TRANSCEND ENGINEERS

LOW VOLTAGE CURRENT TRANSFORMER

Characteristic Parameters

Current transformers convert an alternating current usually high in to a proportional lower one, depending on their use. Measurement type CTs are required to transform the primary current, at various classes of accuracy, as specified by the class designation, over a current range from 1 to 120 percent of its rated primary ratio. The design of this type of transformer requires the inclusion of a core and winding which will when connected to its rated burden; perform within the limits of error as indicated by the standard's specification. It is an advantage for a measurement type transformer to saturate above this range, which provides a protection against damage to instruments by limiting the secondary current when surge currents or faults appear in the primary circuit.

Current transformer: - An instruments transformer in which the secondary current, in normal condition of use, is substantially proportional to the primary current and differs in phase it by an angle which is approximately zero for an appropriate direction of connections.

Measuring transformer: - A current transformer intended to supply indicating instruments integrated meter, relay and similar apparatus.

Protective Current Transformer: - A current transformer intended to supply protective relays.

Rated transformation ratio: - The ratio of the rated primary current to the rated secondary current.

Rated primary current: - The value of primary current which appears in the designation of the transformer and on which the performance of the currant transformer is based.

Rated secondary current: - The value of secondary current which appears in the designation of the transformer and on which the performance of the currant transformer is based.

Current error (ratio error):- The error with a transformer introduces into the measurement of a current and which arises from the fact that actual transformation ratio is not equal to the rated transformer ratio.

The current error expressed in percentage is given by the formula:

Current error, percent = (Ka.Is-Ip) x 100 / Ip

Where Ka= rated transformation ratio

Ip= actual primary current

Is= actual secondary current when Ip is flowing under the conditions of measurement

Accuracy Limit Factor (ALF): - The ratio of the rated accuracy limit primary current to the rated primary current.

Phase displacement: - the difference in phase between the primary and secondary current vectors, the direction of the vectors being so chosen that the angle is zero for the perfect transformer. The phase displacement is said to be positive when the secondary current vector leads the primary current vector. It is usually express in minutes.

Accuracy class: - A designation assigned to a current transformer the errors of which remain within specified limit under prescribed conditions of use.

Burden: - The impedance of the secondary circuit in ohms and power factor.

Rated burden: - The impedance of the secondary circuit on which the accuracy requirements are based. It is usually expressed as apparent power (in VA), at the rated secondary current and at a specified power factor.
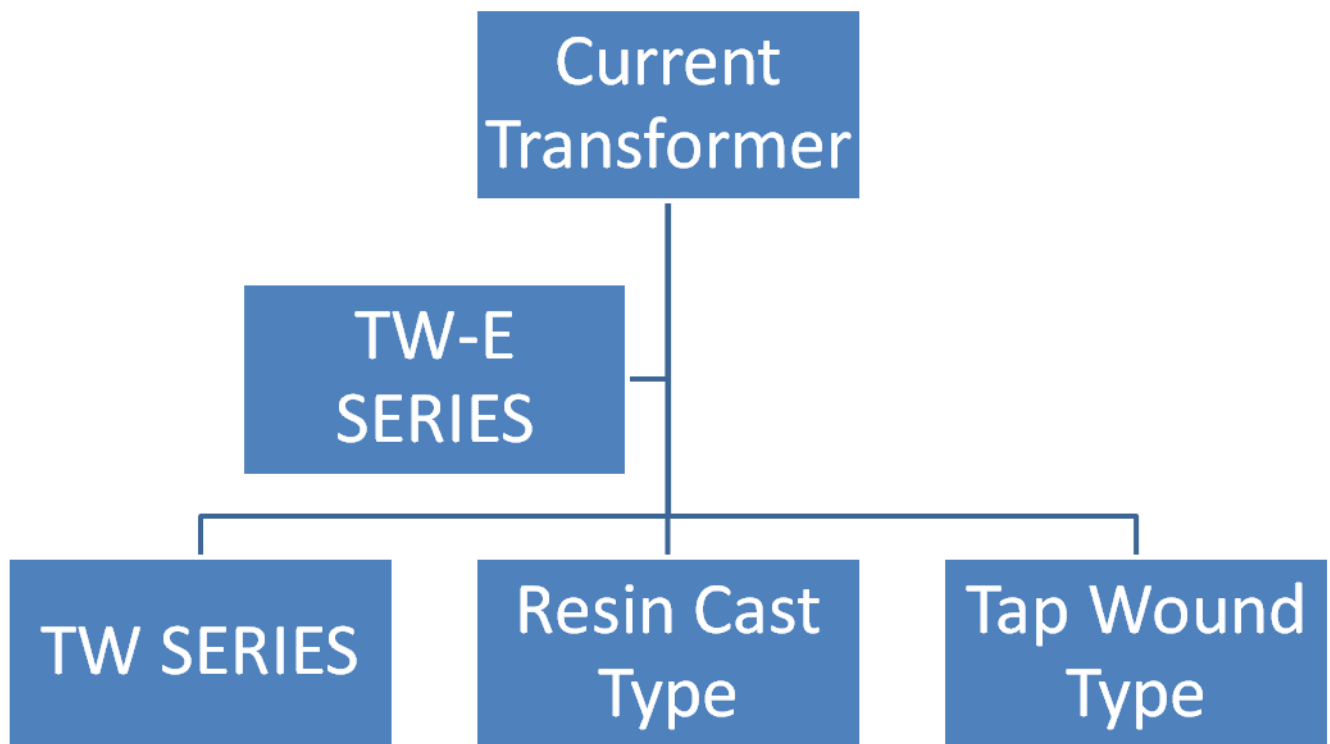
Rated output :- The value of the apparent power (in volt-amperes at a specified power factor) which the current transformer is intended to supply to the secondary circuit at the rated secondary current and with rated burden connected to it.

