

# GRAND RIVER DAM AUTHORITY

## SPECIFICATIONS

### METERING CT/PT COMBINED INSTRUMENT TRANSFORMERS

#### **I. Scope of Work**

- A. The manufacturer shall furnish nine (9) new metering CT/PT combined instrument transformers (combo-units) described in the “Invitation to Bid” and as specified on the Specification Data Sheet(s). CT/PT combined transformers shall be complete with all accessories ready for mounting, assembly, connection and immediate service. The requirements of the Specification Data Sheet(s) and drawings shall govern should conflicts occur between them and the written text of these specifications.
- B. This equipment will be designed, manufactured and tested in conformance with the latest applicable ANSI, NEMA and IEEE, Standards.

#### **II. Proposal**

- A. Proposal shall call out specifically, and label as such, any exceptions to these specifications.
- B. The proposal shall state the height of the equipment, the base size, and weight.
- C. Without limitations, it is understood the prices bid are firm, and not subject to adjustment due to changes in cost of material or labor or any other factor except authorized scope of work.
- D. The proposal shall state the time in weeks after receipt of the purchase order, when the approval drawings specified will be submitted to the Authority.
- E. The proposal shall be based on F.O.B. job site not F.O.B. shipping point, transportation allowed.
- F. Required Bid Documentation
  - a. Equipment Drawing showing dimensions, weights, connections and base size.
  - b. Equipment connection diagrams (AC/DC schematics)
  - c. Nameplate

#### **III. Shipment**

- A. Notify GRDA Warehouseman (Robert Wheeler), 48 hours before shipment, at GRDA, warehouse Pryor, Oklahoma 74361, (918) 824-7850.
- B. The Shipping address shall be to GRDA, 635 HWY 69A, Pryor, OK 74362

#### **IV. Correspondence**

- A. All technical correspondence, transmittal letters, technical information, approval drawings, final reproducible drawings, prints and instruction books shall be mailed to:

GRAND RIVER DAM AUTHORITY  
9933 E. 16<sup>th</sup> Street  
Tulsa, Oklahoma 74128  
Attention: Steven Kroll, P.E.; Senior. Manager, T&D Engineering

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- B. Electronic technical correspondence, transmittal letters, technical information, approval drawings, final reproducible drawings, prints and instruction books shall be mailed to:

Steven.Kroll@grda.com

- C. It is preferred to have all correspondence in electronic form. However, if non-electronic form is needed, it will be accepted.

#### **V. Drawings and Documents**

The successful vendor will supply the following drawings and instruction books:

- A. Approval drawings will be furnished and show:
- 1) Equipment mechanical features and dimensions
  - 2) Device layout
  - 3) A.C. and D.C. schematic
  - 4) Connections
  - 5) Nameplate
  - 6) For voltage transformers: RCF & phase angle curves
  - 7) For current transformers: ratio & phase angle curves
- B. One (1) - set of final drawings will be furnished at the time of shipment. Digital files in AutoCad 2018 or newer are preferred. The drawings shall show all changes and revisions made up to the time that the equipment is completed and ready for service. If approved by the Authority, the drawings may be reduced in size from the original full size of the drawings. The final drawings will show the information described above for approval drawings.
- C. A complete set of instruction material/manuals (in .pdf format) with sets of prints of the final correct assembly drawings and such detail drawings as may, in the opinion of the Authority be required for the assembly, maintenance, repair, and identification of parts for ordering replacements. The material will contain certified test reports, instruction leaflets, spare parts lists, and schematic and wiring drawings of each of the devices furnished.
- D. The Authority may not certify satisfactory delivery of the equipment specified in this item unless the above instruction material is complete with full spare parts information are supplied.
- E. The vendor shall provide copies in both electronic and printed of the factory tests and procedures for field tests of the equipment using standard field equipment.
- F. Drawings (approval and final) and instruction material shall be sent via e-mail to Steven Kroll, P.E. at [Steven.Kroll@grda.com](mailto:Steven.Kroll@grda.com). Drawings for approval may be in .pdf or AutoCad 2018 or newer format. Final drawings are to be in AutoCad format. Printed copies to be shipped with equipment.

