



# PreppComm Antenna Setup Guide

## Introduction

The PreppComm Super 40M End-Fed Antenna has a unique design that provides very low SWR on only one band, the band your DMX-40 operates on, 40 meters. Low SWR means almost all of the power generated by the DMX-40 transmitter actually radiates off of the antenna, rather than as heat in the antenna and lead-in cable, and being reflected back into the transmitter where it also generates heat - effectively wasted.

When you only have a small transmitter power budget, you don't want any of it wasted!

There are three configurations we will describe for setting up the antenna, using the Antenna Set-Up kit provided with the antenna. Here is what you should find as part of the antenna package:

1. **The antenna itself:** wound on a blue antenna winder, with a black Antenna Matchbox, a short piece of antenna wire with an alligator clip on the end, and a much longer length of antenna wire with a wire loop and carabiner at the end. Both pieces of wire are attached via wing nuts to the Matchbox. The short piece, called the Counterpoise wire, is attached to the side labeled "Counterpoise" on the printed circuit board, and the longer piece is connected to the side labeled "Antenna." It is important to note that this is lightweight wire especially designed for antennas: it is called PolyStealth Wire because it is hard to see. The wire itself is high conductivity Bare Copper-Clad Steel (BCCS) and insulated with a high quality UV Resistant **Polyethylene** to provide you with one of the strongest and longest lasting antenna **wires** on the market today. However, it is the thinnest version to reduce weight for portability, and thus has a 25 pound rating. It is NOT designed for permanent installations, where wind can stress the wire to the breaking point.
2. **The Antenna Setup Kit:** This kit contains everything you need to set up the antenna in several different configurations. Included are the following:
  - A. **30' and 15' Paracord Lengths:** These are the "guy wires" for different antenna setups. Pay attention to how they are stored, with one loop end held in place by the winding of the paracord around the spool, and the other loop end fed through the notch on the outer edge of the spool, through the center hole, and held in place on the other side tightly via a "cord lock" device. The cord lock is unlocked by squeezing it. There is a strong spring inside that keeps it closed on the cord, thus locking it. This same cord lock will be used when setting up so there are no knots to tie or untie, and take down is as easy as setup - easier, in fact. There are two different lengths to support different antenna setups.
  - B. **Throw Weight:** This is a 10 oz lead weight, attached via paracord to a carabiner. The purpose of this weight is to provide a means of throwing the end

of the 30' or 15' length of paracord over a tree limb. However, this weight is a potentially dangerous weapon: be very careful that you know where everyone is so no one gets hit. Be aware of a bounce off the tree limb, coming back in your direction!

- C. **Ground Stakes:** The kit includes 3 ground stakes to be able to handle several different antenna arrangements. These are easily bent, so we include...
- D. **Marker Flags:** These three bright yellow marker flags are designed to be pushed into the ground right next to the ground stakes so you can see them easily and not trip over them or bend them.
- E. **Plastic Clips and Name Tags:** No, you don't need to put your name in the tags - they are just colorful lightweight plastic "markers" to clip onto the antenna wire so it can be seen easily. This is to avoid accidentally running into the antenna (remember, it is a "stealth" antenna, thus hard to see), and damaging ... something. Six clips and tags are provided. This is enough for a typical setup. Several can also be placed on the paracord, as well.
- F. **Pulley Assembly:** This consists of a spool attached to a hanging cord and carabiner. This is used for the Inverted-V antenna configuration, to avoid running your wire over a tree limb, which will suck out power from the antenna and increase the SWR. This is where the second paracord comes in.
- G. **Antenna Lead-In Coax Cable:** This cable connects the Matchbox to the DMX-40 antenna connector. Make sure you tighten both ends securely to ensure a good connection. If not tightened, the antenna may not be effectively connected, thus causing the situation were the DMX-40 antenna output is not loaded, and damage can occur to the transmitter.
- H. **Heavy Duty Bags:** Keep the zip-lock bags so you can maintain the organization of the antenna and setup kit.

