



EZ-Build[®] Universal Wire Antenna Hardware Kits

**DXE-UWA-KIT
DXE-UWA8X-KIT
DXE-UWA213-KIT**

DXE-UWA-KIT-INS Rev 5d



DXE-UWA-KIT
Shown with optional parts

*No Soldering
Required*



DXE-UWA8X-KIT
Shown with optional parts

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Introduction

EZ-BUILD® Universal Wire Antenna Kits offer an easy, high quality route to building your own design wire antennas.

The kits are lightweight yet rugged in design that will allow construction of single band resonant dipoles, folded dipoles or any center or off-center fed wire antenna you select. If fed with ladder line, it is usable with a tuner for multi-band operation on all the HF bands. It's ideal for portable or tactical use, and permits you to build antennas which can be easily installed in attics, small lots or Covenant Condition Restricted (CCR) locations.

The Universal Wire Antenna Center Support and End Insulators are made of light weight, high strength UV-protected material. The Center-T is designed to serve as a feedpoint and strain relief for antennas made with either wire or ladder line, which may be fed with either ladder line or coaxial cable. They feature an exclusive serpentine wire grip for insulated DX Engineering Antenna Wire and high strength, high power 300 Ω Ladder Line. The serpentine connection's grip is strong enough to permanently support the antenna wires without the need for looping or wrapping the wire ends. This allows fast and easy field adjustments of antenna length without soldering. Each kit also includes crimp-on ring terminals for ladder line and antenna wire and connection hardware. The DX Engineering **UWA8X** and **UWA213** kits include a strain relief bracket and P-Clamps with neoprene cushions that grip the coaxial cable without deforming it, taking the weight of the hanging cable off of the connector.

The ladder line feed configuration can be used successfully with the balun incorporated in most high quality antenna tuners to obtain a low SWR across the entire frequency range. Using a DX Engineering external current balun may provide better performance and permits converting to coaxial cable prior to entering the operating position which will reduce RFI. DX Engineering Baluns, Antenna Wire, 300 Ω Ladder Line and Support Rope are optional items that are available to make a complete antenna package.

Refer to the Appendices at the end of this assembly manual for information on construction of simple dipole antennas using these kits. For more complete antenna theory and for construction of the many different types of wire antennas possible with the DX Engineering **EZ-BUILD® Universal Wire Antenna Kits**, refer to textbook materials such as the "*ARRL Antenna Book*" which is also available from DX Engineering.

You have purchased one of the following DX Engineering Universal Wire Antenna Kits:

- **DXE-UWA-KIT:** EZ-BUILD® Center-T and End Insulators and hardware for wire and ladder line antennas or for feedpoint-mounted DX Engineering Baluns.

Qty	Description
1	Center-T
2	End Insulator
2	10-24 x 3/4" Stainless Steel Carriage Bolt
6	#10 Stainless Steel Flat Washer
6	#10 Stainless Steel Split Washer
6	#10 Star Washer
8	10-24 Stainless Steel Hex Nut
4	10-24 x 5/8 " Stainless Steel Hex Head Bolt
8	Ring Terminal 18-22
2	Ring Terminal 14-16
#8 Hardware for mounting a Cast Aluminum Balun to the Center-T	
2	8-32 x 5/8" Stainless Steel Flat Head Screw
1	8-32 x 3/4 " Stainless Steel Philips Head Screw
3	#8 Stainless Steel Flat Washer
3	#8 Stainless Steel Split Washer
3	8-32 Stainless Steel Hex Nut

- **DXE-UWA8X-KIT:** EZ-BUILD® Center-T and End Insulators, Medium/Low Power connector assembly with SO-239 for PL-259 feedline, plus coaxial cable strain relief bracket, clamps and hardware. The **DXE-UWA8X-KIT** will handle low and medium power levels and tolerate medium SWR levels.
- **DXE-UWA213-KIT:** This is a special high power model of DX Engineering's EZ-BUILD® versatile insulator kit for building a wire antenna of almost any design. It includes a completely unique coaxial cable connector and feedline strain relief system. When using a high power amplifier or high duty cycle modes of operation such as AM, RTTY or FM, this kit should be used. It will handle higher power levels and tolerate higher SWR levels than the **DXE-UWA8X-KIT**.

Qty	Description
1	Cable Strain Relief Bracket
4	#10 Star Washer
2	10-24 Stainless Steel Nyloc Nut
1	10-24 x 1" Hex Head Stainless Steel Bolt
1	10-24 x 5/8" Stainless Steel Carriage Bolt
1	Aluminum Spacer
1	UHF Female to Female Adapter, 1"
2 *	Cushioned Loop P-Clamp 1 Large, 1 Small
1 **	Pigtail with Ring Terminals installed

Plus all the parts listed in the DXE-UWA-KIT (less the #8 hardware)

* P-Clamp size is smaller for the **8X-KIT** than the **213-KIT**

** The pigtail for the **DXE-UWA8X-KIT** uses RG-8X coaxial cable

The pigtail for the **DXE-UWA213-KIT** uses RG-213 coaxial cable

Tools Required

3/8" Wrench, Pliers, 3/8" Socket and Drive or 3/8" Nut Driver, and Wire Stripper

11/32" Wrench and Phillips Head Screwdriver - Used for mounting a balun to the Center-T

Note: **UMI-81343** Never-Seez[®] or **DXE-NSBT8** Anti-Seize should be used on all clamps, bolts and stainless steel threaded hardware to prevent galling and to ensure proper tightening.

Basic Assembly

Assembling the Center-T Support

This initial assembly is common to all models.

NOTE: If you are mounting a Balun to the Center-T, do not install the carriage bolts, refer to **Appendix C** for assembly instructions.

Holding the Center-T, insert a 3/4" Carriage Bolt through the hole shown in **Figure 1**. The head of the carriage bolt will be on the same side as the "**DXENGINEERING.COM**". This is done so the element wires (dipole legs) will be routed through the wire restraining holes correctly.

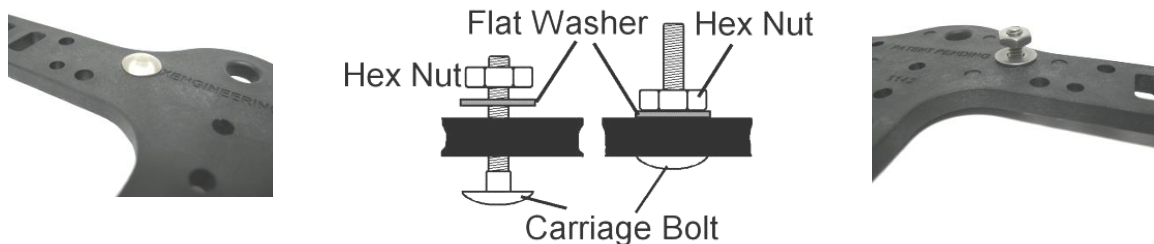
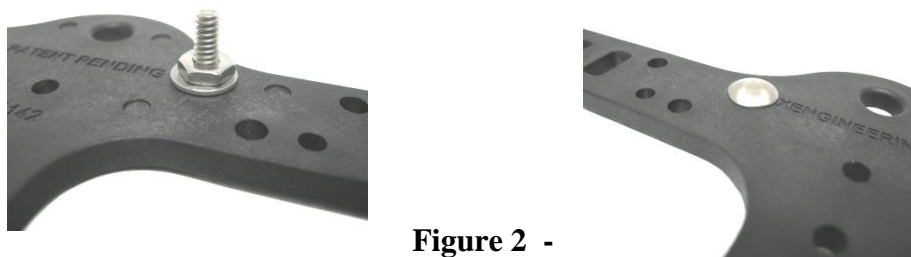


Figure 1 - Carriage Bolt Installation

Holding the carriage bolt in place, turn the Center-T over and install a flat washer, hand tighten the 10-24 hex nut in place. Using a 3/8" wrench tighten the hex nut. As you tighten the nut, the carriage bolt will draw itself into the support. Tighten the nut until the carriage bolt head is flush to the support as shown in **Figure 2**.



