

INSTRUMENT TRANSFORMERS

Medium voltage station post current transformers

LG, KOTD, and KOT



LG, KOTD, and KOT medium voltage station post current transformers

Offering a wide variety of customizable substation CTs

ABB's station post current transformers (CTs) are traditional current transformers designed for medium voltage substation and heavy-duty, non-substation primary metering applications. They are available with standard metering and relaying accuracy classes, as well as high accuracy and extended range metering accuracy.

Overview

Station post current transformers (CTs) are installed on substation structures where bare tubular primary conductors or heavy braided cables are used. They are commonly mounted in an upright orientation on substation structures, hence the name "station-post." They may also be used in heavy duty primary metering applications where higher currents are required than may be possible on other wound type medium voltage (MV) CTs. All window types are available with primary bar kits, either field or factory installed. All standard offerings comply with IEEE C57.13-2016.

Station post CTs can be designed with up to four cores, allowing them to be used with multiple devices. It is common to use them for dual purposes, with one or more cores being used with a protection relay and others connected to a meter for measuring feeder energy. Using one station

post CT for multiple applications reduces installation costs and increases flexibility in each installation.

Portfolio

ABB offers the largest selection of station post CTs for applications up to 34.5 kV. The many variations include:

- Primary currents up to 10,000 A
- Metering or protection accuracies
 - Including high accuracy extended range metering
 - Protection accuracies up to C800
- Multiple cores with the same or different ratios for combining metering and protection in one device
- Several window sizes and primary bar configurations
- Numerous mounting options
- Designs with over 60 years of field experience

Type	Voltage class (kV)				
	5	8.7	15	25	34.5
KOT	KOT-60	KOT-75	KOT-11	KOT-15	
RMB	RMB/RMBX-631				
LG		LG/LGX-15-683			
		LG/LGX-15-585		LG/LGX-25-585	
		LG-15-879		LG-25-879	LG/LGX-34-879
		LG/LGX-15-6513		LG/LGX-25-6513	LG/LGX-34-6513
		LG-15-051		LG-25-051	LG-34-051
KOTD		KOTD-110		KOTD-150	KOTD-200

Styles with 'X' are available with high accuracy and extended range for metering

Station post CT families



LG

The LG family has five models: RMB-631, LG-585, LG-879, LG-6513, and LG-051 that support 5, 15, 25, and 34.5 kV systems. LG current transformers are the most customizable of the station post CTs and have options for many applications. All LGs have a similar basic design form; however, as the nominal system voltage increases, the length of the insulating sleeve increases to provide the added strike and creep demanded by higher voltage systems.

LG core and coil assemblies are connected and supported by an internal metallic pedestal and encapsulated in polyurethane. The primary insulator is a cycloaliphatic epoxy (CEP) molded sleeve with a conductive inner lining to prevent corona when connected to the primary conductor. The inner diameter ranges from 3.44 to 8.75 inches. When installed, LGs can support their own weight plus 200 pounds on either side, in any orientation.

All LG models have a storage and operational temperature range from -50°C to $+75^{\circ}\text{C}$ and maintain accuracy throughout the operational range. Most LG models support high accuracy extended range metering and are a part of ABB's AccuRange® current transformer product family. With the conception of the 585 model in 1958, LG station post CT technology dates back over 60 years and remains a proven solution for substation and heavy duty primary metering needs.



KOTD

The KOTD family includes the models KOTD-110, KOTD-150, and KOTD-200 to support 15, 25, and 34.5 kV systems, respectively. Each model increases in height with respect to increases in the rated system voltage, to provide the added strike and creep demanded by higher voltage systems.

KOTD core and coil assemblies are connected and supported by an internal metallic pedestal, then cast in polyurethane with a 4.0 or 5.0-inch diameter brass tube to prevent corona when connected to the primary conductor. The polyurethane supports its own weight in any orientation but is not intended to support external bus work. One and two core designs are compliant with IEEE C57.13-2016 and three and four core designs are compliant with IEEE C57.13-1993.

The KOTD family has a storage and operational temperature range from -30°C to $+50^{\circ}\text{C}$ and maintains accuracy throughout the operational range. All three KOTD models support high accuracy extended range metering and are a part of ABB's AccuRange® current transformer product family.



KOT

The KOT family includes models KOT-60, KOT-75, KOT-11, and KOT-15 to support 5, 8.7, 15, and 25 kV systems respectively. Like the LG, the insulating sleeve of each model increases in length with respect to increases in the rated nominal system voltage, while the CT height remains the same. The KOT family utilizes a 3.25-inch inner diameter, one-piece cast polyurethane sleeve with a brass inner lining to prevent corona when connected to the primary conductor. The smaller core results in a more compact design when compared to the LG and KOTD families and is injection molded in thermoplastic rubber (TPR). The KOT family can be mounted in any orientation.

The KOT family shares the same operating ambient temperature range as the KOTD, -30° C to 50° C. While relay accuracies are lower than the LG and KOTD families, the KOT offers a lighter weight construction for lighter duty applications.

Installation examples

01 LG-15-585 CTs with primary bar kits installed in cantilever on medium voltage structure. Braided cables connect the LG bar to the primary circuit.