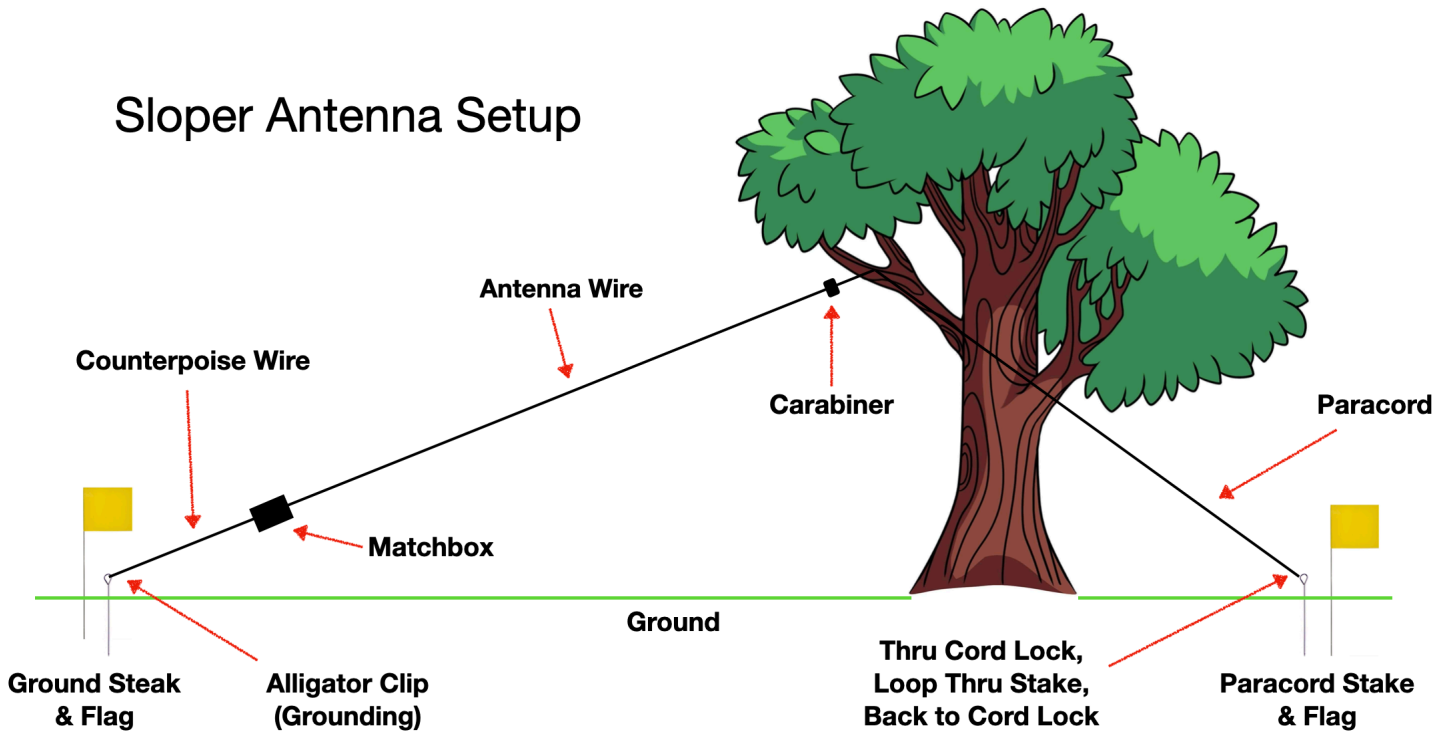
## About the Setups

The setups are actually very simple and do not take much time. However, we have added a lot of information so that (hopefully) all your questions will be answered. It is much easier (of course) to have 2 people do the setup, but it also can be done by one person - just not as fast.

After you have set up the antenna once, you will see that we have provided more than enough information rather than the typical bare minimum. If you think some information that is not present should be added, please let us know.

# Setup #1: Sloper

## Sloper Antenna Setup



### THE PREFERRED SLOPER ANTENNA SETUP: NOT TO SCALE

As you can see from the diagram above, this setup requires only one length of paracord, and two flags and stakes. The Matchbox is suspended in the air near the ground end. The tree limb you use should be at least 15' high. Note that the antenna wire does not go into the tree, but only near the tree. The rest of the way is paracord, which is what goes over the limb and down to the ground on the other end.

