

# ENCOMPASS CTs



## Extended Range Solution

**Eliminate the Need for Multiple Current Ratios  
Reducing Inventory and Simplifying CT Selection**

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### Key Benefits

Encompass Current Transformers exclusively from GE Vernova offer electrical utilities the piece of mind of knowing they'll always have the right CT in stock when emergencies happen. The ITI Encompass is able to measure current with 0.3% accuracy from 40% to 400% of rated current. This means that a 500:5 CT can measure with 0.3% accuracy from 200 Amps to 2000 Amps. For many customers, this can mean a significant inventory reduction. For example, instead of having to carry 200:5, 400:5 and 800:5 CTs in stock, a customer can use one Encompass CT to cover all three ranges.

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### Applications

#### **JAB-OW:**

Designed for indoor service; especially for installation over the secondary bushings of pad mounted transformers from 75 kVA to 3000 kVA. A high temperature version is available for use in locations with unusually high ambient temperatures.

#### **JAK-OW, JCR-OW, JAD-OW:**

Designed for both indoor and outdoor service. Suitable for operating meters, instruments, and control devices. Designs for both single-phase two wire circuits and polyphase circuits. The window type transformer can also be used on three-wire single phase circuits.

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### Features

- Meets required IEEE C57.13 10% rating at 0.2 amps secondary current (10% of 2 amps, the lowest RF)
- Meter at 0.3% IEEE C57.13 accuracy over a rating factor (RF) range as large as 0.4 to 4.0
- Secondary current range of 2 amps to 20 amps
- In some models the Encompass CT is smaller and lighter than its counterpart
- Same ANSI mounting provisions, terminals, construction as our standard offering



## Introduction

Not all current transformers can be assigned a rating factor as high as 4.0 because of thermal problems. The best you could expect is an accuracy of 0.3% over a range of 5 to 20 Amps, if a 4.0 rating factor can be assigned to a CT. This is a 4x maximum range for a 0.3% accuracy rating.

GE Vernova's new line of ITI Low Voltage current transformers carries up to a 10x rating factor range. By assigning a rating factor range as wide as 0.4 to 4.0, it is often possible to replace all the CTs that you use of a particular frame size with a single part number.

## How it works

- Traditionally, a CT secondary rating is 5 Amps. The range of operation is increased only by raising the secondary current (i.e. assigning a rating factor greater than 1.0 and never over 4.0)
- With the Encompass the rating factor is pushed up and down
  - As high as the traditional RF of 4.0
  - As low as a non-traditional RF of 0.4
  - Maintain 0.6% Accuracy down to 4% of rated current

## Rating Factor

Rating factors now range from 1.0 up to 4.0. This allows customer to use the Current Transformer (CT) at up to 4 times the nominal secondary current.

Simply stated, a 5 Amp secondary CT can be used up to 20 Amp if a rating factor of 4.0 is assigned to the CT ( $4.0 \times 5 = 20$ ). C20 transformer rated meters accept this 20 amp input.

## Encompass CT



## Inventory

$$8 \times \$100 = \$800$$



$$1 \times \$100 = \$100$$

**1 CT Replaces 8!**

### Usually only one part number for each frame size

- Simplified site material ordering
- Reduced "in the field" part shortages

### Reduce meter shop inventory

- Space savings
- Reduced dollars in inventory

## JCR-OW vs JCR-OC



## JAK-OW vs JAK-OC



**In some models Encompass is smaller and lighter**  
**Same ANSI mounting provisions, terminals, construction**

#### No Risk to Implement:

- Same technology
- Simple to implement
- Same construction

## Technical Info

### Construction and Insulation

The core and coil are encapsulated in a polyurethane resin. This material has excellent electrical and mechanical properties over a wide temperature range and is resistant to oil and a variety of chemicals.

