radio Products
FALL CATALOG 2009

DX Engineering
Now Carries:
• ICOM
• Cushcraft
Call for Details!
DX Engineering Verticals—High Performance and Low Cost!

Introducing a new series of high-performance HF vertical antennas with DX Engineering THUNDERBOLT™ antenna technology! Models include monoband and multi-band verticals utilizing both fast taper 5-foot tubing sections for lowest wind resistance and slow taper 6-foot sections for greatest bandwidth.

Designed with corrosion-resistant 6063 aluminum tubing and stainless steel hardware, these antennas are both durable and attractive. The fast taper models can be shipped affordably via postal service.

The DX Engineering Multi-Band HF antennas are high-performance vertical antenna systems designed with engineering excellence and performance in mind. Three models are available to operate over the entire 160 through 10 meter range, or 80 through 10 meters with an optional DX Engineering UNUN and your wide range antenna tuner.

Various monoband models are available to operate over an entire band with an SWR of less than 1.5:1. They can be made multi-band-capable with optional DX Engineering accessories. Our antennas offer full-size quarter wave performance! All models feature the market’s strongest fiberglass insulator.

THUNDERBOLT™ Single Band High Performance Vertical Antennas

80/75 Meters
• 300 MHz bandwidth with SWR under 2:1—no outboard tuner needed
• Tunable for CW or SSB—change base coil tap for segment
• Maximum legal power handling
• Optimum 53 ft. overall height
• Self-supporting design withstands 50 MPH wind without guyng—easy raising and lowering with optional winch kit

DXE-80VA-1 Antenna In-Stock Price $799.00
DXE-WV-1 Manual Winch Kit $169.99
DXE-75THK CW Optimizer Cap $59.95

60 Meter Full Size
• Slow taper, 43 ft. vertical radiator
• 6063 T852 corrosion-resistant aircraft aluminum tubing and stainless steel hardware
• 12 ft. diameter capacity hat—resonant on 3.5-4.0 MHz
• Thick stainless steel tilt base
• Full 60 meter coverage with SWR of 1.5 or less
• No coils or linear loading elements
• Easily upgradeable to DXE-80VA-3 for 75/80 meter monoband operation
• Includes impedance matching network

DXE-60VA-1P $349.50
DXE-GUY400-KIT Guying Kit $54.95

THUNDERBOLT™ Multi-Band High Performance Vertical Antenna (Tuner Required)

160 to 10 Meters
• Slow taper, heavy duty tubing—optimal 43 ft. vertical radiator
• 6063 T852 corrosion-resistant aircraft aluminum tubing and stainless steel hardware
• Easy tuning design
• No coils or linear loading elements
• Thick stainless steel tilt base
• 5 kW continuous/10kW CW/SSB rating
• Includes special DXE-UN-43 UNUN for multi-band use with your wide range tuner
• Easily upgradeable to DXE-80VA-3 for 75/80 meter monoband operation

DXE-MBVE-1 $299.50
DXE-GUY400-KIT Guying Kit $54.95

2' to 1/2' Fast Taper, 80 to 10 Meters
• 33 ft. vertical radiator
• Thick stainless steel tilt base
• Easy tuning design—correct length and taper
• No coils or linear loading elements
• Requires DXE-UN-43 UNUN Balun for multi-band use with your wide range tuner

DXE-MBVE-2 $279.50

39 Foot Multi-Band Vertical/Remote Tuner Package

Includes DXE-MBVE-1 (above) plus:
• MFJ-927 Remote IntelliTuner™—200 Watts
• DX-FFC-500 H05-A Feedline Current Choke
• DXE-SSVC-2P Stainless Steel Mounting V-Clamp
• Custom laser cut stainless steel bracket for tuner and FCC
• Bias tee power injector for 12 Vdc
• RG-8X 2 ft. coaxial cable with PL-259 connectors
• 2 tinned copper braids, 1" wide for connection to your optional Radial Plate
• Feedline wire—14 gauge insulated stranded copper with ring terminal attached

DXE-MBVE-1-3ATP Antenna/Tuner Package $799.00
DXE-MB-ATU-1 Add-on Tuner Kit Only $399.00

