



Type CMO  
Outdoor Oil-Filled Combined  
Current and Voltage Transformer 72.5kV - 245kV



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Intelligence



### **Ritz USA - Lavonia, GA**

The Ritz Instrument Transformer Group has a long and proud tradition of building quality products. The company was founded in Hamburg, Germany, over 70 years ago and since that time has expanded through acquisition and organic growth to its current size of 8 locations across the globe. Throughout its history, Ritz has remained privately owned; the shares currently with a Trust, thus giving it flexibility and purpose not enjoyed by publicly traded companies.

Ritz has remained focused on its core competencies. The Ritz Group has achieved additional diversification and financial strength by expanding beyond being just a manufacturer of instrument transformers into other product fields, all the while adhering to our knowledge base in winding, insulation systems, and molding. Each manufacturing location is certified to the exacting ISO 9001 Quality Standard. Our geographic dispersion and global focus have allowed us to become experts in all the world's major standards. This knowledge not only allows us to meet the expectations of customers using the various standards but also to develop a synthesis of these standards as our own internal measures.

To be more responsive to the North American customer base and to gain global cost efficiencies, the Ritz Group established a manufacturing plant (Ritz USA) in Lavonia, Georgia. The mission of this company is to maintain profitability and growth through customer satisfaction, industry-leading quality, and efficient product development and manufacture. The factory is designed to manufacture and test low, medium, and high voltage instrument transformers for both the utility and OEM markets.

## High Voltage Applications

CVO  
Capacitive Voltage Transformer  
72kV - 550kV

ICO  
Current Transformer  
72kV - 245kV

IVO  
Voltage Transformer  
72kV - 245kV

CMO  
Combined Current and  
Voltage Transformer  
72kV - 245kV

Line Traps

Revenue Metering  
and Protection Relay  
Applications

ISO9001-2015



[www.ritzusa.com](http://www.ritzusa.com)



[www.ritz-international.com](http://www.ritz-international.com)

## General

Type CMO is a combined Inductive Current Transformer (CT) and Voltage Transformer (VT) used in high voltage systems to provide current and voltage outputs to revenue-based meters, protective relays, and other system current and voltage monitoring instruments.

This brochure details the features and ratings of the Ritz Type CMO for voltage class ratings from 72kV thru 245kV.

## Construction

The external insulation is provided by a polymer hollow-core insulator consisting of a fiberglass reinforced resin tube with molded-on silicone rubber sheds and marine-grade aluminum flanges. Polymer insulators provide a strong resistance to pollution and maintain long lasting high levels of hydrophobicity. In addition, polymer insulators reduce weight, increase seismic withstand performance, and offer a higher level of safety. As an option, porcelain insulators can be provided.

Insulator flange bolts and hardware at top and bottom of unit are stainless steel and are torqued to specifications at the factory.

2-hole ground pad provisions are positioned at base of unit.

Four (4) mounting holes are spaced to facilitate new and retrofit mounting patterns of support structures. Adapter plates to fit non-standard hole mounting patterns can be designed.

Oil level indicator at top of housing is positioned for viewing angle when operator is in position at front of secondary terminal box. Oil level viewing window is glass.

Mineral oil and paper insulation system, with the paper insulation and grounding layers applied and controlled by machine.

Internal fault-current carrying path.

Head housing and base tank are marine-grade aluminum and fitted with lifting eyes to facilitate proper handling during installation.

VT high voltage windings made with double enamel coated magnetic wire provide insulation between turns.

VT has standard 2-tapped secondary windings. Other configurations available upon request.

## Seismic Performance

Seismic performance is considered in all aspects of the design. Designs can be supplied to comply with seismic standards.

## Primary Terminal Connection

Aluminum NEMA 4H pad provisions are provided. Other options available upon request.

## Secondary Terminal Box

Customer secondary connections are housed in a cast marine-grade aluminum terminal box on the front of the unit with a large swing-out lockable door. An aluminum removable or field-drillable gland plate is provided for customer conduit hubs. Terminal box has provisions for optional condensation heater element.

## Nameplate

Laser engraved nameplate is mounted on the front face of the secondary terminal box.

## Standards

Ritz can design Type CMO to meet all national and international standards including IEEE/ANSI, CSA, IEC and to any customer requirements.

