

DOCUMENT NO.: KP1/13D/4/1/TSP/09/037



Kenya Power

CURRENT TRANSFORMER ANALYZER - SPECIFICATION

A Document of the Kenya Power & Lighting Co. Plc

February 2024



TITLE:
**CURRENT TRANSFORMER
 ANALYZER -
 SPECIFICATION**

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0.1 CIRCULATION LIST

COPY NO.	COPY HOLDER
1	Manager, Standards
2	Electronic copy (pdf) on Kenya Power server (http://172.16.1.40/dms/browse.php?fFolderId=23)

REVISION OF KPLC STANDARDS

In order to keep abreast of progress in the industry, KPLC standards shall be regularly reviewed. Suggestions for improvements to approved standards, addressed to the Manager, Standards department, are welcome.

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Users are reminded that by virtue of section 25 of the Copyright Act, 2001 Cap 130 of the Laws of Kenya copyright subsists in all KPLC standards and except as provided under section 26 of this act, no KPLC standard produced by KPLC may be reproduced, stored in retrieval system by any means without prior permission from the Managing Director & CEO, KPLC.

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0.2 AMENDMENT RECORD

Rev No.	Date (YYYY-MM-DD)	Description of Change	Prepared by (Name & Signature)	Approved by (Name & Signature)
Issue 1 Rev 0	2012-04-12	New Issue		
Issue 2 Rev 0	2024-02-08	Cancel and replaces all other previous versions	Eng. F. M. Gicugu	Eng. Benson Dianga

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FOREWORD

This Specification has been prepared by the Standards Department in collaboration with Utility Consultancy Department, both of The Kenya Power and Lighting Company Plc (Kenya Power) and it lays down requirements for a Current Transformer (CT) Analyzer, for use in calibration and testing of current transformers onsite and offsite of the Meter Central Laboratory. It is intended for use in purchasing the equipment.

The specification stipulates the minimum requirements for the Current Transformer (CT) analyzer acceptable for use for use in Kenya Power. It shall be the responsibility of the supplier and manufacturer to ensure adequacy of the design, good workmanship, good engineering practice and adherence to standards, specifications and applicable regulations, and that the offered design is of the highest quality and guarantees excellent service to Kenya Power.

The following are the members of the team that developed this specification:

Name	Division/Department
Eng. Faith Gicugu	IESR/Standards
Patricia Ngaanga	IESR/Utility Consultancy
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1.0. SCOPE

- 1.1. This specification is for a Current Transformer (CT) Analyzer and all associated accessories for testing purposes.
- 1.2. The specification stipulates the minimum requirements of the CT Analyzer as well as schedule of Guaranteed Technical Particulars.

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2.0. REFERENCES

The following standards contain provisions through reference in this text constitute provisions of this specification. For undated editions, the latest edition of the referenced document shall apply.

- IEC 60529 edition 2.2.2012: Degrees of protection provided by enclosures (IP Code).
- IEC 61010-1: Safety requirements for electrical instrument for measurement, control, and laboratory use – Part 1: General requirements
- IEC 61010-2: Safety requirements for electrical instrument for measurement, control, and laboratory use – Part 2: Particular requirements for testing and measuring circuits
- IEC 61869: Instrument transformers

3.0. DEFINITIONS AND ABBREVIATIONS

For the purpose of this specification the definitions given in the reference standards shall apply and the following abbreviations:

- IEC: International Electro-Technical Commission
- ISO: International Organization for Standardization
- LCD: Liquid Crystal Display
- KPLC: Kenya Power and Lighting Co. Plc

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4.0. REQUIREMENTS

4.1. Service Conditions

The Current transformer (CT) analyzer Standard shall be suitable for use indoors in tropical areas and harsh climatic conditions including areas exposed to:

- a) Altitudes of up to 2000m above sea level and humidity of up to 95%,
- b) Average ambient temperature of +30°C with a minimum of -10°C and a maximum of +50°C.
- c) Pollution: Design pollution level to be taken as “Heavy” (Pollution level III) for inland and “Very Heavy” (Pollution level IV) for coastal applications in accordance with IEC 60815.