The "Not to Scale" is due to the fact that the antenna wire is just about 67' long, so it is a lot farther to the tree than this diagram would anticipate. Note that you have to add in the 7' of the counterpoise, so total length is around 74'.

Here is the step-by-step setup procedure:

1. Remove the flags and stakes from their bundle by unwrapping the two small velcro straps. Save the straps. You only need 2 flags and 2 stakes in this setup.
2. Locate a tree with at least 75 feet to 80 feet available between the tree and where you will set up your DMX-40. Make sure you can see the limb where the paracord will go over from where you plan to place the flags. You can do a measurement by using the antenna wire itself. Temporarily place a stake and flag near the outside of the tree coverage, clip the antenna carabiner to it, and unwind the antenna wire, Matchbox, and counterpoise. This can give you the initial ground stake and flag position, but do not attach at this point. Store the long velcro strip by wrapping it around the antenna winder so it does not get lost.

3. Remove the spool with more paracord on it (30' instead of 15'). Unwind the paracord, placing the cord lock back in the bag) so it does not get lost. Keep the bag.
4. Arrange the paracord on the ground, where you are not stepping on it.
5. Remove the throw weight from its bag, and clip the carabiner on the throw weight to one loop end of the paracord. Keep the bag for take down.
6. Remove the temporary stake and flag from the end of the antenna wire, and lay them aside for now. Connect the antenna carabiner to the other end of the paracord, so if more than 30' is required, it will pull up on the antenna wire, which is laid out on the ground like a measuring tape.
7. Toss the weight over the limb. This may take several attempts. You can throw it from either side. Be aware of other people nearby, and watch out for a bounce back.
8. You should now have the paracord over the limb, with a loop end hanging down at both sides, one attached to the throw weight, the other with the antenna attached.
9. It's time to place the paracord stake and flag you laid aside, and place both together about 5 to 10 feet from the tree trunk on the opposite side of the tree. The stake needs to go all the way to about 2" to 3" above ground so it does not get bent from pulling on the antenna. You will be adjusting the length of the paracord such that the antenna will be close to, but not touching the tree when tightened. Of course this is much easier with two people, but with one person, you will have to go back and forth until you get it right.
10. Remove the throw weight from the paracord, keeping hold of the paracord so it does not slip up into the tree. The weight should be returned to its heavy duty ziplock bag at some convenient point. Run the "guy wire" paracord THROUGH the cable lock (squeezed open), then THROUGH the eye of the stake, and then back THROUGH the cable lock (squeezed open) in the opposite direction. Now, you can tighten the paracord by squeezing the cord lock and pulling the paracord loose end while you stand still. Adjust to what you think will place the end of the antenna outside of the tree.
11. Go to the other end of the antenna, and pull via the Matchbox so the antenna is fairly straight (do not pull really hard). If you have adjusted the "guy wire" paracord correctly, the carabiner on the end of the antenna wire should be outside of the tree. If not, lay down the antenna wire, and make an adjustment on the cord lock, and check with pulling the antenna up, until you have it adjusted correctly.
12. Now you know where to place the antenna counterpoise ground stake and flag. Again, the ground stake needs to go all the way in (sticking up 2-3 inches) so it has good ground contact. The flag should be placed right next to the ground stake.
13. Now is a good time to attach the plastic clips and tags. About 4 on the antenna and two on the "guy wire" is about right. Keep the bag.
14. Pull up the antenna slowly and carefully. Connect the alligator clip to the ground stake. If you pull the antenna too tight, the alligator clip may lose connection. Use the section behind the teeth to ensure it stays on the ground stake, with the teeth engaged on the other side of the loop.
15. Adjust the tension on the antenna using the cord lock on the other "guy wire" end, if required. The Matchbox should be off the ground, not drooping, at least 1 foot (this should

not be a problem if you have a high enough limb).

16. Attach the coax cable, and tighten the connectors. Make sure they are tight by wiggling the cable as you tighten.
17. Attach the clips and tags to the antenna to prevent accidental contact. Usually 4 on the antenna, and 2 on the guy cord is sufficient.
18. Make sure no one touches the antenna contacts on the Matchbox when you are transmitting, due to high voltage radio frequency, which can cause minor burns.

