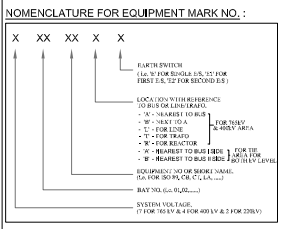


**800kV 800pV CVT CORE DETAILS:**

PARTICULARS	SECONDARY-1	SECONDARY-2	SECONDARY-3
RATED SECONDARY VOLTAGE (V)	110√3	110√3	110√3
APPLICATION	PROTECTION	PROTECTION	METERING
ACCURACY	0.5/0P	0.5/0P	0.2
OUTPUT BURDEN(MVA)	50 VA	50 VA	50 VA
VOLTAGE RATIO	785 / 0.1 √3	785 / 0.1 √3	785 / 0.1 √3

**72.5kV VT CORE DETAILS:**

PARTICULARS	SECONDARY-1	SECONDARY-2
RATED SECONDARY VOLTAGE (V)	110√3	110√3
APPLICATION	PROTECTION	METERING
ACCURACY	3P	0.5
OUTPUT BURDEN(MVA)	10 VA	12 VA
VOLTAGE RATIO	33 / 0.1 √3	33 / 0.1 √3



**NOTE:**

- FOR DETAIL OF TRANSFORMER, REACTOR AREA PLEASE REFER RESPECTIVE SHEET 1, 2 OR 3 AS MENTIONED.
- PHASE ISOLATORS HAVE BEEN USED FOR PWRV REACTORS AND 765KV AUTO TRANSFORMERS TO USE SPARE UNIT THROUGH ISOLATOR SWITCHES.
- MARKED EQUIPMENTS ARE NOT IN MS TECL'S SCOPE.
- MARKED EQUIPMENTS ARE INDIVIDUAL POLE OPERATED.

**LEGENDS:**

—	PRESENT SCOPE
- - -	FUTURE/EXISTING SCOPE
□	NOT IN SCOPE OF TECL

**800 KV CT (3000A) CORE DETAILS (TABLE-IA):**

CORE NO	APPLICATION	CURRENT RATIO	OUTPUT BURDEN(MVA)	ACCURACY CLASS	MIN. POLE VOLT.(KV)	MAX. CT (OHM)	MAX. EXCITING CURRENT AT 10KV (mA)
01	DIFFERENTIAL CHECK	3000/200/1000/1	-	PX	3000/2000/1000/500	10/2.5	20 or 3000/1 TAP 120 or 500/1 TAP
02	DIFFERENTIAL METER	3000/200/1000/1	-	PX	3000/2000/1000/500	10/2.5	20 or 3000/1 TAP 120 or 500/1 TAP
03	METERING	3000/200/1000/1	20	0.2S	-	-	-
04	METERING	3000/200/1000/1	20	0.2S	-	-	-
05	TRANSFER DEF LINE PROTECTION	3000/200/1000/1	20	PX	3000/2000/1000/500	10/2.5	20 or 3000/1 TAP 120 or 500/1 TAP
06	LINE PROTECTION	3000/200/1000/1	20	PX	3000/2000/1000/500	10/2.5	20 or 3000/1 TAP 120 or 500/1 TAP

NOTE: 1. PROTECTION CORES SHALL BE OF ACCURACY CLASS PX AS PER IEC 61869.  
2. METERING CORES SHALL BE OF ACCURACY CLASS 0.2S AS PER IEC 61869.

**SYSTEM PARAMETERS:**

Sl. No	DESCRIPTION	765KV	132KV	66KV	33KV
1.0	RATED VOLTAGE	765 KV	132 KV	66 KV	33 KV
2.0	HIGHEST SYSTEM VOLTAGE	800 kv rms	145 kv rms	72.5 kv rms	36 kv rms
3.0	RATED FREQUENCY	50 Hz	50 Hz	50 Hz	50 Hz
4.0	MAX. FAULT LEVEL (I BUS)	50 KA	40 KA	31.5 KA	25 KA
5.0	RATED 1 PH POWER FREQ. WITH STAND VOLTAGE	800 KV rms	275 KV rms	140 KV rms	70 KV rms
6.0	RATED SWITCHING IMPULSE VOLTAGE (DRY & WET)	1550 KVp	-	-	-
7.0	FULL WAVE IMPULSE WITH STAND VOLTAGE	2100 KVp	650 KVp	325 KVp	170 KVp
8.0	MINIMUM CREEPAGE DISTANCE - EQUIPMENT	2480 mm	4495 mm	2244 mm	1116 mm
9.0	MINIMUM CREEPAGE DISTANCE - INSULATOR	2480 mm	4495 mm	2244 mm	1116 mm
9.0	SYSTEM EARTHING	EFFECTIVELY GROUND	EFFECTIVELY GROUND	EFFECTIVELY GROUND	EFFECTIVELY GROUND