THUNDERBOLT™ Dual Band High Performance Vertical Antennas

80/40 Meters
• Full band coverage on 40 and 300 kHz on 80 meters with SWR under 2:1—no outboard tuner needed
• Tunable above and below 7 MHz range for MARS and CAP frequencies
• Maximum legal power handling
• Optimum 53 ft. overall height
• Slow taper, 43 ft. vertical radiator
• 6063 T852 corrosion-resistant aircraft aluminum tubing and stainless steel hardware
• 12 ft. diameter capacity hat—resonant on 3.5-4.0 MHz
• Thick stainless steel tilt base
• Full 60 meter coverage with SWR of 1.5 or less
• No coils or linear loading elements
• Easily upgradeable to DXE-80VA-3 for 75/80 meter monoband operation
• Includes impedance matching network

DXE-80VA-3 $499.50
DXE-GUY400-KIT Guying Kit $54.95

40/30 Meters
• Full band coverage on 40 and 30 meters with SWR under 1.5:1—no tuner needed
• 40m bandwidth greater than 750 kHz with SWR under 2:1
• Tunable above and below 7 MHz range for MARS and CAP frequencies
• Maximum legal power handling
• Optimum 30 ft. overall height
• Slow taper, 43 ft. vertical radiator
• 6063 T852 corrosion-resistant aircraft aluminum tubing and stainless steel hardware
• Easy tuning design
• No coils or linear loading elements
• Thick stainless steel tilt base
• 5 kW continuous/10kW CW/SSB rating
• Includes special DXE-UN-43 UNUN for multi-band use with your wide range tuner
• Easily upgradeable to DXE-80VA-3 for 75/80 meter monoband operation

DXE-40VA-1 $299.50

2' to 1/2' Fast Taper, High Performance 40 Meter
• 43 ft. vertical radiator
• Thick stainless steel tilt base
• Full 60 meter coverage with SWR of 1.5 or less
• No coils or linear loading elements
• Requires DXE-UN-43 UNUN Balun for multi-band use with your wide range tuner

DXE-MBVE-4 $249.50

Rugged High Performance 40 Meter
• High strength, self-supporting vertical element
• Operates over the entire 40 meter band with an SWR of less than 1.5:1
• Less than 24 feet high
• No coils or linear loading elements
• Easily configured to operate on the 30 meter band

DXE-40VA-1 $249.50

2' to 1/2' Fast Taper, High Performance 30 Meter
• 24 ft. tall vertical element
• Operates over the entire 30 meter band with an SWR of less than 1.5:1
• Full length—no coils or linear loading elements
• Perfect for four-square or phased arrays

DXE-30VA-1 $295.00
Hustler
BTV Verticals

The Hustler BTV antenna series delivers good performance, easy assembly, and the best reliability of any multi-band vertical on the market. These antennas offer 2:1 SWR or better at the band edges and up to a 100 kHz bandwidth on 75/80m (5BTV and 6BTV only). Hustler's exclusive trap design offers the lowest loss possible.

Hustler BTV series antennas are a quarter wave- trapped vertical design. The antenna should be ground-mounted with radials or elevated-mounted with tuned radials. Visit DXEngineering.com for more information about radials for quarter wave vertical antennas.

The sealed cover on the traps assures stable tuning in all kinds of weather. There is a wide tuning range designed in the antenna to accommodate differing ground plane conditions. All antenna sections are 1.25 inch heavy wall, high strength aluminum. The traps use a solid 1 inch fiberglass form for optimum electrical and mechanical stability. The base uses an extra heavy duty aluminum mounting bracket with low loss, high strength insulators.

The new, economical DX Engineering High Performance BTV packages include a stainless steel tilt base and plate, radial wire installation kit, direct coax feed add-on kit, bulkhead coax connector, low loss RG-8/U jumper cable, and stainless steel V-clamps.

### Antenna Packages

- **DXE-HUS-BTV-P** 4BTV High Performance Package — $379.00
- **DXE-HUS-5BTV-P** 5BTV High Performance Package — $419.00
- **DXE-HUS-6BTV-P** 6BTV High Performance Package — $454.00

### Antenna Only

- **HUS-4BTV** BTV 4 Band Antenna — $124.95
- **HUS-5BTV** BTV 5 Band Antenna — $159.95
- **HUS-6BTV** BTV 6 Band Antenna — $189.95

### DX Engineering Add-On Kits for Hustler BTV Verticals

DX Engineering offers add-on kits that provide additional frequency band coverage or installation and operating convenience to the popular Hustler BTV vertical antenna family.

