



The Kenya Power & Lighting
Co. Ltd.

TITLE:

SPECIFICATION FOR 33kV
SURGE ARRESTERS

Doc. No.

KPLC1/3CB/TSP/11/032

Issue No.

2

Revision
No.

0

Date of
Issue

2011-02-03

Page 8 of 9 pages

The crates shall then be stacked on sturdy wood pallet. The assembly shall be held tightly in place with steel bands and protected against moisture by a complete covering of heat-shrinkable polyethylene film.

ANNEX A: Guaranteed Technical Particulars (to be filled and signed by the Manufacturer for all clauses and submitted together with copies of the manufacturer's catalogues, brochures, drawings, guaranteed technical particulars, copies of type test reports, customers sales records, customer reference letters and details of production capacity and manufacturing experience in the manufacture of surge arresters for tender evaluation, all in English language)

Tender No.....

Description	Bidder's offer
Manufacturer, Country of origin of surge arresters offered	
Type Reference No./Model No.	
Service Conditions	
System Information	
Highest Voltage of Equipment (Um)	
Basic Insulation Level (BIL)	
Maximum altitude of installation (a.s.l.)	
Neutral system earthing	
Maximum ambient temperature	
Power Frequency	
Electrical data	
Applicable Standard	
Rated voltage (Ur)	
Maximum continuous operating voltage (Uc / MCOV)	
Nominal discharge current (In, 8/20 μ s)	
Line discharge class	
Long duration impulse current withstand (2 ms)	
High current impulse withstand (4/10 μ s)	
Rated short circuit current (0,2 s)	
Maximum residual voltage at :	
10 kA 1/2 μ s	
5 kA 8/20 μ s	
10 kA 8/20 μ s	
20 kA 8/20 μ s	
40 kA 8/20 μ s	
500 A 30/60 μ s	

Issued by: Head of Section, Tech Stds & Specs

Authorized by: Head of Department R&D

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Date: 2011-02-03



The Kenya Power & Lighting
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TITLE:

**SPECIFICATION FOR 33kV
SURGE ARRESTERS**

Doc. No. KPLC/1/3CB/TSP/11/032

Issue No. 2

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1 kA 30/60 μ s	
2 kA 30/60 μ s	
Temporary overvoltage for 1 s	
Temporary overvoltage for 10 s	
Energy discharge capability - thermal	
Energy discharge capability - impulse	
Power Frequency withstand voltage (1min, wet), arrester complete	
Lightning Impulse withstand voltage (1.2/50 μ s), arrester complete	
Mechanical data	
Minimum creepage distance	
Cantilever load, dynamic	
Construction	
Housing	
List of Type Test Reports submitted (indicate Test Report Numbers, Testing Authority and Contact Addresses). Accreditation certificate (ISO/IEC 17025) for the laboratory is required	
List of Tests to be witnessed by KPLC Engineers at the factory	
Marking (list parameters to be marked and method of marking to be used on surge arresters manufactured for KPLC)	
Packing	
Manufacturer's Guarantee and Warranty	
List of catalogues, brochures, drawings, technical data, test reports and customer sales records submitted to support the offer.	
STATEMENT OF COMPLIANCE TO SPECIFICATION	

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

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

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The Kenya Power & Lighting Co. Ltd.

TITLE:
SPECIFICATION FOR 66kV SURGE ARRESTERS

Doc. No.	KPLC1/3CB/TSP/11/033
Issue No.	2
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Date of Issue	2012-03-22
Page 10 of 11	

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

Tender No.....

Clause Number	Description	Bidder's offer
	Manufacturer & Country of manufacture	
	Type Reference No./Model No.	
4.1	Service Conditions	
4.2.1	Applicable Standard(s)	
4.2.2-4	Type and design	
4.2.5-6	Insulator type and sealing	
4.2.7	Pressure relief (and technical details)	
4.2.8	Surge counter & condition indicator (and technical details)	
	Grading ring	
4.2.9	Arrester disconnect/fault indicator device	
4.2.10	Fixing accessories, line and earth terminals	
4.2.11	Insulating base and mounting p.c.d.	
4.3	RATINGS	
	System rated voltage and frequency	
	System highest voltage	
	Nominal discharge current	
	Long duration discharge class	
	Continuous operating voltage	
	Creepage distance of insulator	
	Insulation withstand of arrester housing (as per IEC 60099-4 clause 6.1)	
	Additional Information (parameters to be declared by the manufacturer and used for tender evaluation and during factory acceptance testing)	
	Long duration impulse current withstand (2 ms)	
	High current impulse withstand (4/10 μ s)	
	Rated short circuit current (0,2 s)	
	Maximum residual voltage at :	
	5 kA 8/20 μ s	
	10 kA 8/20 μ s	
20 kA 8/20 μ s		

