



*Instrument Transformers*

# RITZ INSTRUMENT TRANSFORMERS, INC.

## TYPE OBCT OUTDOOR BUSHING CURRENT TRANSFORMER

### Application

Outdoor bushing current transformers are used to provide current outputs on insulated apparatus such as circuit breakers, potheads, or power transformers. Other uses can be for ground-fault protection on live-tank circuit breakers or on free-standing current transformers.

### Core / Coil

The core is constructed from wound layers of silicon steel or other materials, depending on accuracy requirements. Press-board rings are used to mechanically protect the core and ensure that the coil winding is not damaged. Enamel coated copper wire is used for the coil. For multi-ratio designs, each segment is equally distributed about the core to ensure predictable accuracy at the taps.

### Insulation System

The core/coil is cast in outdoor polyurethane or epoxy resin, each having good weatherability and mechanical properties.

### Secondary Terminals

The secondary terminals are contained in a marine-grade, cast-aluminum terminal box. The terminal box has 1" NPT conduit hubs on each side, with an additional 1" knock-out in the bottom. A shorting link is supplied to short the winding in the event that the CT is energized without a load connected to the secondary.

### Mounting

The standard mounting hardware consists of aluminum brackets connected to stainless-steel all-thread bolts. Offset pads can be provided on the bottom of the CT for placing directly on tank surfaces. Other custom mounting options are available, such as brackets for mounting to bushing flanges.

### Nameplate

Rating and schematic nameplates are located on the inside of the secondary terminal box cover. A label indicating "H1" is also affixed to the top surface of the unit.



### Ground Shield

An aluminum ground shield can be provided on the top surface of the unit. The shield can be tied to the station ground by a 1-hole connector (not provided). Ground shields are recommended for most applications.

### Ratings

CTs are available with protection or metering accuracies. Standard catalog numbers for protection ratings are listed in this brochure. Consult the factory for other design configurations and custom ratings.

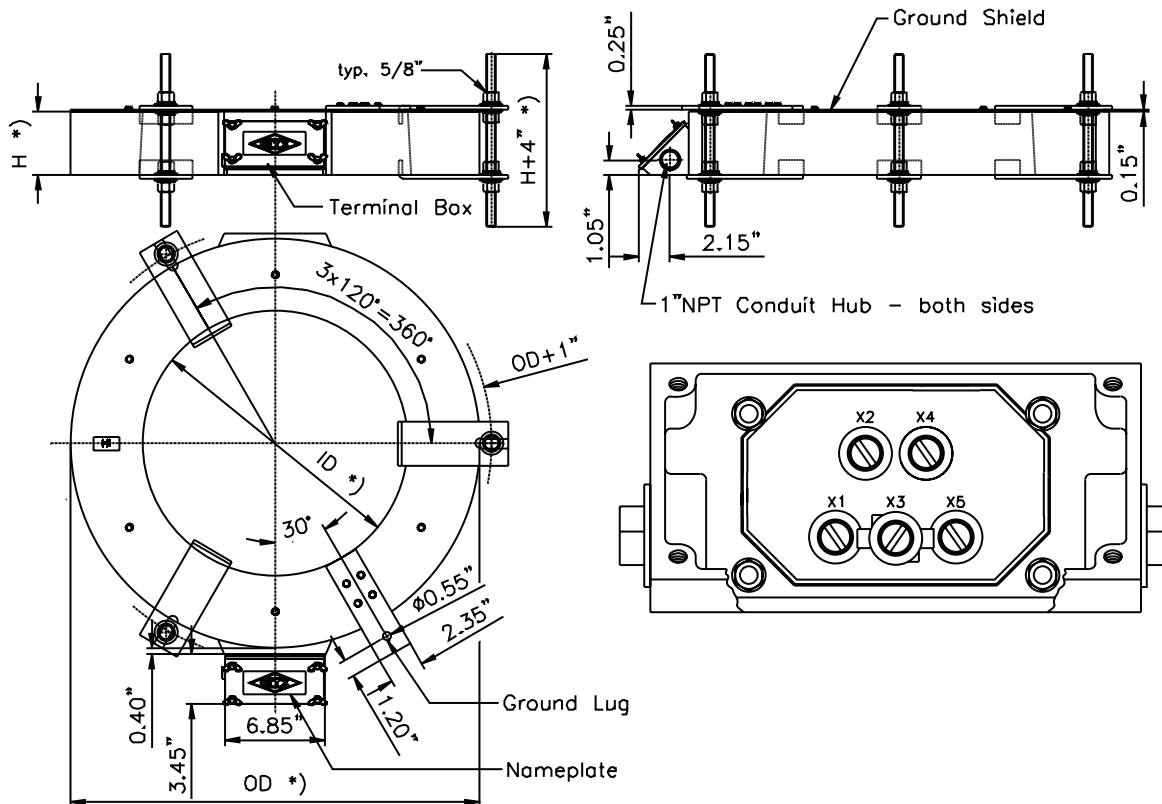
Standard rating factors of 2.0 are offered through 3000:5A ratios and 1.5 for ratios through to 5000:5A.

