

400kV CT (5 CORE) : DETAILS

CORE NO.	APPLICATION	CURRENT RATIO (A)	OUTPUT BURDEN (VA)	ACCURACY CLASS AS PER IEC44-1	MIN. KNEE POINT VOLTAGE (VOLTS)	MAX. CT SECONDARY WINDING RES. ohms	MAX. EXCITING CURRENT (mA) AT KNEE POINT VOLTAGE
5	BUS DIFFERENTIAL CHECK	2000-1000-500/1	—	PS	2000-1000-500	10-5-2.5	30 on 2000/1 tap 60 on 1000/1 tap 120 on 500/1 tap
4	BUS DIFFERENTIAL MAIN	2000-1000-500/1	—	PS	2000-1000-500	10-5-2.5	30 on 2000/1 tap 60 on 1000/1 tap 120 on 500/1 tap
3	METERING	2000-1000-500/1	25	0.2	—	—	ISF ≤ 5, WITH AUX. REACTOR.
2	TRANSF. BACKUP/ LINE BACKUP PROTECTION	2000-1000-500/1	—	PS	4000-2000-1000	10-5-2.5	30 on 2000/1 tap 60 on 1000/1 tap 120 on 500/1 tap
1	TRANSF. DIFF./ LINE PROTECTION	2000-1000-500/1	—	PS	4000-2000-1000	10-5-2.5	30 on 2000/1 tap 60 on 1000/1 tap 120 on 500/1 tap

400kV CT (6 CORE) : DETAILS

CORE NO.	APPLICATION	CURRENT RATIO (A)	OUTPUT BURDEN (VA)	ACCURACY CLASS AS PER IEC44-1	MIN. KNEE POINT VOLTAGE (VOLTS)	MAX. CT SECONDARY WINDING RES. ohms	MAX. EXCITING CURRENT (mA) AT KNEE POINT VOLTAGE
6	DIFFERENTIAL	2000-1000-500/1	—	PS	2000-1000-500	10-5-2.5	30 on 2000/1 tap 60 on 1000/1 tap 120 on 500/1 tap
5	DIFFERENTIAL	2000-1000-500/1	—	PS	2000-1000-500	10-5-2.5	30 on 2000/1 tap 60 on 1000/1 tap 120 on 500/1 tap
3,4	METERING	2000-1000-500/1	25	0.2	—	—	ISF ≤ 5 WITH AUX. REACTOR.
2	TRANSF. BACKUP/ LINE BACKUP PROTECTION	2000-1000-500/1	—	PS	4000-2000-1000	10-5-2.5	30 on 2000/1 tap 60 on 1000/1 tap 120 on 500/1 tap
1	TRANSF. DIFF./ LINE PROTECTION	2000-1000-500/1	—	PS	4000-2000-1000	10-5-2.5	30 on 2000/1 tap 60 on 1000/1 tap 120 on 500/1 tap

220kV CT (5 CORE) : DETAILS

CORE NO.	APPLICATION	CURRENT RATIO (A)	OUTPUT BURDEN (VA)	ACCURACY CLASS AS PER IEC44-1	MIN. KNEE POINT VOLTAGE (VOLTS)	MAX. CT SECONDARY WINDING RES. ohms	MAX. EXCITING CURRENT (mA) AT KNEE POINT VOLTAGE
5	BUS DIFFERENTIAL CHECK	1600-1200-800-400/1	—	PS	1600-1200-800-400	8-6-4-2	30/45 on 1600/1200 tap 60/120 on 800/400 tap
4	BUS DIFFERENTIAL MAIN	1600-1200-800-400/1	—	PS	1600-1200-800-400	8-6-4-2	30/45 on 1600/1200 tap 60/120 on 800/400 tap
3	METERING	1600-1200-800-400/1	15	0.2	—	—	ISF ≤ 5
2	TRANSF. BACKUP/ LINE BACKUP PROTECTION	1600-1200-800-400/1	—	PS	1600-1200-800-400	8-6-4-2	30/45 on 1600/1200 tap 60/120 on 800/400 tap
1	TRANSF. DIFF./ LINE PROTECTION	1600-1200-800-400/1	—	PS	1600-1200-800-400	8-6-4-2	30/45 on 1600/1200 tap 60/120 on 800/400 tap

	400kV	220kV
IMPULSE WITHSTAND VOLTAGE	1425	1050
P.f. WITHSTAND VOLTAGE	630	460
HIGHER SYSTEM VOLTAGE (kV)	420	245
CREEPAGE DISTANCE (mm)	13020	7595

400kV CVT DETAILS: 8800pF (+10%, -5%)

RATIO	$\frac{400\text{kV}}{\sqrt{3}}$ / $\frac{110\text{V}}{\sqrt{3}}$ / $\frac{110\text{V}}{\sqrt{3}}$ / $\frac{110\text{V}}{\sqrt{3}}$
SEC-I	CLASS 3P, 100VA
SEC-II	CLASS 3P, 100VA
SEC-III	0.2, 75VA

