

DOCUMENT NO.:



OLTC TYPE M, MI 501-123/C-10.19.3W - SPECIFICATION

A Document of the Kenya Power & Lighting Co. Ltd
AUGUST 2020



TITLE:
OLTC TYPE MI 501-123/C-
10.19.3W

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0.1 CIRCULATION LIST

COPY NO.	COPY HOLDER
1	In charge, E/plant Nairobi North
2	In charge, Technical services Nairobi North

0.2 AMENDMENT RECORD

Rev No.	Date (YYYY-MM-DD)	Description of Change	Prepared by (Name & Signature)	Approved by (Name & Signature)
0	2020-08-4	New issue	Moses Kikuvi	Zacheus Omondi Oluoch

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FOREWORD

This specification has been prepared by the E/plant Nairobi of The Kenya Power and Lighting Company Limited (KPLC) and it lays down requirements for OLTC TYPE M MI 501-123/C-10.19.3W



OLTC MI 501/C-10.19.3W is intended for use by the E/plant Nairobi to replace one of the faulty diverter switches for Juja Road substation 132/66/10kv 60Mva transformer 4 which has single pole tap changer per phase.

This specification was prepared to establish and promote uniform requirements for OLTC MI-501-123/C-10.19.3W to be used at Kenya Power and Lighting Company Ltd.

There are no other specifications in this series.

This specification stipulates the minimum requirements for OLTC type MI 501/C-123-10.19.3W acceptable for use in the company and it shall be the responsibility of the suppliers and manufacturer to ensure that the offered design is of the highest quality and guarantees excellent service to KPLC, good workmanship and good engineering practice in the manufacture of the MI 501/C-123-10.19.3W for KPLC.

Users of Kenya Power specifications are responsible for their correct interpretation and application.

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1. SCOPE

- 1.1. This specification is for MI 501-123/C-10.19.3W for use by company's E/plant Nairobi.
- 1.2. The specification covers requirements, design, tests and inspection and schedule of Guaranteed Technical Particulars of OLTC type MI 501-123/C-10.19.3W.

2. NORMATIVE REFERENCES

The following standards contain provision which, through reference in this text, constitute provisions of this specification. For dated editions the cited edition will apply; for undated editions the latest edition of the referenced document shall apply.

IEC International standard 60214-1:2003, Tap-Changers, Part 1: Performance requirements and test methods

IEC International standard 60214-2:2004, Tap-Changers, Part 2: Application guide

3. DEFINITIONS AND ABBREVIATIONS

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

3.1. ABBREVIATIONS

KPLC- Kenya Power and Lighting Company Limited

ISO – International Organization for Standardization.



IEC- International electrotechnical commission

Kg –Kilogram

KV - Kilovolt

LV – Low Voltage

EN – European Standard

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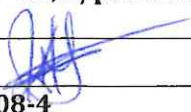

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4. REQUIREMENTS

4.1. GENERAL REQUIREMENT

4.1.1. The OLTC type M model MI 501-123-10.19.3W shall be connected in transformer windings with the following data:

- 4.1.1.1. Transformer MVA rating is 60MVA ONAF,45MVA ONAN
- 4.1.1.2. Voltage rating 132/66/10kv
- 4.1.1.3. Transformer vector group YNa0d1
- 4.1.1.4. Connection of tap winding is connected Phase with neutral
- 4.1.1.5. Short circuit withstand capability $8.37 \times$ Nominal current for 2s
- 4.1.1.6. Maximum rated through current 500A
- 4.1.1.7. Tap changer changeover selector Reversing switch.
- 4.1.1.8. Tap changer reversing tap position 10
- 4.1.1.9. Basic circuit diagram code 10 19 3W
- 4.1.1.10. Tap changer regulating range 138600v-112200v
- 4.1.1.11. Tap changer rated step voltage 1650v
- 4.1.1.12. Nominal tap position 5
- 4.1.1.13. Voltage at the nominal tap 132000v
- 4.1.1.14. number of service tap positions -19 taps
- 4.1.1.15. Insulation level to ground-123kV
- 4.1.1.16. Lightning impulse and power frequency voltage of internal insulation-650kV_p and 275kV
- 4.1.1.17. Current at the maximum voltage 249.94A
- 4.1.1.18. Current at Minimum voltage 308.74A

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4.1.1.19. Current at the nominal tap position 262.43A

4.1.1.20. Transition resistors 3.2ohms

4.2. Technical specification

On-load tap-changer type	MI 501-123/C-10.19.3W
Number of phases	1
Maximum rated through current I_m	500A
Highest voltage for equipment U_m of on-load tap-changer	145kV
Basic connection diagram	10 19 3 W Contact circle pitch of tap selector-10 Maximum number of operating positions-19 Number of mid-positions-3 Change-over selector model (W=reversing change-over selector)