4.2. Design and Construction Features

- 4.2.1. The CT Analyzer shall be applicable for complete field analysis of low, medium and high voltage Current transformers, both metering and protection classes.
- 4.2.2. The CT analyzer shall be fully automated, intelligent and of high accuracy not exceeding 0.1%
- 4.2.3. The CT analyzer shall be able to SELF-TEST on startup with STATUS indicator when powered.
- 4.2.4. It shall be self-calibrating and self-diagnosing and shall have no internal circuitry set up requirements.
- 4.2.5. The CT analyzer shall be designed in such a way as to prevent access to LIVE parts.
- 4.2.6. It shall conform to the degree of protection of IP20 as given in IEC 60529.
- 4.2.7. The current transformer analyzer be equipped with INTERNAL MEMORY not less than 2GB for storage of measurement data. It shall also be equipped with a slot for inserting an SD card.
- 4.2.8. The CT analyzer shall be portable, rugged, lightweight, shock proof and suitable for use in harsh field conditions. The external casing shall be made of a rugged material to cushion the equipment against vibration and shock.
- 4.2.9. The CT analyzer shall have dimensions NOT exceeding width 380mm; height: 300mm and a depth: 160mm. Its weight shall NOT exceed 8kg without accessories
- 4.2.10. The CT analyzer shall be equipped with a built in LCD display that is readable under bright sunlight, with keyboard and/or soft keys for manual operation.

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- 4.2.11. The CT analyzer shall have protection for overload and short circuits and a grounding terminal.
- 4.2.12. The CT analyzer shall be equipped with clearly marked input and output ports and its associated accessories.
- 4.2.13. The CT analyzer Input ports shall provide for:
 - a) Secondary measurement inputs – voltage range: 0 to 300 VAC, auto-ranging
 - b) Primary measurement input: voltage range: 0 to 30 VAC auto-ranging
- 4.2.14. The CT analyzer Output port (generator output) shall generate outputs as follows:
 - a) Output voltage 0 ... 120 Vac
 - b) Output current 0 ... 5 A rms (15 A peak)
 - c) Output power 0 ... 400 VA rms (1500 VA peak)
- 4.2.15. The CT analyzer shall be provided with all the accessories needed to carry out the tests outlined in clause 4.4

4.3. Communication

- 4.3.1 The CT analyzer shall be equipped with the following communication ports:
 - a) Ethernet Communication Port
 - b) Serial Port (RS232).
 - c) USB Port
- 4.3.2 The communication ports shall be used for external laptop/PC control to remotely control the device, export data and upgrade software.
- 4.3.3 The USB communication port shall provide access to printers, mouse, external monitors and USB memory options.

4.4. Functionality

- 4.4.1. The CT analyzer shall carry out the following measurements/tests:

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- a) Ratio and Phase measurement with consideration of nominal and connected secondary burden.
- b) Winding resistance measurement, (primary and secondary)
- c) Excitation curve (unsaturated and saturated)
- d) Knee-point voltage from 1 V to 30 kV
- e) Polarity and Phase displacement measurement at a resolution of 0.01 min and accuracy of 1 minute (0.0167 degree)
- f) Secondary Burden
- g) saturated and non-saturated inductance
- h) Residual magnetism measurement
- i) Winding resistance at a Resolution of 1 mΩ and accuracy of 0.05 %

4.4.2. The CT analyzer shall be capable of automatically determining the following:

- a) CT class,
- b) Accuracy limit factor,
- c) Instrument security factor,
- d) Secondary time constant,
- e) Symmetrical short-circuit current factor,
- f) Transient dimensioning factor,
- g) Remanence factor,

4.4.3. The CT analyzer shall be capable of generating Excitation characteristics according to IEC 60044-1, IEC 60044-6 (TPS, TPX, TPY, TPZ) and IEEE C57.13.

4.4.4. The CT analyzer shall have a “NAMEPLATE gusser” function and QUICK TEST function.

4.4.5. The CT analyzer shall perform Automatic demagnetization of the CT after tests.

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4.4.6. The CT analyzer shall be operated either directly via the in-built display or via the fully licensed software through the extension laptop.

