



CURRENT TRANSFORMER PRIMARY WINDING OVERVOLTAGE PROTECTION

Product Bulletin HV-12-PB006r2

When current transformers (CTs) are subjected to surge currents (e.g. from system faults, switching, etc...) there is a tendency for a voltage buildup to develop across the CT's primary winding. The voltage buildup is a function of the magnitude and frequency of the current surge and the inductance of the CT's primary winding.

The Areva OSKF type CT and KOTEF type combined CT/VT utilize a head-type (live-tank) design. The primary winding is made up of one, two, or four short, solid conductors (aluminum or copper). Due to the relatively large diameter and short length of these conductors, the inherent inductance of the primary winding is extremely low. Therefore, during transient current conditions, the voltage build-up across the primary winding is low enough not to damage the equipment.

As an added safety precaution, the primary winding configuration is equipped with external air-gaps across the winding of approximately 8 mm (0.31 in). The gaps discharge if the voltage across the primary winding exceeds 25 kVp. This scheme is designed to protect the internal insulation system, which has an insulation strength of approximately 75 kVp.

Given the above considerations, the Areva OSKF type CT and KOTEF combined CT/VT do not require additional external primary winding surge protection.

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