**Figure 2 -
First Carriage Bolt Flush**

Install the second 3/4" carriage bolt, washer and nut using the same sequence as above.

**Figure 3 – Second Carriage
Bolt Installed**



If you are feeding your antenna with Ladder Line, skip the Coaxial Strain Relief Assembly, Pigtail Installation, Weatherproofing and P-Clamp Strain Relief instructions and go to page 9.

If you purchased the **DXE-UWA-KIT** and would like to add the coax strain relief, order **DXE-CSR8X-1** for RG-8X, or **DXE-CSR213-1** for RG-213 from DX Engineering.

Coaxial Cable Strain Relief Bracket Assembly

Both the **DXE-UWA8X-KIT** and **DXE-UWA213-KIT** contain the parts found in the **DXE-UWA-KIT**, (minus the #8 hardware) plus a cable/connector pigtail and cable strain relief. The pigtail for the **8X-KIT** uses RG-8X coaxial cable. The pigtail for the **213-KIT** uses RG-213 coaxial cable.

Note: If you are mounting a Balun to the Center-T, The Cable Strain Relief is mounted to the bottom of the balun, not the Center-T. Refer to the Balun instruction manual.

Place the 5/8" carriage bolt through the hole in the bottom of the Center-T assembly as shown in Figure 4. To fully seat the carriage bolt, use a flat washer and hex nut. Hand tighten the nut in place and then use a 3/8" wrench tighten the hex nut. As you tighten the nut, the carriage bolt will draw itself into the support. Tighten the nut until the carriage bolt head is flush to the Center-T.



Figure 4 - Bottom Hole - Carriage Bolt Installed

Remove the nut and washer that were used to fully seat the carriage bolt. Install the star washer followed by the Cable Strain Relief Bracket, then a Nyloc nut onto the carriage bolt (**Figure 5**). Securely tighten the Nyloc nut using a 3/8" wrench or 3/8" nut driver.



Figure 5 - Strain Relief Bracket Installation



Pigtail Installation

Firmly attach the UHF Female to Female Adapter to the Coaxial Cable Pigtail. Place the pigtail terminal lugs over the bolts in the Center-T (**Figure 6**). Use hex nuts to temporarily hold the pigtail in place on the carriage bolts. Later, when you add the antenna wire, additional hardware will be added as needed and then tightened.

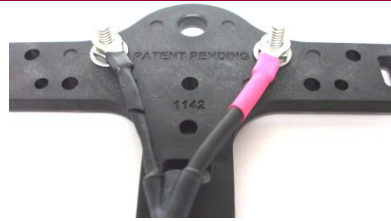


Figure 6 - Pigtail Installed

Weatherproofing the Connectors

Firmly attach your coaxial cable to the other end of the UHF Female to Female Adapter. If you choose to connect your cable after complete assembly, it will be more difficult to wrap the connectors. The PL-259s & UHF Female to Female Adapter should be weatherproofed using **TES-2155** Rubber Splicing Tape which is a conformable self-fusing rubber electrical insulating tape. For outdoor use, the Rubber Splicing Tape should be protected from UV deterioration with an overwrap of **TES-06132**, a highly conformable super stretchy tape for all weather applications.



Peel back the protective covering.

Tightly wrap the **TES-2155**.

When wrapping, stretch the rubber splicing tape up to twice its normal length. Wrap tightly around the coaxial cable and connectors - overlap each wind of the tape by about 50%.



Use the **TES-01632** as an overwrap to give the assembly UV protection. Cover the **TES-2155** Splicing Tape completely.



P-Clamp Strain Relief Assembly

Loop the cable through the P-clamps and form approximately a 6" diameter loop of cable. Mount the P-clamps on both sides of the bracket (larger on left, smaller on right) using the hardware (1" bolt, 1/4" spacer, 3 star washers, and Nyloc nut) as shown in **Figure 7**. The larger P-clamp acts as a guide and the smaller P-clamp which is tight around the coaxial cable is the strain relief. Using pliers will help hold the clamps and parts together while you get the Nyloc nut started.

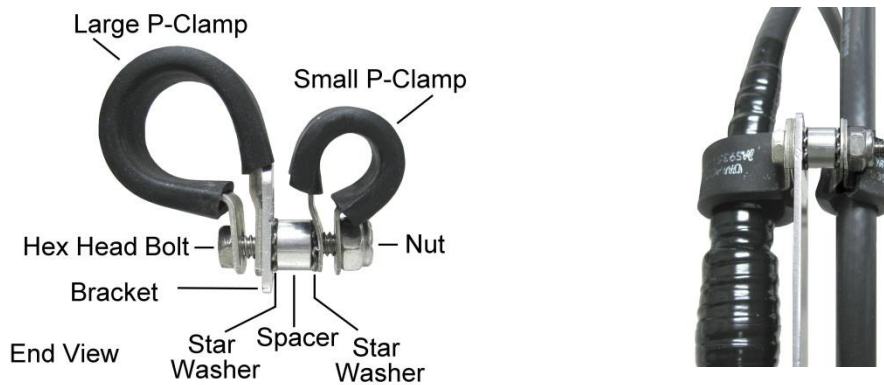


Figure 7 – P Clamps

Ensure the coaxial cable going through the P-clamps is properly aligned and has the coaxial cable loop as shown in **Figure 8**.

Tighten all the parts holding the P-clamps and coaxial cable in place.



Figure 8 – Center-T with Strain Relief Assembly & Coaxial Cable Attached

Skip the Ladder Line Assembly instructions and go to page 9.

Ladder Line Fed Antennas

Attaching the Ladder Line Feedline to the Center-T

The Ladder Line Feedline is woven through the two slots on the Center-T. Once inserted, strip the ends of the wires to allow installation of the Ring Terminals and attach to the Center-T bolts as shown in **Figure 9**.

