



# Product Release R0

**HIGH PERFORMANCE**

**HF RECEIVING SYSTEMS & COMPONENTS**

[www.hizantennas.com](http://www.hizantennas.com)

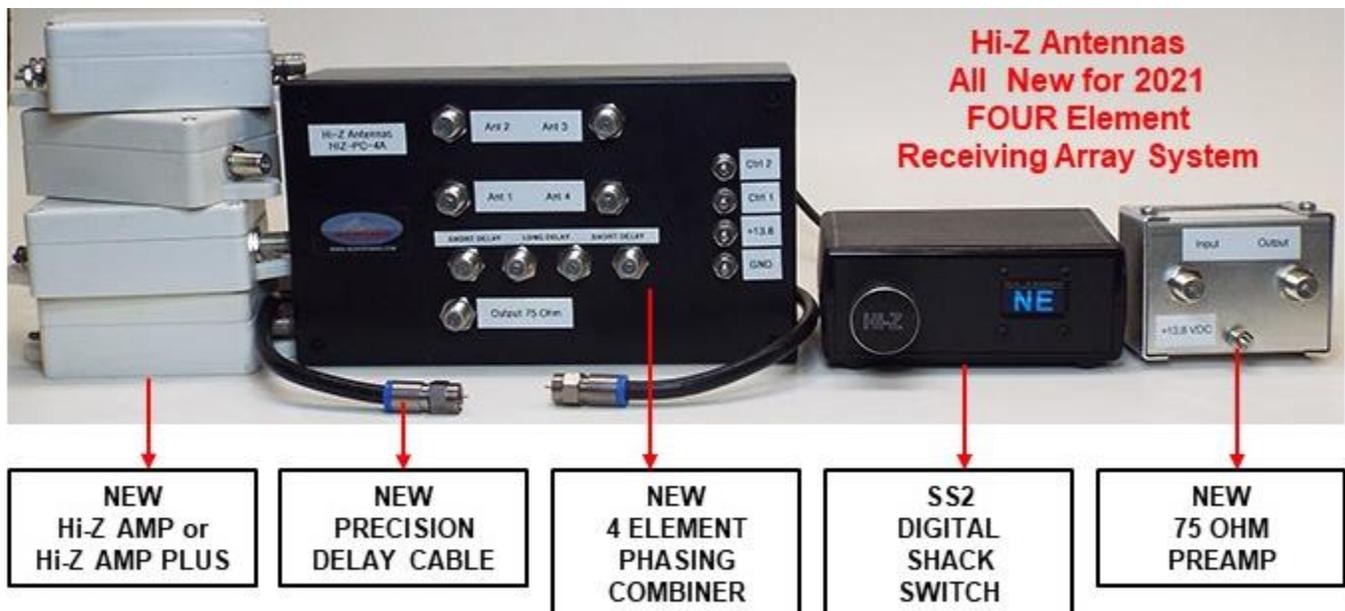
*OUR GOAL - Innovating and Improving the Science of Receiving Systems.*

Greetings from Hi-Z antennas™,

**Hi-Z Antennas™ New product announcement.**

*Modernizing the construction and Performance of  
The Hi-Z Four Element Square Receiving Array*

Hi-Z announces a complete Redesign for the 4-element receiving array for Improved physical design and accuracy of Phasing and Amplitude levels.



**HIZ-4A-V2-SS2, HIZ-4A-V2-SS2P, HIZ-4A-V2-SS2, HIZ-4A-V2P-SS2P**

**Array Packages**

Select the array package to purchase that includes the new Version 2 components you need and the Shack Switch you desire.

The physical arrangement of the array has been changed to allow 60 to 80 foot element spacing with a new 4 Element Square Array Phasing Controller and new Delay Cable, both included in each package.

Each Array Component has its own description on the [www.hizaantennas.com](http://www.hizaantennas.com) web page by accessing the 4 Element page.

This new Phase Combiner design requires the elements be in specific positions that form an equal sides square 60 or 80 feet per side. The new 4 element Phasing Combiner has a set of internal jumpers that allow its use with the 60 or 80 foot per side square array layout. Reception is inline with the diagonal elements.



**Model:**  
**HIZ-PC-4A**

This Square Array Controller processes the signals from 4 High Impedance Vertical Elements with Hi-Z Amplifiers providing the selection of 4 different switchable receiving directions.

The Square array Controller uses one of two available sets of delay cables that allows the user to erect the verticals for 60 or 80 feet per side spacing. Hi-Z offers two Delay Cable sets with one each recommended for either array size. The Manual Appendix C contains information for the user that desires to select the Front to back ratio and resultant RDF by modifying the delay cables.

RDF being the Relative Directivity Factor. Essentially signal to noise improvement factor.

Delay cable set part numbers are HIZ-DL4-60 for 60 feet element spacing and HIZ-DL4-80 for 80 feet element spacing.

The Instruction Manual for this HIZ-PC4A Phase Combiner shows many patterns for different array dimensions and phasing cable delay selections. In addition to the delays and the physical layout there is another valuable consideration in deciding each array layout.

Using the 80 foot element spacing will result in the same patterns on 80 meters as on 160 meters with slightly more signal level but loss of pattern on 40 meters. RDF is essentially the same on 160 meters for either 80 or 60 foot element spacing.

Using the 60 foot element spacing is the Hi-Z Recommendation for 160 meters that includes the best patterns on 160, 80, 60, and 40 meters.

