

# 6624 CT-3000 PRECISION DC HIGH CURRENT TRANSFORMER

Most Accurate DC High Current Measurement 3000 Ampere Current Transformer Available Today!



**Guildline's 6624CT-3000 DC High Current Transformer** provides very accurate DC current measurements up to 3000 Amperes. The direct current transformer is designed with an open window to pass a single cable, set of cables, or buss bar that carry the direct current to be measured. The 6624CT-3000 High Current DC Current Transformer produces an output current that varies directly with the input current in three ranges.

**THE 6624CT-3000 IS THE WORLD'S ONLY COMMERCIALY AVAILABLE HIGH PRECISION, HIGH DC CURRENT INSTRUMENT AVAILABLE TODAY CAPABLE OF PART PER MILLION (PPM) MEASUREMENTS!**

Switch selectable secondary windings provide transformation ratios of 100:1, 500:1, and 1,000:1; and allows for measurements to be performed up to a maximum of 3000 Amperes. The full scale output range of 3 Amperes is provided at a pair of binding post terminals on the front panel of the CT. Three primary current ranges are provided: 300 A, 1500 A, and 3000 A full scale. A second pair of binding post terminals is provided which provides an additional 20:1 reduction in the secondary current such that a full scale output of 0.15 A is available for each primary range.

The 6624CT-3000 DC CT includes a 6623A-3S Current Transformer Controller which provides for the modulation and demodulation of the DC flux in the DCCT-3000 Current Transformer unit. The 6623A-3S is normally mounted close to the current transformer through a 1.5 meter cable.

The 6623A-3S also provides connections between Guildline's 6623A-PCS DC Current Source and a model 66259 Extender Control Unit. The model 66259, in combination with the 6623A-PCS Current Source, provides for primary DC currents from 3 to 3000 Amperes. Alternatively the 6624CT-3000 can be configured to work with any current source, not just a Guildline 6623A Precision Current Source (PCS). The DC Current Transformer is pre-wired and configured for operation at nominal power line voltages of 100, 120, 220 and 240 VAC.

## FEATURES

- High Precision DC Current Measurements to 3000 Amperes!
- Fixed Permanent Accuracy (Coil)!
- Measurement Accuracies as Low as 10 ppm!
- Stability Measurement as Low as 3 ppm!
- All Cabling and Leads Included!
- 3 Primary ranges (300, 1500 and 3000 Amperes)!
- Compatible with Guildline Series of Precision Current Sources, or any Customer's Current Source!
- Optional 66259 Provides Automation for Use with Guildline Precision Current Sources!
- Prewired and Configured for Customers Nominal Power!

