



Kenya Power

TITLE:

**SPECIFICATION FOR  
DIGITAL OIL  
DIELECTRIC TESTER**

Doc. No.

KP1/3CB/TSP/09/035

Issue No.

1

Revision No.

0

Date of Issue

2012-04-12

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**0.1 Circulation List**

COPY NO.	COPY HOLDER
1	Research & Development Manager
2	Procurement Manager
Electronic copy (pdf) on Kenya Power Server (currently :Network-\\stima-fprnt-001\techstd&specs	

**0.2 Amendment Record**

Rev No.	Date (YYYY-MM-DD)	Description of Change	Prepared by (Name & Signature)	Approved by (Name & Signature)

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## FOREWORD

This specification has been prepared by the Research and Development Department and E/Plant, Mt. Kenya office both of The Kenya Power and Lighting Company Limited (Kenya Power) and it lays down requirements for Digital Oil Dielectric Tester. The specification is intended for use by Kenya Power in purchasing the equipment.

It shall be the responsibility of the supplier to ensure adequacy of the design and good engineering practice in the manufacture of Digital Oil Dielectric Tester for Kenya Power. The supplier shall also submit information which confirms satisfactory service experience with products which fall within the scope of this specification.

### 1. SCOPE

- 1.1 The specifications are for a high accuracy, fully automated (digital) Transformer oil dielectric tester suitable for testing the dielectric strength of oil in power transformers.
- 1.2 The test set shall accurately measure the dielectric strength of oil automatically varying the voltage from 0 to 80kV.
- 1.3 The testing is crucial in ascertaining the condition of oil before putting transformer to service.
- 1.4 As a diagnostic check, low oil dielectric values calls for oil treatment.

### 2. REFERENCES

N/A

### 3. TERMS AND DEFINITIONS

N/A

### 4. REQUIREMENTS

#### 4.1 GENERAL REQUIREMENTS

##### 4.1.1 Construction

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4.1.1.1 The equipment shall be Portable, Rugged and Light weight, Shock proof and Impact resistant. The carrying case shall be able to withstand a fall of one meter without damage to the equipment.

4.1.1.2 The test set shall be provided with carrying straps for ease of transportation..

4.1.1.3 The test set must incorporate safety interlock as per IEC 1010-1, class1, BS 5304(1988) 'guarding of machinery' standard.

**4.1.2 Operation.**

4.1.2.1 The test set shall be fully automatic and shall be operated with oil in a test cell, door closed and desired test standard selected.

4.1.2.2 The defined sequence of tests including stand and stir time, rate of voltage and number of tests and results shall be done automatically.

4.1.2.3 The test set shall incorporate a printing feature for the test results.

4.1.2.4 The equipment shall be suitable for use in tropical areas with the following conditions;

- a) Altitude:- From sea level to 2200m above sea level.
- b) Humidity:- 0 to 90% and 0 to 95% for storage
- c) Temperature: - Average ambient +25deg.C with minimum of - 1deg. C and a maximum of 50deg.C..

**4.1.3 Test results**

4.1.3.1 The Digital dielectric test set shall generate test results automatically and display them on a built in LCD Screen.

4.1.3.2 The test set shall have built in storage and printing/downloading capabilities of the test results.

4.1.3.3 Test set shall be capable of displaying Pass/fail for each test with history of test sequence.

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**4.3 Technical Specifications**

Item No	Technical description	Kenya Power Technical Requirements
1.	<b>Physical features</b>	Portable, Compact , Light weight and rugged
2.	<b>Measurement circuitry</b>	Automatic, fully digital and Self diagnosing
3.	<b>Test Voltage</b>	0 to 80kV
4.	<b>Gap size</b>	2.5 mm
5.	<b>Resolution</b>	0.1 kV
6.	<b>Input Power</b>	220-240Vac; at 50hz or Rechargeable battery with a normal 10 working hours.
7.	<b>Display</b>	LCD giving alphanumeric information
8.	<b>Printer provision</b>	In built or plug receptacle to allow for connection to an external printer kit for results.
9.	<b>Indication lamps</b>	Lamps to indicate power supply ON/OFF & High voltage ON
10.	<b>Test result display</b>	LCD Screen-Dot graphic display
11.	<b>Input Power</b>	220-240 Vac at 50HZ/internal battery
12.	<b>Test set Printer interface</b>	RS-232 and USB port.