**Build your own quarter wave vertical!**

### Telescopic Aluminum Antenna Kit

- 65 ft., tapering in 6 foot sections from 2’ O.D. to 7/8’ O.D. at the top — $194.50
- **DXE-ATK65** Telescoping Aluminum Antenna Kit — $194.50
- **DXE-VE-BASE** Vertical Antenna Fixed Base Assembly — $99.50
- **DXE-VA-BASE** Vertical Antenna Heavy Duty Tilt Base Assembly — $158.50

Visit DXEngineering.com for more Hustler and Hy-Gain Products!

Hy-Gain Vertical Antennas

**AV-640 Patriot HF 8-Band, No-Radials Vertical**

Hy-Gain’s new AV-640 Patriot HF is the best built, best performing, and best priced multi-band vertical available today. Make full use of your sunspot cycle with the Patriot’s low angle signal.

The AV-640 uses quarter wave stubs on 6, 10, 12, and 17 meters and efficient end loading coil and capacity hats on 15, 20, 30, and 40 meters. An effective counterpoise system replaces radials and grounding. Instead of typical lossy can traps, the AV-640 resonators are placed in parallel—not in series. End loading of the lower HF bands allows efficient operation with a manageable antenna height. Maximum Power: 1,500 watts. Overall Height: 25.5 feet.

**AV-18HT Hy-Tower 5-Band, 50 Foot Vertical**

The AV-18HT Hy-Tower is an omni-directional, self-supporting, automatic-bandswitching vertical radiator. It operates on the 10, 12, 15, 17, 20, 30 and 40 meter Amateur bands. No ground radials are required with the DX-77A. Its design is based on an off-center-fed dipole, sometimes called a “Widom” antenna. High efficiency high-power traps are used to isolate the active sections of the antenna.

The DX-77A uses a heavy duty, tiltable mast clamp that accepts masts up to 2 1/8” O.D. The entire antenna can be easily raised and lowered for tuning purposes and for use on recreational vehicles (RVs). The DX-77A’s overall length of 29 feet (8.8 meters) contributes to exceptional bandwidths on 40 and 20 meters. Maximum Power: 750 watts average, 1,500 watts PEP.

**AV-18HT** Hy-Tower 5 Band, 50 Foot Vertical — $439.95

**DX-77A 7-Band Vertical**

The Hy-Gain DX-77A is an omni-directional, self-supporting, automatic-band switching vertical radiator. It operates on the 10, 12, 15, 17, 20, 30 and 40 meter Amateur bands. No ground radials are required with the DX-77A. Its design is based on an off-center-fed dipole, sometimes called a “Widom” antenna. High efficiency high-power traps are used to isolate the active sections of the antenna.

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**DX-77A 7-Band Vertical** — $379.95

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**Build your own quarter wave vertical!**

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Visit DXEngineering.com for more Hustler and Hy-Gain Products!
DX Engineering Transmit Four-Square Hybrid Controller—4 Directions plus Omni

DX Engineering’s TFS4 Series Four-Square Controllers combine a high level of engineering excellence with attention to operator convenience and ease of installation. The controllers are available for 160, 80/75, and 40 meters. They allow the operator to receive or transmit with 5.5 dB gain in any one of four directions with 20+ dB front-to-back ratio for interference reduction from unwanted directions. You can also switch to a single omni-directional pattern with the push of a single button. This combination permits you to listen “all-around”—unhindered by pattern nulls—and then select the best direction for signal reception and noise rejection.

The TFS4 controllers are designed for use with a four monoband vertical antenna array spaced at the corners of a square that is 1/4-wavelength on a side. The vertical antennas must be ungrounded and resonant in the desired band, and should be directly base-fed by coaxial cable phasing lines from the centrally located controller. DX Engineering has vertical antennas that are well suited for this application. Above all, a properly designed and installed radial system is necessary for top antenna performance, whether a single vertical or a full array.

DX Engineering strongly recommends our optional QWC Series 1/4-wavelength cables. They are constructed of the highest quality Belden 9213, an RG-11/U foam dielectric cable with a velocity factor of 64% (0.84). These cables are cut to a precise electrical length based on your choice of center operating frequency. They are terminated with hand-soldered Silver-Teflon PL-259 connectors and weather-sealed with shrink tubing. Finally, each cable is tested for high voltage breakdown for maximum reliability and power handling.