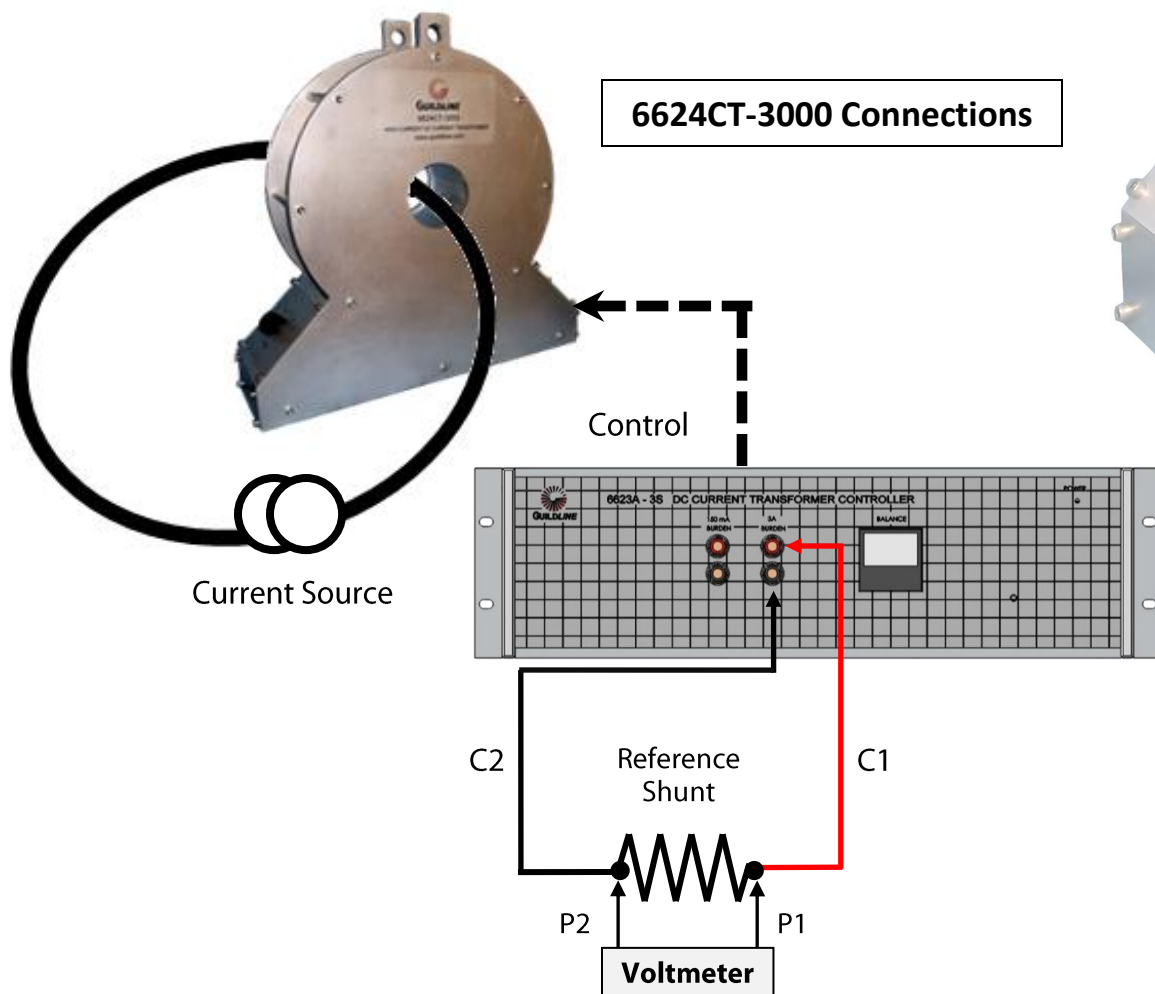
# 6624 CT-3000 Precision DC High Current Transformer

## THEORY OF OPERATION!

The 6624CT-3000 High Current DC Current Transformer produces an output current that varies directly with the input current in three ranges. By the connection of a reference shunt burden on the output terminals the primary current can also be calculated from the measured voltage.

No adjustments of the 6624CT-3000 High Current DC Current Transformer are required for proper operation, but the correct range must be manually selected on the Current Transformer unit for one of three specific full scale current ranges. Three full scale ranges are provided at 300 A, 1500 A and 3000 A.

These ranges are based on switch selectable secondary windings that provide transformation ratios of 100:1, 500:1, and 1,000:1. The full scale output range of 3 Amperes is provided at a pair of binding post terminals on the front panel of the control chassis. A second pair of binding post terminals is provided which provides an additional 20:1 reduction in the secondary current such that a full scale output of 0.15 A is available for each primary range. A reference shunt of 1 ohm or less is recommended for use as a burden.



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The model 6624CT-3000 is designed to measure Direct Currents up to a magnitude of 3000 Amperes. The 6624CT-3000 is designed to be used with any current source, however the 6624CT-3000 has additional built-in protection and safety features when used with Guildline equipment. Specifically, these protection and safety features are activated when the 6624CT-3000 is used in conjunction with Guildline 6623A-PCS Current Sources and the 66259 Extender Control Unit; or when used with a Guildline 6622A DCC Bridge and the 6623A High Current Range Extender.

The direct current transformer is designed with an open window to pass through a cable, set of cables, or buss bar that carry the current to be measured. The 6624CT-3000 DC Current Transformer produces an output current that varies directly with the input current in three ranges. By the connection of a reference shunt burden on one of the output terminals the current can also be calculated by measuring the voltage drop across the reference shunt. All necessary interconnections for the control of the 6623A-3S



6623A-3S Front and Rear Views



Current Transformer Controller unit and the 6624CT-3000 Current Transformer are provided such that no hardware reconfiguration is required over the full range of operation other than the connection of the output current terminal to an appropriate reference burden.

As stated previously, no adjustments of the 6624CT-3000 High Current DC Current Transformer are required for proper operation, but the correct range must be manually selected on the Current Transformer unit for one of three specific full scale current ranges. Three full scale ranges are provided at 3000 A, 1500 A and 300 A.

