

## Quick Start Guide 4 Element Array

1. Choose an array side dimension from available space. 80-foot sides are best all around.
2. Install the 4 Hi-Z type elements in the spacing of your choice (typically 80 feet square for best overall performance). Check each element to make sure they are insulated.
3. If the mounting post cannot be used as a ground rod then install a ground rod at each element. In really dry, or shallow earth, two or more short rods should be used. Typically a 2 – 3 foot ground rod will work.
4. Prepare the 4 vertical / Hi-Z amp to phase controller RG-6 cables. The only critical issues are that all 4 cables are exactly the same length and cut from the SAME spool of coax cable. Install RG-6 connectors.
5. Connect the Hi-Z amps to the elements making sure the antenna terminal connects to the element and the ground terminal goes to the ground rod. These wires can be any gauge stranded wire  $\geq 22$ ga. Best if the lengths of both wires (from preamp to vertical and ground rod) are of equal length for all element.
6. Connect the interconnect cables to the F connector on each Hi-Z amp and arrange the free end of the cables toward the center of the array. (from step 4)
7. Your system came with the two delay cables. These are for the standard 80 foot square layout. If in the future you change the layout dimension then the following procedure will be necessary to build new delay lines. Otherwise, jump to step 8 now.

Successful mid-range values from the chart are 58 Deg. For 60 foot, 75 Deg. For 80 foot, And for 100 foot arrays, 95 Deg. Optimized and suggested values below. (Correction factors applied) all at 1.840 MHz

60 foot Delay 2= 57 Deg. Delay 1= 26 Deg.  
80 foot Delay 2= 74 Deg. Delay 1= 34.5 Deg.  
100 foot Delay 2= 94 Deg Delay 1= 44.5 Deg.

Cut and test the appropriate delay cables by referring to the system manual. Then install their F connectors. Coiling delay cables for minimum space is fine.

8. Place the Hi-Z antennas 4 element controller in the center of the array. Connect the most Northwest element to antenna 1 input on the controller. Proceed clockwise around the array in a circle connecting the elements to input 2, 3, and 4. Connect the short delay line to Delay 1 controller connectors and the longer delay line to Delay 2 connectors.
9. Connect a +13.8 VDC supply to the power terminals on the controller. It is also possible to use a 3-wire control cable from the shack to the controller. The Shield of the feed line from the shack can be used for the power ground connection and another conductor to supply the +13.8VDC. The remaining two conductors are then used for direction switching. CTRL 1 and CTRL 2. NOTE: Verify voltage level to phase controller.
10. Connect the Hi-Z 4 element controller switch box to the power supply at the shack and the control lines to the correct terminals on the controller at the array.

**OPTIONAL:** If you ordered the optional BCB filter, then install this at the output of the phase controller. The other connector from the BCB filter goes to the input of the 18db preamp.

11. Install a short RG-6 coax jumper between the output connector on the phase controller and to the input of the in line 18db preamp module. Connect the RG-6 coax from the output of the preamp to the receiver.
12. The array should be complete and ready to use when the feed line is connected to a receiver.
13. Install jumper cable between the +13.8 VDC terminal on phase controller to the 13.8 VDC terminal on the 18db preamp.

**OPTIONAL and RECOMMENDED:** It would be best to use a 75 to 50 ohm transformer to feed the normally 50-ohm input of the receiver. External receive antenna ports are best to use, as the array will not survive an accidental transmission of RF into the array output and will void the warranty!

Remember, when the **RED LEDS** are on (**LEDs** on the vertical preamps) the **DX is IN**. Enjoy!