220kV CVT DETAILS 8800 pF ,(+10% ,-5%)

RATIO	$\frac{220kV}{\sqrt{3}}$	/	$\frac{110V}{\sqrt{3}}$	/	$\frac{110V}{\sqrt{3}}$	/	$\frac{110V}{\sqrt{3}}$
SEC-I	CLASS 3P, 100VA						
SEC-II	CLASS 3P, 100VA						
SEC-III	0.2, 75VA						

220kV EMVT DETAILS


RATIO	$\frac{220\text{kV}}{\sqrt{3}}$	/	$\frac{110\text{V}}{\sqrt{3}}$	/	$\frac{110\text{V}}{\sqrt{3}}$	/	$\frac{110\text{V}}{\sqrt{3}}$
SEC-I	CLASS 3P, 100VA						
SEC-II	CLASS 3P, 100VA						
SEC-III	0.2, 75VA						



KARNATAKA POWER CORPORATION LIMITED
BELLARY THERMAL POWER STATION
STAGE-II (1x500MW)

CONSULTANTS

FICHTNER CONSULTING ENGINEERS (INDIA) PRIVATE LIMITED

REV.	DATE	ALTD.	CHD.	APPD.	REV.	DATE	ALTD.	CHD.	APPD.		NAME	SIGN.	DATE	बीएचईएल	
02	10.09.08				01	26.11.07				PREPARED	MS		18.10.07		
CHANGES INCORPORATED ON THE BASIS OF APPROVED PLAN LAYOUT.										CHECKED	DM		18.10.07		
										APPROVED	SN		18.10.07		
										DISTRIBUTION OF PRINTS					
														DEPT.	CODE
														TBEM	422

BHARAT HEAVY ELECTRICALS LIMITED TRANSMISSION PROJECTS DIVISION				CARD CODE	
TITLE				NEXT SHEET	-
SINGLE LINE DIAGRAM OF 400/220kV SWITCHYARD EXT				SHEET No.	2
SCALE	NTS	W.O. No.	DRG. No.	TB 3 304 510 001	
					REV. 02

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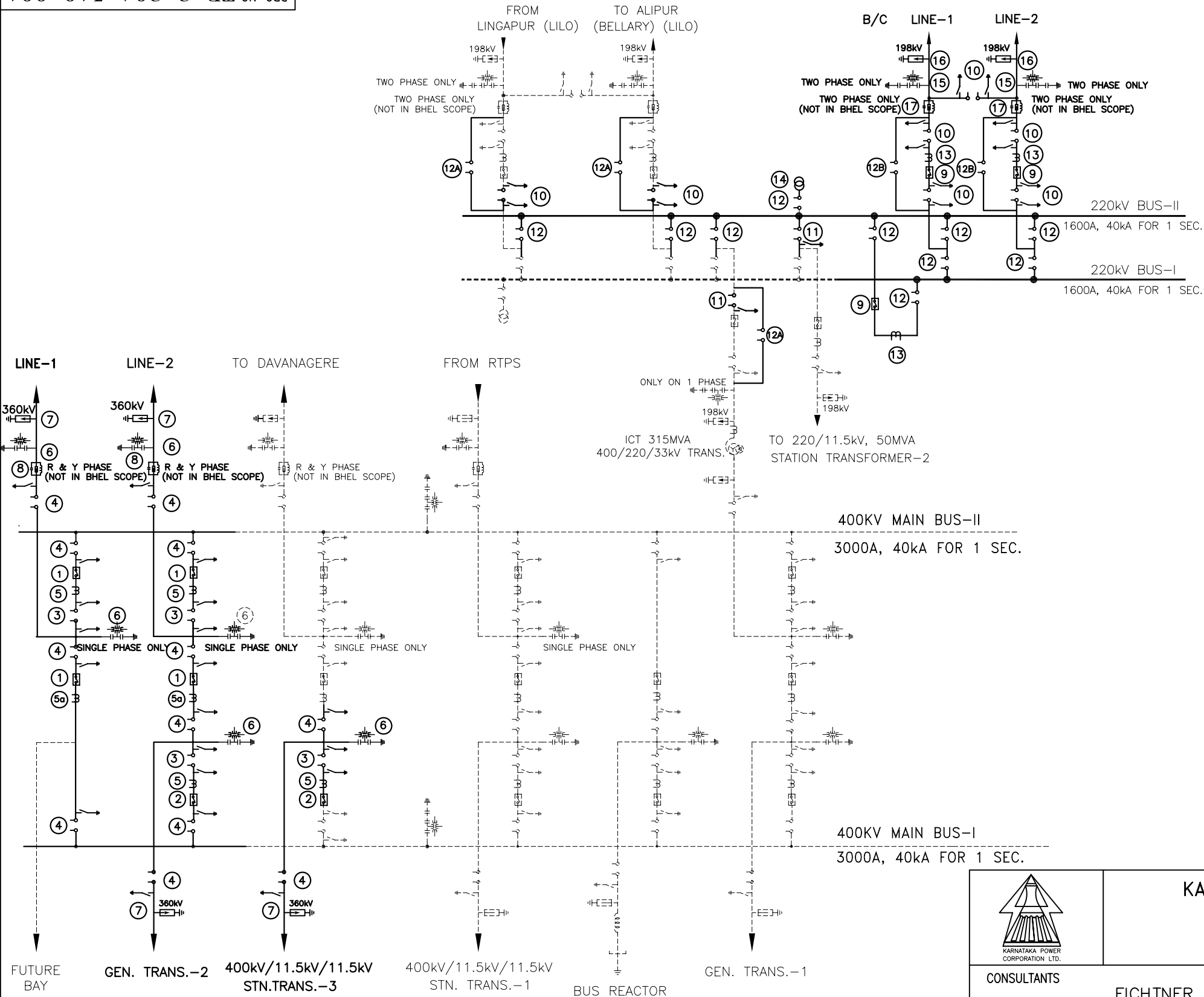
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COMPUTER DRG. PATH NAME :
E/RAWAT/BELLARY/LATEST-DRG/SLD2