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13.	<b>Accessories</b>	Set of :- i. 6 m Single phase Extension cable ii. 3m USB cable iii. 3m RS-232C cable iv. Carrying case. v. Power supply input cable/battery charger, vi. printer kit(while external), vii. Interface cable.
14.	<b>Safety</b>	IEC 1010-1,class1, BS 5304(1988)
15.	<b>Calibration</b>	Self calibration and diagnosing.
16.	<b>Compliance, to international standards</b>	ISO 9001:2008
17.	<b>Operating temperature</b>	-1deg. C to +50 deg. Celsius
18.	<b>Humidity</b>	0 to 90%. Non- condensing.
19.	<b>Calibration certificate</b>	Certificate of accredited laboratory
20.	<b>Operating and maintenance manuals</b>	Shall be in English language
21.	<b>Warranty on equipment</b>	12 months

**4.4 DOCUMENTATION AND SUPPORT**

**4.4.1 Warranty and training**

4.4.1.1 The Digital oil dielectric Test Set shall be backed by a minimum of 12-months factory warranty.

4.4.1.2 Technical support and software upgrade, where applicable shall be provided free of charge to KENYA POWER for a period of not less than 36 months.

4.4.1.3 The Bidder shall submit a clause by clause statement of compliance with the specifications together with copies of the manufacturer's catalogues, brochures, technical data and proven test reports clearly marked to support each clause, all in

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English for evaluation. The manufacturer's type reference/designation of the item offered shall be indicated.

4.4.1.4 In the case of tender award, technical details for the Digital oil dielectric tester shall be submitted to the Kenya Power for approval before manufacture commences.

## 5. TESTS AND INSPECTION

5.1 Copies of previous certificates by the relevant National Testing/Standards Authority of the country of manufacture (or ISO/IEC 17025 accredited laboratory) shall be submitted with the offer for evaluation (all in English Language).

5.2 Relevant certificates (calibration/test) shall be submitted together with the equipment during delivery.

## 6.0 MARKING AND INSTRUCTIONS

6.1 The following information shall be marked indelibly and legibly on the Digital oil dielectric tester:

- i) Manufacturer's Name or Trademark;
- ii) Type reference/model number
- iii) Letters "PROPERTY OF KENYA POWER "
- iv) Operating Voltage

6.2 Operating and technical manuals shall be supplied together with the equipment during delivery (all in English language).

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**ANNEX A: Guaranteed Technical Particulars** (to be filled and signed by the *Manufacturer and submitted together with copies of manufacturer's catalogues, brochures, drawings, technical data, sales records and copies of certificates/test reports for tender evaluation*)

**Tender No.** .....

Clause number	Bidder's offer (indicate full details of the offered equipment for each requirement of the specification)
1. Scope	
1.1	
1.2	
1.3	
1.4	
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4.1.1 Construction	
4.1.1.1	
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4.1.3.2	
4.1.3.3	
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Physical features	
Measurement circuitry	
Test Voltage	
Gap size	
Resolution	
Input Power	
Display	

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Test result display	
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Test set Printer interface	
Accessories	
Safety	
Calibration	
Compliance, to international standards	
Operating temperature	
Humidity	
Calibration certificate	
Operating and maintenance manuals	
Warranty on equipment	
4.4.1 Warranty and Training	
4.4.1.1	
4.4.1.2	
4.4.1.3	
4.4.1.4	
5 Test and Inspection	
5.1	
5.2	

.....  
**Manufacturer's Name, Signature, Stamp and Date**

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