

# 6624CT-3000 Precision High Current DC Transformer System

Most Accurate High Current Measurement 3000 Ampere System Available Today!



## 6624CT-3000 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 CS 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!

**Guildline's 6624CT-3000 High Current DC 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.

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 control chassis.

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 High Current DC Current Transformer 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 6624CT-3000 is the World's only Commercially Available High Precision, High DC Current instrument Available Today Capable of part per million (ppm) Measurements!***

The 6623A-3S also provides connections between Guildline's CS1000 DC Current Source units and a model 66259 Extender Control Unit. The model 66259 in combination with the CS1000 Current Source units 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 (CS). The 6624CT-3000 High Current DC Current Transformer is pre-wired and configured for operation at nominal power line voltages of 100, 120, 220 and 240 VAC.

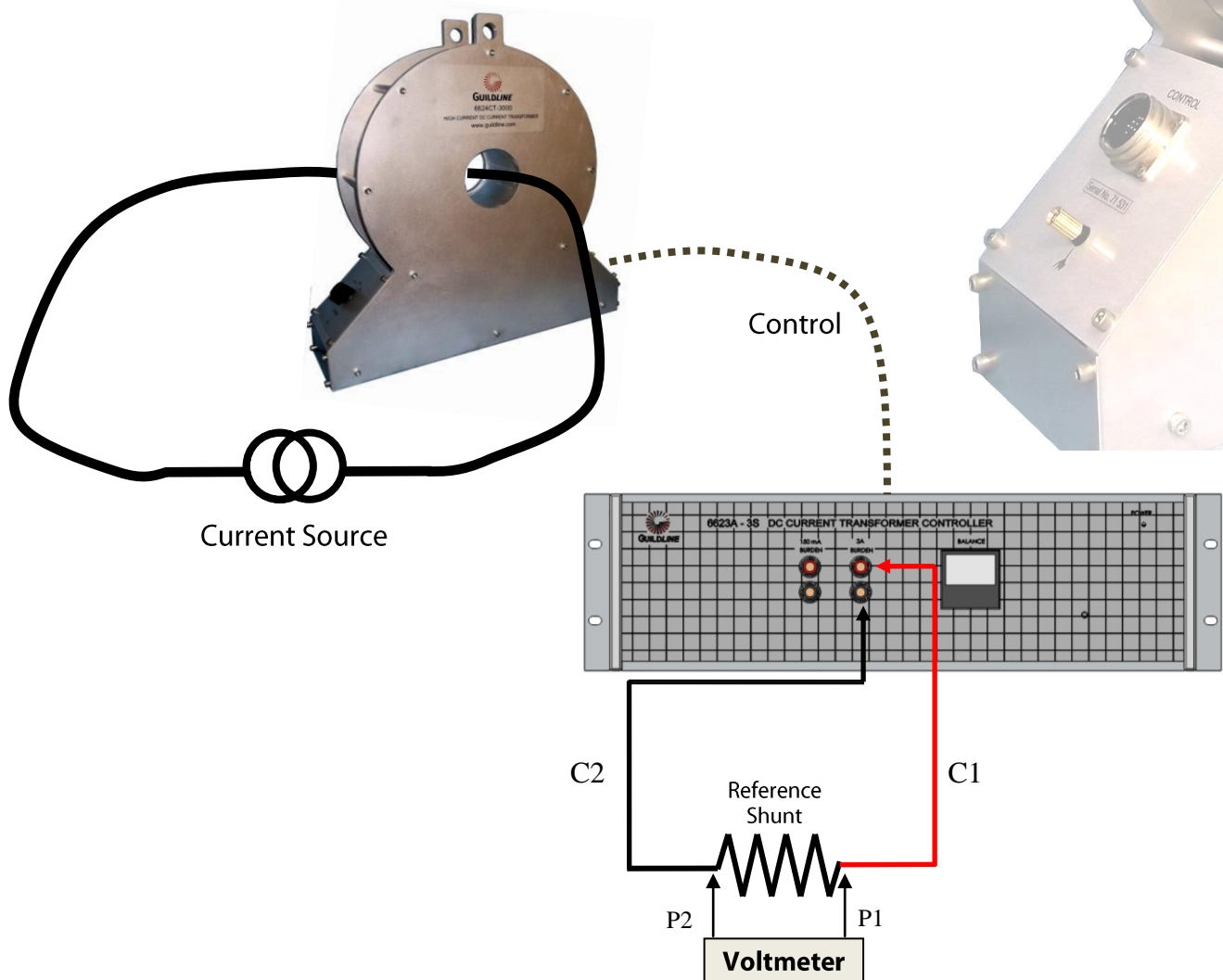
# 6624CT-3000 PRECISION HIGH CURRENT DC CURRENT TRANSFORMER

## 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 one of the output terminals the primary current can also be calculated from the measured voltage on the reference shunt.

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. 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.



6624CT-3000 Connections

## 6624CT-3000 PRECISION HIGH CURRENT DC CURRENT TRANSFORMER

The model 6624CT-3000 High Current DC Transformer 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 CS1000 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. Note however that the direct current reading using the output current typically has much less uncertainty than using a reference shunt burden. All necessary interconnections for the control of a Guildline 6623A current source, the 6623A-3S Current Transformer Controller and the 6624CT-3000 Current Transformer unit 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.



6623A-3S Front and Rear Views



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 control chassis. 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 eliminates the uncertainties associated with using high current shunts. If a customer



is using Guildline's 6623A precision current sources, all necessary interconnections for the control of the 1000 A to 3000 A current source(s), the 6623A-3S Current Transformer Controller and the DCCT-3000 Current Transformer Unit 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 (CS 1000) Current Source is shown to the left. The actual CS source is the 5U top unit capable of 1000 Amperes out and having multiple units (up to 10,000 amperes) connected.



# 6624CT-3000 PRECISION HIGH CURRENT DC CURRENT TRANSFORMER

6624CT-3000 High Current DC 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
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
CS-1000	Precision 1000 Ampere Source
CS-2000	Precision 2000 Ampere Source
CS-3000	Precision 3000 Ampere Source
9230A	DC Reference Shunt (select model for current source)

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