4.5. Computer and Software Requirements

4.5.1. The CT analyzer shall be supplied with two laptop computers at no extra cost.

4.5.2. The laptop computers shall be designed and manufactured as per the requirements of IEC 60950 with minimum requirements as per Table 6

Table 1: Technical data for Laptop

No.	Item	Minimum Specification
1.	Processor	Intel@ CoreTM i7-920 Processor
2.	Clock speed	2.2 GHz or higher
3.	Chipset	Compatible
4.	Motherboard	Compatible
5.	Memory	2GB DDR3, 1333 Mhz or higher
6.	Cache memory	3MB L2 or higher
7.	Graphics	256MB Dedicated DDR3 Memory
8.	Hard disk controller	Serial ATA
9.	Hard disk	500GB or higher
10.	Shock resistant	Anti-shock mounting design to protect screen and hard disk drive from damage and data loss
11.	Keyboard	Spill resistant keyboard
12.	Mouse	2- or 3-button with scroll wheel optical PC Mouse with pad - USB 3.0
13.	Touch pad	Intelligent Touch with configurable vertical and horizontal scroll functions

4.5.3. The laptop computer shall be loaded with a Windows-based Operating System, preferably Windows 10, or higher as well as latest, licensed version of an Anti-Virus Software.

4.5.4. The laptop computer shall be pre-loaded with Software that allows connection and communication with the CT analyzer via the provided communication ports. The software shall be fully licensed and shall not require payment for renewal.

4.5.5. The laptop computer shall display the measurement values indicated in the CT analyzer when in operation. The displayed parameters shall be configurable and selectable by the software.

4.5.6. The fully licensed software shall allow the user to perform tests on the utility under test (UUT). It shall be capable of tracking user access.

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4.5.7. The fully licensed software shall identify a fault in the system by indicating where the fault is i.e. Troubleshooting capability.

4.5.8. The fully licensed software shall have the following functions:

- a) Automatic control: this function allows the user to perform tests automatically.
- b) Manual control: This function allows the user to perform tests on manual mode.

4.5.9. The fully licensed software shall allow the user to save and view test results in an un-editable format. It shall allow for retrieval and printing of the results.

4.6. Calibration of the CT Analyzer

4.6.1. The CT analyzer Calibration kit and its accessories associated with the calibration process shall be provided.

4.6.2. The manufacturer shall provide the Calibration procedure for the CT analyzer defining the Test points for calibration.

4.6.3. The Calibration and Measurement Capability (CMC) values shall be defined in the Calibration certificate provided for the equipment.

4.7. Supply Voltage

4.7.1. The CT analyzer shall be operated from main power with reference values of: 230 V \pm 10% at 45-65 Hz.

4.7.2. The mains power supply shall have overvoltage category II as per IEC 60364.

4.7.3. The power cables provided with the CT analyzer shall have dimensions as per BS 1363.

5.0. Tests Requirements

5.1.1. The CT analyzer shall be inspected and tested in accordance with the requirements of IEC 61869 and other relevant standards as well as provisions of this specification.

6.0. Marking, Labelling and Packaging

6.1. The CT analyzer shall be marked legibly and indelibly in English with the following information:

- a) Name or trade mark of the manufacturer;
- b) Country of origin;

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- c) Type/model;
- d) Serial no;
- e) The inscription "Property of K.P. & L. Co PLC."
- f) Year of manufacture.

- 6.2. The CT analyzer shall be packaged in such a manner as to minimize damage and entry of moisture during transportation and handling.
- 6.3. The CT analyzer shall be housed in a hard plastic rugged transportation case with wheels and handle for pulling.