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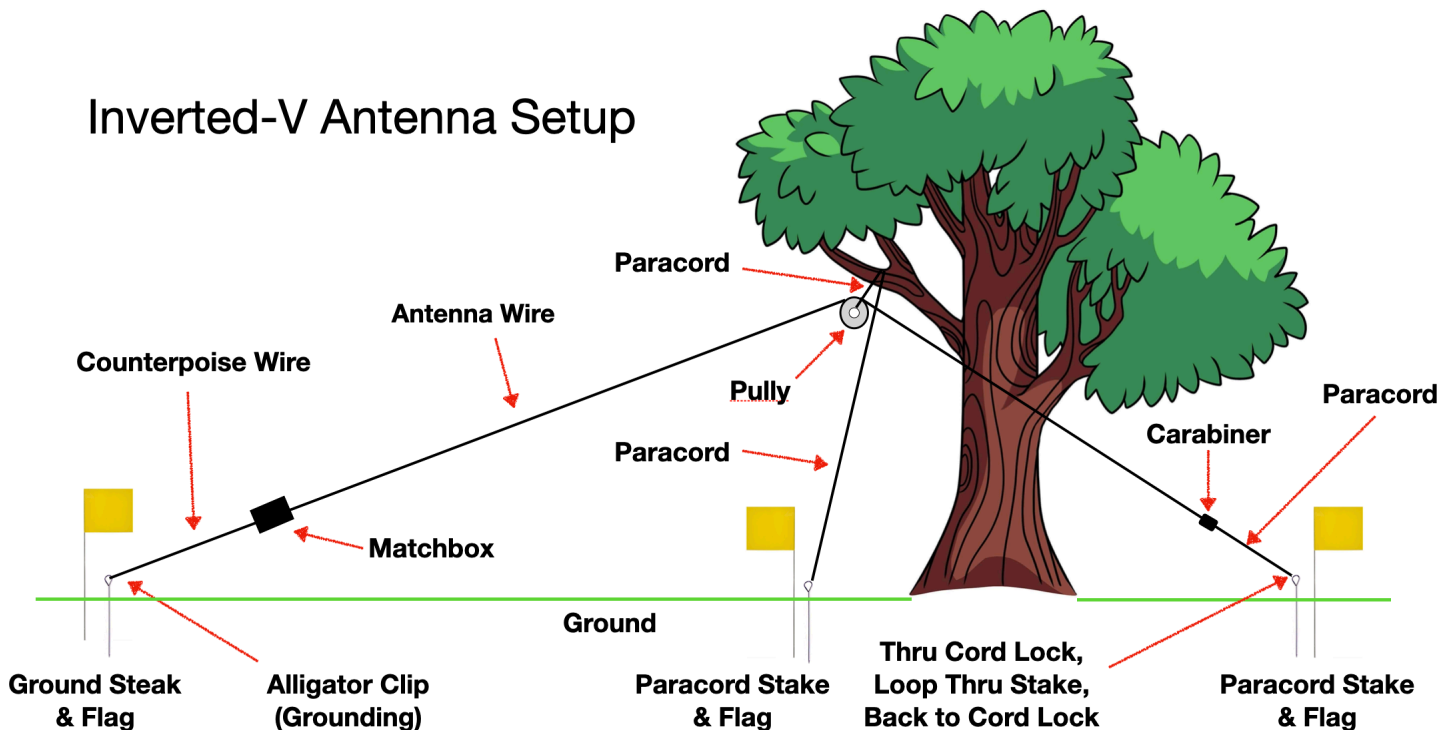
## Sloper Antenna Take Down

Taking the antenna down requires returning it to the same state you found it in when you started the setup.

