

SECTION-III

TECHNICAL SPECIFICATION FOR AC DIGITAL TONG TESTER AGAINST TN-2365.

FOR SITE TESTING

1. SCOPE:

The specification covers design, manufacture assembly, testing at manufacturer's works before dispatch and delivery for Nigam's stores of AC (TRMS) digital tong tester for site testing.

2. GENERAL DESCRIPTION:

The digital AC clamp on meter (tong tester) measurement should be hand – held, light in weight, having data hold and peak hold function with over range indication etc. The range selection should have both auto as well as manual selection function. The metallic part should not remain expose. The low battery warning indication shall be display if the battery voltage falls low and need replacement. The over range indication shall be provided. The minimum response time approx. 2 seconds. The metallic part should not remain exposing. The measurement on the current shall be through clamp to accommodate cable having dia 40 mm (Min.). The equipments should remain healthy and shall work reliably / accurately even in high voltage switch yard where electromagnetic interference present.

Hand held, digital clamp meter, light in weight having measurement of current, voltage, power, resistance with data hold function to freeze the reading. The meter shall be having following range, display 3*1/2 digit LCD.

3. Requirement :-

The requirement of tong testers is -- 1643 Nos.

4. TECHNICAL PARAMETERS

The tong tester shall have the following parameters:

- a) AC Current Measurement:
0-20/50/500 /1000 Amp
- b) AC/DC Voltage Measurement:-
0 to 300 V / 600 V.
- c) Power Measurement:
 - (i) Active Power : 7.5 KW-600 KW
10HP-800HP

Unit measurement-KW & HP.

(ii) Power Factor : 0.7 Lag – (Unity)-0.7 Lead. Bidders should also confirm

Accuracy of Tong Tester for lower range of power factor below 0.7.

d) Resistance Measurement : - 400 Ohms to 4 K Ohms.

ACCURACY:

- i) For AC current $\pm 2\%$ reading with resolution of 0.01 upto 100 A, 0.01 upto 500 / 1000 A.
- ii) For AC /DC voltage $\pm 1.5\%$ reading with resolution of 0.01 upto 100 V, 0.1 upto 600 V.
- iii) For Resistance $\pm 1\%$ reading with resolution of 0.01 Ohm upto 400 Ohms, 0.1 Ohm upto 4 K Ohms.
- iv) For Power (KW / HP) $\pm 2\%$ reading with resolution of 1 Watt.

5. ACCESSORIES:

The equipment shall be complete with test leads of length not less than one metre, output plug, carrying case, operating instructions manual & batteries and leather carrying case. The instrument shall also have following features:

- The meter should have 3-3/4 digits 4000 counts LCD display preferably with backlit.
- It should be auto ranging with auto / manual range selection switch.
- It should have jaw size 40 mm (Min.) for accommodating round cable of dia 40 mm.
- It should be able to measure AC Amp., Voltage (AC), Power (KW/HP) & Resistance.
- It should have over range indication.
- It should have data hold and peak hold function.
- It should have relative zero mode.
- It should display true RMS AC voltage and current.

Relative Zero Mode:- To allow the user to offset the meter consecutive measurements with the displaying readings as a reference value. The display will show readings relative to the store reference value.

- It should have overload protection.
- It should have water resistance, fire proof heavy duty ABS casing.
- It should have auto power OFF function i.e. sleep function.
- It should have battery access door for battery replacement without voiding calibration.

- It should have continuity check with a beeper and diode test function. Frequency response should be 45 Hz to 55 Hz. The tong tester clamp should accommodate cables having minimum 40 mm dia.

6. TECHNICAL FEATURES:

- i) The instrument shall be complete with probes, testing leads, batteries and carrying case and operating instruction manual. The instrument shall be handy and its weight shall not be more than 750 gms.
- ii) The instrument should be immune to shock and vibration involved in transportation and handling. The instrument housing should be made of non-hygroscopic unbreakable engineering plastic.
- iii) The instrument employing surface mounted technology shall be given preference.
- iv) The designed instrument should be based on IEC -61010-1 CAT-III 600 V & CAT-II-1000 V enabling safe operation.
- v) The instrument should switch off and should not give false reading under low battery condition.
- vi) The instrument shall be capable of displaying polarity automatically. It should display no indication for positive and (-) minus sign for negative polarity.
- vii) The range selection device shall be capable of operation without arcing or disturbing the external circuit during change over from one position to another.
- viii) The instrument should be designed to operate without problem in the horizontal, vertical and tilted position. The jaws of the clamp meter should perfectly match in close position.
- ix) The instrument should have locking arrangement to freeze the reading till required i.e. data hold facility.
- x) The instrument should not be affected by the external magnetic field.
- xi) The instrument should give accurate readings even on distorted waves and should not get damaged on sudden voltage and sudden hikes.
- xii) Firm having ISO: 9001 / 9002 shall be given preference.

