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BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL
TRANSFORMER ENGINEERING DEPARTMENT

FORM NO: TRE-2003A

ANNEXURE TO INDENT-CUM-ENQUIRY 240604219 DTD:-
DESCRIPTION OF EQUIPMENT : Transformer Turn Ratio Test Set
WORK ORDER : 68033-T-512-01
CUSTOMER : M/S UPPTCL

SPECIFICATION OF TRANSFORMER TURN RATIO TEST SET

1. GENERAL:


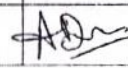
This specification governs the supply of transformer turn ratio tester. The instrument shall be used for measurement of turns ratio or transformer windings without requiring any manual balance of decades and shall have facility for vector group detection and excitation current measurement.

2. FEATURES:

- a) Microprocessor controlled fully automatic test set.
- b) Automatic measurement and digital display of ratio, phase angle deviation.
- c) Automatic polarity indication.
- d) Light weight and portable.
- e) Three-phase ratio, no load losses and excitation current meter.
- f) Automatic data storage of test and reports generation.

3. TECHNICAL REQUIREMENTS -.

- a) Power Input: 120V or 230V, 50/60 Hz
- b) Ranges: Ratio- 0.8000 1.9999
1.9999 -19.999
1.9999 -199.99
1.9999 -1999.9
- c) Metering Ratio: 4 1/2 digit LED ratio calculating display
- d) Excitation Current: 3 1/2 digit LCD, 0-199.9 mA
- e) Accuracy: Ratio +/- 0.05 % or 1 turn in 2,000
- f) Resolution: Ratio +/- 0.005 % or 1 turn in 20,000
- g) Temp Coefficient: 10 ppm/°C
- h) Design Ambient Temperature: 0 to 50°C at humidity up to 90%
- i) Housing: Sturdy self-storing fibre glass case with lid and carrying handle.
- j) Measuring principle: It should measure actual turns ratio of different vector groups in three phase transformers without conversion.
- k) Protection: It should have the full protection against over voltage and over current
- l) The instrument shall be supplied with 20 meters long test leads.

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- l) The instrument shall be supplied with 20 meters long test leads.
- m) The kit should be tested successful operation in charged 400 KV switchyard and be tested for EMI/EMC
- n) One set of descriptive leaflets, catalogues, principles of operation etc. shall also be sent along with the offer
- o) Lists or accessories to be supplied with the instrument shall be furnished along with the offer.
- p) Spare items and Optional accessories (if any) shall also be quoted separately.

4. GUARANTEE

The equipment shall be guaranteed for a period of 30 months from the date of dispatch or 24 months from the date of commissioning whichever is later. Free after sales service is to be provided by the supplier during guarantee period.

5. INSPECTION & DESPATCH

One set of inspection, routine, acceptance and calibration test reports, operation and maintenance manual, descriptive catalogue/ leaflets shall be sent along with dispatch document. One set shall be supplied along with the equipment.

The supplier shall furnish a list of all fittings and components in the dispatch details giving description and quantity of each item (Quantity of each item shall be mentioned). All items shall be properly packed in wooden boxes so as to avoid scratches/damage in transit.

6. TRAINING, INSTALLATION & COMMISSIONING:

Installation & commissioning of the system is also in the scope of supply. The supplier shall provide training to customer's engineers at site on intimation by BHEL for commissioning, operation and maintenance of the equipment at each site, and shall obtain certificate from customer regarding impart of training. For this supplier should quote the charges, if any in the offer.

7. DEVIATION

Any deviation from the above specification may be indicated point wise with proper justification in duly filled and signed **Annexure -I**.

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Annexure -I

Compliance Check List

	Requirement	Yes/ No	Deviation, if any
1.	General		
2.	Features		
3.	Technical Requirements		
4.	Guarantee		
5.	Inspection & Dispatch		
6.	Training, Installation & Commissioning		

Seal and Signature of Bidder