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Date: 2012-03-22

Date: 2012-03-22



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SURGE ARRESTERS

Doc. No.	KPLC1/3CB/TSP/11/033
Issue No.	2
Revision No.	0
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	40 kA 8/20 μ s	
	500 A 30/60 μ s	
	1 kA 30/60 μ s	
	2 kA 30/60 μ s	
	Temporary overvoltage for 1 s	
	Temporary overvoltage for 10 s	
	Energy discharge capability of the surge arrester offered	
	Lightning impulse protection level of the surge arrester offered	
	Switching impulse protection level of the surge arrester offered	
	Power-frequency withstand voltage for a duration of 1 min	
	Special consideration for application at altitudes higher than 1000m (that is 2200m for this tender)	
	Mechanical data	
	Cantilever load, dynamic (N)	
	Construction (open cage design is required)	
	Overall height (mm)	
	Housing (materials)	
5.2	Submit for tender evaluation the list of Type Test Reports submitted (indicate Test Report Numbers, Testing Authority and Contact Addresses). Accreditation certificate (to ISO/IEC 17025) for the test laboratory is required	
5.3	Submit for tender evaluation the list of Tests to be witnessed by Kenya Power Engineers at the factory	
6	Marking (indicate parameters to be marked and method of marking)	
	Packing	
	Installation and technical manuals	
	List of catalogues, brochures, drawings, technical data and customer sales records submitted to support the offer.	
	Statement of compliance and or deviations from Tender Specifications	

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

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Date: 2012-03-22

Date: 2012-03-22



The Kenya Power & Lighting
Co. Ltd.

TITLE:
**SPECIFICATION FOR 33KV
ISOLATOR (DISCONNECTOR)**

Doc. No. KPLC1/3CB/TSP/11/012

Issue No. 2

Revision No. 0

Date of Issue 2010-08-12

Page 8 of 10

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 complete type test certificates and complete type test reports for tender evaluation (pls indicate units of measure)

No.	REQUIREMENTS	GUARANTEED PARTICULARS	COMMENTS	
1.	Name of the manufacturer and country of manufacture			
2.	Applicable standards			
3.	Service (indoor/outdoor), altitude, temperature range, humidity, environment (pollution severity level), wind speed etc			
4.	Type	Model/Type Reference Number		
		Breaking medium		
5.	Steelwork & components to be supplied (including components and mounting stalks for mounting on 12m wooden or concrete poles			
6.	Operating mechanism			
7.	Contacts	Materials		
		Thickness of silver coating		
		Contact resistance		
		Current Density	Moving blade	
			Terminal pad	
			Contacts	
			Terminal connector	
Spare contacts (five male & five female)				
8.	Rating			
	Nominal System Voltage and frequency			
	Highest System Voltage of equipment			
	Rated continuous current			
	Rated short circuit withstand current & time			
	Rated short circuit making current			
	Breaking capacity of capacitive current			
	Rated inductive current switching capacity			
	Max temperature rise under rated voltage and current			
	Breaking capacity at rated voltage			

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The Kenya Power & Lighting
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TITLE:
**SPECIFICATION FOR 33kV
ISOLATOR (DISCONNECTOR)**

Doc. No. KPLC1/3CB/TSP/11/012

Issue No. 2

Revision No. 0

Date of Issue 2010-08-12

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	Lightning impulse withstand voltage, 1.2/50µs, dry, +ve	With contacts closed		
		Across open contacts		
	One minute power frequency withstand voltage, 50Hz, 60s	With contacts closed		
		Across open contacts		
	Creepage distance of insulator			
	Minimum clearance between phases (phase centres)			
	Minimum clearance to earth			
	Mechanical endurance (number of close-open cycles without using spare parts)			
9.	Padlocking facility in both open and closed position			
10.	Degree of protection			
11.	Any special assembly tools			
12.	Corona prevention			
13.	Manufacturer's Guarantee and Warranty			
14.	List catalogues, brochures, technical data, drawings submitted to support the offer.			
15.	List customer sales records submitted to support the offer.			
16.	List Type Test Certificates and Type Test Reports submitted with tender (indicate test report numbers, date, Testing Institution and contact addresses)			
	<ul style="list-style-type: none"> • Dielectric tests (Lightning Impulse and Power Frequency Withstand Tests), • Short time withstand and peak withstand current tests, • Temperature rise test, • Measurement of the resistance of circuits, • Tightness tests, • Electromagnetic compatibility tests, • Operation and mechanical endurance tests, • Operation at the temperature limits. 			
17.	List Acceptance Tests to be witnessed by KPLC Engineers at the factory			
18.	List test reports (for disconnecter and components) to be submitted to KPLC for approval before shipment			
19.	Copy of ISO 9001:2008 Certificate submitted (indicate relevance and validity)			
20.	Quality Assurance Plan			
21.	Manufacturer's Declaration of Conformity to Standards (including IEC 62271-102)			
22.	Statement of compliance to tender specifications			
23.	Guaranteed reliability and maintenance indicators:			