**72.5kV CT (50A) CORE DETAILS (TABLE-IB) WITH 120% EXTENDED CURRENT RATING (FOR LT TRAFOS)**

CORE NO	APPLICATION	CURRENT RATIO	OUTPUT BURDEN(MVA)	ACCURACY CLASS
01	OC & EF	50/1	10	5P10
02	METERING	50/1	10	0.5

**BILL OF QTY. FOR 765KV MAIN EQUIPMENTS:**

SLNO.	DESCRIPTION	UNIT	AS PER LOA	AS PER ACTUAL	SYMBOL	REMARKS
1	AUTO TRANSFORMER (1-PH) 765/132/33KV	NOS	10	10	□	OWNER SUPPLY
2	SW REACTOR (1-PH) 765KV	NOS	07	07	□	-DO-
3	HIGH VOLTAGE BUS REACTOR (1-PH) 765KV	NOS	04	04	□	-DO-
4	765KV 3150A 3/PA CIRCUIT BREAKER (3-PH) WITH CLOSING RESISTOR WITH SUPPORT STRUCTURE	EA	08	08	□	
5	765KV 3150A 3/PA CIRCUIT BREAKER (3-PH) WITHOUT CLOSING RESISTOR WITH SUPPORT STRUCTURE	EA	06	04	□	
6	765KV 3150A 3/PA CIRCUIT BREAKER (3-PH) WITHOUT CLOSING RESISTOR WITH CONTROL UNIT (SUITABLE FOR 1 PH WITH SUPPORT STRUCTURE)	EA	06	02	□	
7	765KV 3150A 3/PA SINGLE PHASE CIRCUIT BREAKER WITH SUPPORT STRUCTURE	EA	01	01	□	
8	COIL INCLUDE SWITCHING DEVICE FOR 765KV 3/PA CIRCUIT BREAKER	EA	10	10	C	
9	765KV 300A 3/PA 1 PHASE CURRENT TRANSFORMER WITH 100% EXTENDED CURRENT RATING	EA	36	36	□	
10	765KV 800P CAPACITIVE VOLTAGE TRANSFORMER (1-PH)	EA	18	18	□	
11	765KV 3150A 3/PA VERTICAL KNEE DOUBLE BREAK ISOLATOR (3-PH) WITH 1 US	EA	18	18	□	
12	765KV 3150A 3/PA VERTICAL KNEE DOUBLE BREAK ISOLATOR (3-PH) WITH 2 US	EA	10	10	□	
13	765KV 3150A 3/PA VERTICAL KNEE DOUBLE BREAK ISOLATOR (1-PH) WITH 1 US	EA	21	21	□	
14	765KV 3150A 3/PA VERTICAL KNEE DOUBLE BREAK ISOLATOR (1-PH) WITHOUT US	EA	33	33	□	
15	624KV SURGE ARRESTER (1-PH)	EA	33	33	□	

**BILL OF QTY. FOR 145KV & 33KV EQUIPMENTS (FOR NCT CONNECTION):**

SLNO.	DESCRIPTION	UNIT	AS PER LOA	AS PER ACTUAL	SYMBOL	REMARKS
1	145KV 1250A 3/PA CIRCUIT BREAKER (1-PH)	EA	02	02	□	
2	132KV SURGE ARRESTER (1 PH)	EA	02	02	□	NOT IN TECHNICAL SCOPE OF SUPPLY
3	145 KV MGR	EA	02	02	□	NOT IN TECHNICAL SCOPE OF SUPPLY
4	33KV CURRENT TRANSFORMER FOR 765KV REACTOR NEUTRAL ALONG WITH SUPPORT STRUCTURE & TERMINAL CONNECTOR	EA	03	03	□	
5	CURRENT TRANSFORMER FOR 765KV REACTOR NEUTRAL ALONG WITH SUPPORT STRUCTURE & TERMINAL CONNECTOR	EA	03	03	□	