If you already have a Four-Square array with a hybrid controller (such as COMTEK SYSTEMS, etc.) and would like to upgrade to improved performance and the Omni feature, the DX Engineering TFS4 Series is a direct transplant. BCD logic switching allows the use of a four-wire control console to perform the necessary switching functions when powered by the included DFX-CC-4SOR Control Console.

Features
- Classic Hybrid design—easy to install
- • 5 kW CW power rating—high reliability
- • Hot switching lock-out—disables amplifier while switching
- • Drop-in replacement for Comtek—easy upgrade
- • Proven DX Engineering RF relays—high performance
- • RF Shielded weatherproof housing—unique protection

DX Engineering Customer Support personnel will be happy to help you select all the components necessary for a complete installation.

Contact Us for New Antenna Products and System Recommendations!

Four-Square Transmitting Arrays

Installation and operation of a four-square array is no mystery when some basic information is considered. First and foremost, a four-square array requires a certain amount of real estate. The area is dependent on the band of operation and is easily defined. The antennas must be placed at the corners of a square that measures 1/4-wavelength on each side. Space must be allowed for the ground radials, which extends the area another 1/4-wavelength in all directions, including the radials, the square now measures 3/4-wavelength on each side. That translates to roughly 200 by 200 feet on 80 meters and 100 by 100 feet on 40 meters.

Because of the frequency-dependent switching and phasing components, a four-square array is a monoband system. The proper antennas should be identical, single band antennas. While multi-band antennas have been used, proper operation occurs only on the band the switching system was designed for. Ideally, the antennas should be identical 1/4-wavelength vertical monopoles, series-fed at the base. Shortened, loaded base-fed antennas may be used as long as they are identical, but performance will be lower.

We cannot overemphasize the importance of a good ground radial system. At least 32 straight radials, about 1/4-wavelength long, are recommended at each of the four vertical antennas. Some of the radials will cross in the middle of the array. These radials can cross if they are well insulated from each other at the crossing points, but it is better if the radials are bonded as pictured and described in the installation section of the manual. Either method will provide suitable performance. What you want to avoid are poor or intermittent connections between radials.

Assembling the system is virtually plug-and-play once the antennas and radials have been installed. The system controller mounts to a centrally located pipe with the supplied clamp and hardware. Carefully tuned 75 Ω, quarter wave cables are connected to each antenna, and appropriate lengths of 50 Ω coaxial cable and 4-wire control cable connect to the radio and the control console at your operating position. With careful design, construction, and tuning, no further adjustments of the antenna system should be necessary. On-the-air testing will confirm proper switch operation.

As with any properly installed quarter wave vertical antenna, signals arriving at lower angles of radiation will be enhanced more than very high angle signals. Phasing is optimized for very low wave angles. This means array directional performance will generally be better on more distant low angle and on local ground wave signals.

While greatly dependent on many variables (radial system, angle of arrival of signals, etc.), the gain of a properly designed and installed four-square array will be on the...
order of 5 dB over a single vertical element. Typical F/B ratios will approach or exceed 20 dB, minimizing interference from the side and rear directions. See various reference books such as "ON4UN's Low Band DXing" for more in-depth discussion of four-square theory and performance.

The COMTEK SYSTEMS ACB-4 Phased Array System provides 2-element array patterns as shown at left in this illustration. Note the clean pattern and 25 dB of front-to-back at low angles. Gain is 4 dB over a single element using a good ground.

More gain and better front-to-back and front-to-side ratios are possible using a 4-element array. Four separate verticals are arranged in a square with one vertical element at each corner. The square is one-quarter wavelength on a side. Its pattern is directional across each diagonal of that square. In other words, it beams across opposite corners of the square.

The ACB-4 provides the correct power and phase division between these four vertical elements. A switch matrix allows rotation of the relative powers and phases, providing four separate directions at the flick of a switch from your operating position. You switch 90 degrees at each setting, providing a full 360 degrees of coverage. The exterior switchbox of the ACB-4 contains all the switching and phase and power controls using hybrid toroids. No coax phasing cables are hanging at the switchbox.

For more COMTEK SYSTEMS Products visit www.comteksystems.com

COMTEK SYSTEMS
ACB-4 Phased Array Systems for 2- or 4-Element Vertical Arrays

COMTEK SYSTEMS uses state of the art design and technology to produce the most advanced antenna systems possible. These Phased Array Systems are affordable, simple to install, and easy to use. A phased array consists of two or more elements fed in a phase relationship and power ratio to obtain a directional pattern. COMTEK SYSTEMS’ phased array switchboxes can be used with 2- or 4-element horizontal or vertical arrays to provide the greatest directivity.