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ISOLATOR (DISCONNECTOR)**

Doc. No. KPLC1/3CB/TSP/11/012

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Issue 2010-08-12

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	a) reliability (MTBF) b) availability (A) c) maintainability (MTTR) d) service life e) warranty period of actuating under normal service conditions without maintenance		
24.	Deviations from tender specifications and supporting data, test reports, technical documents etc.		
25.	Inspection of the disconnector and components at KPLC stores/site.		
26.	List and details of auxiliaries, fittings, components and accessories included in scope of supply.		
27.	Details and supporting documents submitted on manufacturer's experience and manufacturing capacity		

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

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Authorized by: Head of Department, R&D

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Date: 2010-08-12

Date: 2010-08-12



The Kenya Power & Lighting
Co. Ltd.

TITLE:

**SPECIFICATION FOR
66kV DISCONNECTOR
(ISOLATOR) Part 1:
Substation Type**

Doc. No.	KPLC1/3CB/TSP/11/103-1
Issue No.	1
Revision No.	1
Date of Issue	2010-04-07
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Annex A

SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS FOR DISCONNECTOR OFFERED (pls indicate units of measure)

No.	REQUIREMENTS	GUARANTEED PARTICULARS	COMMENTS
1.	Name of the manufacturer and country of manufacture		
2.	Applicable standards		
3.	Service (indoor/outdoor), altitude, temperature range, humidity, environment (pollution severity level), wind speed etc		
4.	Type	Model/Type Reference Number	
		Breaking medium	
5.	Steelwork & components to be supplied		
6.	Operating mechanism		
7.	Contacts	Materials	
		Thickness of silver coating	
		Contact resistance	
		Current Density	
		Moving blade	
		Terminal pad	
		Contacts	
		Terminal connector	
		Spare contacts (five male & five female)	
8.	Auxilliaries	Auxilliary supplies	
		DC	
		AC	
		No. of spare auxiliary contacts	
		Disconnecter	
		Earthing switch	
		Auxilliary contacts current rating	
9.	Earthing switch		
10.	Motor Rating and MCB		
11.	Level of galvanizing		
12.	Rating		
	Nominal System Voltage and frequency		
	Highest System Voltage of equipment		
	Rated continuous current		
	Rated short circuit withstand current & time		
	Rated short circuit making current		
	Breaking capacity of capacitive current		

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Date:

2010-04-07

Date:

2010-04-07



The Kenya Power & Lighting Co. Ltd.

TITLE:

**SPECIFICATION FOR
66KV DISCONNECTOR
(ISOLATOR) Part 1:
Substation Type**

Doc. No.

KPLC1/3CB/TSP/11/103-1

Issue No.

1

Revision No.

1

Date of Issue

2010-04-07

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	Rated inductive current switching capacity		
	Max temperature rise under rated voltage and current		
	Breaking capacity at rated voltage		
	Lightning impulse withstand-voltage, 1.2/50 μ s, dry, +ve	With contacts closed	
		Across open contacts	
	One minute power frequency withstand voltage, 50Hz, 60s	With contacts closed	
		Across open contacts	
	Creepage distance of insulator		
	Minimum clearance between phases (phase centres)		
	Minimum clearance to earth		
	Mechanical endurance (number of close-open cycles without using spare parts)		
13.	Padlocking facility in both open and closed position		
14.	Degree of protection of control box		
15.	Operation	Local (manual)	
		Local (motorized)	
		Remote (motorized)	
		Interlocking with breaker (electrical/mechanical)	
		Interlocking with earth switch (mechanical)	
	Position indication on control box		
16.	Any special assembly tools		
17.	Corona prevention		
18.	Manufacturer's Guarantee and Warranty		
19.	List catalogues, brochures, technical data, drawings submitted to support the offer.		
20.	List customer sales records submitted to support the offer.		
21.	List Type Test Certificates and Type Test Reports submitted with tender (indicate test report numbers, date, Testing Institution and contact addresses)		
		• Dielectric tests (Lightning Impulse and Power Frequency Withstand Tests),	
		• Short time withstand and peak withstand current tests,	
		• Temperature rise test,	
		• Measurement of the resistance of circuits,	
		• Verification of the protection,	
		• Tightness tests,	

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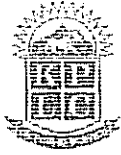
[Signature]

Date:

2010-04-07

Date:

2010-04-07



The Kenya Power & Lighting
Co. Ltd.

TITLE:

**SPECIFICATION FOR
66kV DISCONNECTOR
(ISOLATOR) Part 1:
Substation Type**

Doc. No.

KPLC1/3CB/TSP/11/105-1

Issue No.

