



INSTRUMENT TRANSFORMERS TESTS

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TESTS TO INSTRUMENT TRANSFORMERS

Instrument transformers are used to convert medium and high voltage current and voltage signals to low voltage signals that are fed to protection relays and energy meters to be processed internally and perform their respective electrical protection and voltage measurement tasks.

Instrument transformers, which can be current or potential transformers for measurement or protection, can be found in medium voltage switchgear type distribution switchgears, as well as in high voltage bays. These elements require maintenance (cleaning and retightening of screws) and maintenance tests at least once a year.



Fig 1 Metal clad switchgear.

MAINTENANCE TESTS TO CURRENT AND POTENTIAL TRANSFORMERS

These tests confirm the correct operation of instrument transformers in protection and metering schemes.

The standard maintenance tests performed on instrument transformers are:

- Ratio: Check the transformation ratio on the data plate.
- Saturation: verifies that the current transformer faithfully reproduces the primary current when the current is very high.
- Polarity: Verifies that the physical polarity (current directionality) markings are correct.
- Winding resistance: checks that there are no short circuits in the copper windings inside the current or potential transformer.
- Insulation resistance: checks the integrity of the insulation of the current or potential transformer.



Fig. 2 Maintenance test of instrument transformers.



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