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APPENDICES

A. TESTS AND INSPECTION (Normative)

- A.1. It shall be the responsibility of the manufacturer to perform or to have performed all the specified tests on the CT analyzer in accordance with IEC 62052-11. Tenderers shall confirm the manufacturer's capabilities in this regard when submitting tenders. Any limitations shall be clearly specified.
- A.2. Copies of Type Test Certificates and Type Test Reports issued by a third-party testing laboratory that is accredited to ISO/IEC 17025 shall be submitted with the tender for the purpose of technical evaluation. A copy of the accreditation certificate to ISO/IEC 17025 for the third-party testing laboratory shall also be submitted. Any translations of certificates and test reports into English language shall be signed and stamped by the Testing Laboratory that carried out the tests.
- A.3. The CT analyzer shall be subject to acceptance tests at the manufacturer's premises before dispatch. At least two Engineers/technicians appointed by The Kenya Power and Lighting Company Plc (Kenya Power) shall witness acceptance tests.
- A.4. During delivery of the CT analyzer, Kenya Power Engineers/technicians shall inspect and perform the relevant tests in order to verify compliance with the specification.
- A.5. Testing Facilities**
- A.5.1. The bidder shall provide current e-mail address, fax and telephone numbers and contact person at the Testing Laboratory where Type Tests and Special Tests were carried out.
- A.5.2. All test and measuring equipment to be used during acceptance testing shall have been calibrated and copies of valid calibration certificates shall be provided to Kenya Power Engineers/technicians. A detailed list of workshop tools, test/measuring equipment and list of tests that can be carried out by the manufacturer shall be submitted with the tender for evaluation.
- A.6. Test reports for the CT analyzer shall be submitted to The Kenya Power and Lighting Company for approval before shipment.
- A.7. During delivery of the CT analyzer, Kenya Power will inspect them and may perform or have performed any of the relevant tests in order to verify compliance with the specification. The supplier shall replace/rectify without charge to Kenya power, failure of the current transformer to meet any or all of the requirements in the specification.

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B. QUALITY MANAGEMENT SYSTEM (Normative)

- B.1. The bidder shall submit a quality assurance plan (QAP) that will be used to ensure that the equipment's Standard design, material, workmanship, tests, service capability, maintenance and documentation, will fulfil the requirements stated in the contract documents, standards, specifications and regulations. The QAP shall be based on and include relevant parts to fulfil the requirements of ISO 9001:2015 or later.
- B.2. The Manufacturer's Declaration of Conformity to applicable standards, this specification and regulations, copies of quality management certifications including a copy of valid and relevant ISO 9001 certificate shall be submitted with the tender for evaluation.
- B.3. The bidder shall indicate the delivery time of the equipment. A detailed list and contact addresses (including e-mail) of the manufacturer's previous customers outside the country of manufacture for exact or similar equipment sold in the last five years shall be submitted with the tender for evaluation.

C. DOCUMENTATION AND DEMONSTRATION (Normative)

- C.1. The bidder shall submit its tender complete with technical documents required by Appendix D (Guaranteed Technical Particulars) for tender evaluation. The documents to be submitted (all in English language) for tender evaluation shall include the following:
 - a) Fully filled clause by clause Guaranteed Technical Particulars (GTP) signed and stamped by the manufacturer,
 - b) Copies of the manufacturer's catalogues, brochures, current transformer analyzer drawings and wiring diagrams as well as technical data in brochures & catalogues, programming details and manuals,
 - c) Sales records for the last five years and at least four customer reference letters,
 - d) Details of manufacturing capacity and the manufacturer's experience,
 - e) Copies of required type test certificates and type test reports by a third-party testing laboratory accredited to ISO/IEC 17025,
 - f) Copy of accreditation certificate to ISO/IEC 17025 for the third-party testing laboratory,
 - g) Manufacturer's Warranty and Guarantee; subject to 18 months warranty and 10 years guarantee from date of acceptance by KPLC.