We offer the ACB-4 for all amateur bands from 10 meters to 160 meters. The ACB-4 is band specific — you cannot use an 80 meter ACB-4 for any band other than 80 meters.

Power Supply/ Switch Control
- One amp (1A @ 12.6V CT) transformer for reliable 115 Vac operation
- 200 PIV full wave bridge rectifier
- Primary and secondary voltages fused
- Heavy duty one amp diodes with Sprague RF bypass caps
- Custom USA-made switch permits 360° rotation in either direction with no stops
- Current limiting resistor protection for each LED
- Chassis and cover custom manufactured to COMTEK SYSTEMS specifications
- Lexan label for recording favored directions
- Compact size: 2" x 6" x 8 1/2" D

90-Degree Hybrid-Relay Matrix
- 15 amp gold-plated contact relays with dust covers
- Belden Teflon® silver stranded wire over 3M Fiberglass tape-wound toroids
- Sprague 5% balanced temperature, frequency, and voltage stable capacitors
- Laboratory analyzed for improved performance
- Double-sided printed circuit board
- 2 kW conservative rating for Amateur Radio Service
- Harris MOVs for lightning surge protection with Sprague RF bypass caps
- Brushed aluminum Z-chassis and cover with riveted seams
- Size: 4" x 6" x 8 1/2" D

A Comparison of Phased Array and 4-Square Array Radiation Patterns

Elevation

Azimuth

Outer Plot Rings Set to Same Level

2 Elements, 90-Degree Phasing, 90-Degree Spacing, Equal Power

4-Element

4-Square Array

For more information, please visit www.comteksystems.com.
The Experts in Phased Antenna Systems!

COMTEK SYSTEMS Hybrids are used worldwide by serious contesters, DXers, and hams. With properly installed arrays and our hybrid couplers, you can achieve gain and impressive F/B at a lower cost than most low band beams at proper heights. Vertical antenna arrays offer inherently better DX performance than common horizontal antennas. COMTEK SYSTEMS knows how to provide optimum performance from phased antenna arrays. Stacked horizontal arrays can be combined for selective vertical angle switching. Combined with DX Engineering quality and technical support, you are assured that your engineered system will deliver top results.

COMTEK SYSTEMS
PVS-2 Two-Element Phased Vertical Systems

For those who do not have space for a Four-Square phased vertical array, COMTEK SYSTEMS offers the superior PVS-2 two-element phased vertical system. Quality components are used throughout, yet the system is very affordable.

- Three direction switching includes selectable end-fire and broadside directions
- Typical 18 dB front-to-back rejection and 3 dB gain
- Rated at 3 kW continuous Amateur Service duty
- ≤0.05 dB insertion loss
- Includes a custom, in-house wound UNUN and a 90 degree toroid
- Includes MOVs for maximum ESD protection
- Amphenol silver tip SO-239s and Potter & Brumfield relays
- A 4-conductor control line is required

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Accessories

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For more COMTEK SYSTEMS Products visit www.comteksystems.com

Two-Element Phased Vertical Arrays

Phased verticals offer excellent performance in a reasonably small area. The distance between the two vertical radiators in a single plane is the defining factor for actual installation. The spacing is about 68 feet on 80 meters and 34 feet on 40 meters. The PVS-2 Phased Vertical Array lets you switch to a cardioid, uni-directional pattern (end-fired from each direction along the plane of the antennas) or a bi-directional, figure 8 pattern broadside to the plane.

UNI-DIRECTIONAL

The ground radials can cross if they are well insulated from each other at the crossing points, but it is better if the radials are bonded. Either method will provide suitable performance. What you want to avoid are poor or intermittent connections between radials.

Assembling the system is virtually plug-and-play once the antennas and radials have been installed. The system controller mounts to a centrally located pipe with the supplied clamp and hardware. Carefully tuned 75 Ω quarter wave cables are connected to each antenna, and appropriate lengths of 50 Ω coaxial cable and 4-wire control cable connect to the radio and the control console at your operating position. With careful design, construction, and tuning, no further adjustments of the antenna system should be necessary. On-the-air testing will confirm proper switch operation. While greatly dependent on many variables (radial system, angle of arrival of signals, etc.), the gain of a properly designed and installed two-element phased vertical array will be on the order of 3 dB over a single vertical element. Typical F/B ratios will approach or exceed 20 dB, minimizing interference from the side and rear directions. See various reference books such as "ON4UN’s Low Band DXing" for more in-depth discussion of phased vertical arrays.