These ranges are based on switch selectable secondary windings that provide transformation ratios of 100:1, 500:1, and 1,000:1. The full scale output range of 3 Amperes is provided at a pair of binding post terminals on the front panel of the CT. Three primary current ranges are provided: 300 A, 1500 A and 3000 A. A second pair of binding post terminals is provided which provides an additional 20:1 reduction in the secondary current such that a full scale output of 0.15 A is available for each primary range. A reference shunt of 1 ohm or less is recommended for use as a burden.



The 6624CT-3000 High Current DC Current Transformer design allows measurements to be made that reduce thermal and current offset effects, and that eliminate the uncertainties associated with using high current shunts. If a customer is using Guildline's



6623A-PCS Precision Current Sources, all necessary interconnections and control are provided such that no hardware reconfiguration is required over the full range of operation other than the connection of the current terminals output to an appropriate reference burden.

An example of the 6623A-PCS Precision Current Source and Range Extender is shown to the left. The actual PCS source is the 5U top unit capable of 1000 Amperes output. Multiple 1000A Precision Current Sources can be put in parallel to provide up to 10,000 Amperes.

NOTE that custom DC CTs can be provided up to 10,000 Amperes.

# 6624 CT-3000 Precision DC High Current Transformer

| Precision DC High Current Transformer Specifications (3 Year) |                     |                             |             |
|---|---------------------|-----------------------------|-------------|
| Transformation Ratios   | 3 A Output          | 100:1, 500:1, 1000:1        |             |
|   | 0.15 A Output       | 2,000:1, 10,000:1, 20,000:1 |             |
|   | Accuracies          | ±10 ppm                     |             |
|   | Stability           | ±3 ppm                      |             |
| Linearity   | ±0.1 ppm full scale | Temperature Coefficient     | ±0.1 ppm/°C |
| Warm-up time to full rated accuracy                           |                     | 5 minutes                   |             |
| Test Current Ranges   | 100:1               | ±300 A                      |             |
|   | 500:1               | ±1500 A                     |             |
|   | 1000:1              | ±3000 A                     |             |
|   | 2,000:1             | ±300 A                      |             |
|   | 10,000:1            | ±1500 A                     |             |
|   | 20,000:1            | ±3000 A                     |             |

| GENERAL SPECIFICATIONS |                                      |               |                    |                      |
|------------------------|--------------------------------------|---------------|--------------------|----------------------|
| Temperature            | Operating                            |               | 23°C ±3°C          | 73.4°F ±5.4°F        |
|                        | Operating Maximum (<50% RH)          |               | 18°C to 28°C       | 64.4°F to 82.4°F     |
|                        | Storage                              |               | -20°C to +60°C     | -4°F to +140°F       |
| Humidity               | Operating                            | 20% to 70% RH | Storage            | 15% to 80% RH        |
| 6623A-3S               | Weight                               |               | 12.7 kg            | 28 lbs               |
|                        | Dimensions – Rack Model (H x D x W)  |               | 132 x 500 x 480 mm | 5.2 x 19.7 x 18.9 in |
|                        | Dimensions – Bench Model (H x D x W) |               | 147 x 500 x 442 mm | 5.8 x 19.7 x 17.4 in |
| Voltage (200VA)        | 100, 120, 220, 240 VAC ±10%          |               | Line Frequency     | 50 or 60 Hz ±5%      |
| Transformer Unit       | Weight                               |               | 25 kg              | 55 lbs               |
|                        | Dimensions (H x D x W)               |               | 565 x 161 x 575 mm | 22.3 x 6.3 x 22.6 in |

| ORDERING INFORMATION   |   |
|--|---|
| 6624CT-3000  | 3000 Ampere DC High Current Measurement System. Includes: |
| DCCT-3000  | Current Transformer Unit                                  |
| 6623A-3S   | Current Transformer Controller                            |
| /OM  | Operation Manual (Included)                               |
| /CC  | Certificate of Conformance (Included)                     |
| Available Options Include  |   |
| 66259  | Programmable Extender Control Unit                        |
| 6623A-PCS/3000   | Precision 3000 Ampere Source                              |
| Note: PCS Sources from 150 Amperes to 10,000 Amperes available in 150 A Increments |   |
| 9230A  | DC Reference Shunt (select model for current source)      |

## Guildline IS DISTRIBUTED BY:

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