1

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1

Date of
Issue

2010-04-07

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	<ul style="list-style-type: none">• Electromagnetic compatibility tests,• Test to prove the short circuit making performance of earthing switches,• Operation and mechanical endurance tests,• Operation at the temperature limits.		
22.	List Acceptance Tests to be witnessed by KPLC Engineers at the factory		
23.	List test reports (for disconnectors and components) to be submitted to KPLC for approval before shipment		
24.	Copy of ISO 9001:2008 Certificate submitted (indicate relevance and validity)		
25.	Quality Assurance Plan		
26.	Manufacturer's Declaration of Conformity to Standards (including IEC 62271-102)		
27.	Statement of compliance to tender specifications		
28.	Guaranteed reliability and maintenance indicators: a) reliability (MTBF) b) availability (A) c) maintainability (MTTR) d) service life e) warranty period of actuating under normal service conditions without maintenance		
29.	Deviations from tender specifications and supporting data, test reports, technical documents etc.		
30.	Inspection of the disconnectors and components at KPLC stores/site.		
31.	List and details of auxiliaries, fittings, components and accessories included in scope of supply.		

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

Issued by: Head of Section, Tech Stds & Specs

Authorized by: Head of Department, R & D

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Signed:

[Signature]

Date:

2010-04-07

Date:

2010-04-07



The Kenya Power & Lighting
Co. Ltd.

TITLE:

SPECIFICATION FOR 66kV
COMPOSITE INSULATORS
(Suspension/Tension Type)

Doc. No. KPLC1/3CB/TSP/04/027

Issue No. 1

Revision
No. 0

Date of
Issue 2009-03-04

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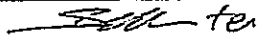
ANNEX A: Guaranteed Technical Particulars and Statement of Compliance (to be filled and signed by the Manufacturer for all clauses and submitted together with catalogues, brochures, drawings, technical data and test reports for tender evaluation)

Description	Bidder's offer
1. Service Conditions	
2. Applicable Standards	
3. Maximum System Voltage (kV) and frequency (Hz)	
4. One-minute power frequency withstand voltage, 50Hz, wet (kV)	
5. Lighting impulse withstand voltage, 1.2/50 μ s pos. (kV)	
6. Minimum creepage distance (mm)	
7. Specified mechanical load, tension (kN)	
8. Length of insulator set with fittings (mm)	
9. Minimum Arcing Distance (mm)	
10. Material of fittings and level of corrosion protection	
11. Material of rod	
12. Material of housing and sheds	
13. Socket, size & standard	
14. Ball, size & standard	
15. List of copies of Design and Type Test Reports submitted (indicate Test Report Numbers, Testing Authority and contact addresses)	
16. List of Acceptance Tests to be witnessed by KPLC Engineers at the factory	
17. List of catalogues, brochures, technical data, drawings and customer sales records submitted to support the offer.	
18. Inspection for Acceptance to Stores & Guarantee	
19. Statement of compliance to specifications	

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

Issued by: Head of Section, Tech Stds & Specs

Authorized by: Research & Development Manager

Signed: 

Signed: 

Date: 2009-03-27

Date: 2009-03-27



The Kenya Power & Lighting
Co. Ltd.

TITLE:
**SPECIFICATION FOR 11 & 33kV
COMPOSITE INSULATORS
Part 2: Pin Type**

Doc. No.	KPLC1/3CB/TSP/04/017/2
Issue No.	2
Revision No.	0
Date of Issue	2010-04-06
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ANNEX A: Guaranteed Technical Particulars (to be filled and signed by the Manufacturer and submitted together with copies of relevant Manufacturer's catalogues, brochures, drawings, technical data, sales records and copies of type test certificates and type test reports for tender evaluation)

TENDER NO

Description	Bidder's offer
1. Manufacturer's name & address	
2. Type Reference Number of insulator offered	
3. Service Conditions	
4. Applicable Standards	
5. Maximum System Voltage (kV)	
6. One-minute power frequency withstand voltage, 50Hz, 60s, wet (kV rms)	
7. Lightning impulse withstand voltage, 1.2/50µs positive, dry, (kVp)	
8. Minimum creepage distance (mm)	
9. Specified mechanical load (kN)	
10. Length of insulator with fittings (mm)	
11. Material of fittings and level of corrosion protection	
12. Material of rod	
13. Material of housing and sheds	
14. Conductor groove, size	
15. Suitability for both vertical & horizontal application	
16. List of copies of Design and Type Test Reports submitted (indicate Test Report Numbers, Testing Authority and contact addresses)	
17. List Acceptance Tests to be witnessed by KPLC Engineers at the factory	
18. List of catalogues, brochures, technical data, drawings and customer sales records submitted to support the offer.	
19. Marking (indicate parameters and method of marking to be used during manufacture)	
20. Copy of ISO 9001:2008 Certificate submitted (indicate validity)	
21. Quality Assurance Plan	
22. Deviations from tender specifications and supporting data, test reports, technical documents etc.	