The standard thermal current (1 second rating) is 85 times rated current.

### Dual Core Option

As an option to limit total mounting height, 2 core/coils can be cast in one unit. This configuration comes with 2 separate secondary terminal boxes, one for each core/coil. Consult the factory for possible rating combinations, as ratings may be limited by size constraints.





OBCT Catalog Number System						
33 ID OD HH 9. RR W A O						
ID Code	OD Code	Height Code	Ratio Code	Winding Code	Accuracy Code	Option Code
05 = 5.5"	15 = 15.875"	35 = 3.50"	01 = 100	1 = Multi-Ratio	1 = C100	1 = w/shield, w/mounting A
08 = 8.75"	19 = 19.5"	37 = 3.75"	02 = 200	2 = Single-Ratio	2 = C200	2 = w/shield, w/mounting B
10 = 10"	22 = 22"	40 = 4.00"	03 = 300	3 = Dual-ratio	3 = C400	3 = w/shield, w/o mounting
12 = 12"	23 = 22.375"	42 = 4.25"	04 = 400	9 = Special	4 = C800	4 = w/o shield, w/ mounting A
13 = 13.375"	26 = 26"	45 = 4.50"	05 = 500		5 = 0.3BO.2	5 = w/o shield, w/ mounting B
16 = 16"	28 = 28"	47 = 4.75"	06 = 600		6 = 0.3BO.5	6 = w/o shield, w/o mounting
18 = 18"	30 = 30"	50 = 5.00"	08 = 800		7 = 0.3BO.9	9 = Special
20 = 20"	32 = 32"	55 = 5.50"	10 = 1000		8 = 0.3B1.8	
22 = 22"	34 = 34.5"	60 = 6.00"	12 = 1200		9 = Special	
24 = 24"	36 = 36"	65 = 6.50"	15 = 1500			
28 = 28.5"	38 = 38"	67 = 6.75"	20 = 2000			
32 = 32"	42 = 42.25"	70 = 7.00"	25 = 2500			
35 = 35"	00 = Special	75 = 7.50"	30 = 3000			
00 = Special		80 = 8.00"	40 = 4000			
		82 = 8.25"	50 = 5000			
		85 = 8.50"	99 = Special			
		00 = Special				

#### Mounting Options

- A = standard brackets
- B = spacer pads for direct tank mounting
- Special = custom design

Ensure OBCT does not interfere with proper strike distance of bushing. Ritz does not accept liability for proper sizing.

### Minimum Required Information

- Ratio (multi-ratio for protection, single or dual ratio for metering)
- Accuracy class (including burden if for metering)
- Minimum inside diameter
- Maximum outside diameter (if any)
- Maximum allowed height (check strike distance limitations)
- Mounting configuration (see below)
- With or without ground shield (ground shield recommended)

### Ordering

OBCT's may be ordered using the catalog number system shown below, referencing the ratio, size, and accuracy combinations listed on pages 3 and 4. Custom designed units are also available. Please refer to the minimum information required list to the right when ordering custom configurations.

