



LEGEND	
21	Distance
24	Over Flux
25	Synchronizing Device
27/59	Under/OverVoltage
49	Thermal
50/51	Instantaneous/Time Overcurrent
50BF/50ST	Breaker Failure with Short Zone Phase
50N/51N	Neutral Instantaneous/Time Overcurrent
50STB	Stub Overcurrent Protection
67/67N	AC/Neutral Directional Overcurrent
79	Auto Reclose
87B	Differential (Busbar)
87H	Differential (High Voltage)
87L	Differential (Line)
87N	Differential (Transformer Neutral)
87T	Differential (Transformer )
REF	Restricted Earth Fault Relay
SBEF	Standby Earth Fault
SOTF	Switch On To Fault
AVR	Automatic Voltage Regulator
BCU	Bay Control Unit
EM	Energy Meter
FR	Fault Recorder
HV	High Voltage
LV	Low Voltage
VSL	Voltage Selection Logic
33TLA	Transformer Oil Level Alarm
49OTA	Oil Temperature Alarm
49OTT	Oil Temperature Trip
49WTA	Winding Temperature Alarm
49WTT	Winding Temperature Trip
63TT	Transformer Pressure Relieve Device Trip
95TA	Transformer Buchholz Relay Alarm
95TT	Transformer Buchholz Relay Trip
33OLA	OLTC Oil Level Alarm
63OT	OLTC Pressure Relieve Device Trip
95OA	Oil Buchholz Relay Alarm
95OT	Oil Buchholz Relay Trip
88FA	Cooling Fan Alarm

NOTE:  
The Final Nomenclature will be Provided by KETRACO

VOLTAGE TRANSFORMER DETAILS					
DESIGNATION	WINDING	RATIO	CLASS	BURDEN ( VA)	
CVT-21,23 (PROTECTION)	WINDING -1	$220kV/\sqrt{3} : 0.11kV/\sqrt{3}$	3P(1.0)	100VA	
	WINDING -2	$220kV/\sqrt{3} : 0.11kV/\sqrt{3}$	3P		
CVT-24,25 (METERING)	WINDING -1	$220kV/\sqrt{3} : 0.11kV/\sqrt{3}$	0.2	100VA	
	WINDING -2	$220kV/\sqrt{3} : 0.11kV/\sqrt{3}$	0.2		
CVT-BB1,BB2 (PROTECTION)	WINDING -1	$220kV/\sqrt{3} : 0.11kV/\sqrt{3}$	3P(1.0)	100VA	
	WINDING -2	$220kV/\sqrt{3} : 0.11kV/\sqrt{3}$	3P		
CVT-12,22 (PROTECTION)	WINDING -1	$220kV/\sqrt{3} : 0.11kV/\sqrt{3}$	3P	100VA	
	WINDING -2	$220kV/\sqrt{3} : 0.11kV/\sqrt{3}$	3P		

	Motorised Disconnect Switch/Earth Switch
	Motorised Disconnect Switch
	Circuit Breaker Spring Charger Operated Mechanizm
	3Ph, Two Winding Capacitive Voltage Transformer
	1Ph, Two Winding Capacitive Voltage Transformer
	Voltage Transformer
	Current Transformer
	Surge Arrester with Discharge Counter

CURRENT TRANSFORMER DETAILS					
DESIGNATION	CORE	RATIO	CLASS	BURDEN ( VA)	REMARKS
T27	CORE-1	2000-1000/A	0.2s	30VA	METERING
	CORE-2	2000-1000/A	0.2s	30VA	METERING

DESIGNATION	CORE	RATIO	CLASS	BURDEN ( VA)	REMARKS
T11, T14 T21, T24 T12, T13 T23, T22	CORE-1	2000-1000/A	5P20	30VA	PROTECTION
	CORE-2	2000-1000/A	5P20	30VA	PROTECTION
	CORE-3	2000-1000/A	0.2s	30VA	CONTROL
	CORE-4	2000-1000/A	5P20	30VA	PROTECTION
	CORE-5	2000-1000/A	5P20	30VA	PROTECTION

DESIGNATION	CORE	RATIO	CLASS	BURDEN ( VA)	REMARKS
T16 T26	CORE-1	2000-1000/A	5P20	30VA	PROTECTION
	CORE-2	2000-1000/A	5P20	30VA	PROTECTION
	CORE-3	2000-1000/A	5P20	30VA	PROTECTION

DESIGNATION	CORE	RATIO	CLASS
NEUTRAL HVCT	CORE-1	2000-1000/A	5P20
	CORE-2	2000-1000/A	5P20
NEUTRAL LV CT	CORE-1	2000-1000/A	5P10
	CORE-2	2000-1000/A	5P10

NO	Panel Name	Device Ref	Protection Function
D01+W	220kV Diameter 1 Control Panel	BCU	25
D01+R1	220kV Line 1 Protection Panel 1	(Future)	(Future)
D01+R2	220kV Line 1 Protection Panel 2	(Future)	(Future)
D01+R3	220kV Transformer 1 Protection Panel 1	87T	87T, 87N, 24, 49, 50G/51G
		HV/REF	REF (HV Neutral)
		LV/REF	REF (LV Neutral)
		50STB-2	50/51, 50N/51N, 67/67N, 50BF,50STB
		87HVC	87HVC, 50/51, 50N/51N, 67/67N, 50BF,50STB
		50BF/50ST	50BF/50ST
D01+R4	220kV Transformer 1 Protection Panel 2	HV/SBEF	SBEF (HV Neutral)
		LV/SBEF	SBEF (LV Neutral)
		50STB-1	50/51, 50N/51N, 67/67N, 50BF,50STB
		50/51HV	50/51, 50N/51N, 67/67N,
		50BF/50ST	50BF, 50ST
		50BF, 50ST	50BF, 50ST
D01+R5	220kV Line 2 Protection Panel 1	(Future)	(Future)
D01+R6	220kV Line 2 Protection Panel 2	(Future)	(Future)
D00+RBB1	220kV Busbar 1 Protection Panel	87B	87B, 50BF, 50ST
D00+RBB2	220kV Busbar 2 Protection Panel	87B	87B, 50BF, 50ST
		87B	87B, 50BF, 50ST

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	KENYA ELECTRICITY TRANSMISSION COMPANY LIMITED ( KETRACO) REPUBLIC OF KENYA
JOINT VENTURE OF NIPPON KOEI.,LTD NEW JEC INC	
MOMBASA SPECIAL ECONOMIC ZONE DEVELOPMENT PROJECT ELECTRICITY SUB-PROJECT	
MSEZ Substation-Protection Single Line Diagram for Diameter 1 & 2 Electrical	
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