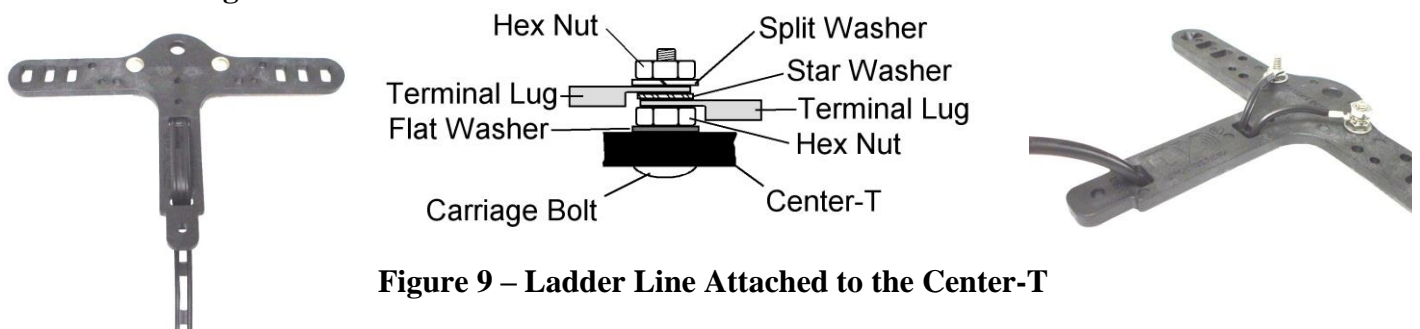


Figure 9 – Ladder Line Attached to the Center-T

Attaching the Dipole Wire Legs to the Center-T

Strip the center ends of your antenna wires, and crimp the Ring Terminals to each. The ring terminals may be soldered for longer lasting electrical connection, but soldering is not required for normal operations. This center end of your dipole wire is then woven through the three slots on the Center-T. The three slots are designed to grip the DX Engineering **DXE-ANTW** antenna wire firmly when pulled tight. There is a small cupped out area in the first (outside) slot that allows a smooth transition for the wire as it enters the Center-T (**Figure 10**). Once inserted, attach the ring terminals to the Center-T bolts as shown in **Figure 11** leaving a bit of slack for strain relief. Once all the terminals and hardware are installed, firmly tighten using the 3/8" wrench or nut driver.



Figure 10 – Cupped Area on Center-T for Dipole Wire Leg

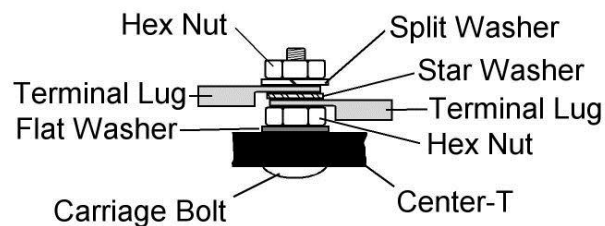
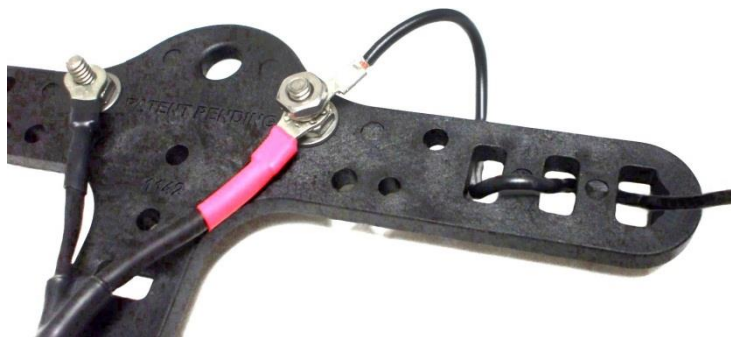


Figure 11 – Dipole Wire Leg Installed on Center-T

Attaching Dipole Wire to the End Insulators

The end of each dipole leg wire is woven through an end insulator as shown in **Figure 12**. Note the way the wire is woven through the End Insulator, especially the side where the antenna wire (dipole leg) is coming from. There is a dip or cupped out area to assist in a smooth wire transition point.

Both of the dipole leg ends should be measured and cut longer than necessary so final length adjustments may be made by sliding the wire and then pulling it tight again. Excess can be wrapped

back toward the Center-T. Once tuning is completed at low power, and the dipole leg wires are cut to the length you want them, the dipole leg wires should look like the bottom picture in **Figure 12**. Wrapping and soldering is not required.

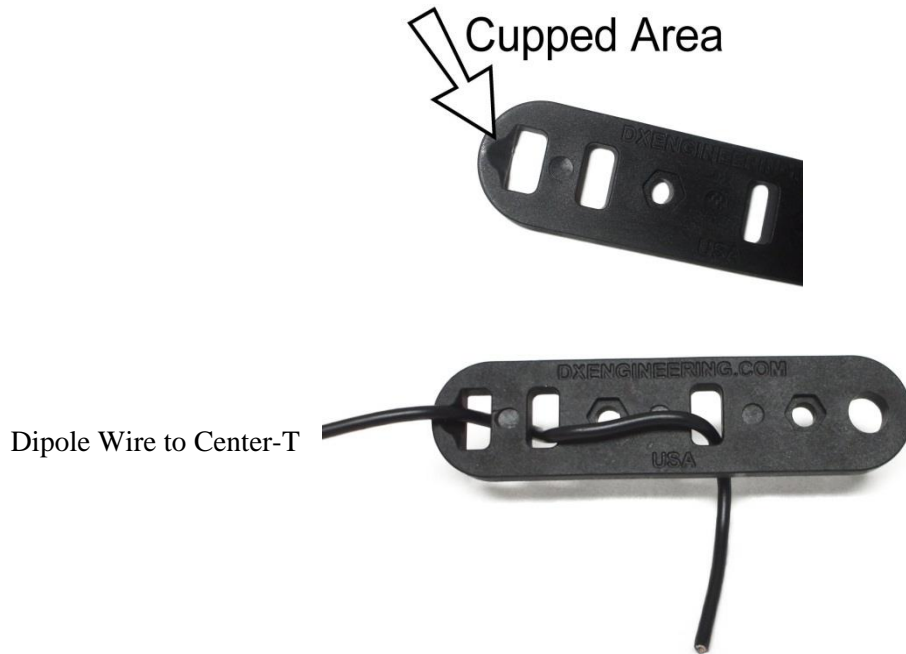


Figure 12 - Dipole Wire & End Insulator

Attaching Rope to the End Insulators

DX Engineering Double-braided Polyester Rope **SYN-DBR** should be secured to the Center-T and/or the End Insulators (depending on your installation) using a non-slip knot. The rope hole (diameter) on the Center-T is 0.371" and the end insulators are 0.34". One suggestion for attaching the rope is shown in **Figure 13**. The ends of the rope should be cauterized with a small flame to prevent the rope braid from fraying.

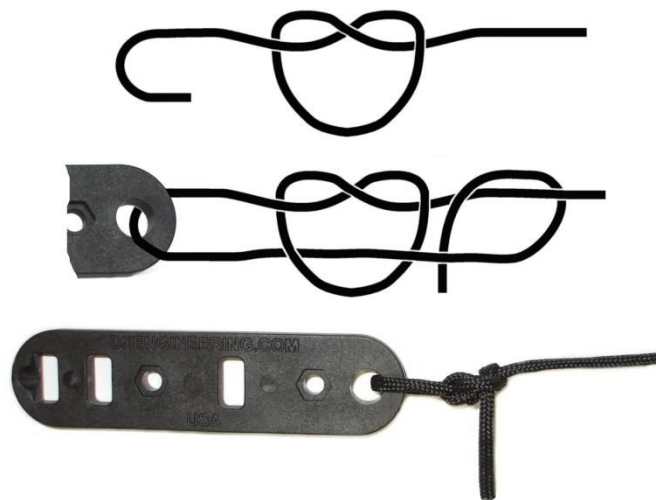


Figure 13 – Non-Slip Knot using SYN-DBR Double-braided Polyester Rope

Antenna Installation

Safety Considerations

WARNING!