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

Issued by: Head of Section, Tech Stds & Specs

Authorized by: Research & Development Manager

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Signed:

Date: 2010-04-06

Date: 2010-04-06



The Kenya Power & Lighting
Co. Ltd.

TITLE:

**SPECIFICATION FOR
11kV METAL CLAD
PROTECTION &
METERING
SWITCHGEAR PANEL
(Air Insulated with Vacuum
Circuit Breaker)**

Doc. No.

KPLC/3CB/TSP/11/001

Issue No.

3

Revision No.

1

Date of
Issue

2010-06-30

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(xv) Power Measurement Unit:

- This is a power monitoring meter for panel mounting
- The unit shall be of numerical design
- The unit shall have a large LCD display for displaying the measurements
- The unit shall measure instantaneous values of ; rms voltage, both phase – phase and phase to ground, currents, active reactive and apparent power, energy, frequency, power factor and phase angle per phase
- The unit shall the following input ratings, 1A and 110V AC phase to phase.
- The unit shall be for flush mounting on the front of the panel
- The unit shall be for 3 phase, 4 –wire connection on the secondary of current and voltage transformers
- The unit shall be equipped with an RS232 port for programming the unit to ensure correct measurement and display of the parameters. The CT and VT ratios shall be programmable.
- The accuracy of measurement shall be at least class 1.0
- It shall be possible to display all the measured parameters on the screen through the pre-programmed display screen. The screen to be displayed shall be selectable using the keys on the front of the unit
- The software and the PC to measurement unit connection cable shall be supplied with the unit.
- The LCD screen shall be large enough to accommodate at least three measurands simultaneously
- All the terminals shall be clearly marked
- The measurement range for power shall at least be up to 45 MVA.
- The measurement unit terminals shall be screw type, large enough to accommodate 4mm² cable and indelibly marked.

3.0 TECHNICAL SCHEDULE : BIDDER TO COMPLETE

The bidder shall after reading through the Technical Specifications and the Tender Documents in general complete the technical schedules below, which also constitute the guaranteed technical particulars. The completed schedules shall accompany the bid. Attach manufacturer's profile, catalogues and manuals to verify details entered in the schedule

A SWITCHGEAR BOARD			
DESCRIPTION	KPLC'S REQUIREMENT	SUPPLIER'S DETAILS/ RESPONSE (Enter value or Yes or No as	COMMENT

Issued by: Head of section Power System Research

Authorized by: Head of Department R & D

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Date: 2010-06-30

Date: 2010-06-30



The Kenya Power & Lighting
Co. Ltd.

TITLE:

**SPECIFICATION FOR
11kV METAL CLAD
PROTECTION &
METERING
SWITCHGEAR PANEL
(Air Insulated with Vacuum
Circuit Breaker)**

Doc. No.

KPLC/1/3CB/TSP/11/001

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			appropriate]	
1.	Manufacturer's name			
2.	Manufacturer's letter of Authorisation.	Provide copy		
3.	Copy of ISO 9001/2 certificate.	Provide copy		
4.	Type or designation number of Switchgear offered and applicable standard.			
5.	Manufacturer's experience in manufacturing same type of Switchgear panels.	At least 7 years		
6.	Manufacturer's experience in manufacturing similar type of Switchgear panels	15 years		
7.	No. of units sold in the last 5 years.	≥ 400		
8.	No. of units sold in the export market [attach list] in the last 5 years [attach export list]	≥ 200		
9.	enclosure [IP] class of protection [attach type test certificate] for the offered panel type	IP43		
10.	Arc proof design [attach type test certificate] for the offered panel type	Yes		
11.	Rated voltage	17.5kV		
12.	Rated power frequency withstand [attach routine test report] for the offered panel type	38kV		
13.	Rated lighting impulse withstand [attach type test report] for the offered panel type	95 kVp		
14.	Metal clad compartments: [CB, Busbar, LV, CT/VT & Cables & Energy meter] attach layout drawing for the offered panel type	5		
15.	Busbar material	copper		

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Signed:

Date: 2010-06-30

Date: 2010-06-30



The Kenya Power & Lighting
Co. Ltd.

TITLE:

SPECIFICATION FOR
11kV METAL CLAD
PROTECTION &
METERING
SWITCHGEAR PANEL
(Air Insulated with Vacuum
Circuit Breaker)

Doc. No.