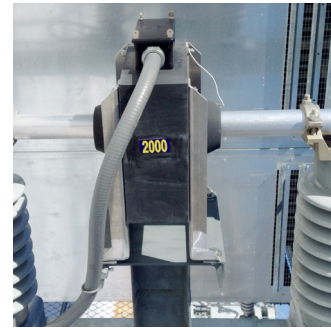
01

02 LG-34-051 with 8.75-inch ID installed upright on medium voltage structure



02

03 RMB-631 mounted on a pedestal to align with tubular bus passing through its window



03

04 LG-34-6513 installed upright on medium voltage structure with 6-inch diameter aluminum tubular bus



04

05 LG-15-683 underhung in a bus trough at a hydro plant



05

Station post CT overview by type

	Voltage class (kV)	BIL (kV)	Window diameter (in)	Available with primary bar	Available with HAER accuracy	Multi-core available
KOT	5 - 25	60-150	3.25	•		
RMB-631	5	60	3.44		•	
LG-683	15	110	4.6	•	•	
LG-585	15 - 25	110-150	4.5	•	•	
LG-879	15 - 34.5	110-200	4.5	•	•	•
LG-6513	15 - 34.5	110-200	8.75		•	•
LG-051	15 - 34.5	110-200	4.5 and 8.75	•		•
KOTD	15 - 34.5	110-200	5	•	•	•



KOT-60, KOT-75, KOT-11 and KOT-15

- Lightest of ABB's station post current transformers
- Lower relaying accuracy compared to other station post CTs
- Designed for lighter duty uses and is the most economical station post CT option



RMB-631 and RMBX-631

- Similar mechanical and performance features as other LGs without the CEP insulated sleeve
- Rigid mounting legs may be rotated to reposition the junction box and allow the CT to be mounted in any orientation
- The RMB provides a higher relay accuracy when compared to the KOT-60



LG-15-683 and LGX-15-683

- Flexible mounting junction box and mounting legs. The junction box may be rotated 90° to either side, or 180° to the bottom of the CT by moving the mounting legs to different sides
- Commonly used on substation structures with lower bus supports and bus troughs in hydro plants



LG-15-585, LGX-15-585, LG-25-585, and LGX-25-585

- Lighter and more compact than the LG-879 or KOTD series, but offers greater relaying accuracy than the LG-683 series
- The recommended choice for most standard substation applications

**LG-15-879, LG-25-879, LG-34-879 and LGX-34-879**

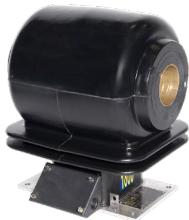
- Higher relay accuracy than the LG-585
- Heavier than the LG-585 but lighter than the KOTD-110
- Available with dual core designs where the LG-585 does not
- Only 34.5 kV available with high accuracy extended range metering

**LG-15-6513, LGX-15-6513, LG-25-6513, LGX-25-6513, LG-34-6513, and LGX-34-6513**

- Larger 8.75 inch window for applications where high current, large diameter primary conductors are used
- Larger window than other LG types, used on primaries from 5-8.75 inches
- Available in single or dual core designs

**LG-15-051, LG-25-051 and LG-34-051**

- Available with 4.5 or 8.75-inch window diameters
- Primarily developed for use on Flexible AC Transmission System (FACTS) and static var systems with multi-core arrangements
- Robust design for seismic stability
- Used in substation applications where accuracies cannot be met with the standard LG or KOTD

**KOTD-110, KOTD-150 and KOTD-200**

- Fully insulated without the use of a separate MV insulator, such as the insulating sleeves used in both the LG and KOT families
- Copper sleeve is only used to prevent corona when connected to the primary conductor
- Similar metering and relay accuracy compared to LG-585
- Heavier than the LG-585 or LG-879
- Designs available with up to four cores

AccuRange® high accuracy extended range substation metering CTs

Benefits

High accuracy extended range (HAER) station-post current transformers provide many key benefits:

- Exceed 0.15S metering accuracy class requirements
- Provide 0.15% accuracy from 1% of the nominal current through the rating factor
- Increase revenue by reducing metering losses
- Wide operating range is a great fit for variable load applications
- Provide greater value with an extended range, reducing inventory, part numbers, and stock outs
- Offer same dimensions as standard range current transformers, allowing for easy retrofit installations to upgrade metering accuracy
- Ideal for solar and wind farm collector substations, as well as other variable load or renewable energy applications. The wide current range to extend from very low to very high current levels captures periods of low and high generation.

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	5	15	25	34.5
KOT				
RMBX-631	•			
LGX-683		•		
LGX-585		•	•	
LGX-879				•
LGX-6513		•	•	•
KOTD		•	•	•

AccuRange current transformers

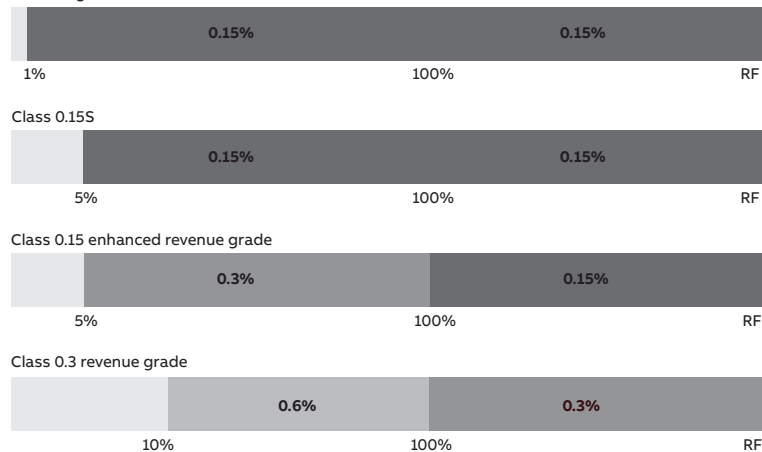




ABB Inc.

3022 NC 43 North
Pinetops, NC 27864
USA

abb.com/mediumvoltage