



Current Transformer

Application

The CTO-650 is an outdoor, current transformer suitable for metering or relaying applications on 138,000 volt systems at 650 kV BIL, at 60 Hz with primary current ratings from 10 to 3000 amperes.

Fabrication

All ITEC transformers utilize high permeability, low loss, grain orientated silicon steel cores to optimize performance and physical size of the transformers.

Transformer bases and domes are manufactured from mild steel and finished with the latest powder coating technology to withstand the most rigorous environmental conditions. Standard finish color is ANSI 70 light Gray.

All CTO's are hermetically sealed, full vacuum assemblies provided with a dry nitrogen cushion.

One-piece, wet processed porcelain bushings are used on all CTO's. Bushings are designed to exceed IEEE standards for creep and strike distances. The standard bushing color is ANSI 70 light Gray.

Primary terminals are NEMA standard 4-hole pads, suitable for copper or aluminum connectors. The H1 terminal is provided with a by-pass protector to safeguard primary turn-to-turn insulation in cases of voltage stresses induced by high frequency, high current surges.

Secondary terminations are made to a shorting terminal block conveniently located in the low voltage compartment in the base of the transformer. The weatherproof terminal box is provided with three (3) 1-1/2" conduit openings.

All CTO's are equipped with a magnetic oil level gauge, 1/2" drain valve, and pressure relief valve.

Magnetic Circuits

The CTO-650 is available in single, dual ratio, dual ratio with taps and up to three secondary windings.

Seismic Rating

The CTO-650 has been qualified through Dynamic Analysis to withstand High Level withstand per IEEE 693-2005



Accuracy and Thermal Rise

CTO-650 current transformers meet IEEE 0.3 accuracy class through burdens of B0.1 to B1.8. 0.15 class, high accuracy designs will operate through burdens of B0.1 to B1.8 with an accuracy range of 0.5% of nominal current through the rating factor. The CTO-650 can be designed for relay applications up to C800 class. All CTO-650's are accurate and design for continuous operation through their rating factor

Mounting

All CTO current transformers are designed for outdoor, vertical platform mounting and must not be tilted more the 15 degrees from vertical.

Testing

Every transformer is tested in accordance with IEEE Standard C57.13 (latest revision). Standard tests include applied and induced voltage, accuracy, polarity, dissipation factor and partial discharge. All transformers are guaranteed to be partial discharge free at 135% of nominal system voltage.

Options

- Stainless Steel Base and Dome
- Extra Creep Porcelain Bushings

Instrument Transformer Equipment Corporation

Product Data
CTO-650
Voltage Transformer
138 kV Class
650 kV BIL



Current Transformer

Performance Data

Catalog Prefix	Accuracy Class	100% Rated Current	10% Rated Current	5% Rated Current	1% Rated Current	.5% Rated Current	Application
CH	0.15	0.15	--	0.3			High Accuracy Metering
CH	0.15N	0.15	0.3	--	Consult factory	Consult factory	Special High Accuracy Metering
CX	0.15S	0.15	0.15	0.15			High Accuracy Metering - Extended Range
CE	0.3S	0.3	0.3	0.3			Revenue Metering - Extended Range
CA	0.3	0.3	0.6	--	--	--	Revenue Metering

Catalog Prefix	Nominal Primary Current	Catalog Code	Rating Factor at 30 deg C	Mech. Current	1 Sec Thermal Rating	Single Ratio "S"	Dual Ratio Tap "T"	Multi Ratio "M"	Dual Ratio Series -Parallel "P"
CA or CE	20	0020	1.5/1.5	1.5	1.25	20:5	10/20:5		
	50	0050	1.5/1.5	3.75	3.5	50:5	25/50:5		
	100	0100	1.5/1.5	7.5	6	100:5	50/100:5		50 X 100:5
	150	0150	1.5/1.5	11.5	10	150:5	75/150:5		75 X 150:5
	200	0200	1.5/1.5	15	12	200:5	100/200:5		100 X 200:5
	300	0300	1.5/1.5	20	18	300:5	150/300:5		150 X 300:5
	400	0400	1.5/1.5	25	25	400:5	200/400:5		200 X 400:5
	600	0600	1.5/1.5	30	25	600:5	300/600:5	600:5	300 X 600:5
	800	0800	1.5/1.5	60	50	800:5	400/800:5		400 X 800:5
	1000	1000	1.5/1.5	60	50	1000:5	500/1000:5		500 X 1000:5
	1200	1200	1.5/1.5	60	50	1200:5	600/1200:5	1200:5	600 X 1200:5
	1500	1500	1.5/1.5	90	90	1500:5	750/1500:5		750 X 1500:5
	1600	1600	1.5/1.5	90	90	1600:5	800/1600:5		800 X 1600:5
	2000	2000	1.5/1.5	90	90	2000:5	1000/2000:5	2000:5	1000 X 2000:5
3000	3000	1.0/1.0	90	90	3000:5	1500/3000:5	3000:5	1500 X 3000:5	
CH or CX	20	0020	1.5/1.5	1.5	1.25	20:5			
	50	0050	1.5/1.5	3.75	3.5	50:5			
	100	0100	1.5/1.5	7.5	6	100:5			50 X 100:5
	150	0150	1.5/1.5	11.5	10	150:5			75 X 150:5
	200	0200	1.5/1.5	15	12	200:5			100 X 200:5
	300	0300	1.5/1.5	20	18	300:5			150 X 300:5
	400	0400	1.5/1.5	25	25	400:5			200 X 400:5
	600	0600	1.5/1.5	30	25	600:5			300 X 600:5
	800	0800	1.5/1.5	60	50	800:5			400 X 800:5
	1000	1000	1.5/1.5	60	50	1000:5			500 X 1000:5
	1200	1200	1.5/1.5	60	50	1200:5			600 X 1200:5
	1500	1500	1.5/1.5	90	90	1500:5			750 X 1500:5
	1600	1600	1.5/1.5	90	90	1600:5			800 X 1600:5
	2000	2000	1.5/1.5	90	90	2000:5			1000 X 2000:5
3000	3000	1.0/1.0	90	90	3000:5			1500 X 3000:5	