There are many array patterns listed in the instruction manual including our recommended ones for either element spacing.

This 4 Element Controller Enclosure is 7 3/4 X 4 1/2 X 3 inches Depth including connectors. This 4 Element Controller operates from user supplied 11 to 14 Volts DC with 13.8 being normal at 250 ma. or less. User also supplies 4 conductor cable with 2 conductors used for direction switching, one for 11 to 14 VDC and one for power ground. This Square array Controller also supplies the nominal +13.8 VDC to the Hi-Z amplifiers installed at the elements over their connecting coaxial cable.

Direction switching in the user's radio shack is done with the Hi-Z SS2 or SS2-PLUS Shack switches. The SS2-PLUS providing USB array control using a computer. SS2 and SS2-PLUS information is available on the [www.hizantennas.com](http://www.hizantennas.com) website or at [www.DX Engineering.com](http://www.DX Engineering.com) website.

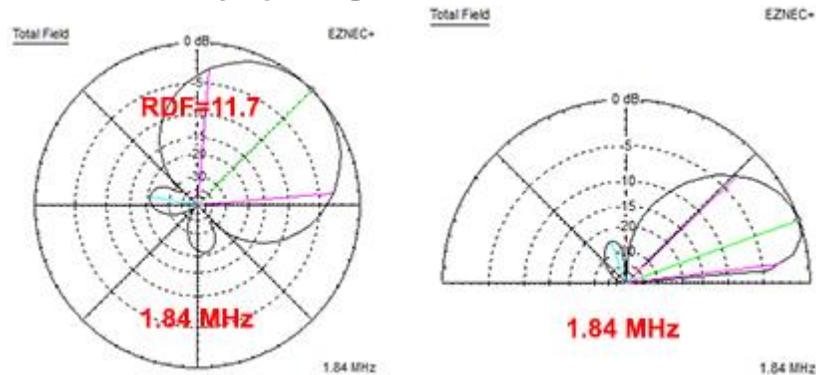


Selection of the 2 versions of Hi-Z amps available will depend somewhat on the users location. If the user is in a VERY quiet RF location on the lower bands then the HIZ-AMP-PLUS is recommended. Using the HIZ-AMP-PLUS may also preclude the need for an array post amplifier if 20 to 24 foot elements are used. Using thin diameter or wire 15 to 20 foot elements or less in normal quiet suburban areas one should use the HIZ-AMP-PLUS which has 6 dB more gain and lower noise figure.

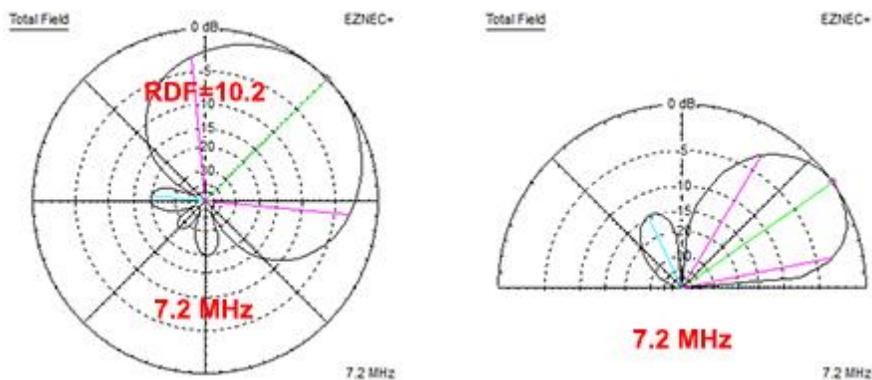
Quiet locations, short elements, or in shack splitting of the array signal typically require post 4 element Controller amplification. The new Hi-Z-PREAMP-75-V2 will provide low noise gain of 17 dB.

# Some Typical Array Patterns and RDF Values

These patterns are for an array spacing of 60 feet and recommended delay cables.



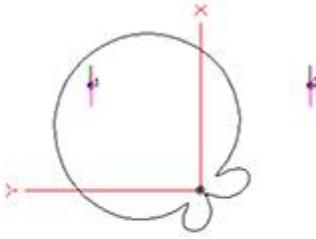
The same layout and phasing cables as above only at 7.2 MHz



## Specifications:

- Designed for phasing and amplifying small Vertical antennas making a receiving array
- RDF as high as 12 dB and or Front to Back up to 30 dB or more
- Features a cable impedance of 75 ohms with for use with common RG-6 cable
- Features Electrical 4 direction selection
- Features Powered with less than 250 ma.
- Features power over coax to the High Impedance Element amplifiers
- Features all connectors on one side for easy mounting under a rain bucket or cover
- Features an RF directionally useful bandwidth of 7.3 MHz and higher
- Features modern Surface Mount Technology for most components
- Features typical Ham shack operating voltage of +13.8 VDC (11 to 14 VDC)
- Features MOV power supply overvoltage protection
- Features Diode and MOV transient protection components on power and switching lines
- Features New enhanced gain and amplitude stability over a wide temperature range

North



Normal element placement  
with respect to the pattern.  
Reception is normal off the  
diagonal.



More information is available at  
[www.hizantennas.com](http://www.hizantennas.com) or e-mail [contact@hizantennas.com](mailto:contact@hizantennas.com)  
As always Hi-Z products are only available through DX Engineering At  
[www.dxengineering.com](http://www.dxengineering.com)

Any questions or inquiries please e-mail us at [contact@hizantennas.com](mailto:contact@hizantennas.com) .

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