



Part A: Earth Leakage Relays CT location / selection.

The Littelfuse Startco range of AC /DC Earth Leakage relays offers innovation, reliability and features suited to a range of applications. The range of earth leakage relays offered by Littelfuse Startco include:

SE-701 Series: Setting Range: 1 – 99 % of CT Primary rating. Time delays: 50ms to 2.5 sec. DFT Filtering: Yes. See attached brochure.

SE-704 Series: Setting Range: 10mA to 5 Amp. Time delays: 30ms to 2 sec. DFT Filtering: Yes. See attached brochure.

SE-703 series: Setting Range: 25mA to 500mA. Time delays: 50ms to 500ms. DFT Filtering: Yes. See attached brochure. **AS2081-2002 Compliant.**

EL731 series: Setting Range: 30mA to 5 Amp. Time delays: 0 to 2 sec. Filtering adjustments: Yes. See attached brochure. **AS2081-2011 Compliant.**

CT Location:

The location for an earth leakage CT's when monitoring a single motor or single power system is 'usually' on the motor / system feeder, encompassing all three phases. Using this method of locating CT's, additional E/L relays and CT's can be added to aid in isolating the earth leakage detection to individual motors and feeders.

When the CT is located on the Neutral or MEN link of a power system, the earth leakage relay will detect an earth leakage fault in any part of the system and is not subject to system charging currents or common mode CT saturation. Bore size required is also reduced, hence, so too is the cost of the CT.

See attached Technical Note: **CT-08; Ground Fault Current Transformer Location.**

CT Selection:

When selecting a CT for zero sequence applications; it is important to consider:

- a) The Earth Leakage Trip and Alarm Levels required.
- b) The Prospective Earth Fault Current. NER Let Through Current, Transformer kA rating.
- c) The potential surge current. Starting current, overload.

Once these criteria are known, the ratio of the CT required to meet the Trip and Alarm levels can be verified. Then, it is simply a case of selecting a CT with the appropriate bore size to accommodate the cables / busbars or neutral conductor allowing approximately 25% or more of the CT bore as clear air gap.

To select the appropriate E/L CT for the Littelfuse Startco range of products; See attached Technical Note: **CT-02; Earth Fault CT Selection Chart**



We hope you enjoy reading this brief Tech Note. Please do not hesitate to contact Startco should you have any questions regarding CT Selection and Location on your power system or any other issue relating to protection relays, installation or site complications.

In the next Issue:

Tech-Aware 4 - Earth Leakage CT location / selection - VSD Applications - Part B.

Following Issue:

Tech-Aware 5 - EL731 E/L CT location / selection - VSD Applications.