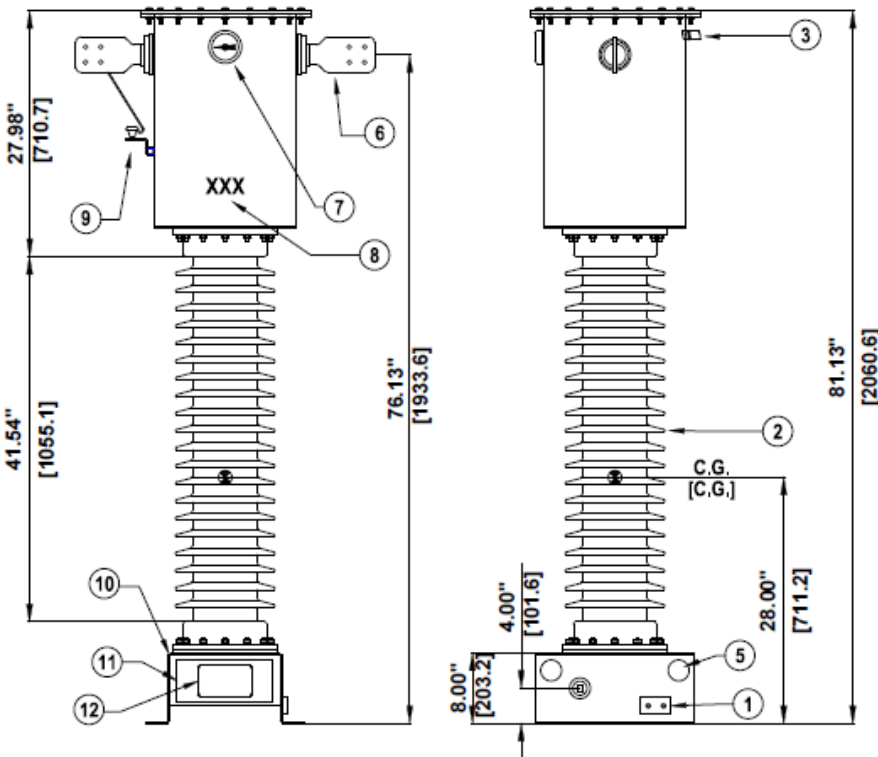
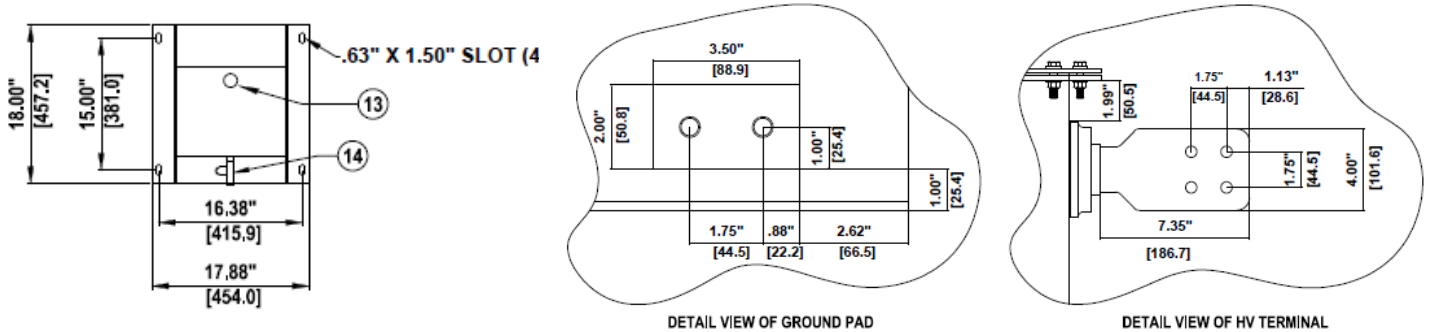
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Current Transformer

Dimensions and Details



Notes:

1. NEMA 2- hole Ground Pad
2. Porcelain Insulator, Glaze ANSI 70
3. Pressure Relief Valve
4. 3/4" NPT Vacuum/Fill Port
5. Lifting Eyes
6. Primary Terminals 4 hole NEMA Pad
7. Oil Level Indicator
8. Welded Steel Tank with Stenciled Ratio
9. By Pass Protector
10. Mild Steel Base
11. Terminal Box Cover
12. Stainless Steel Name Plate
13. Secondary Terminal Box with (3) conduit openings for 1.5" conduit hubs.
14. 1/2" Drain Valve

CTO-650

650 kV BIL
 Weight: 625 pounds
 Gallons Oil: 40
 Creep Minimum: 103 inches
 Strike Minimum: 41 inches

This information is subject to change without notice.
 ITEC is not responsible for typographical errors.

Other ratings and options maybe available
 Please contact the factory with your requirements.

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