**BOQ FOR MAIN ITEMS (AT TERTIARY SITE):**

SLNO.	DESCRIPTION	UNIT	AS PER LOA	AS PER ACTUAL	SYMBOL	REMARKS
1	72.5KV 1250A 3/PA 3PH CIRCUIT BREAKER WITH SUPPORT STRUCTURE	EA	01	01	□	
2	72.5KV 600A 3/PA 3PH DOUBLE BREAK ISOLATOR WITH US	EA	01	01	□	
3	72.5KV 50A 25A 1PH CURRENT TRANSFORMER WITH 120% EXTENDED CURRENT RATING	EA	03	03	□	
4	72.5KV VOLTAGE TRANSFORMER (1-PH)	EA	03	03	□	
5	800VA 330/433KV 3PH LT TRANSFORMER	EA	01	01	□	

**BOQ FOR MAIN ITEMS (AT LT AREA-SEB SUPPLY)**

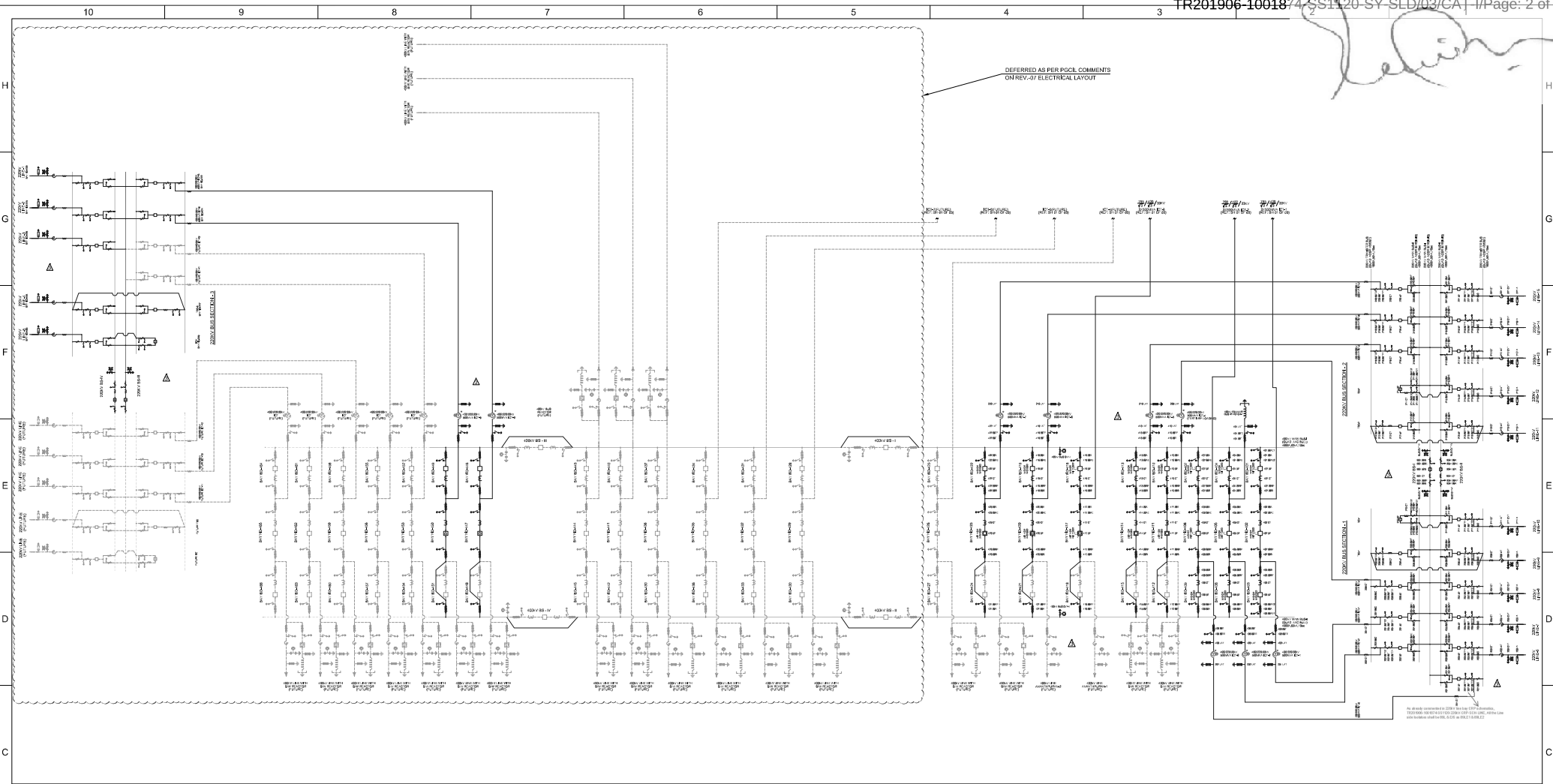
SLNO.	DESCRIPTION	UNIT	AS PER LOA	AS PER ACTUAL	SYMBOL	REMARKS
1	30KV 500A 25A 3-PHASE HOB ISOLATOR WITHOUT US	EA	01	01	□	
2	30KV SURGE ARRESTER (1-PH)	EA	03	03	□	
3	30KV HOB GAP FUSE (1-PH)	EA	03	03	□	
4	800VA 330/433KV 3PH LT TRANSFORMER	EA	01	01	□	

