

## Parallel Voltage Mode CTs



### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Follow safe electrical work practices. See NFPA 70E in the USA, or applicable local codes.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Read, understand and follow the instructions before installing this product.
- Turn off all power supplying equipment before working on or inside the equipment.
- Use a properly rated voltage sensing device to confirm power is off.  
DO NOT DEPEND ON THIS PRODUCT FOR VOLTAGE INDICATION
- Only install this product on insulated conductors.

Failure to follow these instructions will result in death or serious injury.

The information provided herein is intended to supplement the knowledge required of an electrician trained in high voltage installations. There is no intent to foresee all possible variables in individual situations, nor to provide all training needed to perform these tasks. The installer is ultimately responsible to assure that a particular installation will be and remain safe and operable under the specific conditions encountered.

### Introduction

Voltage output current transformers can be installed in parallel to allow a single current or power meter to monitor the aggregate current on multiple loads. The configuration is simpler than for traditional current mode CTs.

Voltage mode CTs drive a current loop much like traditional current mode CTs. However, the current loop is contained within the CT, eliminating the need for shorting blocks and making the CTs safer to work with. The current loop passes through a burden resistor, which produces the CT's output voltage. Since the internal current loop does not need to be 5 Amps at the rated current, the CT can be designed with a more optimal internal current. This is particularly advantageous at lower currents, where voltage mode CTs often outperform traditional 5 Amp CTs.

### Important Installation Considerations

- The phases measured by the parallel CTs must be the same. Ideally, the CTs are monitoring taps from the same bus.
- Parallel CTs cannot be on opposite sides of devices like transformers that can cause current, phase, or voltage changes.
- The meter used should allow the user to select the CT current. This allows the user to modify the significance of the voltage signal on the current input.
- The voltage-mode CTs must be the same current rating and model to ensure that the drive characteristics of the coil and the burden resistor are similar.
- The value of the burden resistor in each CT is calibrated in the factory, creating slight differences from CT to CT. When paralleled, the burden resistor of one CT can affect the accuracy of its neighbor. If this is a concern, measure the resistance between the CT output leads before installation. Parallel those CTs with the least amount of difference.