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FAMILY OF CURRENT TRANSFORMER

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              ┌──────────────────┐
              │      Current     │
              │   Transformer    │
              └──────────────────┘
                       │
      ┌──────────┐     │
      │   TW-E   │─────┤
      │  SERIES  │     │
      └──────────┘     │
     ┌─────────────────┼─────────────────┐
┌──────────┐   ┌──────────────┐   ┌──────────────┐
│ TW SERIES│   │  Resin Cast  │   │  Tap Wound   │
│          │   │     Type     │   │     Type     │
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Trans TW Series Round CTs
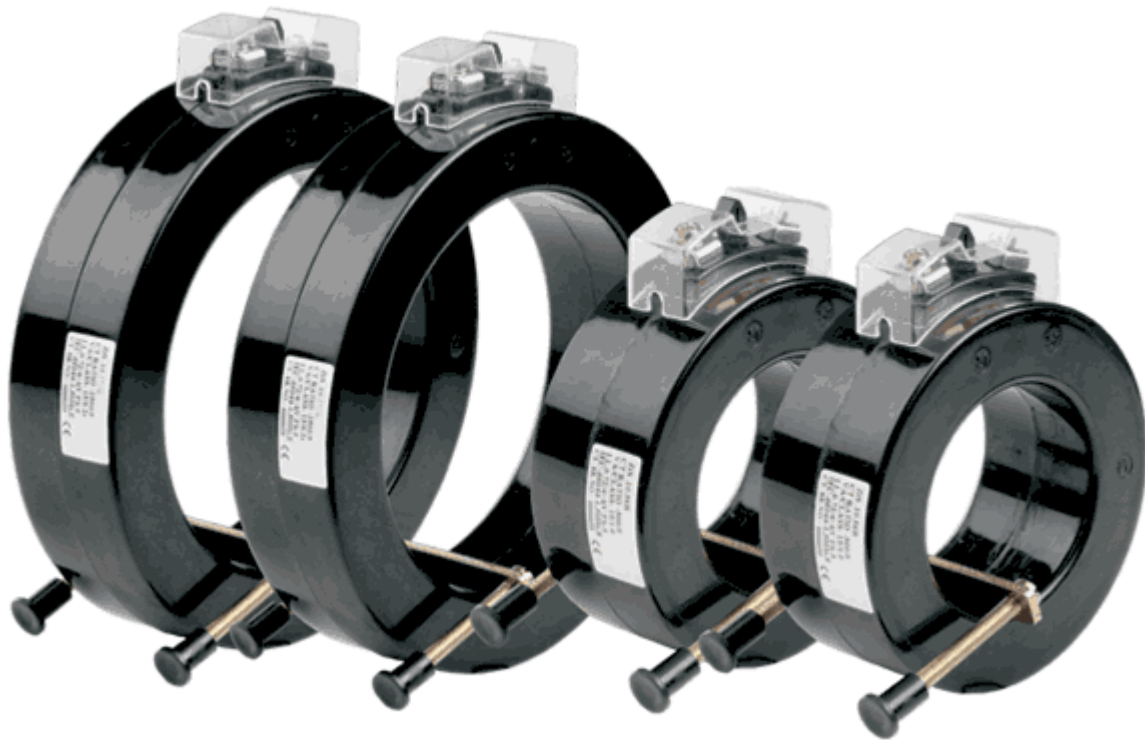
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Trans TW-E Series Round CTs

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Trans Resin Cast CTs

CAST RESIN CURRENT TRANSFORMER

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Trans Tap Wound Round CTs