### Core and Coils

The core is made from high quality grain oriented silicon steel, annealed under rigidly controlled factory conditions. The secondary winding is made of heavy enameled copper wire. The secondary windings are evenly distributed around the core for maximum accuracy and resistance to stray fields from adjacent conductors.

### Terminals

Secondary terminals are tin plated brass, compression type with a 0.275 diameter cross-hole for wiring and a 1/4-28 clamp screw. A shorting device is provided and interlocked to the terminal cover. The terminal cover is made of a clear plastic. Provision is made for sealing the cover.

### Polarity

The H1 polarity mark is molded into the transformer body, above the window at one end. The X1 polarity mark is also molded into the body adjacent to the secondary terminal. Both are also identified with a white dot.

### Primary Window

The window has ample size to accommodate cables of currentcarrying capacity equal to or greater than the transformers thermal current rating.

### Nameplates

The nameplate is laser engraved aluminum. The nominal current rating is on both faces of the unit in large numerals.

### Baseplate and Mounting

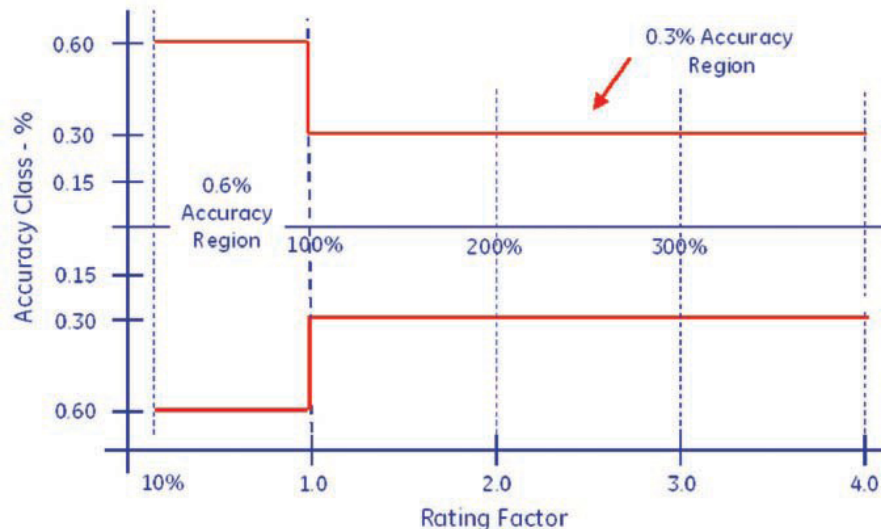
The transformer can be mounted in any position and may be suspended from the bus-bar or cable. It has provision for attaching two optional bases. Bases are made from stainless steel. The high base increases the transformer height by 2 inches and meets the dimensions specified in ANSI C12.11

### Maintenance

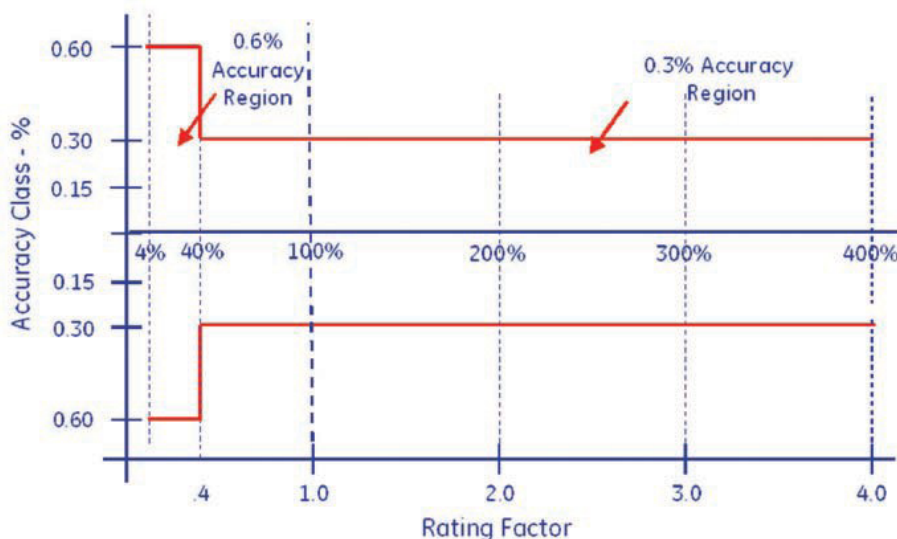
These transformers require no maintenance, other than occasional cleaning, if installed where air contamination is severe.