5. TESTS AND INSPECTION REQUIREMENTS

- 5.1. The OLTC type MI 501-123/C-10.19.3W shall be inspected and tested in accordance with the requirements of this specification and standard IEC 60214. It shall be the responsibility of the manufacturer to perform or to have performed all the tests specified. Tenderers shall confirm the manufacturer's capabilities in this regard when submitting tenders. Any limitations shall be clearly specified.
- 5.2. Copies of previous Test Reports issued by own or a third party testing laboratory that is accredited to ISO/IEC 17025:2005 or 17025:2017 confirming compliance of the MI 501-123/C-10.19.3W offered shall be submitted with the offer for evaluation (all in English Language). A copy of the **accreditation certificate** and the **scope of accreditation** of the

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C.2 The 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) stamped and signed by the manufacturer;
- b) Design Drawings with details of the OLTC type MI 501-123/C-10.19.3W to be supplied to KPLC.
- c) Product manuals, operation manuals and brochures,
- d) All documentation necessary for safety of the product.
- e) Packaging details (including packaging materials).

C.3. The supplier shall submit recommendations for use, care, storage and routine inspection/testing procedures, all in the English Language, during delivery of the diverter switch to KPLC stores.

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APPENDICIES

A: TESTS AND INSPECTION (Normative)

A.1 It shall be the responsibility of the supplier/manufacturer to test or to have all the relevant tests performed.

A.2 On receipt of the MI 501-123/C-10.19.3W 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 without charge to Kenya Power, any MI 501-123/C-10.19.3W which upon examination, test or use fail to meet any or all of the requirements in the specification.



B: QUALITY MANAGEMENT SYSTEM (Normative)

B.1 The bidder shall indicate the delivery time of the equipment

C: DOCUMENTATION AND DEMONSTRATION (Normative)

C.1 The bidder shall submit its tender complete with technical documents for tender evaluation. The technical 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 by the manufacturer;
- b) Copies of the Manufacturer's catalogues, brochures, drawings giving all relevant dimensions, and technical data;
- c) Bidder's warranty and guarantee; subject to 12 months from date of delivery to KPLC stores
- d) Assembly manual.

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testing laboratory shall also be submitted. Any translations of certificates or test reports into English language shall be signed and stamped by the Testing Authority that carried out tests.

6. PACKING

6.1. PACKING

6.1.1. The OLTC type MI 501-123/C-10.19.3W shall be supplied with a sealed packaging in dried state. A sealed packaging shall surround the packaged diverter switch MI 501-123/C-10.19.3W on all sides with plastic foil. a yellow label on the sealed packaging shall be used to indicate that it has been dried

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D: GUARANTEED TECHNICAL PARTICULARS (Normative)

To be filled and signed by the Bidder and submitted together with relevant copies of the Manufacturer's catalogues, brochures, drawings, technical data, for tender evaluation, all in English Language)

Tender No.

Bidder's name and Address.....

Clause number	Requirement	Bidder's offer	
	Manufacturer's Name	Specify	
	Country of Manufacture	Specify	
	Name and model Number	Specify	
1.	Scope	State	
4.	Requirements		
4.1	General Requirement	State	
4.1.1	Transformer Tap winding Data		
4.1.1.1	Transformer MVA rating	specify	
4.1.1.2	Transformer voltage rating	specify	
4.1.1.3	Tap changer meant for transformer with vector group YNa0d1	specify	
4.1.1.4	Transformer Tap winding connection	state	
4.1.1.5	Short circuit withstand capability	state	
4.1.1.6	Maximum rated through current	state	
4.1.1.7	Tap changer changeover selector	state	
4.1.1.8	Tap changer reversing tap position	state	
4.1.1.9	Basic circuit diagram code	state	
4.1.1.10	Tap changer regulating range	state	
4.1.1.11	Rated step voltage	state	
4.1.1.12	Nominal tap position	state	
4.1.1.13	Nominal tap voltage	state	
4.1.1.14	Number of service tap positions	state	
4.1.1.15	Insulation level to ground	state	
4.1.1.16	BIL	state	

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Clause number	Requirement	Bidder's offer	
4.1.1.17	Current at maximum tap	specify	
4.1.1.18	Current at minimum tap	specify	
4.1.1.5	Insulation level to ground		
4.2	Technical specifications		
	On-load tap-changer type/model	state	
	Number of phases	state	
	Maximum rated through current	State	
	Highest voltage for equipment	State material and	
	Um of on-load tap-changer	attach drawing	
	Basic connection diagram	showing size	
		state	
5	Test and inspection Requirements		
5.1	Tests to be done	State	
5.2	Copies of previous test reports and accreditation certificate	Attach	
6	Packing		
6.1	Packing	Specify	
A	TESTS AND INSPECTION		
A.1	Responsibility to test	State compliance	
A.2	Replacement if it fails to meet any or all of the requirements in the specification.	specify	
B	Quality Management System		
B.1	Delivery time of the product	state	
C	Documentation and demonstration		
C.1	Documents submitted with tender	State	
C.2	Documents to be submitted by supplier to KPLC for approval before supply	State	
C.3	Documents to be submitted during delivery at the store	State	
	Statement of compliance to specification (indicate deviations if any & supporting documents)	State compliance	



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

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