INSTALLATION OF ANY ANTENNA NEAR POWER LINES IS DANGEROUS



Warning: Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, because they may cause serious injury or death.

Overhead Power Line Safety

Before you begin working, check carefully for overhead power lines in the area you will be working. **Don't assume that wires are telephone or cable lines: check with your electric utility for advice.**

Although overhead power lines may appear to be insulated, often these coverings are intended only to protect metal wires from weather conditions and may not protect you from electric shock

Keep your distance! Remember the 10-foot rule: When carrying and using ladders and other long tools, keep them at least 10 feet away from all overhead lines - including any lines from the power pole to your home.

Mounting Considerations

When planning the location of your antenna, consideration should be given to the height, location of suitable support structures and feedline positioning and length.

Generally speaking, dipole antennas should be mounted as high as possible for best performance. Antenna height will affect the exact resonance point, radiation pattern, and takeoff angle. The higher the antenna, the lower the takeoff angle to the horizon, which increases the effective range of the antenna.

For DX, the minimum height above ground should be 1/2 to 1-wavelength at the lowest operating frequency. On the low bands, this height becomes impractical for most hams. For example, an 80m dipole at 70 feet is about 1/4-wavelength above the ground. This antenna would be good for local and short distance communications, but not optimal for DX, due to the high takeoff angle and

ground absorption. A 40 Meter dipole at 70 feet is approximately 1/2-wavelength high and is likely to be good for DX and less optimal for local or short range communications. For more information on antenna design, feedline and radiation angles, consult a reliable text such as the "ARRL Antenna Book" which is available from DX Engineering.

Support Line

The Center-T's top hole is used for the attachment of a messenger line that is used to provide support for the antenna wire and feedline. The use of the messenger line, which is strongly recommended when a DX Engineering balun is attached, will reduce the stress on the element wires and keep the antenna from stretching over time, which will change its resonant frequency.

When using trees for support, you may want to use counter weights that will allow the rope to move when the trees sway in the breeze to avoid stretching or breaking your dipole. For more hints, consult a reliable text such as the "ARRL Antenna Book" which is available from DX Engineering.

Ideally, the messenger line should attach to the same structure used for the dipole, only above it, forming at least a 30 degree angle between the dipole and the messenger line to support the antenna. See **Figure 14**.

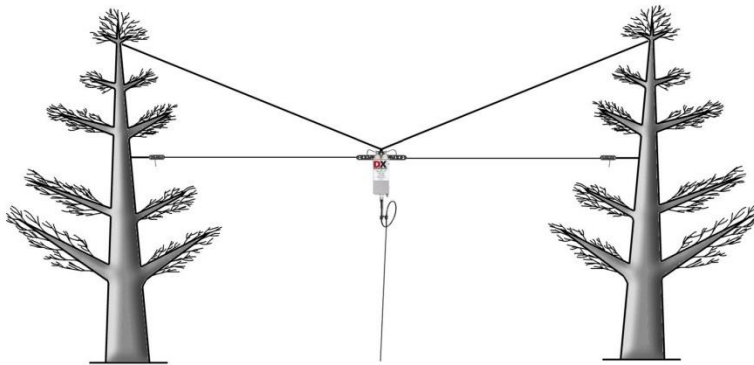


Figure 14 – Flat Dipole Installation using a Messenger Line

DX Engineering Double-braided Polyester Rope **SYN-DBR** is used for the messenger line by forming a loop at the mid-point of the rope. Push the loop through the Center-T top hole, and pull the rest of the rope through the loop. See **Figure 15**.



Figure 15 – Rope Loop for Messenger Line

The excess rope can be used to attach the antenna end insulators to the support structures. Use the same structures used by the messenger line if possible. The ends of the rope should be cauterized with a small flame to prevent the rope braid from fraying.

The top support hole may also be used for rope to install it as an inverted-V (**Figure 16**).

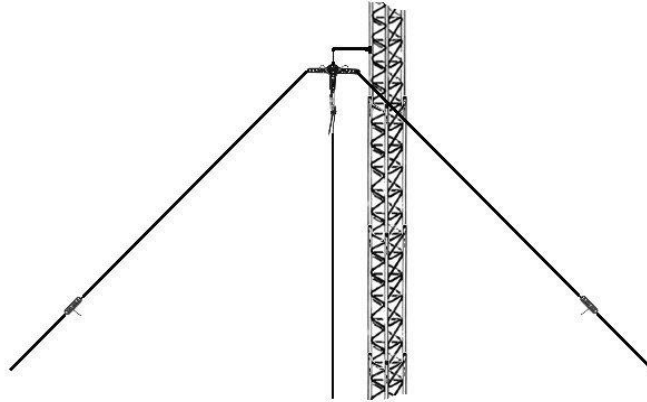


Figure 16 – Inverted-V Dipole – Tower Side Arm Installation

Tower side arm Universal Mounting Plates and Saddle Clamps are available from DX Engineering.

Appendix A

Single Band Center Fed Half Wave Dipole

When building a single band coaxial cable fed HF dipole antenna, you may easily use the formula $L = 468/F$ to determine the overall length of the wire (L in feet, F in MHz). The formula takes into account the end-effect of the antenna wire to give you the overall length of the wire portion.

As an example, using the formula $L = 468/F$, the overall length of a halfwave dipole for 3.800 MHz would be $L = 468/3.800$ or 123.2 feet. Cut the overall length of the wire to 125 feet or more to include the extra length for tuning, then cut that in half to provide two dipole legs – each 62.5 feet long – for attachment to the Center-T and feedline (**Figure 17**).

Use this theoretical formula length as a starting point to cut the wire, leaving about one foot extra on each dipole leg for wire fastening and fine tuning adjustment to allow for anomalies and environmental effects in your particular installation. Longer length dipole legs may be required for Inverted-V antennas.

DXE-ANTW-(-75 ft., -150 ft., -300 ft., -500 ft., -1000 ft.) #14 Insulated Antenna Wire is specially manufactured for use with the **DXE-UWA** kits.