## Technical Info (Continued)

### Standard IEEE C57.13.6 Accuracy 0.30 @ BX.X; RF4.0



### GE Vernova ITI Encompass Accuracy 0.30 @ BX.X; RF 0.4 - 4.0



#### Example: Meter shop needs a current transformer for a 200 Amp service

The ITI Encompass current transformer will meter at 0.3% IEEE C57.13 accuracy over a rating factor (RF) range as large as 0.4 to 4.0. This is a secondary current range of 2 amps to 20 amps.

The required IEEE C57.13 rating at 10% is met at 0.2 amps on the secondary (10% of 2 amps, the lowest RF), and in fact, the Encompass CT will hold 0.6% accuracy down to 4% of rated current.

Use the ITI Encompass with C20 transformer rated meters

- The GE Vernova KV2c offers full 0.2% accuracy over the entire 10x range of Encompass rating factor
- Other meters must be applied at the traditional ANSI C57.13 range  
(It is possible that a supplier load curve can be used to verify extended range of operating accuracy)

**Option 1: Standard JAB-OC 200:5 w/RF of 4.0:** 0.6% accuracy from 20 to 200 A. 0.3% accuracy from 200 to 800 A.

**Option 2: Encompass JAB-OW 500:5 w/RF of 0.4-4.0:** 0.6% accuracy from 20 to 200 A. 0.3% accuracy from 200 to 2000 A.

Even at a low ratio of 200:5, the Encompass meets the standard on the low current side and more than doubles the performance at higher current.



## Technical Info (Continued)

JAD-0W Data Table - Window Type

CURRENT RATIO (Amps) PRI: SEC	ANSI ACCURACY CLASS, 60 Hz BURDEN PER ANSI 0.3 B0.5	PRIMARY BAR	CONTINUOUS THERMAL CURRENT RATING FACTOR		CATALOG NUMBER	
			@ 30°C Amb.	@ 55°C Amb.	WITHOUT MOUNTING BASE	BASE ASSEMBLED
1000:5	400:2 to 4000:20	No	4.0	3.0	750×120609	750×120611
1000:5	400:2 to 4000:20	Yes	4.0	3.0	750×120610	750×120612

\* Busbars can be removed. Use one bar to 1500 amp ratio, two bars to 2000 amps, three to 3000 amps, and four to 4000amps.



JAK-0W Data Table

CURRENT RATIO (Amps) PRI: Sec	ANSI ACCURACY CLASS, 60 Hz BURDEN PER ANSI 0.3 B0.5	CONTINUOUS THERMAL CURRENT RATING FACTOR		PRIMARY BAR	CATALOG NUMBER		
		@ 30°C Amb.	@ 55°C Amb.		LOW BASE	WIDE BASE	HIGH BASE
500:5	200:2 to 2000:20	4.0	3.0	No	750×133629	750×133631	750×133633
500:5	200:2 to 2000:20	4.0	3.0	Yes	750×133630	750×133632	750×133634



