

More EWEs for You



You've seen the basic EWE, now you can have switchable, directional EWEs!

Since the introduction of the EWE antenna in *QST*,¹ many amateurs have improved their low-band receiving capability with a EWE. In the correspondence I've received was a letter from Tony Kazmakites, WB2P, who suggested switching wires above the feedpoint to change directions. This article uses that idea and deals with two switchable configurations of the EWE providing coverage in all directions.

Single EWE for Four Directions

Figure 1 shows a EWE designed to receive in any one of four directions. Relay switching at the base of the central support allows selection of any one of the four wires. As you may remember from the previous article, the *back* of a EWE is the *terminated end*, so the relay box is always at the *front* of the antenna. You select the *southwest wire* to receive from the *northeast*.

All four wires are anchored to a central square wooden pole and are brought to the bottom of the pole on separate faces (see Figure 2 and 3). The wire opposite the relay box is brought through a small hole near the base of the pole. Wires from the top of the pole are run at 90° from each other, although other angles (or more wires) can be used (see Figure 3). In this design, the terminations are at the bottoms of the outer poles. A 2-k Ω potentiometer mounted in a small diecast aluminum box (Bud CU-123) allowed experimentation, but a fixed-value resistor can be used instead. Figures 4 and 5 show the azimuth and elevation patterns on the single EWE optimized for 160 meters (modeled with the other three antennas in place).

Construction

I'll describe the construction that I used to build this antenna in an open field. You can stretch the wires out in nearby woods, or tie them to existing support points. All five supports are made of 12-foot-long, 4 x 4-inch pressure-treated timbers. Each pole is set two feet into the ground and anchored using one or two bags of ready-mix concrete (80 to 160 lb). My soil is hard clay. If your antenna farm has sandy or loose soil, a more substantial base may be required. The five poles are oriented so that their sides are parallel to each other. Screw eyes are installed near the top of each pole and about

one foot above the ground on each pole, one screw eye on each pole face. There's one set of screw eyes on each of the outer poles and four sets of screw eyes on the center pole.

I drove 4-foot-long ground rods into the earth near the lower eyes of the outer poles and planted one rod near the relay box on the center pole. In soft soil, longer rods would be appropriate. (If you can easily drive the rod into the ground, it's not long enough!) Some EWE-antenna builders who have rocky soil and can't use ground rods have reported good success using an above-ground return ground wire (counterpoise). Because the feedpoint impedance of this antenna is usually above 400 Ω and the terminating impedance is generally above 800 Ω , you can discount the effect of ground resistance.

Relay Box

Four relays are housed in a small diecast aluminum box (Bud CU-234) mounted six

inches above ground level (see Figure 3). The relays are mounted on the box lid along with the connectors and four insulated binding posts. In building an assembly such as this, I line the inside of the box lid with a piece of 1/32-inch-thick, double-sided, copper-clad PC-board. Such material is thin enough to work with BNC bulkhead jacks and provides a solderable ground everywhere. The

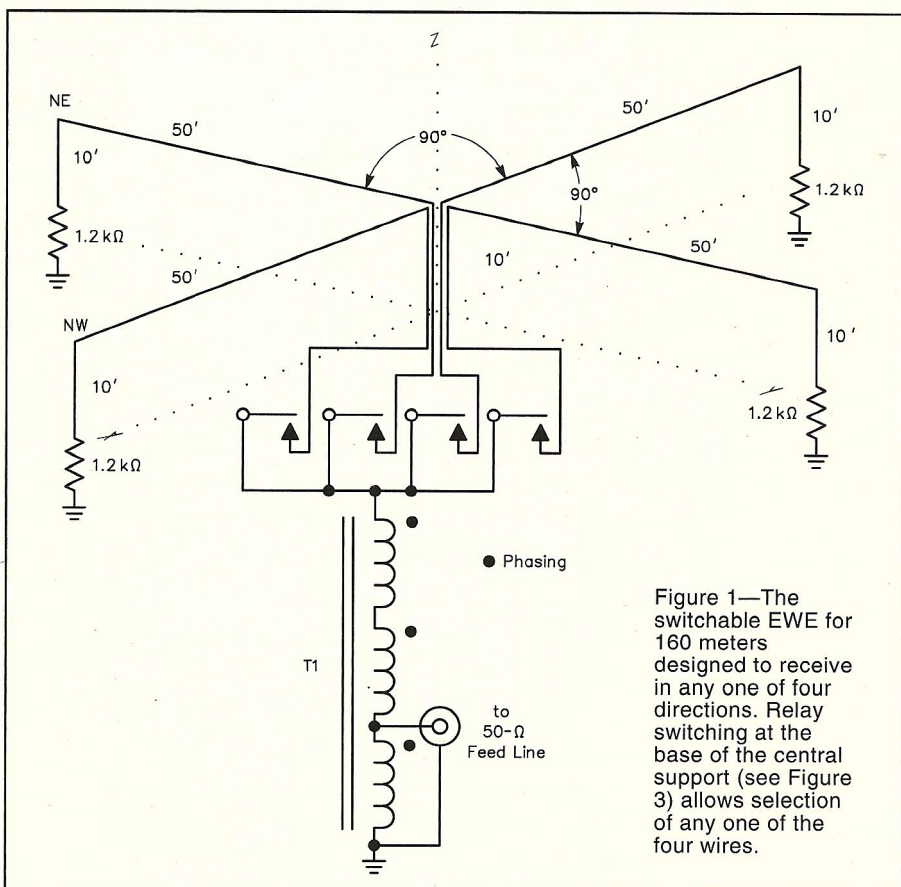


Figure 1—The switchable EWE for 160 meters designed to receive in any one of four directions. Relay switching at the base of the central support (see Figure 3) allows selection of any one of the four wires.

¹Notes appear on page 34.

