

TECHNICAL SPECIFICATIONS OF REVENUE METERING VOLTAGE TRANSFORMER (*Doc No. 03B*)

Nominal System Voltage	13.8kV	24kV	34.5kV	69kV	115kV	138kV	230kV
Description	13.8KV Voltage Transformer	24KV Voltage Transformer	34.5KV Voltage Transformer	69KV Voltage Transformer	115KV Voltage Transformer	138KV Voltage Transformer	230KV Voltage Transformer
Insulation Type	Cast-Resin, Dry Type	Cast-Resin, Dry Type	Cast-Resin, Dry Type	Oil & Paper, Minimum Oil-filled or Dry Type	Oil & Paper, Minimum Oil-filled	Oil & Paper, Minimum Oil-filled	Oil & Paper, Minimum Oil-filled
Type	Single phase, Inductive						
Maximum Continuous Voltage	15.5kV	25.5kV	36.5kV	72.5kV	123kV	145kV	245kV
Basic Insulation Level							
1. Power frequency withstands, RMS	34kV	50kV	70kV	140kV	230kV	275kV	460kV
2. Lightning Impulse withstand, crest	110kV	150kV	200kV	350kV	550kV	650kV	1050kV
Rated Frequency	60Hz						
Installation	Outdoor, Pedestal Mounted						
Mounting Altitude	Up to 1000m						
Ingress Protection	IP44 minimum						
Temperature, ambient	Up to 40°C, 30°C average						
Temperature Rise Limit, winding	Up to 65°C						
Wind Velocity	Up to 280kph						
Primary terminal shall withstand:							
1. Static Load	-	-	-	500N	1000N	1000N	1500N
2. Dynamic Load	-	-	-	700N	1400N	1400N	2100N
Seismic Condition	-	-	-	0.5g	0.5g	0.5g	0.5g
Insulator Characteristics							
1. Materials	Cycloaliphatic Resin	Cycloaliphatic Resin	Cycloaliphatic Resin	Cycloaliphatic Resin, Porcelain or Composite	Porcelain or Composite	Porcelain or Composite	Porcelain or Composite
2. Voltage Class	15.5kV	25.5kV	36.5kV	72.5kV	123kV	145kV	245kV
3. Creepage Length, minimum	25mm/kV	25mm/kV	25mm/kV	31mm/kV	31mm/kV	31mm/kV	31mm/kV
4. Color, preferred	Brown, Gray, Black	Brown, Gray, Black	Brown, Gray, Black	Chocolate brown	Chocolate brown	Chocolate brown	Chocolate brown

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Oil Sight Glass	-	-	-	To be provided if applicable	To be provided	To be provided	To be provided
Oil Sample Port	-	-	-	To be provided if applicable	To be provided	To be provided	To be provided
Sealing Provisions	Shall have the provisions for the installation of security seals on the secondary terminal box						
Compliance to Standards	ANSI/IEEE C57.13 or IEC 61869-1 and 3						
Number of Core	Two (2) – Metering Secondary PT Core			(Rated Accuracy applicable to both cores)			
Rated Accuracy	±0.15% ratio error and ±10 minutes phase displacement		ANSI 0.15 or better		(From 90% to 110% of Rated Voltage and 0-100% of Rated Burden)		
	±0.2% and ±10 minutes phase displacement		IEC 0.2 or better		(From 80% to 120% of Rated Voltage and 0-100% of Rated Burden)		
	Shall be supported with Factory Test report						
Rated Burden	35VA, 0.8-1.0 power factor (Per Core)						
Rated Voltage Factor	1.5						
PT Ratio	Annex 03B: PT ratio table						
Terminals	Primary Terminals: For connection with Aluminum Conductors Secondary Terminals: For connection with Copper Conductors Grounding Terminal: For connection with Copper Conductor						
Included in the scope of supply	1) Straight compression type high voltage Terminal Connectors with voltage ratings, hole spacing and materials appropriate for the supplied Voltage Transformers and applicable standard sizes of round ACSR conductors (see Annex 03B: PT Ratio table) Brand: Burndy or equivalent. Conformance Test Reports in accordance with NEMA standard or equivalent shall be provided with the connectors Connector specification sheet with recommended compression tool and dies shall be provided with the connectors 2) Compression Type Terminal Connectors for grounding cable, size 4/0MCM round stranded Copper conductor 3) Factory Test Reports showing compliance of the delivered products based on applicable IEC or ANSI standards. The type Test Report shall be from an ISO 17025-Accredited Testing Organization and shall include the following as a minimum requirement: <ol style="list-style-type: none"> a) Tests for ratio error and phase displacement b) Power frequency voltage withstand test c) Partial discharge measurement d) Mechanical tests e) Verifications of markings f) Enclosure tightness test g) Inter-turn overvoltage test 						

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ANNEX 03B: PT RATIO TABLE

Revision No.: 01

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Material Code							
PT Ratio	8400V:120V	14400V:120V	20125V:115V	40250V:115V	69000V:115V	80500V:115V	138000V:115V
Marked Ratio	70:1	120:1	175:1	350:1	600:1	700:1	1200:1
Termination	Line to Ground, Single Bushing	Line to Ground					
Material Code							
PT Ratio	14400V:120V	-	-	-	-	-	-
Marked Ratio	120:1	-	-	-	-	-	-
Termination	Line to Line, Double Bushing	-	-	-	-	-	-