KPLC1/3CB/TSP/11/001

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16.	Dimensions [WxHxD [attach layout drawing, including Energy meter compartment]	provide		
17.	Short circuit withstand.	31.5kA, 3 sec		
18.	Arc Proof design for entire switchgear board	Yes		
19.	ARC venting	Yes		
20.	Lockable door with viewing glass in CB compartments.	Yes		
21.	Lockable door for LV compartment			
22.	Earth switch rating on making and withstand	31.5kA, 3 sec		
23.	Earth switch position visible from the front	Provide		
24.	Shutters for Busbars [red] and circuit [yellow] provided.	Provide		
25.	Provision to safely open the shutters for phasing out provided	Provide		
26.	Anti condensation heater	Provide		
27.	Hygrostat with variable Humidity and temperature control setting	Provide		
28.	Busbar and Circuit continuous current rating	630A		
29.	Integral or separate earth switch	Provide		
30.	Horizontal or vertical Isolation and withdrawal of circuit breaker	State		
31.	Live cable indicators for incoming & outgoing cables	Provide		
32.	Interlock between Incoming live cable and Earth switch	Provide		
33.	Separate locking of Busbar and circuit shutters	Provide		
34.	Earth switch operating handle cannot be inserted into operate position when CB is in circuit position	Yes		
35.	Switchgear panel width	≤900 mm		

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The Kenya Power & Lighting
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TITLE:

**SPECIFICATION FOR
11KV METAL CLAD
PROTECTION &
METERING
SWITCHGEAR PANEL
(Air Insulated with Vacuum
Circuit Breaker)**

Doc. No. KPLC1/3CB/TSP/11/001

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36.	Switchgear panel depth	≤2500 mm		
37.	Length(Height) of LV Compartment	≥550 mm		
38.	Total Height of the panel, including Energy meter compartment	≤2800 mm		
39.	Detailed catalogue and manual for the switchgear panels with detailed design drawings	Provide		
40.	Dimensioned Layout drawing for the complete switchgear panel	Provide		
41.	Single Line drawing for Protection, Control and Metering	Provide		
42.	Routing test report for similar panel as per IEC 298?	Provide		

B 11KV CIRCUIT BREAKER (CB)

	DESCRIPTION	KPLC'S REQUIREMENT	SUPPLIER'S DETAILS/ RESPONSE [Enter value or Yes or No as appropriate]	
1.	Manufacturer's name	Indicate		
2.	Manufacturer's letter of Authorisation	Provide		
3.	Copy of ISO 9001/2 certificate	Provide		
4.	Type or designation number of circuit breaker offered			
5.	Applicable standard for manufacture and testing	state		
6.	Manufacturer's experience in manufacturing same type of circuit breaker	≥7		
7.	Manufacturer's experience in manufacturing similar type of circuit breaker [MV indoor circuit breaker]	≥15		
8.	Units sold in the last 5 years	≥1000		
9.	Units sold to export market in the last 5 years	≥500		

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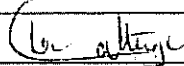
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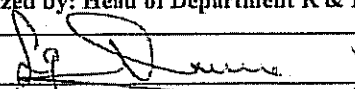
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10.	Type of interrupter employed	Vacuum		
11.	Name of manufacturer of vacuum interrupter	Provide		
12.	Manufactures experience in manufacturing vacuum interrupters	≥15 years		
13.	Rated circuit breaker voltage	17.5kV		
14.	1 minute power frequency withstand [attach test report]	38kV		
15.	Impulse withstand voltage [attach type test report]	95kV		
16.	Rated short circuit current and withstand [attach type test report]	31.5kA, 3 sec		
17.	Rated short time making current peak [attach type test report]	79kA		
18.	Circuit breaker operating sequence [attach type test report]	0-0.3 sec-co-3 min-co		
19.	Motor wound spring operated mechanism	Yes		
20.	Auxiliary DC voltage for closing and tripping coils. Indicate coil operating tolerance	30 V DC		
	Trip-free mechanism	Yes		
	Anti-pumping feature	Provide		
21.	Auxiliary AC supply	240 VAC		
22.	CB operating mechanism	Motor wound spring		
23.	Visible spring charged/discharged mechanical indication on CB as per specifications.	Provide		
24.	Visible CB ON/OFF indications as per specifications	Provide		
25.	Connection of CB to auxiliary panel circuits via a plug-in cable	Yes		

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26	Operations counter	Provide		
	CB close and open mechanical push buttons on CB	Provide		
27	CB isolation	Vertical/Horiz ontal		
28.	CB withdrawal	Horizontal		
29	CB lowering trolley provided [for horizontal withdrawal] suitable for use by one switching operator	Provide		
30	CB withdrawal not possible when CB is closed.	Yes		
31.	CB cannot be drawn-in until the earth switch is open and auxiliary circuits connected [powered]	Yes		
32	Earth switch cannot be closed when CB is in circuit position or in transit	Yes		
33	CB cannot close when in transit	Yes		
34	Circuit breaker is equipped with anti pumping device	Yes		
35	CB routine test report as per IEC 62271-100	Provide		
	Circuit Breaker rated load current	630A		
36.	Circuit breaker poles between the interrupters and the primary plug in contacts-insulated. State method on insulation	Yes		

C CURRENT TRANSFORMERS (CT)

