# An Evaluation of Kintronics Phasing Equipment From a User's Perspective

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Military specifications, craftsmanship, conservative design, precision, geometrically balanced; these are just a few terms I would use to describe phasing equipment from Kintronic Laboratories. Phasing equipment represents a considerable investment for broadcasters. Even more important, phasing equipment needs to work reliably for years controlling the operating parameters for a directional antenna system. Any compromise on the equipment used may set up unfortunate engineers for years of frustration in maintaining an array. Kintronic Laboratories is one of those companies that takes a no-compromise approach to their product line and a full-service approach to their customers.

The craftsmanship is easily seen when the boxes are opened and one can examine the layout of components, precision interconnections and routing, conservative ratings on components, and excellent fit and finish on the cabinetry (Figures 1, 2). Kintronics truly approaches wiring and silver soldering as an art form! Even such things as removable panel shelving to hold the necessary bridge equipment when servicing proves that this equipment *was designed by engineers who have had to service and install phasing equipment*. That factor alone can mean a lot in the middle of the night when the array goes south!

The phasor itself (Figure 3) is well laid out with clearly-marked controls and intuitive positioning, again demonstrating that Kintronics is well aware of the fact that these systems must be maintained after the installation. The cabinet work will please the most discriminating engineer, and the number of service entrances and drop-down shelving makes maintenance a much more realistic and even enjoyable event.

Controller wiring is facilitated by pull-out drawers full of labeled parts and terminal blocks that *actually match the schematics*. Everything is in full view with plenty of front panel status lamps tracking every contactor action. Installation wiring can be easily harnessed to the drawers making for a functional and neat installation. Dual redundant power supplies both fused and short circuit protected again demonstrates the real world approach of Kintronics.

But let's say everything goes wrong. The consultants have arrived from afar and *nothing tunes anywhere near the predicted values*. What now? Too bad, too sad would be the song-and-dance of some companies. Or worse yet a comment like, "when you find the solution give us a call."

This actually happened on our recent installation in Sioux Falls, South Dakota *but I must emphasize it had nothing to do with Kintronics*. Kintronics, however, had everything to do with the solution.

The geographical site for our five-tower array was an installation challenge, some of it marshy and swamp-like with an overall gently-rolling contour. Needless to say it was a tower installer's nightmare. The rolling contour resulted in tower base differences varying as much as one meter in order to make the elevation at the top of each tower uniform. This caused real problems in the inline array and tuneup proved impossible.

No worries mate! A set of cold bridge measurements was taken with actual empirical values and sent to the engineering team at Kintronics. Days later a box of components arrived with instructions on where to mount and where to substitute and the array tuned up as it should. A combination of many years of actual experience in

directional antenna systems in addition to some very sophisticated computer modeling equipment *cannot be beat when facing the challenges of directional antenna systems*.

This evaluation speaks for itself. There is not one word or line in it that represents fluff or flattery. There are sound reasons why Kintronics is on the label of every directional facility I am responsible to maintain. The tough challenges of installing and maintaining directional antenna systems preclude a John Wayne go-it-alone approach. With Kintronics on your DA team a successful and maintainable system is a realistic goal.

Figure 1

Figure 2

Figure 3