






THE KENYA POWER AND LIGHTING CO. LTD

SPECIFICATIONS

For

SINGLE PHASE MINIATURE CIRCUIT BREAKERS (MCBs)

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FOREWORD

This specification has been prepared by the Energy management department. It is intended for procurement of single phase MCBs from manufacturers and does not include provision of contract.

INTRODUCTION

This specification was prepared to establish and promote uniform requirements for single phase MCBs. The specification lays down the minimum requirements for single phase MCBs acceptable for evaluation. It is the responsibility of the Supplier to be conversant with the standards referred herein.

1. SCOPE

This specification is for a **single phase Miniature Circuit Breaker (MCBs)** (further Herein referred simply as "MCBs") for low voltage use. The MCBs shall be used for protection of prepayment metering installations.

2. REFERENCES

The following documents were referred to during the preparation of this specification: IEC 60898-1, IEC 61010 and associated parts.

In case of conflict, the requirements of this specification shall take precedence.

3. DEFINITIONS

The definitions given in the above reference standards apply.

4. REQUIREMENTS

4.1 Operating Conditions

4.1.1 The MCBs shall be suitable for operation in tropical climate where temperatures may vary from -1 to 50 degrees Celsius; relative humidity reaching 90% and operating altitudes ranging from sea level to 2200 m above sea level.

4.1.2 The MCBs shall be used for protection against overload and short circuits in domestic and commercial installations.

4.2 Design and Construction

4.2.1 The MCBs shall comply fully with IEC 60898-1 standard. Where the specifications differ with those of this standard, this specification shall apply in respect only of the specific differences.

4.2.2 The MCBs shall have International approvals-UL, CSA EN/IEC standards

4.2.3 The MCBs shall have one pole and neutral (1P+N).

4.2.4 The MCBs shall be DIN rail mountable, 35mm with locking clip.

4.2.5 The MCBs shall have Positively trip free mechanism

4.2.6 The MCBs shall have Combined thermal and magnetic trip function

- 4.2.7 The MCBs shall have Standard screw termination, able to take cables of 1.5-10mm² CSA and up to 15mm length for proper grip.
- 4.2.8 The MCBs shall have ring terminals, with finger safe option
- 4.2.9 The MCBs terminal holes and screws shall be made of brass or nickel-plated brass for high conductivity and corrosion resistance
- 4.2.10 The MCBs shall operate under curve C.
- 4.2.11 The MCB shall be capable of giving close protection on slow tripping applications/conditions

4.3 Ratings

- 4.3.1 The MCBs shall have an ingress protection level IP 20
- 4.3.2 The MCBs rated voltage and frequency shall be 230/400V and 50 Hz respectively.
- 4.3.3 The MCBs shall have a rated current of 63 A.
- 4.3.4 The MCBs shall have an electrical life of not less than 6,000 operations
- 4.3.5 The MCBs shall have an Mechanical life of not less than 20,000 operations
- 4.3.6 The MCBs shall have a breaking capacity of 6 kA.

4.4 Instructions and Markings

- 4.4.1 The MCBs shall be marked legibly and indelibly with the following information:
 - a) Name or trade mark of the manufacturer
 - b) Country of origin
 - c) Type/model and serial number
 - d) Nominal input voltage and frequency
 - e) The rated current and maximum breaking capacity current
 - f) Standards to which the MCBs comply
 - g) Year of manufacture

All markings to be written in English and with at least 4mm figure height.

- 4.4.2 Each MCB shall be indelibly marked with connection diagrams

- 4.4.3 Relevant technical details, schematic drawings, operational and service manuals shall be submitted to support the tender and shall be clearly marked to indicate the type/ model of the MCBs being offered.
- 4.4.4 The manufacturer shall provide a list of at least four previous utilities to which the MCBs being offered has been supplied (**Brochures shall be attached to support this requirement**).
- 4.4.5 The manufacturer shall have supplied a minimum of 500,000 pieces of the offered MCBs to utilities within the past 3 years.
- 4.4.6** The Tenderer shall fill the attached matrix to be used as a guideline in accessing the manufacturers' compliance to the requirements of this specification. The Tenderers shall indicate the details of their offer where it is different from these requirements. **Insertions such as "noted", "agreed" etc. shall be considered as non-responsive where a specific response is called for.**

5 TESTS

- 5.1 The tenderer shall submit 3 (three) samples of the offered MCBs, which will not be returned to the tenderer.
- 5.2 The sample MCBs shall be subjected to tests at the KPLCs meter central laboratory to verify the requirements of IEC 60898-1 and verify responsiveness to other clauses of this specifications
- 5.3 Certificates of compliance with national standards (in English) shall be submitted.
- 5.4 The manufacturer's declaration of conformity to reference standards, proof of ISO 9001(2008) standards shall be submitted.

6 INFORMATION AND WARRANTY *(In case of Tender Award)*

- 6.1 The MCBs shall have a warranty against any defects, which may develop due to faulty material, calibration, transportation or workmanship for a period of Eighteen months from the date of delivery. Defects shall be rectified at the supplier's cost, including duties, taxes and shipment.

