

Bushing-Type Generator Current Transformer

Offerings:

- **Insulation Class:** 0.6kV / 10kV BIL / 155°C
- **Inner diameter:** 4" [102mm] to 36" [915mm]
- **Outer diameter:** 8" [203mm] to 48" [1220mm]
- **Primary currents:** up to 50,000 Amps
- **Secondary current:** 1 & 5 Amps typ, others avail.
- **Frequency:** 50 and 60 Hz
- **Rating Factors:** Up to 1.0 @ 55°C Ambient.
- **Temperature Rise:** 75°C max. for 130°C total temperature
- **Relaying class:** Up to C800 (IEEE) / 5P20-200VA (IEC) standard. Higher ratings available, also transient classes TPS, TPX & TPY
- **Metering class:** 0.15S thru 0.6 (IEEE) / 0.2S thru 0.5 (IEC)

Application: The Bushing-type Generator CT is designed to be mounted over the high voltage terminal bushing of power generators. The Bushing-type GCT may also be used on Isolated Phase Bus (IPB) on higher system voltage levels while maintaining its own mere 600 Volt class rating. Its simple construction provides a low leakage product with extremely high short circuit capabilities. Because of its open construction it can easily be designed to suit any custom mounting footprint and offers a lightweight alternative to bulky cast units. A major benefit this design offers is a quick turnaround during a forced emergency outage.

Construction: The toroidal core is continuously tape wound using cold rolled grain oriented electrical grade silicon steel, which receives a full stress relief anneal after it is wound to its specified dimensions. This insulation system provides a durable 155°C (Class F) system throughout the entire coil assembly. The secondary winding is wound of insulated copper magnet wire over the fully insulated core with the turns equally spaced around the core periphery. Specially engineered shield windings are strategically integrated into the main secondary winding to minimize the affects of stray magnetic flux from adjacent high current conductors. The finished insulated coil is firmly secured to a high strength, non-magnetic mounting board. Though an open type construction, it will endure light water spray and rigorous vibration.

Connections: The primary polarity H1/P1 is engraved into the mounting board. The secondary terminals are ¼-20 silicone bronze studs provided with hex nuts and cupped washers for positive compression to assure long lasting connections. Terminal identification is permanently engraved with dual designations "X" and "S" for compatibility in the global market. The X1/S1 terminal represents the instantaneous polarity reference with respect to H1/P1 and will be identified by a colored dot. A cast aluminum conduit box with (2) 1" NPT hubs and blanking plugs is provided with a removable cover. The size of the box allows for adequate passing of wires from adjacent phases. Other hub openings up to 1.5" NPT are also available.

Nameplate: Affixed to each unit is a durable aluminum nameplate that has all required information and ratings, along with a serial number and connection diagram.

- **Burdens:** B0.1 thru B1.8 / 2.5 – 45 VA
- **NOTE:** Sizes and accuracy class are dependent on current ratio. Available in Single Ratio (SR) only

Options:

- Pre-assembled multi-core stacks available.
- Other conduit openings are available – threaded up to 1.5" NPT or non-threaded holes up to 52mm.
- Designs can be made to match existing CT characteristics.
- Gapped cores for remanence control and transient response.
- Windings may be provided with special test taps.
- Coils may be provided alone (no board) with terminals or flexible leads.



Installation: The BGCT is custom designed to fit over any terminal bushing. The mounting holes in the board are located to specifically align with the all-thread rods suspended from the generator or lead box frame. The BGCT can be installed onto the bushing terminal one at a time and locked in place with the appropriate hardware. Pre-cut sleeves sized for the bolt can be provided for spacing of multiple CTs on the same bushing. Pre-stacked arrays can be assembled at the factory for quick installation – consult factory for this option. It can also be adapted to attach to special brackets or other unusual mounting protocols even inside isolated phase bus structures.

Size Selection: In addition to the current ratio, accuracy class and power frequency, some information regarding the equipment must be provided. Terminal mounted units are custom designed to fit over the bushing with a specific bolt-hole pattern. That configuration must be presented to Meramec Engineering at time of request. In addition, the stack height and CT configuration must also be provided. Once the design is verified, a formal outline drawing will be prepared for customer approval.

Handling and Storage: For domestic shipments the BGCT may be packaged in a wooden crate. Multiple units will be stacked and securely braced. Ideally they should be lifted using endless slings in a 2-pt or 3-pt arrangement, lifting by fork lift or overhead hoist, one unit at a time. Caution should be employed while moving to avoid damaging or chipping the insulation, and any sudden impacts to the unit or the conduit box. The unit is indoor rated so it should be left in its original crate until ready for use.