1. Disconnect, loop and store the coax cable in the provided heavy-duty bag.
2. Release the antenna tension using the cord lock, completely removing the lock and placing it in your pocket.
3. Remove and store the plastic clips and tags into their ziplock bag.
4. Disconnect the alligator clip, and remove the velcro strip around the antenna winder. Clip the antenna clip to the winder, and wind up the antenna such that the Matchbox is approximately centered on the winder. Attach the carabiner to the antenna winder to keep the antenna wire in place
5. Wrap the long velcro strap around the antenna winder and Matchbox to hold securely in place.
6. Wind up the 30' of paracord by covering one loop end with windings of paracord on the white spool, and ending with passing the paracord through the center hole, and through the squeezed open paracord lock. Holding the cord in place in the notch on the edge of the spool, pull the paracord through the lock to tighten the paracord in place so it stays neatly on the spool. Replace in the heavy duty zip-lock bag.
7. Pull up and clean off the flags and ground stakes, and put them back together with the other flag and stake using the small velcro strips.
8. Whew! We are done! Look around - did we forget anything?

## Setup #2: Inverted V

### Inverted-V Antenna Setup



**INVERTED V ANTENNA SETUP DIAGRAM NOT TO SCALE**

This setup is somewhat more complicated than the sloper, in that it uses both lengths of paracord, three sets of flag and stake, and a pulley to hold the antenna wire up without it going over the tree limb itself, and keeping it a foot or more from the tree. As shown above, the antenna goes over the pulley, so it extends to the other side of the tree, and has a much shorter "guy wire" at that end. The pulley is held up by the longer paracord, as it must be lowered to pass the antenna wire through, and then hoisted up.

The "Not to Scale" is due to the fact that the antenna wire is just about 74' long total, including the counterpoise, so things are a lot more spaced out than shown in the diagram.

Here is the step-by-step setup procedure:

1. Remove the flags and stakes from their bundle by unwrapping the two small velcro straps. Save the straps. You will need all 3 flags and stakes in this setup.
2. Locate a tree with sufficient distance on both sides to support an inverted-V configuration, with as little contact with leaves or branches as possible (no contact is best by far). Due to angle and added length of the paracord at the end, about 75 feet is about right, including the tree. Make sure you can see the limb where the antenna will go under from where you plan to place the flags. You can do a measurement by using the antenna wire itself. Temporarily place a stake and flag near where you would like one end of the antenna setup to be, and clip the antenna carabiner to it. Unwind the antenna wire, Matchbox, and counterpoise, passing the tree, and ending up at the other location where you would like to

terminate the antenna. Adjust as necessary. This can give you the initial ground stake and flag position, but do not attach at this point. Store the long velcro strip by wrapping it around the antenna winder so it does not get lost. Note: you will need at least 3 feet beyond the antenna carabiner end for final setup, and the matchbox end will probably come closer to the tree a few feet, as well.

3. Remove the spool with more paracord on it (30' instead of 15'). Unwind the paracord, placing the cord lock back in the bag) so it does not get lost. Keep the bag.
4. Arrange the paracord on the ground, where you are not stepping on it.
5. Remove the throw weight from its bag, and clip the carabiner on the throw weight to one loop end of the paracord. Keep the bag for take down.
6. Place a second flag and ground stake under the limb you plan to hold up the pulley.
7. Holding the other end of the paracord, toss the weight over the limb. This may take several attempts. Be aware of other people nearby, and watch out for a bounce back.
8. You should now have the paracord over the limb, with a loop end hanging down at both sides, one attached to the throw weight, the other in your hand.
9. Attach the paracord in your hand to the ground stake below the tree limb by running the "guy wire" paracord THROUGH the cable lock (squeezed open), then THROUGH the eye of the stake, and then back THROUGH the cable lock (squeezed open) in the opposite direction. Now, you can tighten the paracord by squeezing the cord lock and pulling the paracord loose end while you stand still. Adjust to take up excess, but leaving the throw weight at about 3 feet off the ground.
10. Remove the pulley assembly from the ziplock bag. Remove the throw weight from the paracord, and replace it with the pulley assembly, keeping hold of the paracord so it does not slip up into the tree. The weight should be returned to its heavy duty ziplock bag.
11. Retrieve the end of the antenna wire by removing it from the temporary stake, and run it through the pulley assembly so that when it is hoisted up, the antenna wire will go over the pulley and slide easily back and forth. Pull the antenna wire through until you reach the temporary stake. Note: at this point, the counterpoise wire is not attached to anything.
12. Remove the shorter paracord in the same way as the longer, and attach one end to the end of the antenna via the carabiner. Use a minimum of 3 feet, and up to 8 feet of paracord out farther, moving the flag and ground stake to the new location. Attach the paracord to the stake using the cord lock as before above, without tightening the antenna, but just pulling so it is somewhat slack but not coiled up on the ground.
13. Now is a good time to attach the plastic clips and tags to the antenna to prevent accidental run-in's with loose humans.
14. Using the cord lock, hoist the pulley assembly at the tree to six inches to one foot below the tree limb.
15. Go to the Matchbox end of the antenna, and place the antenna counterpoise ground stake and flag. Again, the ground stake needs to go all the way in (sticking up 2-3 inches) so it has good ground contact. The flag should be placed right next to the ground stake.