## Standard Sizes and Corresponding Ratings

All Dimensions in Inches/Pounds  
Dimensions +/- 1/2" / Weights are approximate

### 400:5A Relay Accuracy

ID	OD	H	Class	RF	Wt
5-1/2	15-7/8	4-1/4	C200	2.0	125
5-1/2	15-7/8	6-1/2	C400	2.0	195
8-3/4	15-7/8	6	C200	2.0	135
10	19-1/2	4-1/4	C200	2.0	150
10	19-1/2	7	C400	2.0	270
12	22	4-1/4	C200	2.0	180
12	22	3-3/4	C400	2.0	320
13-3/8	22-3/8	4-1/2	C200	2.0	185
13-3/8	22-3/8	7-1/2	C400	2.0	315
16	26	4-1/4	C200	2.0	220
16	26	6-3/4	C400	2.0	385
18	28	4-1/4	C200	2.0	240
18	28	6-3/4	C400	2.0	420
20	30	4-1/4	C200	2.0	260
20	30	6-3/4	C400	2.0	455
22	32	4-1/4	C200	2.0	285
22	32	6-3/4	C400	2.0	485
24	34-1/2	4	C200	2.0	285
24	34-1/2	6-1/2	C400	2.0	520
26	36	5	C200	2.0	385
26	36	6-3/4	C400	2.0	555
28-1/2	38	4-1/2	C200	2.0	345
28-1/2	38	7-1/2	C400	2.0	610
32	42-1/4	4-1/4	C200	2.0	375
32	42-1/4	6-3/4	C400	2.0	660

### 600:5A Relay Accuracy

ID	OD	H	Class	RF	Wt
5-1/2	15-7/8	3-1/2	C200	2.0	95
5-1/2	15-7/8	4-3/4	C400	2.0	145
5-1/2	15-7/8	8	C800	2.0	255
8-3/4	15-7/8	4-1/2	C200	2.0	105
8-3/4	15-7/8	7	C400	2.0	160
10	19-1/2	3-1/2	C200	2.0	120
10	19-1/2	5	C400	2.0	195
10	19-1/2	8-1/2	C800	2.0	340
12	22	3-1/2	C200	2.0	145
12	22	5	C400	2.0	235
12	22	8	C800	2.0	385
13-3/8	22-3/8	3-1/2	C200	2.0	130
13-3/8	22-3/8	5-1/2	C400	2.0	230
13-3/8	22-3/8	8-3/4	C800	2.0	385
16	26	3-1/2	C200	2.0	165
16	26	5	C400	2.0	275
16	26	8-1/4	C800	2.0	490
18	28	3-1/2	C200	2.0	170
18	28	5	C400	2.0	300
18	28	8	C800	2.0	510
20	30	3-1/2	C200	2.0	185
20	30	5	C400	2.0	325
20	30	8-1/4	C800	2.0	580

22	32	3-1/2	C200	2.0	210
22	32	5	C400	2.0	340
22	32	8	C800	2.0	600
24	34-1/2	3-1/2	C200	2.0	220
24	34-1/2	4-7/8	C400	2.0	360
24	34-1/2	8	C800	2.0	665
26	36	3-1/2	C200	2.0	225
26	36	5	C400	2.0	395
26	36	8	C800	2.0	675
28-1/2	38	3-1/2	C200	2.0	245
28-1/2	38	5-1/2	C400	2.0	420
28-1/2	38	8-1/2	C800	2.0	730
32	42-1/4	3-1/2	C200	2.0	270
32	42-1/4	5	C400	2.0	465
32	42-1/4	8	C800	2.0	810