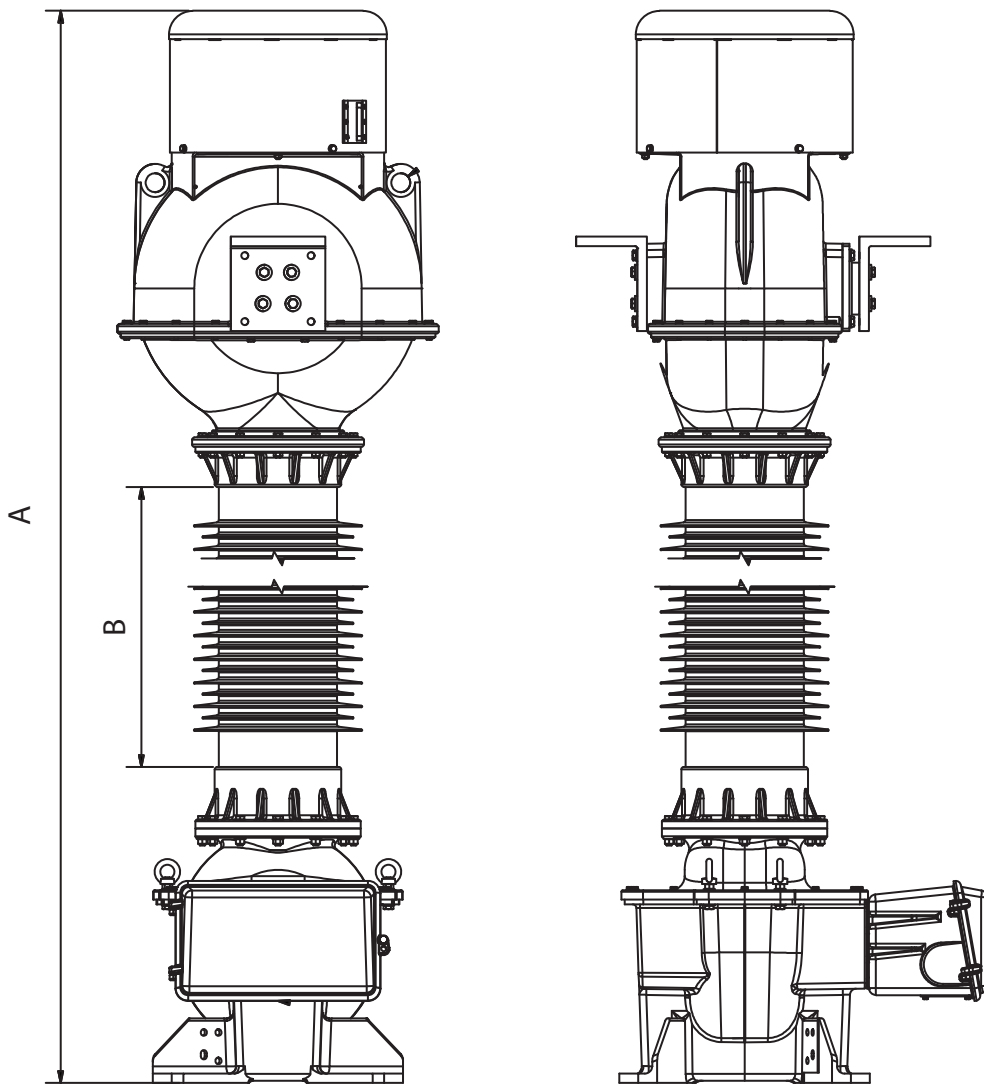
## Extended Range Current Transformer

By request, CT portion can be supplied with field selectable primary-turns so that any of the three types/ratios can be selected.

| <u>Primary Ratio</u> | <u>0.15B1.8 Range</u> | <u>RF</u> |
|----------------------|-----------------------|-----------|
| Tap 3 500:5          | 0.25A to 1000A        | 2.0       |
| Tap 2 1000:5         | 0.5A to 2000A         | 2.0       |
| Tap 1 2000:5         | 1.0A to 4000A         | 2.0       |

|        | NOM. SYSTEM VOLTAGE (kV) | MAX. SYSTEM VOLTAGE (kV) | BIL (kV) | TOTAL HEIGHT Dim A (in[mm]) | CREEPAGE DISTANCE Dim B (in[mm]) | STRIKE DISTANCE Dim B (in[mm]) | TOTAL WEIGHT (lbs[kg]) | OIL WEIGHT (lbs[kg]) |
|--------|--------------------------|--------------------------|----------|-----------------------------|----------------------------------|--------------------------------|------------------------|----------------------|
| ICO72  | 69                       | 72                       | 350      | 103.8 [2637]                | 150.4 [3820]                     | 37.8 [960]                     | 1386 [630]             | 264 [120]            |
| ICO123 | 115                      | 123                      | 550      | 103.8 [2637]                | 150.4 [3820]                     | 37.8 [960]                     | 1386 [630]             | 264 [120]            |
| ICO145 | 138                      | 145                      | 650      | 109.9 [2792]                | 177.2 [4500]                     | 43.9 [1115]                    | 1590 [722]             | 302 [138]            |
| ICO170 | 161                      | 170                      | 750      | 132.5 [3366]                | 207.5 [5270]                     | 52.8 [1340]                    | 1870 [850]             | 616 [280]            |
| ICO245 | 230                      | 245                      | 1050     | 163.6 [4156]                | 299.0 [7595]                     | 81.5 [2070]                    | 2046 [930]             | 693 [315]            |

Consult factory for other rating and dimensional information for special designs.



Represented By



*\*Information within subject to change without notice*

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