	DESCRIPTION	KPLC'S REQUIREMENT	SUPPLIER'S DETAILS/ RESPONSE [Enter value or Yes or No as appropriate]
1.	Manufacturer's name	Indicate	
2.	Manufacturer's letter of Authorisation	Provide	

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3.	Copy of ISO 9001/2 certificate	Provide		
4.	Type or designation number of CT			
	Applicable standard	state		
5.	Manufacturer's experience in manufacturing same type of CTs	≥7 years		
6.	Manufacturer's experience in manufacturing similar type of CTs [MV, Indoor type]	≥15 years		
7.	No of units sold in the last 5 years	≥600		
8.	No of units sold in the export market in the last 5 years	≥300		
9.	Rated voltage of offered CT	17.5kV		
10.	1 minute power frequency withstand voltage [attach test report]	38kV		
11.	Impulse voltage withstand [attach copy of type test report]	95kVp		
12.	Short-circuit withstand current and duration [attach copy of type test report]	31.5kA, 3 sec		
13.	CT details Ratio - 300/200/100/1A Core 1 - 15VA, 5P15 Core 2 - 15VA, cl 0.2 Core 3 - 15VA, cl 0.5	Yes Yes Yes Yes		
14.	Routine test certificates of similar CTs as those listed in clause 13 above. <i>NB: the classes must be the same as per IEC 60044-1.</i>	Provide		
	Provide manufacturer's CT catalogue			

D VOLTAGE TRANSFORMERS(VT)			
DESCRIPTION	KPLC'S REQUIREM	SUPPLIER'S DETAILS/	

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		ENT	RESPONSE [Enter value or Yes or No as appropriate]
1.	Manufacturers name		
2.	Manufactures letter of authorisation	Provide	
3.	Copy of ISOS 9001/2 certificate	Provide	
4.	Type or designation number of VT.		
	Applicable standard	state	
5.	Manufacturers experience in manufacturing same type of VTs	≥7 years	
6.	Manufacturers experience in manufacturing MV, indoor VTs	≥15 years	
7.	No. of units sold in the last 5 years	≥500	
8.	No. of units sold in the export market in the last 5 years	≥200	
9.	Rated voltage of offered VT	17.5KV	
10.	1 minute power frequency withstand voltage [attach routine test report]	38KV	
11.	Impulse voltage withstand [attach copy of type test report]	95KV	
12.	VT details		
	Ratio: 11KV/√3; 110/√3; 110/√3 VAC	Provide	
	Core 1: 100VA, cl 0.2	Provide	
	Core 2: 50VA, cl 0.5	Provide	
13.	Primary fuses	Provide	
14.	Secondary MCBs	Provide	
15.	Copies of routine test reports for VT of similar voltage rating as per IEC 60044-2	Provide	
16.	Manufacturer's VT catalogue	provide	

E PROTECTION RELAYS AND AUXILIARY RELAYS

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	DESCRIPTION	KPLC'S REQUIREMENT	SUPPLIER'S DETAILS/ RESPONSE [Enter value or Yes or No as appropriate]
1.	Manufacturer's Name	State	
2.	Manufacturer's letter of Authorisation	Provide	
	Applicable standard	state	
3.	Copy of ISO 9001/2 certificate of manufacturers	Provide	
4.	Manufacturer's experience in manufacturing protection and auxiliary relays	≥ 30 yrs	
5.	Total no. of measuring relays sold in the last 5 years	≥ 5000	
6.	Experience in manufacture of numerical protection relays	≥10 years	
7.	Number of numerical protection relays sold in the last 5 years	≥5000	
8.	Number of Numerical relays sold to the Export Market in the last 5 years . NB: Attach manufacturer's export sales list	≥2000	
a	PROTECTION AND CONTROL RELAY		
1	Relay shall be of Numeric Design	State	
2	Relay designed for Bay Protection & Control	State	
3	Size of Relay LCD screen	State	
4	For flush mounting on panel surface	State	
5	Relay is equipped with Circuit Breaker close and open key/push buttons	State	
	Relay has the following protection functions		
6	• Three phase overcurrent	Provide	

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7	• Earth fault function	provide		
8	• Sensitive earth fault function	Provide		
9	• Over & Underfrequency function			
10	• Over and under-voltage function			
11	• Thermal Overload function			
12	• Broken Conductor function	provide		
13	• Circuit breaker maintenance function	provide		
14	Measurement and display of instantaneous values of I, V, P, Q and p.f. on the LCD	state		
15	Trip Indication Via Red LED			
16	Healthy Indication via Green LED			
17	Relay has eight LEDs for Annunciation			
18	Start and Trip output contacts are freely configurable			
19	Relay terminals are screw type and adequate to accommodate 4mm ² cable.			
20	Fault Records storage capacity	state		
21	Events storage capacity	state		
22	Disturbance Record storage capacity	state		
23	MMI with keypad and LCD	Provide		
24	Serial RSS232 port	Provide		
25	Communication Port for connection to Local network			