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- h) Manufacturer's letter of authorization and a copy of the manufacturer's ISO 9001:2015 certificate
- C.2. The successful bidder (supplier) shall submit the following documents/details to The Kenya Power & Lighting Company for approval before manufacture:
- a) Fully filled clause by clause Guaranteed Technical Particulars (GTP) signed and stamped by the manufacturer,
 - b) Design drawings and wiring diagrams of the CT analyzer,
 - c) Software manuals and equipment operation manuals,
 - d) Quality assurance plan (QAP) that will be used in the design and manufacture of the equipment,
 - e) Detailed test program to be used during factory testing,
 - f) Marking details and method to be used in marking the CT analyzer,
 - g) Packaging details (including packaging materials),
 - h) Manufacturer's undertaking to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the current transformer analyzer for The Kenya Power & Lighting Company,
- C.3. The successful bidder and manufacturer shall demonstrate at their cost to at least two Kenya Power Engineers/Technicians at the manufacturer's factory.
- C.4. The supplier shall conduct training on the use of the CT Analyzer in Nairobi Kenya for a minimum of 10 No. staff.

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D. SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS (GTPs)

(to be filled and signed by the Manufacturer and submitted together with relevant copies of the Manufacturer's catalogues, brochures, drawings, technical data & calculations, sales records, four customer reference letters, details of manufacturing capacity, the manufacturer's experience, copies of complete type test reports and accreditation certificate to ISO/IEC 17025 for the testing laboratory for tender evaluation, all in English Language)

TENDER NO.BIDDER'S NAME & ADDRESS

CLAUSE NO.	DESCRIPTION	KPLC REQUIREMENT	BIDDER'S OFFER
	Name and address of the Bidder	State	
	Name and address of the Manufacturer	State	
	Country of manufacture	State	
	Manufacturer's Letter of Authorization	Provide	
1	Scope		
1.1	This specification is for a Current Transformer (CT) Analyzer and all associated accessories for testing purposes	State	
1.2	The specification stipulates the minimum requirements of the CT Analyzer as well as schedule of Guaranteed Technical Particulars.	State	
2	Applicable standards	State	
3	Definitions and Abbreviations	State	
4.0	Requirements		
4.1	Service conditions		
a)	Altitude	State	
b)	Humidity	State	
c)	Temperature	State	
d)	Design pollution level	State	
4.2	Design and Construction Features		
4.2.1	Test applications – Low, Medium and High voltage CTs	Specify	
	Metering and Protection classes	Specify	
4.2.2	Shall be fully automated, intelligent and of high accuracy not exceeding 0.1%	Specify	
4.2.3	SELF-TEST on startup	Specify	
	Has STATUS indicators as long as it shall stay ON	Specify	
4.2.4	self-calibrating and self-diagnosing		
	No internal circuitry set up requirements		

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4.2.5	Designed in such a way as to prevent access to LIVE parts.		
4.2.6	Degree of protection as per IEC 60529	Specify	
	Equipped with a built in LCD colour screen DISPLAY	Specify	
	Screen display resolution	Specify	
4.2.7	INTERNAL MEMORY minimum storage capacity	Provide	
	equipped with slot for inserting SD card	Provide	
4.2.8	Portable, rugged, lightweight, shock proof and suitable for use in harsh field conditions	Specify	
	External casing material shall be rugged to cushion against vibration and shock	Specify	
4.2.9	Dimensions (HxWxD)	State	
	Weight (kg)	State	
4.2.10	equipped with a built in LCD display that is readable under bright sunlight	Specify	
	keyboard and/or soft keys for manual operation	Specify	
4.2.11	Protection for overload and short circuits	Specify	
	Grounding terminal	Provide	
4.2.12	clearly marked input and output ports and its associated accessories		
4.2.13	Input ports	Specify	
	Secondary measurement inputs	Specify	
	Primary measurement input	Specify	
4.2.14	Output port (Generator outputs)		
	Output voltage	Specify	
	Output current	Specify	
	Output power	Specify	
4.2.15	Testing Accessories	List	
4.3	Communication		
4.3.1	Communication Ports		
	Ethernet Port	Provide	
	Serial Port (RS232)	Provide	
	USB Port	Provide	
4.3.2	Communication ports applicable for external laptop/PC control	Provide	
4.3.3	USB communication port for printers, mouse, external monitors and USB memory options.	Provide	
4.4	Functionality		
4.4.1	Tests / Measurements	Provide	

