

## Dranetz HDPQ Family VFD Output Measurements

### INTRODUCTION

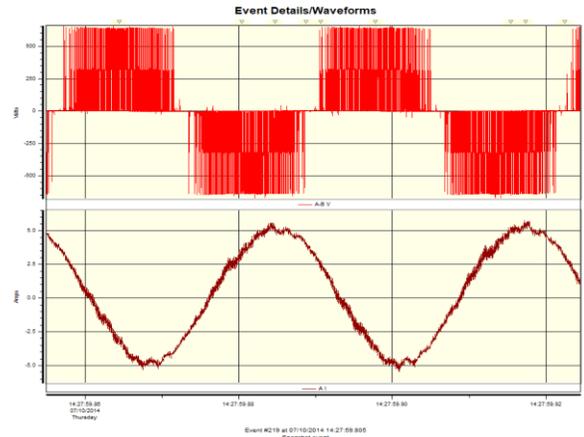
Most power monitoring instruments synchronize their measurements to a stable 50/60Hz voltage source. The reason is to get accurate readings between the voltage and current phases. This is fine for the majority of applications, including when measuring the input of a Variable Frequency Drive (VFD), but poses a problem when attempting to measure the output of a VFD - by design, the VFD output voltage frequency varies, making it difficult for the power monitor to synchronize.

Unlike most power monitors, the Dranetz HDPQ product family can also synchronize to the current which is very beneficial for use in VFD and other applications. The instruments default to synchronizing to the voltage, but can be easily changed to synchronize to the current. Doing so involves a simple setup change, and this Application Note describes the required setting.

### WHY MEASURE THE POWER AND POWER OF A VFD?

Many VFD monitoring applications are at the VFD's input to measure the power consumption, harmonics, and power line fluctuations. Being at the VFD input, a stable 50/60Hz voltage source is available for power monitor synchronization. However, when evaluating VFD efficiency, susceptibility to PQ issues, and troubleshooting issues with the controlled outputs, it is necessary to measure at the VFD's output, which does not have a stable 50/60Hz voltage output. Significant errors will result when using most power monitors.

It turns out that the VFD output current has a stable 50/60Hz frequency. See the snapshots below - the top is the voltage and the bottom is the current.



### DRANETZ HDPQ SETUP

The required current synchronization setting is located in the Nominal & Frequency tab of the Dranetz HDPQ Wizard setup. The Sync Channel setting defaults to Channel A Volts, but as shown below, when measuring the output of a VFD, select Channel A Amps as the sync channel instead. This is the only setting change that is required, and all other settings are as usual.

### TO CONTACT DRANETZ

- Call 1-800-372-6832 (US and Canada) or 1-732-287-3680 for Technical or Sales support
- To submit a support request online, please visit: <http://www.dranetz.com/contact-us-2/technical-support-request/>