JCR-0W Data Table

CURRENT RATIO (Amps) PRI: Sec	ANSI ACCURACY CLASS, 60 Hz BURDEN PER ANSI 0.3 B0.5	WINDOW SIZE (INSIDE DIAMETER)	CONTINUOUS THERMAL CURRENT RATING FACTOR		CATALOG NUMBER WITHOUT BASE	
			@ 30°C Amb.	@ 55°C Amb.	WITH SECONDARY HARDWARE AND COVER	WITHOUT SECONDARY HARDWARE AND COVER
250:5	100:2 to 1000:20	2.0	4.0	3.0	750×134608	750×134611
					With Low Base	
250:5	100:2 to 1000:20	2.0	4.0	3.0	750×134609	750×134612
					With High Base	
250:5	100:2 to 1000:20	2.0	4.0	3.0	750×134610	750×134613



JAB-0W Data Table

CURRENT RATIO (Amps) PRI: Sec	ANSI ACCURACY CLASS, 60 Hz BURDEN PER ANSI 0.3 B0.5	CONTINUOUS THERMAL CURRENT RATING FACTOR		CATALOG NUMBER	CATALOG NUMBER
		@ 30°C AMB.	@ 55°C AMB.		
500:5	200:2 to 2000:20	4.0	3.0	750×136651	1
1500:5	600:2 to 3000:10	2.0	1.5	750×136652	1

