

## Recommended wire lengths and Installation Notes for Unun models

9130, 9132 & 9135 9:1 balun Use

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
53.34m											
169	1.4	1.2	1.2	1.2	1.2	2.1	1.4	1.4	1.5	1.2	1.1
51.51m											
162	1.4	1.5	1.7	1.3	1.6	1.8	1.9	1.1	1.5	1.7	1.5
49.38m											
146	1.7	1.5	1.4	1.4	2.4	1.5	1.3	1.2	1.4	1.5	1.5
44.5m											
135	2.0	1.4	1.3	1.8	1.6	2.0	2.0	1.7	1.5	1.6	1.3
41.15m											
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>
37.95m											
98.5	1.8	1.7	1.4	1.7	2.3	1.9	1.4	1.2	1.7	1.2	1.2
30.02m											
88.5	1.8	2.2	1.7	2.3	1.9	1.3	2.0	1.8	1.4	1.5	1.5
26.97m											
72	2.0	2.0	1.4	1.2	1.2	1.9	1.9	1.5	1.1	1.5	1.1
21.94m											
59	1.6	1.6	1.3	1.5	2.0	1.5	2.0	1.1	1.7	1.2	1.5
17.98m											
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>
16.15m											
49	1.5	1.3	1.4	2.4	2.4	1.3	1.6	1.6	1.4	1.7	1.5
14.54m											
44		1.2	1.5	2.1	2.1	1.7	1.3	1.7	1.6	1.1	1.2
13.41m											
36		1.2	1.3	1.3	1.3	2.0	1.6	1.2	1.7	1.6	1.5
10.97m											
29.5				1.2	1.2	2.1	2.0	1.3	1.2	1.6	1.3
8.90m											
24.5				1.6	1.6	1.4	2.1	1.8	1.3	1.2	1.4
7.38m											

Table shows typical SWR relative to installed wire length. SWR **will** vary based on topography, antenna wire configuration and use 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 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. In this configuration 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 before 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 to a good ground rod at the feed point of the antenna.

**Weep holes** are intentionally omitted on these models because the unit's final mounted orientation is unknown, but are very important to the longevity of your 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 should be added by drilling two 1/16th holes at the low point of the enclosure using the unun's final mounted orientation. Holes are usually drilled in the corners or sides, opposite each other, but can be added in any location.

**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.**