

Instrument Transformer – Part 4

Current Transformer - Saturation

NCEES® PE Power Reference Handbook doesn't contain specific details on this topic



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- ☐ CTs can link limited amount of flux between primary and secondary windings in the core.
- ☐ Change in primary flux creates a ratio current flow in secondary circuit.
- ☐ This relationship remains linear if flux density in CT core remains below maximum limit.
- ☐ CT is said to be saturated when primary current is so high that its core cannot handle any more flux,.
- ☐ Linear relationship between primary current change and flux change becomes invalid in saturation.
- ☐ Since there is no flux change there is no secondary current flow.
- ☐ In saturation, entire ratio current is used as magnetizing current and none flows into the CT load.
- ☐ Max. secondary current should be < 20 times rated current (100A for 5A rated CT) for ANSI class C CT.
- ☐ Saturation depends on CT dimension, core material and burden.

How can you avoid saturation?

- ☐ Use CT with higher ratio (oversizing) and reduce burden.

Current Transformer – Knee-point

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