- 6.2 The manufacturer shall meet the full costs of two engineers, for MCB inspection and acceptance testing at the manufacturer's facility, except the cost of engineers' transportation from Kenya to the nearest major airport
- 6.3 The MCBs shall be packaged in such a manner as to minimize damage and entry of moisture during transportation and handling.

APPENDIX A: SUMMARY SCHEDULE OF TECHNICAL DATA

Rated Voltage	230/ 400 V
Rated frequency	50 Hz
Rated Current	63 A
Rated Breaking current	6 kA
Degree of protection	Minimum IP-20

APPENDIX B. TABLE AND STATEMENT OF COMPLIANCE

(To be filled by the Supplier FOR ALL CLAUSES and submitted for tender evaluation)

Clause Number	Bidder's offer	Manufacturer's Compliance/Remarks	Reference Page in the submitted documents
4.1	Operating conditions		
4.1.1	suitable for operation in tropical climate where temperatures may vary from -1 to 50 degrees Celsius; relative humidity reaching 90% and operating altitudes ranging from sea level to 2200 m above sea level.		
4.1.2	used for protection against overload and short circuits in domestic and commercial installations.		
4.2	Design and Construction		
4.2.1	Comply fully with IEC 60898-1 standard		
4.2.2	Have International approvals-UL,CSA EN/IEC standards		
4.2.3	Have one pole and neutral (1P+N).		
4.2.4	DIN rail mountable, 35mm with locking clip.		
4.2.5	Have Positively trip free mechanism		
4.2.6	Have Combined thermal and magnetic trip function		
4.2.7	Standard screw termination, able to take cables of 1.5-10mm ² CSA and up to 15mm length for proper grip		
4.2.8	Ring terminals, with finger safe option		
4.2.9	Terminal holes and screws made of brass or nickel-plated brass for high conductivity and corrosion resistance		
4.2.10	Operate under curve C.		

Clause Number	Bidder's offer	Manufacturer's Compliance/Remarks	Reference Page in the submitted documents
4.2.11	capable of giving close protection on slow tripping applications/conditions		
4.3	Ratings		
4.3.1	Degree of protection IP 20		
4.3.2	Rated voltage and frequency shall be 230/400V and 50 Hz respectively.		
4.3.3	Rated current of 63 A.		
4.3.4	Electrical life of not less than 6,000 operations		
4.3.5	Mechanical life of not less than 20,000 operations		
4.3.6	Breaking capacity of 6 kA.		
4.4	Instructions and Markings		
4.4.1	The MCBs shall be marked legibly and indelibly with the following information		
	a) Name or trade mark of the manufacturer		
	b) Country of origin		
	c) Type/model and serial number		
	d) Nominal input voltage and frequency		
	e) The rated current and maximum breaking capacity current		
4.4.2	Indelibly marked with connection diagrams		
4.4.3	Relevant technical details, schematic drawings, operational and service manuals shall be submitted to support the tender and shall be clearly marked to indicate the type/ model of the MCBs being offered.		
4.4.4	The manufacturer shall provide a list of at least four previous utilities to which the MCBs being offered has been supplied to (Brochures shall be attached to support this requirement).		
4.4.5	Supplied a minimum of 500,000 pieces of the offered MCBs to utilities within the past 3 years.		
4.4.6	The Tenderer shall fill the attached matrix to be used as a guideline in accessing the manufacturers' compliance to the requirements of this specification. The Tenderers shall indicate the details of their offer where it is different from these requirements. Insertions such as "noted", "agreed" etc. shall be considered as non-responsive where a specific response is called for.		
5	TESTS		
5.1	Submit 3 (three) samples of the offered MCBs, which will not be returned to the tenderer.		

Clause Number	Bidder's offer	Manufacturer's Compliance/Remarks	Reference Page in the submitted documents
5.2	sample MCBs shall be subjected to tests at the KPLCs meter central laboratory to verify the requirements of IEC 60898-1 and verify responsiveness to other clauses of this specifications		
5.3	Certificates of compliance with national/ International standards (in English) shall be submitted.		
5.4	The manufacturer's declaration of conformity to reference standards, proof of ISO 9001(2008) standards shall be submitted.		
6	INFORMATION AND WARRANTY (In case of Tender Award)		
6.1	Warranty against any defects, which may develop due to faulty material, calibration, transportation or workmanship for a period of Eighteen months from the date of delivery. Defects shall be rectified at the supplier's cost, including duties, taxes and shipment.		
6.2	Meet the full costs of two engineers, for MCBs inspection and acceptance testing at the manufacturer's facility, except the cost of engineers' transportation from Kenya to the nearest major airport		
6.3	Packaged in such a manner as to minimize damage and entry of moisture during transportation and handling.		

NB: - This schedule does not in any way substitute for detailed information required elsewhere in the specification.

Manufacturer's Declaration: Ion behalf of.....Declare that the above specifications matrix conforms to a typical tender item type..... as clearly marked in the attached technical brochures & drawings, and being offered for this tender.

Signature.....

Date.....**Stamp/Seal**.....