SIGN & DATE

INVENTORY NO.











7



SL.	ITEM DESCRIPTION	KV	QTY. Stage-2
1	CIRCUIT BREAKER WITH PIR,3150A,40kA FOR 1Sec, 3-PH.	400	04
2	CIRCUIT BREAKER WITHOUT PIR,3150A, 40kA FOR 1Sec, 3-PH.	400	02
3	ISOLATOR CENTER BREAK MOTOR OPERATED ELECTRICAL GANG WITH TWO E/S MANUAL OPERATED,2000A,40kA FOR 1Sec,3-PH	400	04
4	ISOLATOR CENTER BREAK MOTOR OPERATED, ELECTRICAL GANG WITH ONE E/S MANUAL OPERATED,2000A, 40kA FOR 1Sec,3-PH	400	12
5	CURRENT TRANSFORMER 5Core, 2000A,40kA FOR 1Sec, 1-PH.	400	12
5a	CURRENT TRANSFORMER 6Core, 2000A,40kA FOR 1Sec, 1-PH.	400	06
6	CAPACITOR VOLTAGE TRANSFORMER, 1-PH.	400	14
7	SURGE ARRESTER, Class IV 20 kA, 1-PH.	360	12
8	WAVE TRAP, STRUCTURE MOUNTED, 1-PH (NOT IN BHEL SCOPE)	400	04
9	CIRCUIT BREAKER,1600A, 40kA FOR 1Sec, 3-PH.	220	03
10	ISOLATOR CENTER BREAK MOTOR OPERATED MECH.GANG WITH TWO E/S MANUAL OPERATED,1600A,40kA FOR 1Sec, 3-PH.	220	07
11	ISOLATOR CENTER BREAK MOTOR OPERATED MECH.GANG WITH ONE E/S, 1600A,40kA FOR 1Sec, 3-PH.	220	02
12	ISOLATOR CENTER BREAK MOTOR OPERATED MECH.GANG WITHOUT E/S, 1600A,40kA FOR 1Sec, 3-PH.	220	10
12A	GANTRY MOUNTED UPRIGHT ISOLATOR CENTRE BREAK MOTOR OPERATED MECH. GANG WITHOUT E/S, 1600A,40kA FOR 1Sec,3-PH	220	03
12B	GANTRY MOUNTED UNDERHUNG ISOLATOR CENTER BREAK MOTOR OPERATED MECH.GANG WITHOUT E/S, 1600A,40kA FOR 1Sec, 3-PH	220	02
13	CURRENT TRANSFORMER 5Core,1600A,40kA FOR 1Sec, 1-PH.	220	09
14	EM VOLTAGE TRANSFORMER, 1-PH.	220	03
15	CAPACITOR VOLTAGE TRANSFORMER, 1-PH.	220	04
16	SURGE ARRESTER Class III, 10 kA, 1-PH.	198	06
17	WAVE TRAP, STRUCTURE MOUNTED, 1-PH. (NOT IN BHEL SCOPE OF SUPPLY).	220	04

NOTE:
QUANTITIES INDICATED DOES NOT INCLUDE SPARES.

SYMBOLS

	CIRCUIT BREAKER		EM VOLTAGE TRANSFORMER
	ISOLATOR WITH 1 E/S		SURGE ARRESTER
	ISOLATOR WITH 2 E/S		WAVE TRAP
	CURRENT TRANSFORMER		AUTO TRANSFORMER
	CAPACITOR VOLTAGE TRANSFORMER		REACTOR

LEGEND

----- INDICATE EXISTING/ FUTURE
 _____ INDICATE IN PRESENT SCOPE



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										APPROVED	SN		18.10.07
										DISTRIBUTION OF PRINTS			



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TRANSMISSION PROJECTS DIVISION

CARD CODE

TITLE

SINGLE LINE DIAGRAM OF 400/220kV SWITCHYARD EXT

NEXT SHEET	2
SHEET No.	1

SCALE	NTS	W.O. No.
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DRG. No. TB 3 304 510 001

REV.
02