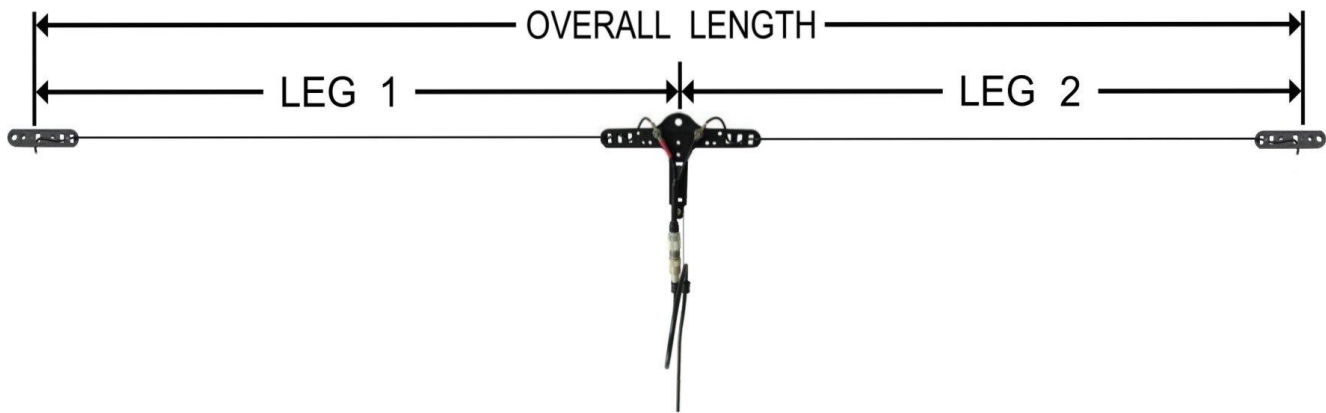


Figure 17 - Example: 3.800 MHz

Overall Length cut to 125 Ft.

Leg 1 = 62.5 Ft.

Leg 2 = 62.5 Ft.

Overall length plus some extra for wire fastening & tuning

Longer length dipole legs (up to 2 feet longer) may be required for Inverted-V antennas.

If you purchased the **DXE-UWA-KIT** and would like to add the coax strain relief shown in **Figure 17**, order **DXE-CSR8X-1** for RG-8X, or **DXE-CSR213-1** for RG-213 from DX Engineering.

Appendix B

Multi-Band Center Fed Shortened Dipole using Ladder Line Feedline

A simple multi-band dipole may be constructed by first choosing the lowest band on which operation is desired. The overall length of the dipole antenna should be a shortened half wavelength as shown in **Table 1**. This antenna will be fed with ladder line and an antenna tuner with balanced connections. You can also use a DX Engineering external balun connected with coaxial cable to an unbalanced tuner for tuning the different bands.

Although it may not seem logical, shortening a multi-band dipole intended for 160 through 10 meter operation to less than 220 Ft. will actually help your wide range antenna tuner cover the lower frequencies easier. That is because you are using a non-resonant antenna system when you use ladder line feed systems for multi-band operations. Changing the length of the ladder line will alter resulting impedances enough so that the tuner may be able to reach a certain frequency that was giving it trouble. The coax from the DX Engineering 1:1 Balun to the tuner should be kept short; typically 5 to 15 feet is best. You can read more about this on the DX Engineering web site; look for the article "*Choosing the Correct Balun*".

The **DXE-LL300** - 300 Ω ladder feedline for a multi-band dipole *must* be in **odd** multiple lengths of 1/8 wavelength on the lowest operating frequency, used to optimize the impedance presented to the balun and tuner over the frequency range of the antenna. This length can be calculated using the

following formula or use **Table 1**. The DX Engineering 300 Ω ladder feedline has a VF (Velocity Factor) of 0.88.

Formula:
$$\text{Length} = \frac{123}{\text{Freq (MHz)}} \times 0.88$$

Where: 123 = 1/8-Wavelength Factor, Freq = Frequency in MHz,
0.88 = Velocity Factor of **DXE-LL300** 300 Ω Ladder Feedline

Multiply the result times the odd multiple (1, 3, 5, 7, etc) to get the correct length closest to your required feedline length.

Table 1 Recommended Antenna and Feedline Length for Shortened Multi-Band Dipoles for easier tuning		
Frequency (MHz)	Shortened Dipole (Ft.)	Make feedline an Odd Multiple of this length in Feet (x 1, 3, 5, etc.)
1.8	220	60.1
3.5	110	30.9
5.3	76	20.4
7	55	15.4
10.1	41	10.7
14	29	7.7
18	22	6
21	19	5.2
24	19	4.5
28	19	3.9

Note: If using an external balun, the feedline length should be calculated to the balun.

Example: To use an antenna from 80 meters to 10 meters, the feedline should be in odd 1/8 wavelength multiples on 80 meters.

The 80 meter band starts at 3.5 MHz. Therefore, $123/3.5 = 35.1$.

DX Engineering feedline has a VF of 0.88, so $35.1 \times 0.88 = 30.9$ ft. per 1/8-wavelength.

If 90 feet is required to get to your operating position, the nearest odd multiple 1/8 wavelength length is 92.7 feet (30.9×3).

If you needed 110 feet, you would have to add to the feedline to achieve 154.5 feet (30.9×5) to maintain the odd 1/8th multiple rule for length.

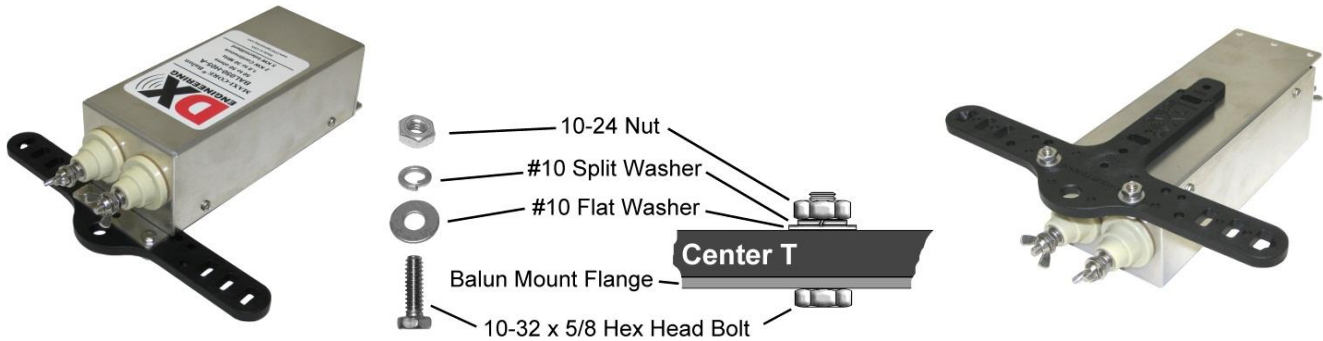
If you need to splice ladder line together for longer lengths, use the **DXE-LLC-1P Ladder Line Coupler**.

If you have excess ladder line, it can be zigzagged while suspended in air, but it can't be closer than a few conductor widths to metallic objects and **cannot be coiled** or laid on the ground. If it is necessary to pass closely to a metallic object, twist the line to partially balance the effect on both sides of the feedline.

