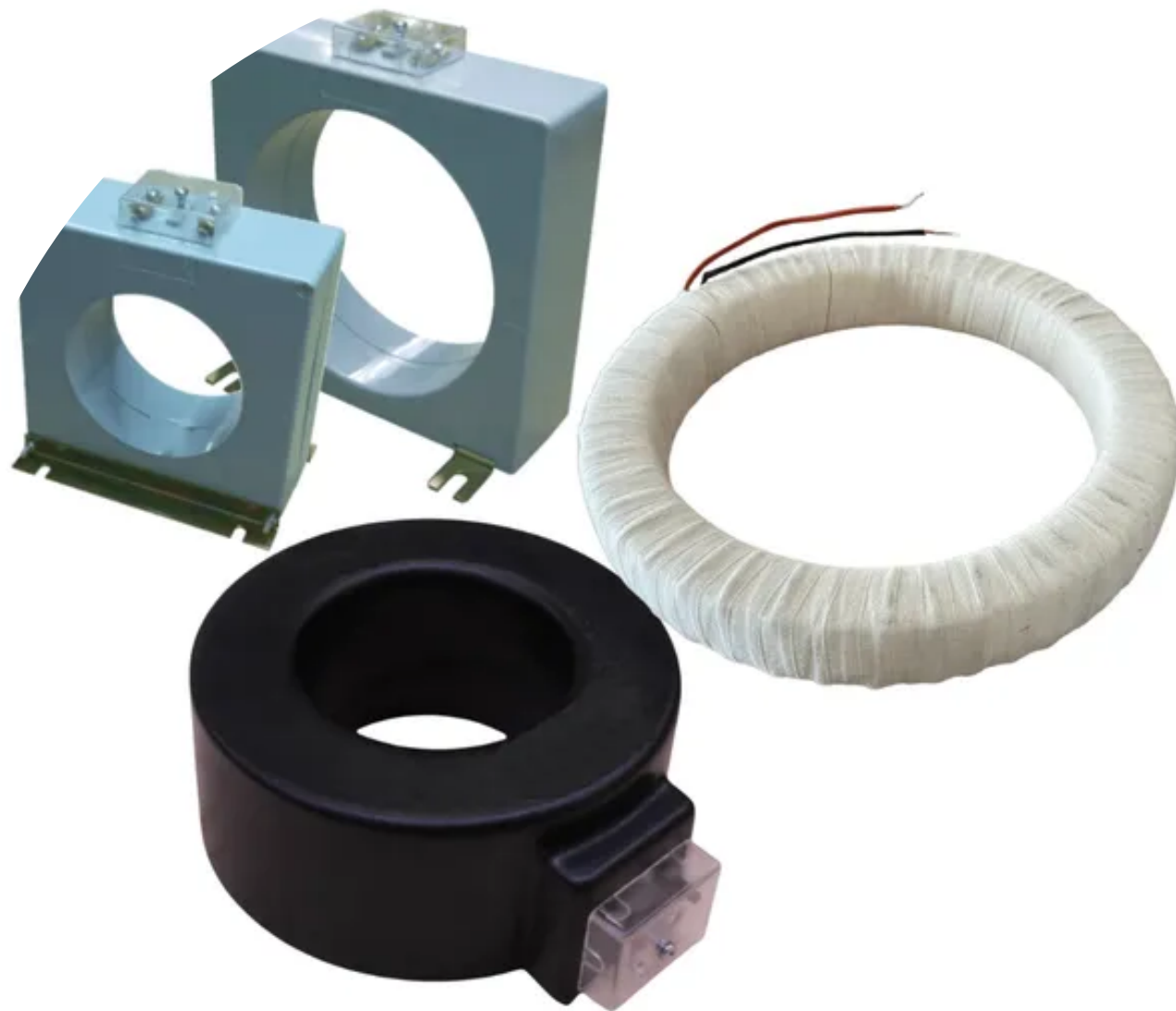


Current Transformers (CT)



Introduction to Current Transformers

Devices used to measure and transform high currents to lower, manageable values.

Purpose:

Enable safe monitoring and protection of electrical circuits.



Importance

- ✓ Ensure accurate current measurement in power systems.
- ✓ Protect equipment by enabling relay operations.
- ✓ Safeguard personnel by isolating high-voltage circuits.



Working Principle

- ✓ Operates on Faraday's Law of Electromagnetic Induction.
- ✓ Secondary current ratio is standardized for instruments.
- ✓ Converts high primary current to a proportional low secondary current



Key Components of CT

Core:

End-to-end solutions for various projects.

Primary Winding:

Connected to the high-current source.

Secondary Winding:

Connected to measuring instruments or relays.

Types of Current Transformers

1. Bar-Type CT:

Directly fitted on busbars or cables.

2. Window-Type CT

Ensuring system reliability.

3. Wound-Type CT:

Separate primary and secondary windings.

CT Ratios

- ✓ Represents the proportion of primary to secondary current.
- ✓ **Example:** A CT with a 100:5 ratio reduces 100A primary current to 5A secondary current.



Applications of Current Transformers

- ✓ Accurate current measurement for meters.
- ✓ Overcurrent detection and tripping relays.
- ✓ Monitor and optimize power usage.



Accuracy Classes

- ✓ Defines the CT's precision level.

→ Common Classes:

- ✓ **0.2, 0.5:** High accuracy for metering.
- ✓ **5P, 10P:** Used in protection applications.





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