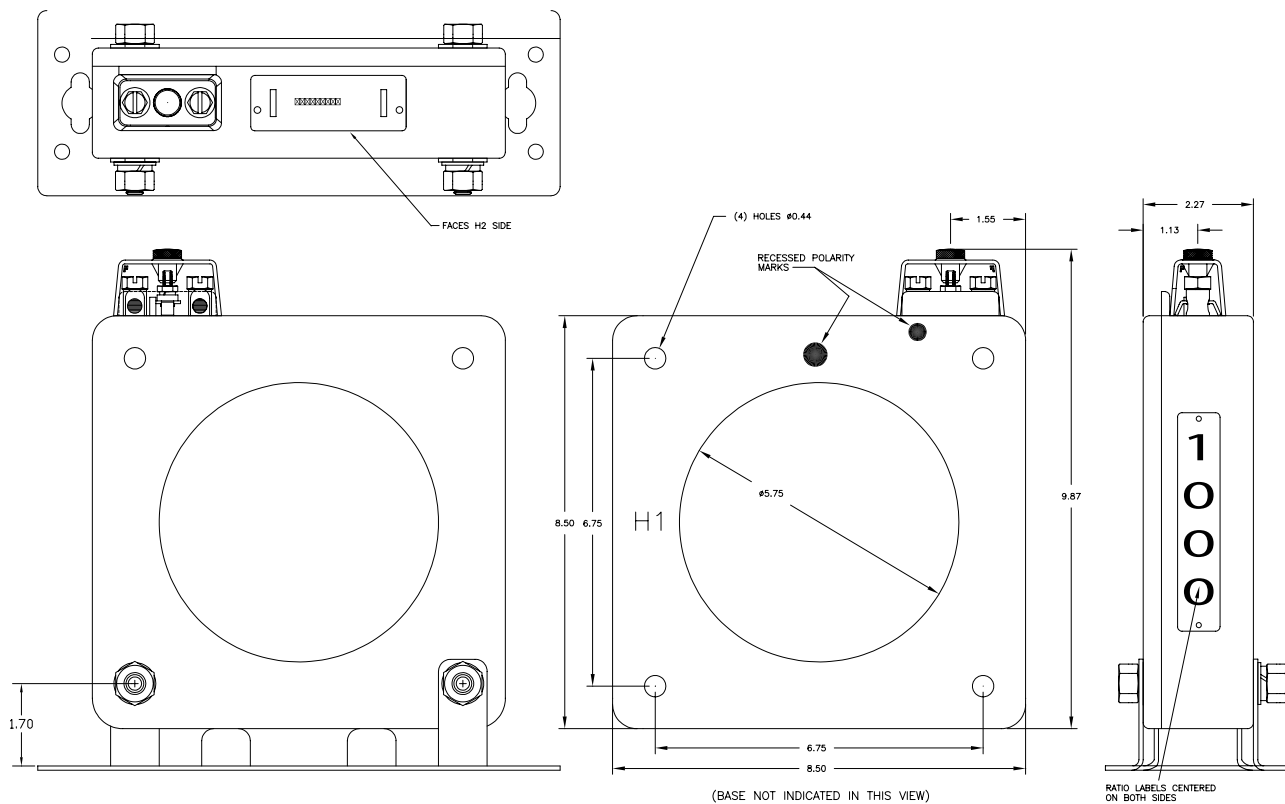


JAB-0W High Temp Data Table

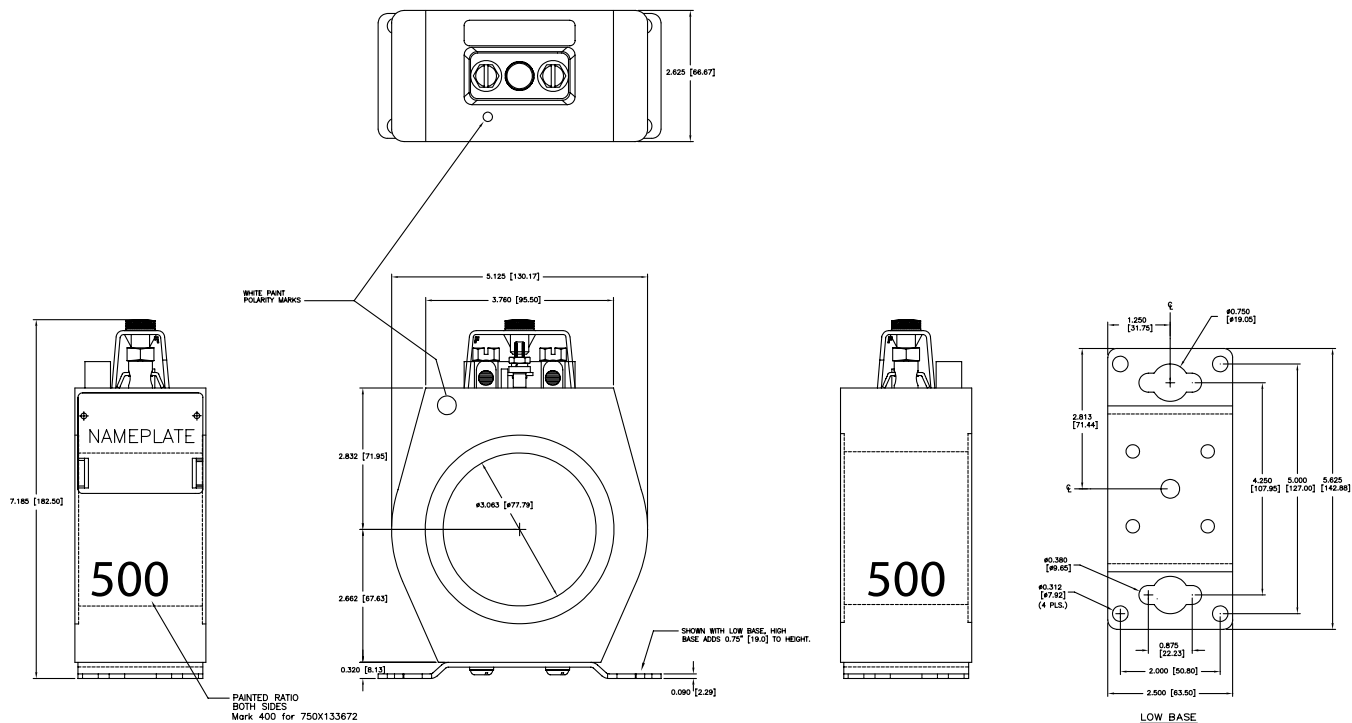
CURRENT RATIO (Amps) PRI: Sec	ANSI ACCURACY CLASS, 60 Hz BURDEN PER ANSI 0.3 B0.5	CONTINUOUS THERMAL CURRENT RATING FACTOR	CATALOG NUMBER	CATALOG NUMBER
		@ 85°C AMB.		
500:5	200:2 to 2000:20	4.0	750×136464	1
1500:5	600:2 to 3000:10	2.0	750×136463	1

