

**Recommended wire lengths and Installation Notes for Unun models
4932, 4935, 9130, 9132 & 9135**

Wire Length Feet	1.8 MHz	3.7 MHz	5.3 MHz	7.1 MHz	10.1 MHz	14.2 MHz	18.1 MHz	21.2 MHz	24.9 MHz	28.5 MHz	50.1 MHz
175	1.2	1.6	1.1	1.1	1.1	1.8	1.3	1.6	1.7	1.2	1.5
169	1.4	1.2	1.2	1.2	1.2	2.1	1.4	1.4	1.5	1.2	1.1
162	1.4	1.5	1.7	1.3	1.6	1.8	1.9	1.1	1.5	1.7	1.5
146	1.7	1.5	1.4	1.4	2.4	1.5	1.3	1.2	1.4	1.5	1.5
135	2.0	1.4	1.3	1.8	1.6	2.0	2.0	1.7	1.5	1.6	1.3
124.5	<u>1.3</u>	<u>1.3</u>	<u>1.2</u>	<u>1.3</u>	<u>1.7</u>	<u>1.6</u>	<u>1.8</u>	<u>1.6</u>	<u>1.4</u>	<u>1.1</u>	<u>1.4</u>
98.5	1.8	1.7	1.4	1.7	2.3	1.9	1.4	1.2	1.7	1.2	1.2
88.5	1.8	2.2	1.7	2.3	1.9	1.3	2.0	1.8	1.4	1.5	1.5
72	2.0	2.0	1.4	1.2	1.2	1.9	1.9	1.5	1.1	1.5	1.1
59	1.6	1.6	1.3	1.5	2.0	1.5	2.0	1.1	1.7	1.2	1.5
53	<u>1.6</u>	<u>1.4</u>	<u>1.2</u>	<u>1.1</u>	<u>1.5</u>	<u>1.1</u>	<u>1.9</u>	<u>1.2</u>	<u>1.1</u>	<u>1.7</u>	<u>1.1</u>
49	1.5	1.3	1.4	2.4	2.4	1.3	1.6	1.6	1.4	1.7	1.5
44		1.2	1.5	2.1	2.1	1.7	1.3	1.7	1.6	1.1	1.2
36		1.2	1.3	1.3	1.3	2.0	1.6	1.2	1.7	1.6	1.5
29.5				1.2	1.2	2.1	2.0	1.3	1.2	1.6	1.3
24.5				1.6	1.6	1.4	2.1	1.8	1.3	1.2	1.4

Table shows typical SWR relative to installed wire length. SWR **will** vary based on topography, proximity of nearby structures, configuration of the antenna wire and choice of ground or counterpoise. For best results, use the longest wire shown on the table that will fit your installation constraints. Installing the antenna wire as an Inverted L can change the

feed point impedance due to top loading and may require tuning (changing overall length of the wire) for best coverage of all HF bands.

Rows in color are best overall lengths to use for optimum HF spectrum coverage. Experimenting by slightly changing the wire length (+ or-) is encouraged to provide best overall performance for individual installations.

By design, ununs are wound in such a manner that they provide little or no RF choking. Although not necessary, a 1:1 isolation/choke balun (models, 1110, 1113, 1115 etc.) at the **transmitter end** of feedline will stop RF from entering your equipment and reduce receiver noise caused by common mode currents. **Installing a 1:1 choke balun at or near the unun will not allow the coax shield of the feed line to be used as a counterpoise.**

[Any of the 913x units can be installed using three different methods.](#)

Ideal: Sloper configuration with one counterpoise but several different length counterpoises is better. Length of counterpoise should be a minimum of 20-30 feet but longer is better. If possible run the counterpoise **above ground** away from or perpendicular to the antenna wire and do not ground the counterpoise at the unun.

You can also use the unun with no counterpoise or ground if your feedline is at least 25+ feet long. In this configuration the coax shield will act as your counterpoise and there should be no ground at the antenna. With this installation there is a high probability of common mode currents on the shield so a good 1:1 choke balun should be installed in the feedline at or near the point it enters your operating position. **Using this configuration with an indoor antenna system is not advised.**

Good: Attach counterpoise stud to a radial field of at least 8 wires minimum, each 10 -20 feet long. Again, more is better and will increase efficiency. Longer length radials are not necessary.

Workable: Attach counterpoise stud on unun to a good ground rod at the feed point of the antenna.

[Wire lengths for the 4:1 ratio in models 4932 and 4935.](#)

Usually any wire length that is **non** resonant on the band or bands desired will work with the 4:1 ratio. As an example, a 28-31 foot wire will typically allow 40 thru 10 meter coverage and a 43-50 foot wire will provide access to 80 thru 10 meters. Longer wire is always more efficient but is usually best kept under 300 feet in overall length. Above 300 feet the characteristics of a Beverage antenna begin to show up. Always keep the non-resonant length requirement in mind. The same counterpoise, radials or ground as described above for the 9:1 ratio is also required.

Installation Notes for all Models

Although the balun enclosure is weatherproof, connectors are not. Please be sure to wrap all coax and wire connections in coax seal or your favorite weather sealant to prevent moisture from seeping in through the openings. To avoid problems caused by corrosion, ring terminals supplied with your unit should be soldered, not just crimped!

Neoprene gasket material for the cover of the grey Carlon enclosures is applied at the factory as a liquid. Consequently the area where the beginning and end overlap becomes thicker when the mixture cures. In many cases you will notice a “bulge” in this material when the cover is secured. This is normal and does not detract from the integrity of the seal. **Please do not trim this material as it will degrade the long term effectiveness of the gasket.**

Weep holes are intentionally omitted on most models because the units final mounted orientation is unknown. However, weep holes are very important to the longevity of your balun/unun. If they are not installed, weather changes over a period of time can cause condensate to build up inside the enclosure and potentially cause a short or abnormal operation. They may be added by drilling two 1/16th holes at the low point of the enclosure using the balun's final mounted orientation. Holes are usually drilled in the corners or sides, opposite each other, but can be added in any location. Weep holes are installed during production on models where the final orientation is known. Models with weep holes already installed should be mounted with the holes pointing down. If your balun/unun will be used strictly indoors then weep holes are not required.

Do not over tighten the cover of the enclosure. The neoprene gasket under the cover is very effective and will provide the best seal by leaving approximately a 1/16th inch gap (about the thickness of a penny) at the corners under the closing screws. Over tightening the screws can warp the cover causing the middle of the cover's sides to warp upwards. This will create a gap under the seal compromising the weatherproof integrity of the enclosure.

Please note that short antenna lengths will not be capable of performing as a highly efficient antenna, especially on lower bands. The intent of this unun is to allow HF coverage for portable applications or in restricted installations such as HOA managed communities. Longer wire lengths will always be more efficient and provide better performance.

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