REVISED AS PER MAIL DATED 25.04.24 AND DISCUSSION HELD ON DATED 09.05.24, 10.05.24 & 14.05.24 AND COMMENTED R-07 ELECTRICAL LAYOUT.

REV	DESCRIPTION	PREP.	CHKD.	APFD.	DATE
3	FOURTH SUBMISSION	A.M.	A.M.	B.S.	22.05.24
2	THIRD SUBMISSION	A.M.	A.M.	B.S.	16.01.24
1	SECOND SUBMISSION	A.M.	A.M.	B.S.	20.09.23
0	FIRST SUBMISSION	A.M.	A.M.	B.S.	10.07.23

CUSTOMER	POWER GRID CORPORATION OF INDIA LTD.		
NOA NO.	CCNT/WA-MS/DMA/02/3/00332/NOA-123-10395/01	DATE:	19.06.2023
ERECTION	TR201906-1001874-SS1120-SY-STD/03/CAT-1/02 DATE: 19.06.2023		
PROJECT	SUBSTATION PACKAGE-SS110: 765/400/220KV KURNOOL-III UNDER TRANSMISSION SCHEME FOR EVACUATION OF POWER FROM RE SOURCES IN KURNOOL WIND ENERGY ZONE (3000MVA) / SOLAR ENERGY ZONE (1500 MW) PART A AND PART B.		
SUBSTATION	765/400/220 KV KURNOOL-III (NEW) PS		
DRG. TITLE	SWITCHYARD SINGLE LINE DIAGRAM		
DRG. NO.:	TR201906-1001874-SS1120-SY-STD		
SCALE:	NTS	JOB NO:	0791KU SHEET 1 OF 3

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**BILL OF QTY. FOR 400V MAIN EQUIPMENTS:**

S.NO.	DESCRIPTION	UNIT	QTY	SYMBOL	REMARKS
1	400V 3P4W 400A AIR BREAKER	EA	01		
2	400V 3P4W 400A CIRCUIT BREAKER	EA	01		
3	400V 3P4W 400A CIRCUIT BREAKER	EA	01		
4	400V 3P4W 400A CIRCUIT BREAKER	EA	01		
5	400V 3P4W 400A CIRCUIT BREAKER	EA	01		
6	400V 3P4W 400A CIRCUIT BREAKER	EA	01		
7	400V 3P4W 400A CIRCUIT BREAKER	EA	01		
8	400V 3P4W 400A CIRCUIT BREAKER	EA	01		
9	400V 3P4W 400A CIRCUIT BREAKER	EA	01		
10	400V 3P4W 400A CIRCUIT BREAKER	EA	01		
11	400V 3P4W 400A CIRCUIT BREAKER	EA	01		
12	400V 3P4W 400A CIRCUIT BREAKER	EA	01		

**BILL OF QTY. FOR 220V MAIN EQUIPMENTS:**

S.NO.	DESCRIPTION	UNIT	QTY	SYMBOL	REMARKS
1	220V 3P4W 100A AIR BREAKER	EA	01		
2	220V 3P4W 100A CIRCUIT BREAKER	EA	01		
3	220V 3P4W 100A CIRCUIT BREAKER	EA	01		
4	220V 3P4W 100A CIRCUIT BREAKER	EA	01		
5	220V 3P4W 100A CIRCUIT BREAKER	EA	01		
6	220V 3P4W 100A CIRCUIT BREAKER	EA	01		
7	220V 3P4W 100A CIRCUIT BREAKER	EA	01		
8	220V 3P4W 100A CIRCUIT BREAKER	EA	01		
9	220V 3P4W 100A CIRCUIT BREAKER	EA	01		
10	220V 3P4W 100A CIRCUIT BREAKER	EA	01		
11	220V 3P4W 100A CIRCUIT BREAKER	EA	01		
12	220V 3P4W 100A CIRCUIT BREAKER	EA	01		