### 800:5A Relay Accuracy

ID	OD	H	Class	RF	Wt
5-1/2	15-7/8	3-1/2	C200	2.0	90
5-1/2	15-7/8	4	C400	2.0	120
5-1/2	15-7/8	6-1/2	C800	2.0	200
8-3/4	15-7/8	3-3/4	C200	2.0	90
8-3/4	15-7/8	6	C400	2.0	135
10	19-1/2	3-1/2	C200	2.0	115
10	19-1/2	4-1/2	C400	2.0	160
10	19-1/2	7	C800	2.0	265
12	22	3-1/2	C200	2.0	130
12	22	4	C400	2.0	170
12	22	6-1/2	C800	2.0	305
13-3/8	22-3/8	3-1/2	C200	2.0	115
13-3/8	22-3/8	4-1/2	C400	2.0	180
13-3/8	22-3/8	7-1/2	C800	2.0	320
16	26	3-1/2	C200	2.0	150
16	26	4	C400	2.0	215
16	26	6-1/2	C800	2.0	370
18	28	3-1/2	C200	2.0	190
18	28	4	C400	2.0	225
18	28	6-1/2	C800	2.0	405
20	30	3-1/2	C200	2.0	170
20	30	5	C400	2.0	265
20	30	8-1/2	C800	2.0	480
22	32	3-1/2	C200	2.0	195
22	32	4	C400	2.0	160
22	32	6-1/2	C800	2.0	470
24	34-1/2	3-1/2	C200	2.0	210
24	34-1/2	4-1/4	C400	2.0	325
24	34-1/2	6-1/2	C800	2.0	505
26	36	3-1/2	C200	2.0	205
26	36	4	C400	2.0	290
26	36	6-1/2	C800	2.0	535
28-1/2	38	3-1/2	C200	2.0	210
28-1/2	38	4-1/4	C400	2.0	325
28-1/2	38	7	C800	2.0	585

32	3-1/2	3-1/2	C200	2.0	245
32	4	4	C400	2.0	355
32	6-1/2	6-1/2	C800	2.0	640

### 1200:5A Relay Accuracy

ID	OD	H	Class	RF	Wt
5-1/2	15-7/8	3-1/2	C200	2.0	85
5-1/2	15-7/8	3-1/2	C400	2.0	100
5-1/2	15-7/8	5-1/2	C800	2.0	150
8-3/4	15-7/8	3-1/2	C200	2.0	75
8-3/4	15-7/8	4-1/2	C400	2.0	105
8-3/4	15-7/8	7	C800	2.0	165
10	19-1/2	3-1/2	C200	2.0	95
10	19-1/2	3-1/2	C400	2.0	120
10	19-1/2	5	C800	2.0	185
12	22	3-1/2	C200	2.0	110
12	22	3-1/2	C400	2.0	135
12	22	4-3/4	C800	2.0	220
13-3/8	22-3/8	3-1/2	C200	2.0	110
13-3/8	22-3/8	3-1/2	C400	2.0	135
13-3/8	22-3/8	5-1/2	C800	2.0	235
16	26	3-1/2	C200	2.0	125
16	26	3-1/2	C400	2.0	160
16	26	4-3/4	C800	2.0	255
18	28	3-1/2	C200	2.0	135
18	28	3-1/2	C400	2.0	175
18	28	4-3/4	C800	2.0	285
20	30	3-1/2	C200	2.0	150
20	30	3-1/2	C400	2.0	195
20	30	4-3/4	C800	2.0	305
22	32	3-1/2	C200	2.0	160
22	32	3-1/2	C400	2.0	205
22	32	4-3/4	C800	2.0	325
24	34-1/2	3-1/2	C200	2.0	190
24	34-1/2	3-1/2	C400	2.0	235
24	34-1/2	4-3/4	C800	2.0	370
26	36	3-1/2	C200	2.0	180
26	36	3-1/2	C400	2.0	230
26	36	4-3/4	C800	2.0	375
28-1/2	38	3-1/2	C200	2.0	200
28-1/2	38	3-1/2	C400	2.0	250
28-1/2	38	5	C800	2.0	400
32	42-1/4	3-1/2	C400	2.0	270
32	42-1/4	4-3/4	C800	2.0	440

### 1500:5A Relay Accuracy

ID	OD	H	Class	RF	Wt
5-1/2	15-7/8	3-1/2	C200	2.0	80
5-1/2	15-7/8	3-1/2	C400	2.0	90
5-1/2	15-7/8	4-1/2	C800	2.0	130
8-3/4	15-7/8	3-1/2	C200	2.0	70
8-3/4	15-7/8	4-1/4	C400	2.0	105
8-3/4	15-7/8	6	C800	2.0	140