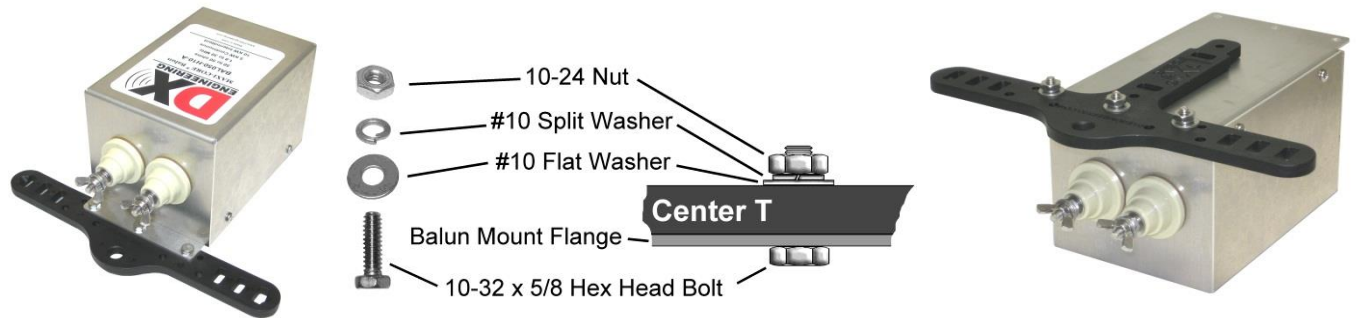
Appendix C - Mounting a Balun to the Center-T

There are three types cases used for DX Engineering Baluns. Two are formed aluminum and one is cast aluminum. The following are typical examples of the three types of cases for the available baluns showing the method for mounting them to the Center-T of a **DXE-UWA-KIT**.

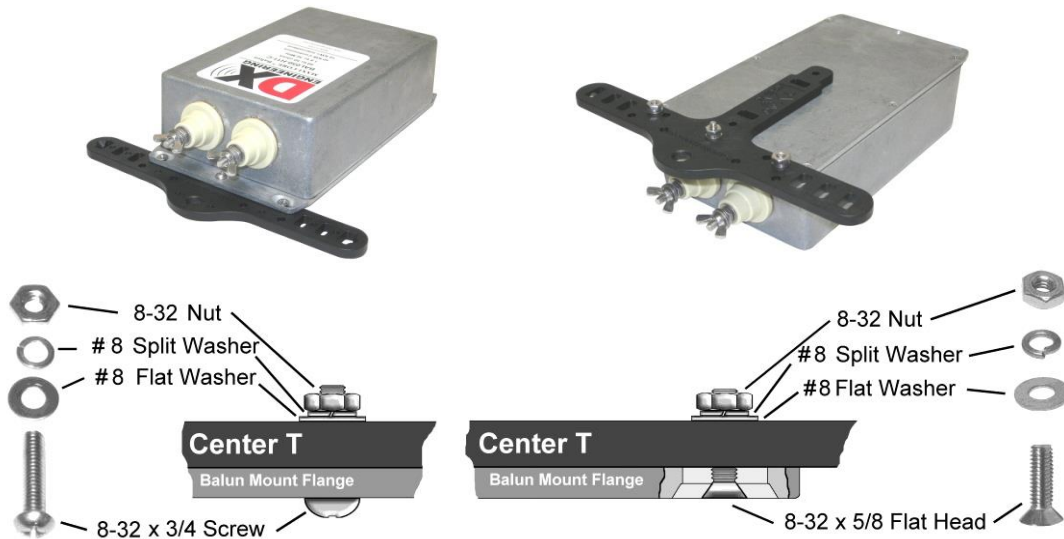
1. **DXE-BAL050-H05-A** Uses a Formed Aluminum Case that is approximately 7" x 3" x 2-1/4" thick. Use two sets of the #10 hardware as shown below.



2. **DXE-BAL050-H10-A** Uses a Formed Aluminum Case that is approximately 5-1/2" x 3-3/4" x 3-3/8" thick. Use three sets of the #10 hardware as shown below.



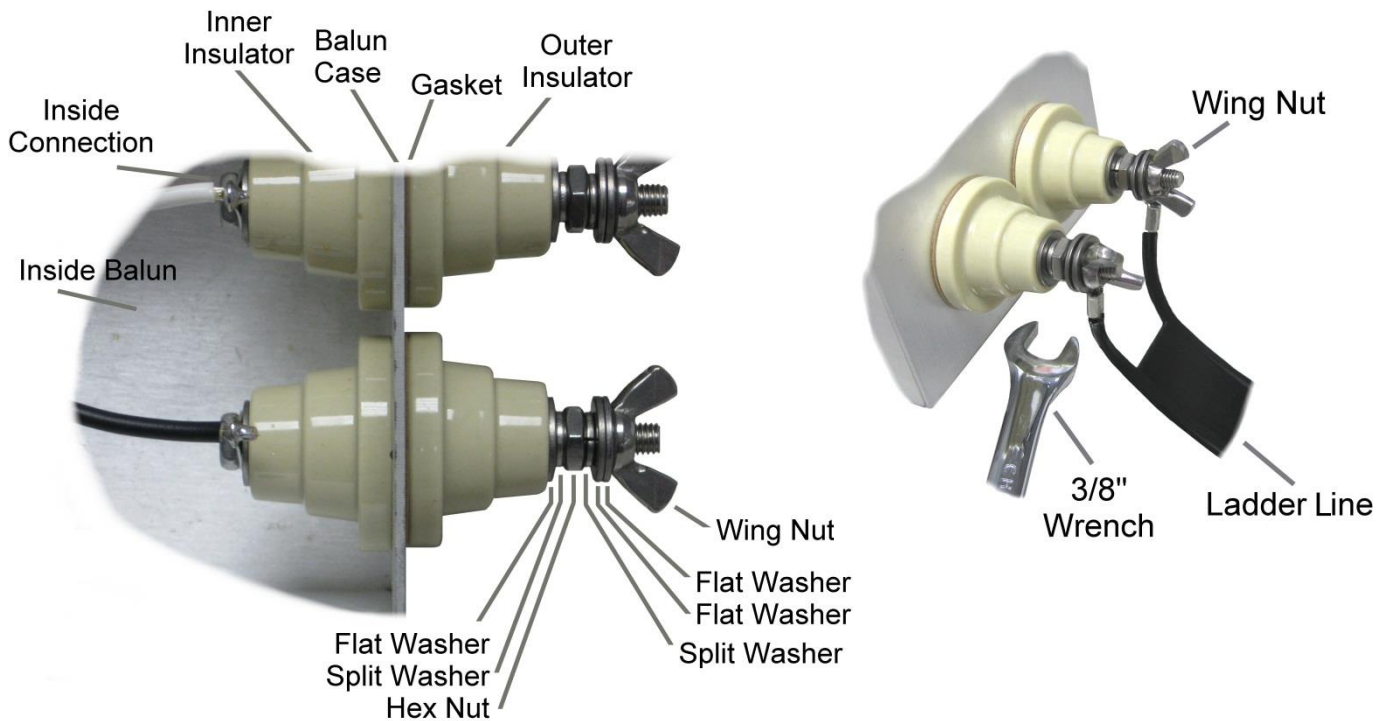
3. **DXE-BAL050-H11-C** Uses a Cast Aluminum Case that is approximately 7-1/4" x 4-1/2" x 2-1/4" thick. Use two sets of the # 8 hardware with the flat head screws for the outside, and one set of the # 8 hardware with the Philips head screw for the center as shown below.



When making connections to the balanced terminals on the balun, it is recommended that you install ring terminals on the ladder line or antenna wire rather than just twisting the bare wire around the terminals. Using ring terminals will provide a longer lasting reliable connection.

