Application Paper **AP158006EN** Effective November 2019

CT installation guide for AutoVAR units

Installation features

This application note explains the typical current transformer (CT) configurations involved in our low-voltage AutoVAR applications. The H1 and H2 markings on the CTs represent the utility/source side and the capacitor/load side respectively. The CTs should be installed with the H1 side facing the utility/source side. The CT is to be installed on "A-phase" of the main service entrance and wired to the appropriate terminal block, TB1, terminals 1 and 2 of the capacitor bank for floor-mount LV AutoVAR units. The following instructions are applicable to TX2, TX4, TX5, and TX SUM-2 split core multi-ratio multi-tap CTs.

Typical CT Installation

If the AutoVAR unit is fed from a single utility source, then the CT can be installed as shown in **Figure 1**.

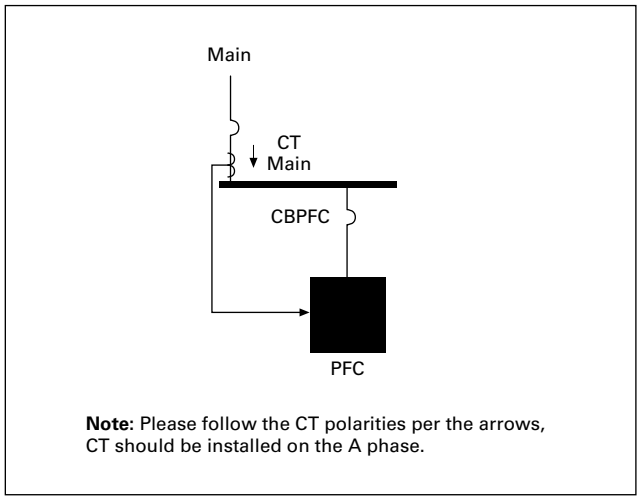

Figure 1. Typical CT scheme for single-ended operation

CT installation for main-tie-main with an open transition

If the AutoVAR units are fed from two utility sources and are isolated with a tie breaker, then it will be a double single-ended operation. In this configuration, each unit should be installed with a CT as shown in **Figure 2**. It is important to ensure that the tie breaker remains open.

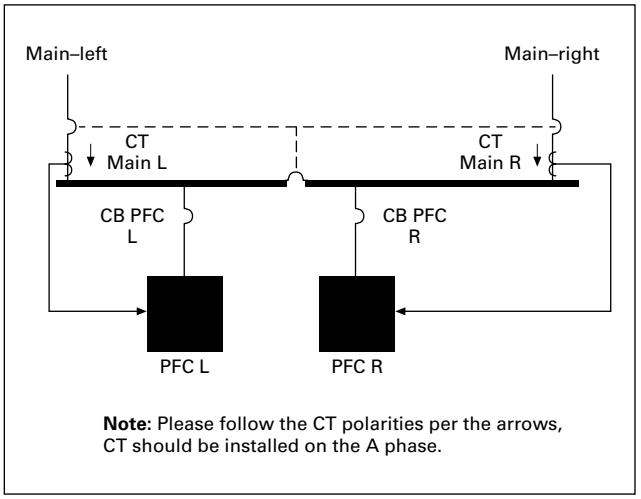

Figure 2. Typical CT scheme for double single-ended operation

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CT installation for main-tie-main with a closed transition

The CTs should be installed as shown in **Figure 3** for AutoVAR units arranged in a main-tie-main configuration, with parallel operation. In this closed transition mode, the tie breaker remains closed when there is a loss of power at either of the sources. When power is restored, the tie breaker will open after a short time delay of paralleling two sources together. Each unit will require one summing CT and two CTs to sense the current at the main and tie breakers. The summation CT consists of two primary windings that are connected to the main and tie CTs to be summated and a single secondary winding that feeds a current proportional to the summated primary current. The summing CT ensures the secondary amperage never rises to a level that could cause damage to the controller.

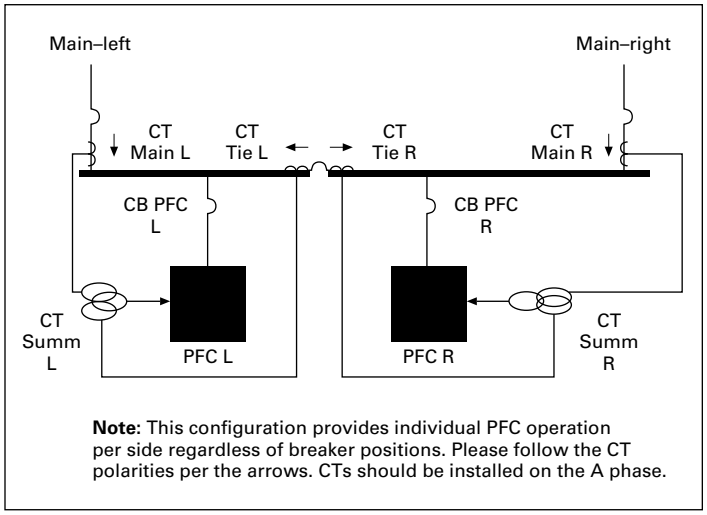

Figure 3. Typical CT scheme for main-tie-main configuration with parallel operation

CT installation for main-tie-main with no parallel operation

The CTs should be installed as shown in **Figure 4** for the AutoVAR units, arranged in a main-tie-main configuration without parallel operation. In this open transition mode, the tie breaker opens prior to the closure of main breakers, when power is restored.

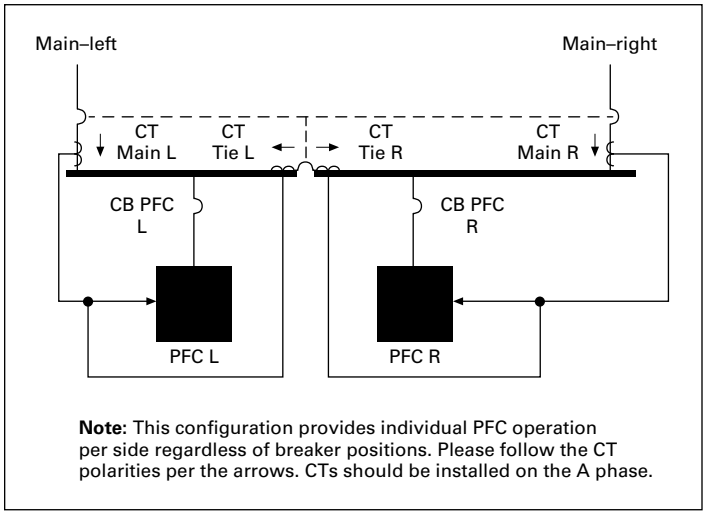

Figure 4. Typical CT scheme for main-tie-main configuration without parallel operation

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