

## Measuring three phase current with two current transformers

**This application note applies to Vamp 50, Vamp 200 and Vamp 300 series**

In networks isolated from earth or networks earthed with high impedance, it is possible to use current transformers (CT) in only two of the three phases and still have a complete measurement of all the three phase currents. However, especially if the load currents are small, the phase current measurements will be incorrect during an earth fault. Using a normal set of three CTs this problem is eliminated.

A VAMP relay with three phase current inputs should be wired to the two CTs according the figure 1. This figure is based on the following equation:

$$\bar{I}_{L1} + \bar{I}_{L2} + \bar{I}_{L3} = 0$$

Solving the  $I_{L2}$  gives

$$\bar{I}_{L2} = -(\bar{I}_{L1} + \bar{I}_{L3})$$

This is implemented in the figure 1.

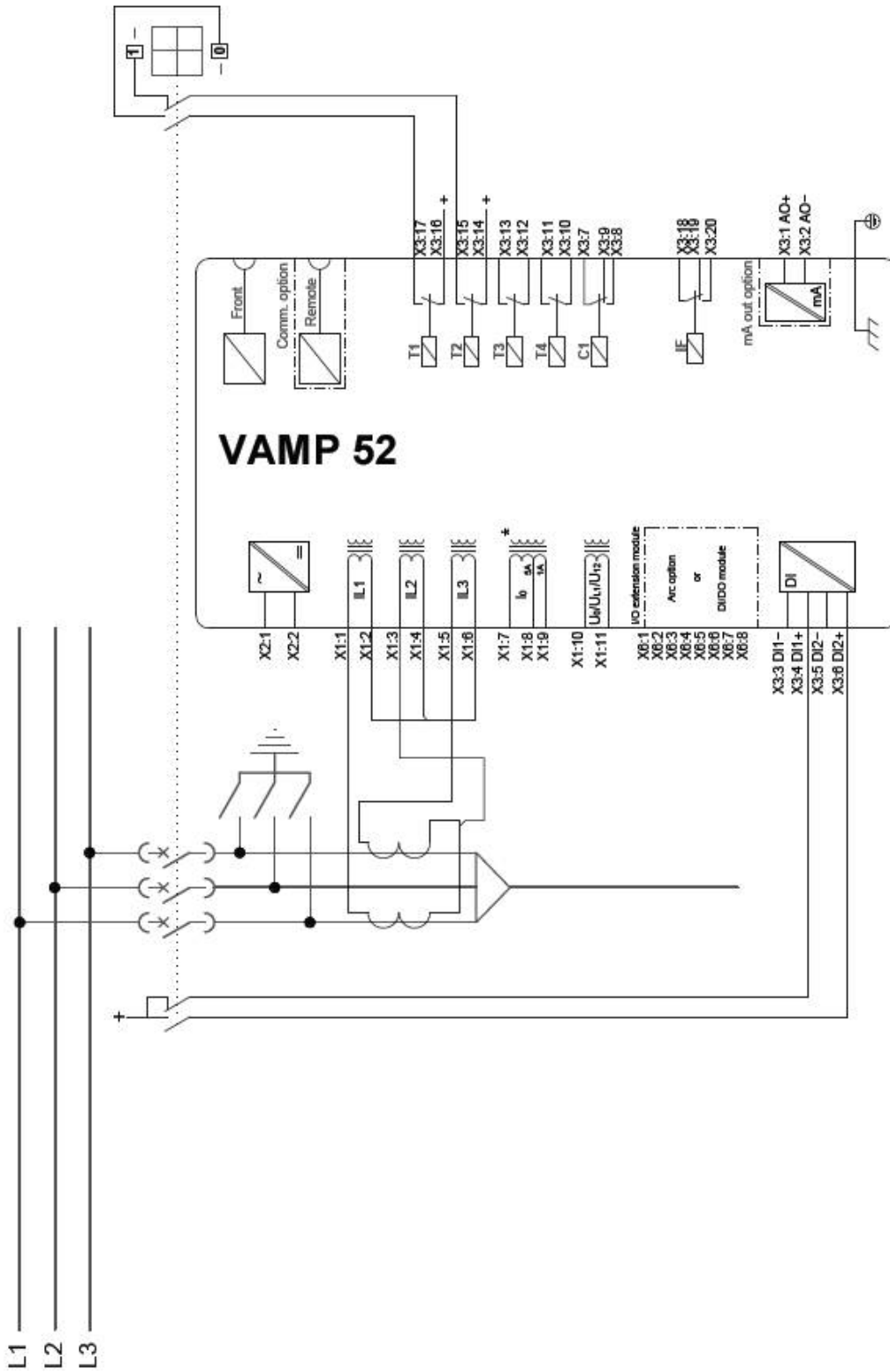


Figure 1. Example of VAMP 52 connection diagram

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