Additionally, the use of a 3/8" open end wrench is strongly suggested to hold the hex nut in place while you hand tighten the wing nut. This will prevent the 2-1/2" long hex bolt that goes inside the balun from rotating and possibly breaking an internal soldered connection.

The supplied wing nuts should be hand tightened only. Do not use pliers or other tools to tighten them as excessive force may damage the internal connections or the ceramic insulators.



Connection of Ladder Line and Hand Tightening the Wing Nuts



Using 3/8" wrench - hold hex nut steady

Appendix D - Sample Dipole Configurations

Using the **EZ-Build® Universal Wire Antenna Hardware Kits** will allow you to build many types of wire and ladder line antenna configurations. Consult a reliable text such as the "*ARRL Antenna Book*" which is available from DX Engineering for other types of wire antennas (Off Center Fed, Loop and many more).

Attachment of other wire type antennas to the **EZ-BUILD® Universal Wire Antenna Kit** is basically the same as described. The following pictures show some typical applications.

Single Wire Element



Typical Single Band Dipole (not to scale)



Coaxial Feed

DX Engineering Coaxial Stub & Strain Relief
DX Engineering UV Resistant Antenna Wire
DX Engineering UV Resistant Dacron Support Rope



Ladder Line Feed

DX Engineering UV Resistant Antenna Wire
DX Engineering 300-ohm Transmitting Twinlead
DX Engineering UV Resistant Dacron Support Rope



**Typical Single Band Dipole with
DX Engineering Balun and Cable Strain Relief
(not to scale)**



Balun Feed

DX Engineering 1:1 and 4:1 Current Baluns
DX Engineering Coaxial Strain Relief for Baluns
DX Engineering UV Resistant Antenna Wire
DX Engineering UV Resistant Dacron Support Rope

Folded Dipole Element



Ladder Line Feed

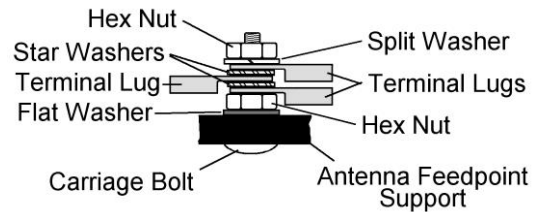
DX Engineering 300-ohm Transmitting Twinlead
 DX Engineering UV Resistant Dacron Support Rope



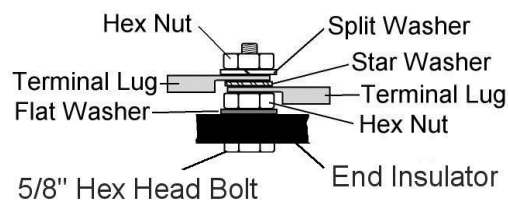
Typical Folded Dipole with DX Engineering Balun and Cable Strain Relief (not to scale)

Balun Feed

DX Engineering Balun
 DX Engineering Coaxial Strain Relief
 DX Engineering 300-ohm Transmitting Twinlead
 DX Engineering UV Resistant Dacron Support Rope



Suggested method to secure the ladder line for a Folded Dipole Element on the end insulators:



Dual Frequency Element



Typical Dual Band Dipole using Ladder Line. Upper dipole leg wire is cut for lower frequency, lower dipole leg is cut wire for higher frequency (not to scale).



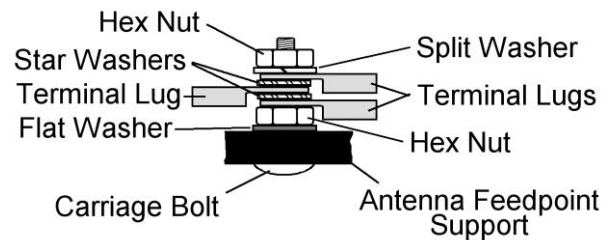
Coaxial Feed

DX Engineering UWA Kit with Strain Relief
DX Engineering 300-ohm Transmitting Twinlead
DX Engineering UV Resistant Dacron Support Rope



Ladder Line Feed

DX Engineering UWA Kit with
DX Engineering 300-ohm Transmitting Twinlead
DX Engineering UV Resistant Dacron Support Rope



Balun Feed

DX Engineering Current Baluns
DX Engineering Coaxial Strain Relief for Baluns
DX Engineering 300-ohm Transmitting Twinlead
DX Engineering UV Resistant Dacron Support Rope



Optional Items

TES-2155 - 3M Temflex™ 2155 Rubber Splicing Tape. Conformable self-fusing rubber electrical insulating tape. It is designed for low voltage electrical insulating and moisture sealing applications. For outdoor use, it should be protected from UV deterioration with an overwrap of **TES-06132**



TES-06132 - Scotch® Super 33+. Highly conformable super stretchy tape for all weather applications. This tape provides flexibility and easy handling for all around performance. It also combines PVC backing with excellent electrical insulating properties to provide primary electrical insulation for splices up to 600V and protective jacketing. Both tape products are available from DX Engineering.



DXE-ANTW - (-75 ft., -150 ft., -300 ft., -500 ft., -1000 ft.) #14 Insulated Antenna Wire to achieve top performance and long, trouble free operation. The antenna wire uses insulated wire that is UV resistant and pays out easily, unlike the wire that is commonly available at the big box stores which coils and kinks. It will last much longer in contact with the environment than bare wire.

- Heavy #14 AWG stranded antenna wire
- UV-resistant insulation
- Reduces impact precipitation static
- Long, reliable life

DXE-ANTW-75	#14 Insulated Antenna Wire, 40M & Up, 75 Ft.
DXE-ANTW-150	#14 Insulated Antenna Wire, 80M & Up, 150 Ft.
DXE-ANTW-300	#14 Insulated Antenna Wire, 160M & up, 300 Ft.
DXE-ANTW-500	#14 Insulated Antenna Wire, Multiple antennas, 500 Ft.
DXE-ANTW-1000	#14 Insulated Antenna Wire, Multiple Antennas, 1000 Ft.



DXE-LL300 - (1C, -2C, -3C, -4C, -5C) 300-ohm ladder line rated for full legal power. Each conductor is 18 gauge, consisting of 19 strands of copper clad steel wire. This is the same ladder line used in **DX Engineering Multi-band Dipole Antennas**, and the ladder line we recommend for use to connect DX Engineering tuner baluns to your multi-band dipole antenna.

- 100 ft., 200 ft., 300 ft., 400 ft., and 500 ft. spools are available
- Conductor 18 AWG, 19 strand
- Velocity Factor: 88%

DXE-LL300-1C	Ladder Line, 300-ohm, #18 19 strand, 100 ft.
DXE-LL300-2C	Ladder Line, 300-ohm, #18 19 strand, 200 ft.
DXE-LL300-3C	Ladder Line, 300-ohm, #18 19 strand, 300 ft.
DXE-LL300-4C	Ladder Line, 300-ohm, #18 19 strand, 400 ft.
DXE-LL300-5C	Ladder Line, 300-ohm, #18 19 strand, 500 ft.



DXE-LLC-1P Ladder Line Coupler is used to consistently splice both 300 and 450-ohm ladder line by maintaining the spacing between the conductors. It includes a high-impact, insulated splice block, ring terminals and stainless steel hardware.