10	19-1/2	3-1/2	C200	2.0	105	18	28	3-1/2	C200	2.0	130	8-3/4	15-7/8	3-1/2	C200	1.5	65
10	19-1/2	3-1/2	C400	2.0	115	18	28	3-1/2	C400	2.0	155	8-3/4	15-7/8	3-1/2	C400	1.5	75
10	19-1/2	4-1/2	C800	2.0	170	18	28	3-1/2	C800	2.0	200	8-3/4	15-7/8	3-1/2	C800	1.5	90
12	22	3-1/2	C200	2.0	110	20	30	3-1/2	C200	2.0	140	10	19-1/2	3-1/2	C200	1.5	100
12	22	3-1/2	C400	2.0	135	20	30	3-1/2	C400	2.0	165	10	19-1/2	3-1/2	C400	1.5	110
12	22	4-3/4	C800	2.0	190	20	30	3-1/2	C800	2.0	215	10	19-1/2	3-1/2	C800	1.5	125
13-3/8	22-3/8	3-1/2	C200	2.0	105	22	32	3-1/2	C400	2.0	180	12	22	3-1/2	C400	1.5	105
13-3/8	22-3/8	3-1/2	C400	2.0	130	22	32	3-1/2	C800	2.0	225	12	22	3-1/2	C800	1.5	125
13-3/8	22-3/8	4-1/2	C800	2.0	185	24	34-1/2	3-1/2	C400	2.0	180	13-3/8	22-3/8	3-1/2	C400	1.5	110
16	26	3-1/2	C200	2.0	135	24	34-1/2	3-1/2	C800	2.0	255	13-3/8	22-3/8	3-1/2	C800	1.5	125
16	26	3-1/2	C400	2.0	155	26	36	3-1/2	C800	2.0	255	16	26	3-1/2	C400	1.5	125
16	26	4-1/2	C800	2.0	235	28-1/2	38	3-3/4	C800	2.0	280	16	26	3-1/2	C800	1.5	145
18	28	3-1/2	C200	2.0	140	32	42-1/4	3-1/2	C800	2.0	300	18	28	3-1/2	C400	1.5	140
18	28	3-1/2	C400	2.0	170	35	42-1/4	3-1/2	C400	2.0	210	18	28	3-1/2	C800	1.5	170
18	28	4-1/4	C800	2.0	250	35	42-1/4	4-3/4	C800	2.0	310	20	30	3-1/2	C400	1.5	145
20	30	3-1/2	C200	2.0	145	<b>3000:5A Relay Accuracy</b>						20	30	3-1/2	C800	1.5	165
20	30	3-1/2	C400	2.0	175	ID	OD	H	Class	RF	Wt	22	32	3-1/2	C800	1.5	175
20	30	5-1/2	C800	2.0	290	5-1/2	15-7/8	3-1/2	C200	2.0	80	24	34-1/2	3-1/2	C800	1.5	190
22	32	3-1/2	C400	2.0	195	5-1/2	15-7/8	3-1/2	C400	2.0	85	26	36	3-1/2	C800	1.5	210
22	32	4-1/4	C800	2.0	285	5-1/2	15-7/8	3-1/2	C800	2.0	95	28-1/2	38	3-1/2	C800	1.5	200
24	34-1/2	3-1/2	C400	2.0	210	8-3/4	15-7/8	3-1/2	C200	2.0	65	32	42-1/4	3-1/2	C800	1.5	245
24	34-1/2	4	C800	2.0	295	8-3/4	15-7/8	3-1/2	C400	2.0	75	35	42-1/4	3-1/2	C800	1.5	220
26	36	3-1/2	C200	2.0	190	8-3/4	15-7/8	4-1/4	C800	2.0	100	<b>5000:5A Relay Accuracy</b>					
26	36	3-1/2	C400	2.0	210	10	19-1/2	3-1/2	C200	2.0	95	ID	OD	H	Class	RF	Wt