SAFETY STANDARD:

- i) Safety measuring instruments IEC 61010 – 1 or better.
- ii) Over voltage category CAT-III 600 V or better.
- iii) EMC conformity.

7. PACKING:

The packing of the instrument shall be such that it should not get damaged during transit.

8. INSPECTION AND TESTING :

Before dispatch, the instrument shall be inspected and tested by the authorized inspecting officer / agency of the Nigam. The manufacturer / suppliers shall furnish the details of the tests which will be arranged at the time of inspection to ascertain routine test at the manufacturer's works in presence of purchase representative.

9. TYPE TEST CERTIFICATES:

- i) The test & calibrations certificates shall be essentially provided along with each instrument, traceable to any NABL / NPL International Standards.
- ii) All the necessary tests / check shall be carried as per stipulation of IS:1283 latest amendment or equivalent international standards.
- iii) The type test certificates from Govt. Recognized Laboratory as per IS:1248 / 1983 (latest amended) or International Standards for the model quoted should be furnished clearly stating the ambient condition under which test has been conducted. The effect of variation in temperature and vibration on accuracy limit should also be stated.

10. AUTHORIZATION CERTIFICATE:

Authorization letter shall be enclosed from manufacturer that bidder is an authorized dealer / distributor in the region and authorized to quote on their behalf. Simultaneously, in case of any imported brand / model a letter from the manufacturer should be there that bidder is their authorized representative in the country and authorized to quote on their behalf.

11. SAMPLES:

The bidder must furnish a sample of the instrument with bid or within 15 days of opening of tender for evaluation in lab, failing which the tender is liable for rejection.

12. COMPLETENESS OF EQUIPMENT:

Any fitting accessories or apparatus which may not have been specifically mentioned in the specification be deemed to be included and shall be supplied by the bidder without the extra charges. The instrument shall be complete in all respect whether such details are mentioned or not mentioned in this specification.

13. REPLACEMENT OF DEFECTIVE TONG TESTER:-

Tong Tester declared defective by the consignee or by testing lab shall be replaced by the supplier for the full satisfaction of the purchaser at the cost of supplier.

14. GUARANTEE TECHNICAL PARTICULARS:

The bidder shall furnish all the necessary information as desired in the schedule of GTP appended at Annexure-A.

15. MAINTENANCE AND GUARANTEE:-

The guarantee shall be for the period of 5 years from the date of dispatch, the bidder shall replace the defective tong tester at the purchaser store within period of 45 days from the date of intimation (from the concerned ACOS) of failure, in case defective tong tester are not replaced in stipulated period the penalty as per clause of delay in delivery shall be applicable.

16. DRAWING:-

Detailed dimensional drawing and detailed leaflet showing clearly the dimensions and its constructions features should be furnished with the tender offer.

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17. SCHEDULES:

The tenderer shall fill in the enclosed schedules, which are part and parcel of the tender specification and offer. If the schedules are not submitted duly filled in with the offer, the offer shall be liable for rejection.

Schedule' A-I'- Guaranteed Technical Particulars of digital tong tester for site testing and protection

All deviations from the specification shall be brought out in the schedules of deviations (Schedule VI A & VI B). The discrepancies, if any between the specification and the catalogues and / or literatures submitted as part of the offer by th-e bidders shall also be brought out.

If it is observed that there are deviations in the offer in Guaranteed Technical Particulars other than those specified in the deviation schedules then such deviations shall be treated as deviations.

18. DELIVERY SCHEDULE:

The bidder is required to quote monthly delivery. The delivery of quoted quantity should be completed in 4 months period including commencement period of 30 days. In case ordered quantity is different than quoted quantity then monthly delivery shall be adjusted proportionately. Tenders in which monthly delivery schedule is not indicated shall be ignored.

**SCHEDULE OF TECHNICAL & GUARANTEED PARTICULARS FOR DIGITAL TONG
TESTER AGAINST TN-2365.**

S. No.	Particulars	
1.	Name of manufacturer's & address	
2.	Make	
3.	Mode No. / type designation.	
4.	AC current range	
5.	AC / DC voltage range	
6.	Active Power measurement range. (i) In KW (ii) In HP.	
7.	Resistance Range.	
8.	Power Factor range.	
9.	Accuracy on : (i) Current range (ii) Voltage range (AC/DC) (iii) Power range. (iv) Resistance range.	
10.	Frequency response range.	
11.	Operating Principal.	
12.	Indication.	
13.	Range selection.	
14.	Data hold facility.	
15.	Response time.	
16.	Sample rate.	
17.	Low battery indication.	
18.	Battery used type and life.	
19.	Over range indication.	
20.	Over load protection.	
21.	With stand voltage.	
22.	Maxm. Size of conductor under test.	
23.	Power consumption.	
24.	Dimensions.	
25.	Weight.	
26.	Accessories	
27.	Type test report.	
28.	Effect of variation in temperature on accuracy.	