## Technical Info (Continued)

### JAD-0W Dimensions

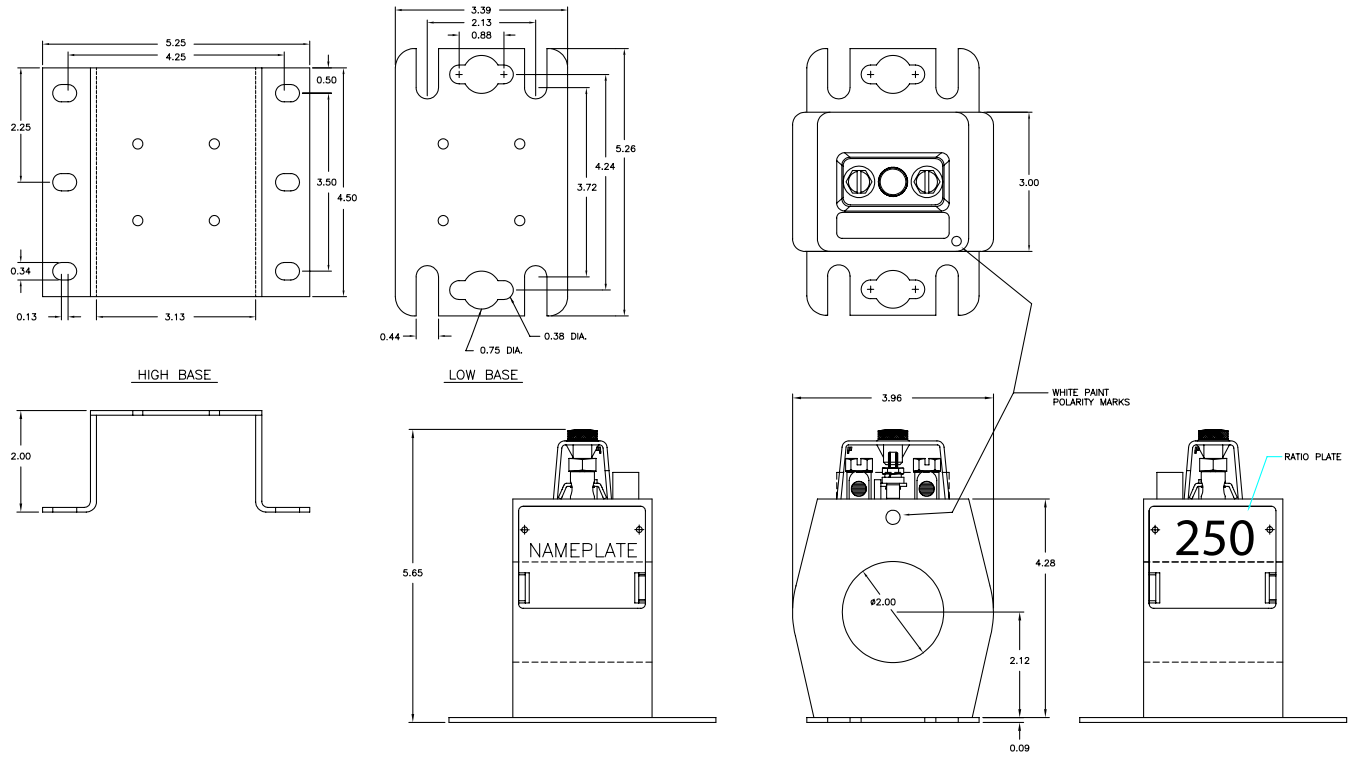


### JAK-0W Dimensions



# Technical Info (Continued)

## JCR-0W Dimensions



## JAB-0W Dimensions

Figure A

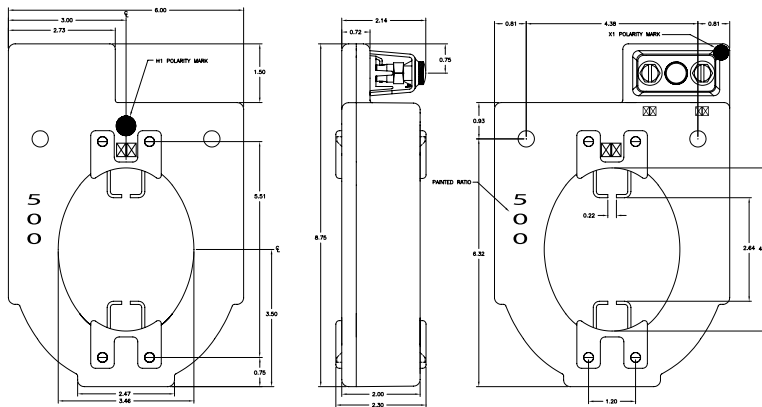
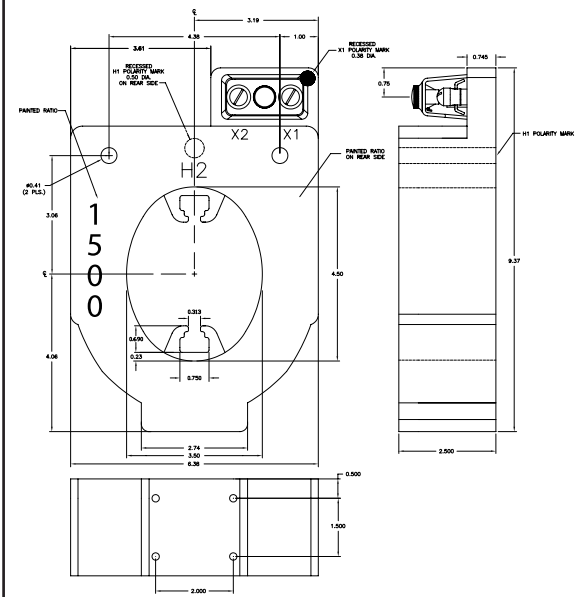


Figure B



## Other Utility Product Available from GE Vernova-ITi



### Outdoor IEEE MV CT & PT

5 KV to 36 KV, BIL up to 200KV  
H-CEP Insulation  
Designed to meet C57.13  
Metering and Relaying Designs



### IEEE Split Core CT

600 Volt Class  
Ratios 100:5 to 10,000:5  
Voltage outputs available  
Window sizes from 0.5 inches to 30 inches  
Supplied with terminals or leads  
UL & CSA approved



### IEEE LV Potential Transformer

Single & Three phase models  
Fused & Unfused models  
Designed to meet IEEE C57.13  
IEC Designs available  
UL Recognized & CSA Approved  
Some models IC approved



### Indoor IEEE MV CT & PT

5 KV to 36 KV, BIL up to 200KV  
Vacuum cast using polyurethane resin  
Special primary bars on some models  
Designed to meet C57.13  
UL Recognized & CSA Approved  
Some models IC Approved



### Instrumentation and Control Switches

Circuit breaker switches  
Ammeter/Voltmeter switches  
Lock out relays  
FT & RT test switches  
UL & CUL Recognized



### IEEE Bushing CT

External slipover BCT  
Generator CT  
600V Class  
For mounting over HV bushings  
Designed to meet IEEE C57. 13  
IEC Designs available  
Taped, board mounted & cast models  
Leads, terminals & terminal boxes available

For more information, visit  
**[gevernova.com/grid-solutions](http://gevernova.com/grid-solutions)**



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