26	36	4-1/4	C800	2.0	325	10	19-1/2	3-1/2	C400	2.0	110	5-1/2	15-7/8	3-1/2	C400	1.5	80
28-1/2	38	3-1/2	C400	2.0	235	10	19-1/2	3-1/2	C800	2.0	135	5-1/2	15-7/8	3-1/2	C800	1.5	85
28-1/2	38	4-1/2	C800	2.0	350	10	19-1/2	3-1/2	C400	2.0	110	8-3/4	15-7/8	3-1/2	C400	1.5	75
32	42-1/4	3-1/2	C400	2.0	250	12	22	3-1/2	C400	2.0	140	8-3/4	15-7/8	3-1/2	C800	1.5	90
32	42-1/4	4-1/4	C800	2.0	380	12	22	3-1/2	C800	2.0	140	10	19-1/2	3-1/2	C400	1.5	110
<b>2000:5A Relay Accuracy</b>						13-3/8	22-3/8	3-1/2	C400	2.0	110	10	19-1/2	3-1/2	C800	1.5	125
ID	OD	H	Class	RF	Wt	13-3/8	22-3/8	3-1/2	C800	2.0	130	12	22	3-1/2	C400	1.5	105
5-1/2	15-7/8	3-1/2	C200	2.0	75	16	26	3-1/2	C400	2.0	120	12	22	3-1/2	C800	1.5	125
5-1/2	15-7/8	3-1/2	C400	2.0	85	16	26	3-1/2	C800	2.0	160	13-3/8	22-3/8	3-1/2	C400	1.5	110
5-1/2	15-7/8	3-1/4	C800	2.0	110	18	28	3-1/2	C400	2.0	145	13-3/8	22-3/8	3-1/2	C800	1.5	125
8-3/4	15-7/8	3-1/2	C200	2.0	70	18	28	3-1/2	C800	2.0	175	16	26	3-1/2	C400	1.5	125
8-3/4	15-7/8	4	C400	2.0	85	20	30	3-1/2	C400	2.0	140	16	26	3-1/2	C800	1.5	145
8-3/4	15-7/8	5-1/2	C800	2.0	125	20	30	3-1/2	C800	2.0	185	18	28	3-1/2	C400	1.5	140
10	19-1/2	3-1/2	C200	2.0	95	22	32	3-1/2	C800	2.0	200	18	28	3-1/2	C800	1.5	170
10	19-1/2	3-1/2	C400	2.0	120	24	34-1/2	3-1/2	C800	2.0	220	20	30	3-1/2	C400	1.5	145
10	19-1/2	4-1/2	C800	2.0	175	26	36	3-1/2	C800	2.0	225	20	30	3-1/2	C800	1.5	165
12	22	3-1/2	C200	2.0	110	28-1/2	38	3-1/2	C800	2.0	230	22	32	3-1/2	C800	1.5	175
12	22	3-1/2	C400	2.0	125	32	42-1/4	3-1/2	C800	2.0	260	24	34-1/2	3-1/2	C800	1.5	190
12	22	3-1/2	C800	2.0	155	35	42-1/4	4	C800	2.0	255	26	36	3-1/2	C800	1.5	210
13-3/8	22-3/8	3-1/2	C400	2.0	115	<b>4000:5A Relay Accuracy</b>						28-1/2	38	3-1/2	C800	1.5	200
13-3/8	22-3/8	3-3/4	C800	2.0	155	ID	OD	H	Class	RF	Wt	32	42-1/4	3-1/2	C800	1.5	245
16	26	3-1/2	C200	2.0	120	5-1/2	15-7/8	3-1/2	C200	1.5	80	35	42-1/4	3-1/2	C800	1.5	210
16	26	3-1/2	C400	2.0	145	5-1/2	15-7/8	3-1/2	C400	1.5	85						
16	26	3-1/2	C800	2.0	185	5-1/2	15-7/8	3-1/2	C800	1.5	95						



Instrument Transformers

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