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## Phase Tech Fills Three-Phase Request

Remote Site Benefits From Reliable Performance, Remote Control Options

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CHEYENNE, WYO. — Building new radio stations in the state of Wyoming for the last three years has been a challenging task.

### USERREPORT

Among the problems: Tower sites served with utility three-phase power are virtually nonexistent.

High-power transmitters powered by single-phase are difficult to find. Furthermore, single-phase transformers are costly and not as efficient as their three-phase counterparts. Finding a way to bring three-phase power to a single-phase site can prove economical in the long run.

I am no stranger to the traditional rotary phase converter and expected to purchase one for a new station build atop Warren Peak, a remote mountain transmitter site. However, after doing a bit of research, I found a company called Phase Technologies, a manufacturer of solid-state phase converters called Phase Perfect.

### PRICE PERFECT

I gave them a call and found their people to be helpful in determining exactly which model would provide enough current capacity for my transmitter, which in this case was a 40-year-old Collins 831-G2. The price was a little less than a rotary converter with similar specifications would cost, so I decided to

go for it.

The model suited for my application consisted of three wall-mounted cabinets (lower-current models only require a single cabinet). These units are by no means light, but are exponentially easier to move around than their rotaphase equivalents.

I studied the documentation and found the connections to the unit to be pretty straightforward; I proceeded to have my electrician wire it up.



The first time we fired it up, I heard a contactor click into place followed by a light humming sound. I put the meter on the power input taps to the transmitter and sure enough, identical 240V phase to phase all the way across!

I was definitely surprised. If it had been a rotary converter at that point, I would have had varying voltages phase to phase and I wouldn't have been able to hear myself with the roar those converters make.

The Collins transmitter operates well on the Phase Perfect converter, and has now been in service for about a year and a half.

It monitors the incoming voltage and will cease operating if the input voltage crosses certain thresholds. This has happened to us a few times, but it will retry a certain number of times once the voltage is back within parameters.

A pair of contacts in the unit can be run through an external relay to "reboot" it. I have put this to use with our remote control system at the site since there was one occasion where the utility power had so many

fluctuations in a short period of time that the unit stopped retrying.

The company adds that Phase Perfect phase converters typically operate at 97 percent efficiency with a phase-to-phase voltage balance of approximately 1 percent. Phase Perfect is UL-listed and has electronic power factor correction with a sinusoidal output, over-voltage, undervoltage and overcurrent protection. Five models run from 15 kVA up to 80 kVA with 50/60 Hz capabilities and 3 RU enclosures available.

The Phase Perfect converter has lived up to its promises and because of that reason I have installed their converters at two other sites now as well, one with another Collins tube transmitter and the latest with a solid-state Nautel. If you need three-phase at a single-phase site, I would definitely recommend Phase Perfect. Your transmitter and your ears will thank you for it.

**For information, contact Steve Mathiesen at Phase Technologies in South Dakota at (866) 250-7934 or visit [www.phaseperfect.com](http://www.phaseperfect.com).**