#### **VI. Warranty**

Any equipment specified herein or part thereof that shall develop defects not disclosed prior to acceptance by the Authority within one year after energization or eighteen months after delivery, whichever occurs first, shall be promptly replaced by the Vendor free of charge to the Authority. The Vendor shall repair or make restitution for damaged caused by the failure of their equipment.

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#### **VII. Specification Data Sheet**

CT/PT transformers shall be furnished in accordance with the following:

<b>Location</b>	Stock	
<b>Quantity</b>	6	
<b>Ratings</b>		
Nominal system voltage, kV (line-to-line)	161	
Primary Volts kV( line-to- Ground)	93.917	
Impulse withstand voltage (BIL), kV	750	
Frequency, Hz	60	
Minimum Leakage Distance, in.	139	
Marked Voltage ratio (primary:secondary)	800 lower ratio	1400 higher ratio
Number of secondary wirings	2	
Secondary Volts, Both Sec.	115/67.08	
Thermal VA Total	7500	
Per winding max	3750	
Max one winding	5400	
Accuracy	ANSI accuracy 0.3 @ W,X,Y,Z and ZZ Burdens	
Dual current ratio	800/400:5A	
Rating Factor	2.0	
Accuracy	0.3B1.8	
Altitude, m (ft)	< 600m (< 2000 ft)	
Space heater rated voltage, VAC	240	
Space heater applied voltage, VAC	120	
<b>Requirements</b>		
Non-corrosive hardware		
Wire wound only	No CCVT's	
Oil level indicator and drain valve (if oil filled)	Std 3" magnetic	
Bypass Arrester	H1 to Ground	
Primary terminal(s) shall be NEMA	NEMA 4-hole pads	
Primary spade terminals	Positioned with flat side horizontal	
Tank Ground Pads	NEMA 2-hole pads (1 on side and 1 in JB)	

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Hermetically Sealed	
Porcelain color	ANSI 70 grey
Tank Material	Mild Steel
Dome Material	Mild Steel
Tank Color	ANSI 70 Gray

<b>Location</b>	Stock	
<b>Quantity</b>	3	
<b>Ratings</b>		
Nominal system voltage, kV (line-to-line)	161	
Primary Volts kV( line-to- Ground)	93.917	
Impulse withstand voltage (BIL), kV	750	
Frequency, Hz	60	
Minimum Leakage Distance, in.	139	
Marked Voltage ratio (primary:secondary)	800 lower ratio	1400 higher ratio
Number of secondary wirings	2	
Secondary Volts, Both Sec.	115/67.08	
Thermal VA Total	7500	
Per winding max	3750	
Max one winding	5400	
Accuracy	ANSI accuracy 0.3 @ W,X,Y,Z and ZZ Burdens	
Dual current ratio	2000/1000:5A	
Rating Factor	2.0	
Accuracy	0.3B1.8	
Altitude, m (ft)	< 600m (< 2000 ft)	
Space heater rated voltage, VAC	240	
Space heater applied voltage, VAC	120	
<b>Requirements</b>		
Non-corrosive hardware		
Wire wound only	No CCVT's	
Oil level indicator and drain valve (if oil filled)	Std 3" magnetic	

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Bypass Arrester	H1 to Ground
Primary terminal(s) shall be NEMA	NEMA 4-hole pads
Primary spade terminals	Positioned with flat side horizontal
Tank Ground Pads	NEMA 2-hole pads (1 on side and 1 in JB)
Hermetically Sealed	
Porcelain color	ANSI 70 grey
Tank Material	Mild Steel
Dome Material	Mild Steel
Tank Color	ANSI 70 Gray

Tests - Tests shall be made on all equipment in accordance with ANSI and NEMA requirements. These tests shall include resistance, ratio, phase angle, polarity, and dielectric strength.

#### **VIII. Bid Evaluations**

Bids shall be evaluated based on the following:

- Price: original cost and life cost (the bid may include an option for different prices for different delivery dates).
- Delivery: as needed for the project
- Suitability: ability to meet the needs of the project – Weight and Height
- Past performance of the bidder/vendor

The bid must include enough technical data and information to allow the evaluator to understand what is being bid, and how this meets the needs of the project.

Any and/or all exceptions shall be specifically enumerated with reference to the item in the specification that they are taking exception to. If these are not specifically listed, it will be assumed that the bidder will meet the specification and will be held to it.