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CLAUSE NO.	DESCRIPTION	KPLC REQUIREMENT	BIDDER'S OFFER
a)	Ratio and Phase measurement with consideration of nominal and connected secondary burden	Specify	
b)	Winding resistance measurement, (primary and secondary)	Specify	
	Accuracy – 0.01%		
c)	Excitation curve (unsaturated and saturated)	Specify	
d)	Knee-point voltage from 1 V to 30 kV	Specify	
e)	Polarity and Phase displacement – resolution & accuracy	Specify	
f)	Secondary Burden	Specify	
g)	Saturated and non-saturated inductance	Specify	
h)	Residual magnetism	Specify	
i)	Winding resistance – Resolution & Accuracy	Specify	
4.4.2	Automatic determination of the following parameters	provide	
a)	CT class	Specify	
b)	Accuracy limit factor	Specify	
c)	Instrument security factor	Specify	
d)	Secondary time constant	Specify	
e)	Symmetrical short-circuit current factor	Specify	
f)	Transient dimensioning factor	Specify	
g)	Remanence factor	Specify	
4.4.3	Excitation characteristics according to IEC 60044-1, IEC 60044-6 (TPS, TPX, TPY, TPZ) and IEEE C57.13	Specify	
4.4.4	“NAMEPLATE guesser” function	Specify	
	QUICK TEST function	Specify	
4.4.5	Automatic demagnetization of the CT after t		
4.4.6	Operation modes	provide	
	Direct operation via key pad & in-built display	Specify	
	Software operation	Specify	
4.5	Computer and Software Requirements		
4.5.1	Supplied with two laptop computers at no extra cost	Provide	
4.5.2	Laptop designed and manufactured as per IEC 60950	Specify	
	Minimum Requirements for laptop		
	<i>Item</i>	<i>Minimum Specification</i>	
	Processor	Intel@ Core™ i7-920 Processor	Specify
	Clock speed	2.2 GHz or hi her	Specify
	Chipset	Compatible	Specify
	Motherboard	Compatible	Specify

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SPECIFICATION**

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CLAUSE NO.	DESCRIPTION	KPLC REQUIREMENT	BIDDER'S OFFER
	Cache memory	3MB L2 or higher	Specify
	Graphics	256MB Dedicated DDR3 Memory	Specify
	Hard disk controller	Serial ATA	Specify
	Hard disk	500GB or higher	Specify
	Shock resistant	Anti-shock mounting design to protect screen and hard disk drive from damage and data loss	Specify
	Keyboard	Spill resistant keyboard	Specify
	Mouse	2- or 3-button with scroll wheel optical PC Mouse with pad - USB 3.0	Specify
	Touch pad	Intelligent Touch with configurable vertical and horizontal scroll functions	Specify
4.5.3	Loaded with Windows-based Operating System	Specify	
	Pre – loaded with the latest, licensed version of an Anti – Virus Software	Specify	
4.5.4	Pre - loaded with software that allows connection and communication via provided communication ports	Specify	
	Software shall be fully licensed	Specify	
4.5.5	Shall display the measurement values indicated in the CT analyzer when in operation	Specify	
	Display parameters shall be configurable and selectable by software	Specify	
4.5.6	The software shall perform tests on the utility under test (UUT)	Specify	
	The software shall be capable of tracking user access	Specify	
4.5.7	The software shall identify a fault in the system – Troubleshooting capability	Specify	
4.5.8	Software functions	Specify	
a)	Automatic control - perform tests automatically	Specify	
b)	Manual control - tests on manual mode	Specify	
4.5.9	The software shall allow the user to save and view test results in an un-editable format	Specify	
	The software shall allow for retrieval and printing of the results	Specify	
4.6	Calibration of the CT analyzer		
4.6.1	Calibration kit and associated accessories	Specify & Provide	
4.6.2	Calibration procedure of the equipment	Provide	
	Test points for calibration shall be defined	Provide	