16. Connect the alligator clip to the ground stake. If you pull the antenna too tight, the alligator clip may lose connection. Use the section behind the teeth to ensure it stays on the ground stake, with the teeth engaged on the other side of the loop.
17. Adjust the tension on the antenna using the cord lock on the other "guy wire" end, if required. The Matchbox should be off the ground, not drooping, at least 1 foot (this should not be a problem if you have a high enough limb).
18. Attach the coax cable, and tighten the connectors. Make sure they are tight by wiggling the cable as you tighten.
19. Attach the clips and tags to the antenna to prevent accidental contact. Usually 4 on the antenna, and 2 on the guy cord is sufficient.
20. Make sure no one touches the antenna contacts on the Matchbox when you are transmitting, due to high voltage radio frequency, which can cause minor burns.

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## Inverted-V Antenna Take Down

Taking the antenna down requires returning it to the same state you found it in when you started the setup.

1. Disconnect, loop and store the coax cable in the provided heavy-duty bag.
2. Release the antenna tension at the center, using the cord lock, completely removing the lock and placing it in your pocket. At this point, the pulley assembly should be on the ground. Disconnect the pulley assembly from the paracord. Wind the cord on the spool, using the notch on the edge for the end of the paracord, and passing it through the center hole and locking it and tightening it with the cord lock. Return to the ziplock bag.
3. Disconnect and remove the cord lock at the far end of the antenna, disconnect from the antenna wire, and wind and store the paracord as above.
4. Remove the clips and tags, and store in their ziplock bag.
5. Disconnect the alligator clip, and remove the velcro strip around the antenna winder. Clip the antenna clip to the winder, and wind up the antenna such that the Matchbox is approximately centered on the winder. Attach the carabiner to the antenna winder to keep the antenna wire in place. During this phase, you will be running into the pulley assembly, which can be left temporarily on the ground.
6. Wrap the long velcro strap around the antenna winder and Matchbox to hold securely in place.
7. Pull up and clean off the flags and ground stakes, and put them back together with the other flag and stake using the small velcro strips.
8. Return the pulley assembly into its ziplock bag.
9. Whew! You are done! Look around - did we forget anything?



## Other Configurations

There are several other configurations you could try out. We have not tried these out at the factory, but they should work. How good they work is the question that only can be answered by actual setup and use.

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### The NVIS Configuration

NVIS stands for Near Vertical Incident Skywave, and is used for "local" communications (meaning within a few hundred miles daytime, and up to 500 at night). This has the full length of the antenna 7' off the ground, with the 7' counterpoise running to ground at the Matchbox end. The matchbox should be held a foot or so away from a tree, and a loop end of the paracord can go around the wing nut. The other end should also be at least a foot from a tree trunk. The details are left to you, but you have sufficient materials in the setup kit to do the required setup or this configuration.

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### The Vertical L configuration

This configuration is somewhat like a skewed inverted-V, but one leg is horizontal at 15' or so, the remaining length (8' of antenna, and 7' of counterpoise) is vertical (almost). It is held in place by a ground stake at the bottom of a tree at least one foot out, 3 feet or more is best, the pulley is almost directly above, and the other end runs to another tree and is terminated as high as possible.

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Let us know if you have success with either of these, or if you find yet another configuration that works for you! Send us an email via the website at [PreppComm.com](http://PreppComm.com)