BI-DIRECTIONAL

For North American and South American users, the verticals should be placed in a northeast and southwest alignment. Since the majority of DX countries are in Europe and the Pacific, this arrangement will yield the best results. This will provide a broadside figure 8 to northwest and southeast directions.

A good ground radial system is required for optimum performance. The ground system should extend radially a 1/4-wavelength in all directions from each vertical radiator.
Stacked Yagi Switching

Yagi antennas may be vertically stacked and switched to provide increased gain or improve system performance. Stacking Yagis and feeding them in phase will produce increased gain and a correspondingly narrower vertical radiation angle. In itself, this can be a distinct competitive advantage to the contestor and DXer. Signals arrive at your location at various vertical angles depending on propagation mode, distance, number of hops, etc. If you can control the vertical radiation angle of your antenna, you can also optimize your signal along those paths. Since the vertical radiation angle of a horizontally polarized antenna depends on the height of the antenna above the ground, continuously adjusting antenna height is an obvious, but not practical, method of adjusting the vertical angle.

Switching between antennas of differing heights above ground allows a stepped variation of vertical angle, depending on the actual antenna heights. The COMTEK SYSTEMS STACK-2 Antenna Switch is designed for dual antenna systems. It allows selection of either antenna or both in phase. The SYS-3 Antenna Switch allows the stacking of three antennas. You can use a single antenna, all antennas, or a combination of two antennas. This provides a large variation of vertical angles and gain combinations to get the maximum signal.

There is anecdotal data that using a stacked array reduces signal fading. There is also evidence pointing to the reduced effects of constructive and destructive interference when signals are observed from more than one angle of arrival (path). For maximum performance, the versatility of a switchable stacked Yagi system is well worth the effort spent to assemble such a system.

For more in-depth discussion of stacked Yagis, refer to books such as the ARRL Antenna Book.

Typical Stacked Yagi Installation at COMTEK SYSTEMS User K3LR Contest Superstation

COMTEK SYSTEMS
Antenna Switches

STACK-2 Yagi Antenna Switch

New, affordable, 2-high stack switch for tribanders, log periodic, or monobanders from 40 to 10 meters. Amphenol silver tip connectors, MOVs (a COMTEK SYSTEMS standard since 1994), Potter & Brumfield relays, and a 2.4 V.D.U.N. provide reliability at 3 kW maximum power levels. Simply run two equal lengths of 50 Ω coax from the switch to each antenna and a 3-conductor control line and enjoy increased performance in contests or chasing DX.

COM-STACK-2-1 2-Stack Antenna Switch System, 115 Vac $221.95
COM-STACK-2-2 2-Stack Antenna Switch System, 230 Vac $236.95
COM-CW4 4-Conductor Control Cable per foot $0.28

Stack-3 Stacked Yagi Switch

Based on K3LR’s design, the SYS-3 is designed for monoband 3-stack Yagis. You can select any one antenna, all antennas, or any combination of two antennas. Indicator lights for each antenna tell you at a glance which antennas are selected. Features include a double-sided printed circuit board, Amphenol SO-239s, and MOV protection for all six control cable lines. The SYS-3 incorporates the same USA-made, gold-plated DPDT relays used in COMTEK SYSTEMS’ ACB-4 Series Hybrid Phasing Systems, proven in hundreds of systems since 1990.

COM-STACK-3-1 3-Stack Yagi Switch System, 115 Vac $399.95
COM-STACK-3-2 3-Stack Yagi Switch System, 230 Vac $414.95
COM-CW6 6-Conductor Control Cable per foot $0.36

50 and 75 Ω Choke Baluns

Choke baluns ensure that RF does not flow on the outside shield of feedlines, phasing lines, etc. COMTEK SYSTEMS’ baluns feature 100 Amidon beads on a length of RG-400 Teflon® double-shielded silver coax terminated with Silver Teflon PL-259 UHF connectors. Assembled baluns are covered with 3M heat shrink tubing. RF feed kits are available if you wish to assemble your own chokes.

