



The Kenya Power & Lighting  
Co. Ltd.

TITLE:

**SPECIFICATION FOR VOLTAGE  
DETECTORS**

Doc. No.

KPLC1/3CB/TSP/09/011

Issue No.

1

Revision  
No.

0

Date of  
Issue

2007-11-09

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Issued by: *RSD Manager*

Signed: *[Signature]*

Date: 2007-11-09

Authorized by: Chief Manager, PR&PM

Signed: *[Signature]*

Date: 2007-11-09



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### FOREWORD

This specification has been prepared by the Research and Development Department and it lays down requirements for Voltage Detectors for use on overhead lines and in substations. It is intended for use by KPLC in purchasing the equipment.

It shall be the responsibility of the manufacturer to ensure adequacy of the design and good engineering practice in the manufacture of the Voltage Detectors for KPLC. The manufacturer shall submit information which confirms satisfactory service experience with products which fall within the scope of this specification.

#### 1. SCOPE

This specification is for direct contact Voltage Detectors for use on distribution and transmission overhead lines and in substations operating at voltages of up to 220kV, 50Hz.

#### 2. REFERENCES

N/A

#### 3. TERMS AND DEFINITIONS

N/A

#### 4. REQUIREMENTS

##### 4.1 SERVICE CONDITIONS

4.1.1 The Voltage Detectors shall be suitable for use outdoors in tropical areas at altitudes of up to 2200m above sea level, humidity of up to 90%, average ambient temperature of +30°C with a minimum of -1°C and a maximum of +40°C and saline conditions along the coast.

4.1.2 The Voltage Detectors shall not be damaged when operated within the range of service conditions stated in 4.1.1, including the presence of switching transients and over voltages as experienced during fault conditions.

##### 4.2 DESIGN AND CONSTRUCTION

Issued by:

*Red Manager*

Authorized by: Chief Manager, PR&PM

Signed:

*[Signature]*

Signed:

*[Signature]*

Date: 2007-11-09

Date: 2007-11-09



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Issued by: *Asst Manager*

Authorized by: Chief Manager, PR&PM

Signed: *[Signature]*

Signed: *[Signature]*

Date: 2007-11-09

Date: 2007-11-09



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- 4.2.1. The Voltage Detector shall be electronic in design and suitable for rugged field use.
- 4.2.2. The Voltage Detector shall provide audible and visual indication of the presence of phase to ground ac voltages and frequency. The visual indication shall be by flashing RED LED (light emitting diode).
- 4.2.3. The Voltage Detector shall incorporate a self-test feature activated by a push button to ensure that the detector is operative before use. This shall be indicated by the lighting of a GREEN LED.
- 4.2.4. The Voltage Detector shall be equipped with a 1.2m telescopic pole calibrated and marked for voltages within the ratings of the detector. The pole shall retract to a shorter length for convenient storage in the carrying case when not in use.
- 4.2.5. The Voltage Detector shall be complete with long life battery and all standard/relevant accessories for intended application.
- 4.2.6. The Voltage Detector shall be supplied with universal socket for telescopic hotsticks and be complete with a rugged carrying case.

#### 4.3 RATINGS

The voltage detectors shall be of the following ratings/characteristics:

Type	Mechanical Style	System Highest Voltage
Type 1: 66kV - 220kV Voltage Detector	Universal spline fitting for attachment to extension hotstick	242kV, 50Hz
Type 2: 33kV Voltage Detector	Universal spline fitting for attachment to extension hotstick	36kV, 50Hz

#### 5 TESTS AND INSPECTION

- 5.1 Test records of tests performed on identical equipment in the form of copies of test certificates, issued by an internationally recognized testing authority, shall be submitted with the tender for evaluation.
- 5.2 Calibration certificates and test reports for each voltage detector shall be submitted to KPLC during delivery of the equipment.

Issued by: *PR&M Manager*

Authorized by: Chief Manager, PR&PM

Signed: *[Signature]*

Signed: *[Signature]*

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- 5.3 The supplier shall replace without charge to KPLC any voltage detectors which upon examination, test or use fail to meet any of the requirements in this specification.

**6 MARKING AND INSTRUCTIONS**

- 6.1 Each voltage detector shall be engraved legibly with the following information:

- Manufacturer's name or trade mark
- Voltage range

- 6.2 Manufacturer's instruction for the use, care and maintenance of the instruments shall be submitted during delivery (all in English language). The Instructions for use shall include the interpretation of the audible and visual indications during tests.

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Issued by: *PRD Manager*

Signed: *[Signature]*

Date: 2007-11-09

Authorized by: Chief Manager, PR&PM

Signed: *[Signature]*

Date: 2007-11-09



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**ANNEX A: Technical Particulars** (to be filled and signed by the Manufacturer for all clauses and submitted together with catalogues, brochures, drawings, technical data and test reports for tender evaluation)

Description	Bidder's offer
1. Service Conditions	
2. Applicable Standards	
3. Maximum System Voltage (kV)	
4. Design	
5. Indication of the presence of phase to ground a.c. voltages (visual and audible)	
6. Self-test feature (activation and indication)	
7. Battery service life and if charger	
8. List accessories (carrying case, universal socket, telescopic pole etc) included in the offer	
9. Voltage and frequency range	
10. List copies of Test Reports submitted	
11. List copies of catalogues, brochures, technical data, drawings and customer sales records submitted to support the offer	
12. Calibration certificates to be submitted during delivery	
13. Warranty (state period & other terms)	

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

Issued by:

*R. D. Mwangi*

Authorized by: Chief Manager, PR&PM

Signed:

*[Signature]*

Signed:

*[Signature]*

Date: 2007-11-09

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Signed: *[Signature]*  
Date: 2007-11-09

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

Issued by: *R. D. Manager*

Signed: *[Signature]*

Date: 2007-11-09

Authorized by: Chief Manager, PR&PM

Signed: *[Signature]*

Date: 2007-11-09