- High impact Black, UV resistant
- All Stainless Steel hardware
- Use one per splice.



SYN-DBR rope is available in **3/32", 1/8", 3/16", 5/16", and 7/16"** diameter in various length rolls from DX Engineering. SYN Double-braided Polyester ropes are not weakened by decay or mildew and provide excellent resistance to abrasion. The color sealed black polyester yarn used in the braided jacket also protects the cord from damage due to ultra-violet light.



SYN-DBR-94-100	3/32 in. Diameter, Dbl-Braid Dacron/Polyester Rope, 100 ft. Roll
SYN-DBR-125-100	1/8 in. Diameter, Dbl-Braid Dacron/Polyester Rope, 100 ft. Roll
SYN-DBR-187-100	3/16 in. Diameter, Dbl-Braid Dacron/Polyester Rope, 100 ft. Roll
SYN-DBR-187-350	3/16 in. Diameter, Dbl-Braid Dacron/Polyester Rope, 350 ft. Roll
SYN-DBR-187-500	3/16 in. Diameter, Dbl-Braid Dacron/Polyester Rope, 500 ft. Roll
SYN-DBR-312-100	5/16 in. Diameter, Dbl-Braid Dacron/Polyester Rope, 100 ft. Roll
SYN-DBR-312-500	5/16 in. Diameter, Dbl-Braid Dacron/Polyester Rope, 500 ft. Roll
SYN-DBR-437-500	7/16 in. Diameter, Dbl-Braid Dacron/Polyester Rope, 500 ft. Roll

Baluns - High Power Transmission Line Transformers and Baluns with Patented Maxi-Core® Technology - DX Engineering Baluns with Maxi-Core® Technology let your antenna perform to its full potential and reduce the stresses on your equipment.

- Allow a better match from the coax impedance to the impedance of the antenna for lowest SWR
- Exhibit an increased operating bandwidth over other baluns
- Perform at the highest levels of efficiency in transmit or receive applications
- Allow use of an Antenna Tuner and High Transmitter Power without damage (DXE "T" Baluns only)
- Handle High Power (up to 10KW per published spec) with minimum energy loss
- Reduce RFI
- Mounted in sturdy Aluminum boxes with convenient mounting holes
- Unbalanced Output uses PTFE SO239 Connector
- Balanced Input uses Ceramic Insulators with Stainless Hardware



DXE-BAL050-H05-A	Balun - 1:1 1.8 to 30 MHz, Formed Aluminum Enclosure (Wire Dipoles)
DXE-BAL050-H10-A	Balun - 1:1 High Power, 1.8 to 30 MHz, Formed Aluminum Enclosure
DXE-BAL050-H10-AT	Balun - 1:1 High Power, For Use With Antenna Tuner, (Special Applications)
DXE-BAL050-H11-C	Balun - 1:1 High Power, 1.8 to 30 MHz, Cast Aluminum Gasketed Enclosure
DXE-BAL050-H11-CT	Balun - 1:1 High Power, For Use With Antenna Tuner, (Special Applications)
DXE-BAL100-H11-C	Balun - 2:1 High Power, 1.8 to 30 MHz, Cast Aluminum Gasketed Enclosure
DXE-BAL200-H10-A	Balun - 4:1 High Power, 1.8 to 30 MHz, Formed Aluminum Enclosure
DXE-BAL200-H10-AT	Balun - 4:1 High Power, For Use With Antenna Tuner, (Special Applications)
DXE-BAL200-H11-C	Balun - 4:1 High Power, 1.8 to 30 MHz, Cast Aluminum Gasketed Enclosure
DXE-BAL200-H11-CT	Balun - 4:1 High Power, For Use With Antenna Tuner
DXE-BAL300-H10-A	Balun - 6:1 High Power, 1.8 to 30 MHz, Formed Aluminum Enclosure
DXE-BAL450-H10-A	Balun - 9:1 High Power - 1.8 to 30 MHz, Formed Aluminum Enclosure
DXE-BAL600-H10-A	Balun - 12:1 High Power, 1.8 to 30 MHz, Formed Aluminum Enclosure

DXE-CSR8X-1 and **DXE-CSR213-1** are coaxial Cable Strain Relief kits especially designed to be used with DX Engineering Baluns. The **DXE-CSR8X-1** includes clamps for RG-8X coaxial cable and the **DXE-CSR213-1** includes clamps for RG-213 coaxial cable. Coaxial cable is heavy. If not properly restrained, the weight of cable can cause a failure in your feed line connection and in some cases, the cable can pull completely out of the PL-259 connector. The **DXE-CSR** Cable Strain Relief kits are designed with corrosion-resistant aluminum and use stainless steel hardware. These kits are very durable and will ensure cable strain is relieved to keep you on the air.

DXE-CSR8X-1	Cable Strain Relief Kit, For RG-8X
DXE-CSR213-1	Cable Strain Relief Kit, For RG-213



Manual Updates

Every effort is made to supply the latest manual revision with each product. Occasionally a manual will be updated between the time your DX Engineering product is shipped and when you receive it. Please check the DX Engineering web site (www.dxengineering.com) for the latest revision manual.

Technical Support

If you have questions about this product, or if you experience difficulties during the installation, contact DX Engineering at (330) 572-3200. You can also e-mail us at:

dxengineering@dxengineering.com

For best service, please take a few minutes to review this manual before you call.

Warranty

All products manufactured by DX Engineering are warranted to be free from defects in material and workmanship for a period of one (1) year from date of shipment. DX Engineering's sole obligation under these warranties shall be to issue credit, repair or replace any item or part thereof which is proved to be other than as warranted; no allowance shall be made for any labor charges of Buyer for replacement of parts, adjustment or repairs, or any other work, unless such charges are authorized in advance by DX Engineering. If DX Engineering's products are claimed to be defective in material or workmanship, DX Engineering shall, upon prompt notice thereof, issue shipping instructions for return to DX Engineering (transportation-charges prepaid by Buyer). Every such claim for breach of these warranties shall be deemed to be waived by Buyer unless made in writing. The above warranties shall not extend to any products or parts thereof which have been subjected to any misuse or neglect, damaged by accident, rendered defective by reason of improper installation, damaged from severe weather including floods, or abnormal environmental conditions such as prolonged exposure to corrosives or power surges, or by the performance of repairs or alterations outside of our plant, and shall not apply to any goods or parts thereof furnished by Buyer or acquired from others at Buyer's specifications. In addition, DX Engineering's warranties do not extend to other equipment and parts manufactured by others except to the extent of the original manufacturer's warranty to DX Engineering. The obligations under the foregoing warranties are limited to the precise terms thereof. These warranties provide exclusive remedies, expressly in lieu of all other remedies including claims for special or consequential damages. SELLER NEITHER MAKES NOR ASSUMES ANY OTHER WARRANTY WHATSOEVER, WHETHER EXPRESS, STATUTORY, OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS, AND NO PERSON IS AUTHORIZED TO ASSUME FOR DX ENGINEERING ANY OBLIGATION OR LIABILITY NOT STRICTLY IN ACCORDANCE WITH THE FOREGOING.

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Specifications subject to change without notice.