COM-CFC-50 50 Ω Balun, assembled $93.90
COM-CFC-50K 50 Ω Balun, kit $72.85
COM-CFC-75 75 Ω Balun, assembled $95.90
COM-CFC-75K 75 Ω Balun, kit $74.85
COM-RFB-160 RF Choke Bead Kit, 160m $124.90
COM-RFB-80 RF Choke Bead Kit, 80m $64.80
COM-RFB-40 RF Choke Bead Kit, 30 and 40m $47.95
COM-RFB-20 RF Choke Bead Kit, 10, 15 and 20m $38.95

Accessories

DXE-RADP-1P Stainless Steel Radial Plate with 20 bolt sets $54.50
DXE-SSVC-2P V-Saddle Clamp, fits 1” to 2” tube $11.95

VFA-1 Vertical Feedpoint Assembly

The VFA-1 Vertical Feedpoint Assembly for vertical antennas eases the task of attaching a coaxial cable to your aluminum tubing. Silver SO-239s and stainless hardware ensure long life and reliability. The assembly is available in a set of four for 4-square arrays.

COM-VFA-1 Vertical Feedpoint Assembly...$15.95
COM-VFA-4 Vertical Feedpoint Assembly, set of 4 $56.95

Accessories

COM-CW3 Control Wire, 3-conductor.................per foot $0.25
COM-CW4 Control Wire, 4-conductor.................per foot $0.28
COM-CW6 Control Wire, 6-conductor.................per foot $0.36
Maximize Your Signal!

Vertical antenna systems are often thought of as a simple radiator (1/4-wavelength, typical) installed vertically and fed at the base with the center conductor of coaxial cable. Yet, the cable shield has a feedpoint that is connected to ground (or on a ground rod).

To really achieve maximum performance from your vertical antenna, the most important—and most often overlooked—detail is the radials system. Unless you are elevating the antenna installation (and using an elevated radial system) there is no need, or benefit from, having radials cut to resonant lengths. For ground-mounted HF antennas, an excellent radial system can consist of 32 or more radials, each 65 feet long. Very good performance (within 1 dB or so) can also be obtained with shorter radials providing you use 20 or more of them. The important consideration is that the radials be extended directly away from the base of the antenna without crossing each other or being bent, coiled, zig-zagged, etc. Many short radials will outperform a few long radials. Since in-ground radials are not resonant, there is no special length to be concerned with—just to put as much wire in the ground as you can.

DX Engineering provides all the installation accessories you need to make your vertical antenna system become the outstanding performer you expect.

Vertical Feedline Current Choke

When quarter wave antennas are constructed over a good radial system, they have a feedpoint impedance of about 36 Q and currents are equal between the vertical section and the radial system. If the radial system is less than ideal—due to short radials, too few radials or poor soil conductivity—the antenna system will try to use the feedline shield as part of the radial system. This leads to a loss in the efficiency and a higher take-off angle. Often the current introduced on the shield of the feedline causes RFI at the operator position.

A feedline shield must be isolated from ground to prevent feedline currents from finding their way to ground. Purchase the optional V-Saddle Clamp for mounting the plate to the support post. You can now make repairs or tune your vertical easily with a DX Engineering Tilt Base. One person can easily lift the antenna, tilt it to the side and walk it down. The optional DXE-AOK-TB1193 Wing Nut Kit makes it easy for two people to fasten the tilt base. Precision-cut from 3/16 inch 304 stainless steel, the Tilt Base is virtually indestructible and conveniently mounts to any mast. The Tilt Base is great for installations that need to accommodate CC&R, or for taking down the antenna during severe weather.

DX Engineering offers pre-cut radial wire kits crimped on one end for quick, easy attachment to the radial plate. All our radial wire kits use #2 stranded insulated copper wire that is UV-resistant, hard to see and lays down easily without a preset helix.

Radial Wire Kits

Bulk Radial Wire Kits

You should install as many radials as possible to achieve optimal performance with a ground-mounted vertical. All our radial wire kits use #14 stranded insulated copper wire that is UV-resistant, hard to see and lays down easily without a preset helix.

Pre-Assembled Radial Wires

Packages of twenty pre-cut radial wires include 1/4" ring terminals machine crimped on one end for quick, easy attachment to the radial plate.

Pre-Cut Radial Kits

DX Engineering offers pre-cut radial wire kits for the 10, 15, 20, 40 and 80 meter bands, complete with wire connection hardware for elevated radial installations. Just strip the wire ends, crimp and solder. Each radial is slightly longer than a quarter wave to allow tuning as necessary.

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