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Kenya Power

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CLAUSE NO.	DESCRIPTION	KPLC REQUIREMENT	BIDDER'S OFFER
4.6.3	Calibration and Measurement Capability (CMC) values shall be defined in the Calibration certificate provided for the equipment	Provide	
4.7	Supply Voltage		
4.7.1	Mains power supply voltage	Specify	
4.7.2	Overvoltage category II as per IEC 60364	Specify	
4.7.3	Power cables dimensions as per BS 1363	Specify	
5.0	Test Requirements		
5.1	Provisions for Inspection and Testing of CT analyzer	State	
6.0	Marking, Labelling and Packing		
6.1	Legibly and indelibly marked in English	Specify	
	Marking information	State	
6.2	Packaging to minimize damage and moisture during transportation	Specify	
6.3	Housed in a hard plastic ragged transportation case with wheels and handle for pulling	Specify	
A.	Test and Inspection		
A.1.	Responsibility of testing transformer & manufacturer's capability	State	
	Manufacturer's capability to conduct the tests	State	
	Any limitations to conducting required tests	State	
A.2.	Copies of type test certificates and reports to IEC 62052-11 issued by a third party testing laboratory accredited to ISO/IEC 17025	Submit	
	Copy of the accreditation certificate to ISO/IEC 17025 for the testing laboratory	Submit	
A.3	Acceptance tests at manufacturers premises witnessed by appointed KPLC representatives	State	
	Routine tests to be done during factory acceptance testing	List	
A.4.	Kenya Power shall inspect and perform the relevant tests in order to verify compliance on Delivery	State compliance	
A.5	Testing facility		
A.5.1	Contact details for testing authority	Submit	
A.5.2	Calibration of test and measuring equipment	Submit	
	A detailed list of workshop tools, test/measuring equipment	Submit	
A.6	Complete test reports for approval before shipment	Submit	
A.7	Inspection or test by Kenya Power during delivery before acceptance to stores	State compliance	

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CLAUSE NO.	DESCRIPTION	KPLC REQUIREMENT	BIDDER'S OFFER
	Replacement/Repair of the test system without charge to Kenya Power in case of failure	State compliance	
B.	Quality management system		
B.1	Quality assurance plan (QAP)	Submit	
	Copy of ISO 9001: 2015 certificate	Submit	
B.2	Manufacturer's Declaration of Conformity to applicable standards and Kenya power Requirements	Submit	
B.3	Production capacity (monthly & annual)	Submit	
	List & contact addresses (including e-mail) of the manufacturer's customers in the last 5 years	Submit	
C.	Documentation and Demonstration (Normative)		
C.1.	Documents to be submitted with tender for evaluation	List & Submit	
a)	Guaranteed Technical Particulars (GTP)	Submit	
b)	Manufacturer's catalogues, brochures, drawings and technical data	Submit	
c)	Sales records for the last five years	Submit	
	Four customer reference letters	Submit	
d)	Manufacturing capacity	Submit	
	Manufacturer's experience	Submit	
e)	Copies of required type test certificates	Submit	
	Copies of required type test reports	Submit	
f)	ISO/IEC 17025 for the third party testing laboratory	Submit	
g)	Manufacturer's warranty (18 Months)	Submit	
	Manufacturer's guarantee (10 Years)	Submit	
h)	Manufacturer's letter of authorization	Submit	
	Manufacturer's ISO 9001:2015 certificate	Submit	
C.2.	Documents to be submitted by manufacturer for approval before manufacture	List and Submit	
a)	Guaranteed Technical Particulars (GTP)	Submit	
b)	Design drawings and wiring diagrams	Submit	
c)	Software manuals and operation manuals	Submit	
d)	Quality assurance plan (QAP)	Submit	
e)	Detailed test program to be used during factory testing	Submit	
f)	Marking details and method to be used in marking the test system	Submit	
g)	Packaging details (including packaging materials)		
h)	Manufacturer's undertaking to ensure adequacy of the design	Submit	

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CLAUSE NO.	DESCRIPTION	KPLC REQUIREMENT	BIDDER'S OFFER
C.3.	Demonstration of CT analyzer operation to KPLC staff at the factory	State compliance	
C.4.	Training on the use of the Ct analyzer in Nairobi Kenya for a minimum of 10 No. staff	State compliance	
	Deviations from tender specifications (indicate supporting documents submitted)	State	

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

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