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2 6	Software to be provided: Seven Copies of software in CD ROM required	state name of software		
2 7	Relay is equipped with IEC 61850 communication	state		
2 8	Seven (7) connection cables from relay to laptop	Provide		
2 9	Seven(7)Detailed publication/operation and instruction manual attached to verify all the specifications	Provide		
3 0	Rated DC supply and tolerance	State		

	DESCRIPTION	KPLC'S REQUIREM ENT	SUPPLIER'S DETAILS/ RESPONSE [Enter value or Yes or No as appropriate]	
b	THREE PHASE OVERCURRENT AND EARTH FAULT RELAY			
1	One time delayed element and two high set elements	state		
2	Setting range and step for IDMT element for both current and Time Multiplier Setting	state		
3	Selectable Current/Time curves for IDMT element	state		
4	Setting range and step for high set elements for both current and time delay	state		
5	Broken conductor protection	Provide		
4	Setting range and step for high set elements for both current and time delay	State		

c SENSITIVE EARTH FAULT FUNCTION

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	DESCRIPTION	KPLC'S REQUIREM ENT	SUPPLIER'S DETAILS/ RESPONSE [Enter value or Yes or No as appropriate]	
1	Current setting range	State		
2	Time delay	State		

F TRIP RELAY

	DESCRIPTION	KPLC'S REQUIREM ENT	SUPPLIER'S DETAILS/ RESPONSE [Enter value or Yes or No as appropriate]	
1	Manufacturers name	State		
2	Type or designation name	State		
3	Electrical reset	Provide		
4	High burden relay	State		
5	Operating time	State		
6	Contacts configuration	State		
7	Rated DC supply and tolerance	State		

G TRIP CIRCUIT SUPERVISORY RELAY

	DESCRIPTION	KPLC'S REQUIREM ENT	SUPPLIER'S DETAILS/ RESPONSE [Enter value or Yes or No as appropriate]	
1	Manufacturers name	State		
2	Type or designation name	State		
3	Supervision for CB open and closed status	State		
4	Contacts configuration	State		
5	Rated DC supply and tolerance	State		

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H CIRCUIT BREAKER CLOSE/OPEN SWITCH

	DESCRIPTION	KPLC'S REQUIREMENT	SUPPLIER'S DETAILS/ RESPONSE [Enter value or Yes or No as appropriate]
1	Manufacturers name	State	
2	Type or designation name	State	
3	Mechanical interlock	Provide	
4	Close and open position marked on the switch	State	

I ANTI CONDENSATION HEATER

	DESCRIPTION	KPLC'S REQUIREMENT	SUPPLIER'S DETAILS/ RESPONSE [Enter value or Yes or No as appropriate]
1	Manufacturers name	State	
2	Type or designation name	State	
3	Rating V, W	State	

J INDICATING LAMPS AND HOLDERS

1	Manufacturers name	State	
2	Type or designation name	State	
3	Rating	<2.5W	
4	Duty	Continuous	
5	Duration of service	>10 years	

K POWER MEASUREMENT UNIT

1	Manufacturers name	State	
2	Type or designation name of the unit	State	
3	Unit suitable for flush mounting		
4	Complete order number of offered unit	State	
5	Parameters measured	State	

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6	Class of accuracy of measurement	State		
7	Configuration of the unit (3 phase ± 4 wire)	State		

NOTE:

The Bidders should note that the above Technical schedules must be fully completed and submitted with the bid. Failure to Complete the schedules shall lead to rejection of the bid. Each entry in the schedule in compliance with the specifications shall constitute one (1) mark. The maximum possible score shall be 100 and the lowest possible score shall be 0.

4.0 CRITERIA FOR PASSING TECHNICAL EVALUATION:

Any Bidder who fails to score 70% in the technical schedule shall not be considered further in the evaluation. In addition to a score of 70% or higher the winning bidder must fully meet the requirements of the specifications before tender Award.

Deviation: Any deviation from these specifications if any shall be clearly stated. The bidder shall demonstrate that the technical specifications are still fully meet inspite of such minor deviations. Deviations from the Bill of materials or from the ratings of various equipments listed in this specifications is **NOT** acceptable.

Before Contract signing, any minor deviations shall be discussed and resolved.

Manufacturer's Name, Signature, Stamp and Date

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

NB: The bidder should read through the document thoroughly and submit with the bid all the required test certificates, manuals and drawings, etc.

5.0 FACTORY INSPECTION:

Where the winning bidder's manufacturer has not delivered metering 11kV switchgear panels to KPLC before, then KPLC engineers will conduct factory inspection, before contract signing. A manufacturer who fails to meet the set standards will be disqualified and the second lowest bidder awarded the tender.

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