**400V CT (3000A) CORE DETAILS (TABLE 1E):**

QTY	APPLICATION	TYPE	WINDING	WIRE GAUGE	WIRE LENGTH (M)	MAX. EXTENDED CURRENT AT 100% (A)
01	400V CT (3000A)	CT	1	1.5	1.5	3000
02	400V CT (3000A)	CT	2	1.5	1.5	3000
03	400V CT (3000A)	CT	3	1.5	1.5	3000
04	400V CT (3000A)	CT	4	1.5	1.5	3000
05	400V CT (3000A)	CT	5	1.5	1.5	3000
06	400V CT (3000A)	CT	6	1.5	1.5	3000
07	400V CT (3000A)	CT	7	1.5	1.5	3000
08	400V CT (3000A)	CT	8	1.5	1.5	3000
09	400V CT (3000A)	CT	9	1.5	1.5	3000
10	400V CT (3000A)	CT	10	1.5	1.5	3000
11	400V CT (3000A)	CT	11	1.5	1.5	3000
12	400V CT (3000A)	CT	12	1.5	1.5	3000
13	400V CT (3000A)	CT	13	1.5	1.5	3000
14	400V CT (3000A)	CT	14	1.5	1.5	3000
15	400V CT (3000A)	CT	15	1.5	1.5	3000
16	400V CT (3000A)	CT	16	1.5	1.5	3000
17	400V CT (3000A)	CT	17	1.5	1.5	3000
18	400V CT (3000A)	CT	18	1.5	1.5	3000
19	400V CT (3000A)	CT	19	1.5	1.5	3000
20	400V CT (3000A)	CT	20	1.5	1.5	3000

**400V 400V CT CORE DETAILS (TABLE 1B):**

QTY	APPLICATION	TYPE	WINDING	WIRE GAUGE	WIRE LENGTH (M)	MAX. EXTENDED CURRENT AT 100% (A)
01	400V 400V CT	CT	1	1.5	1.5	400
02	400V 400V CT	CT	2	1.5	1.5	400
03	400V 400V CT	CT	3	1.5	1.5	400
04	400V 400V CT	CT	4	1.5	1.5	400
05	400V 400V CT	CT	5	1.5	1.5	400
06	400V 400V CT	CT	6	1.5	1.5	400
07	400V 400V CT	CT	7	1.5	1.5	400
08	400V 400V CT	CT	8	1.5	1.5	400
09	400V 400V CT	CT	9	1.5	1.5	400
10	400V 400V CT	CT	10	1.5	1.5	400
11	400V 400V CT	CT	11	1.5	1.5	400
12	400V 400V CT	CT	12	1.5	1.5	400
13	400V 400V CT	CT	13	1.5	1.5	400
14	400V 400V CT	CT	14	1.5	1.5	400
15	400V 400V CT	CT	15	1.5	1.5	400
16	400V 400V CT	CT	16	1.5	1.5	400
17	400V 400V CT	CT	17	1.5	1.5	400
18	400V 400V CT	CT	18	1.5	1.5	400
19	400V 400V CT	CT	19	1.5	1.5	400
20	400V 400V CT	CT	20	1.5	1.5	400

**220V CT (2500A) CORE DETAILS (TABLE 1C):**

QTY	APPLICATION	TYPE	WINDING	WIRE GAUGE	WIRE LENGTH (M)	MAX. EXTENDED CURRENT AT 100% (A)
01	220V CT (2500A)	CT	1	1.5	1.5	2500
02	220V CT (2500A)	CT	2	1.5	1.5	2500
03	220V CT (2500A)	CT	3	1.5	1.5	2500
04	220V CT (2500A)	CT	4	1.5	1.5	2500
05	220V CT (2500A)	CT	5	1.5	1.5	2500
06	220V CT (2500A)	CT	6	1.5	1.5	2500
07	220V CT (2500A)	CT	7	1.5	1.5	2500
08	220V CT (2500A)	CT	8	1.5	1.5	2500
09	220V CT (2500A)	CT	9	1.5	1.5	2500
10	220V CT (2500A)	CT	10	1.5	1.5	2500
11	220V CT (2500A)	CT	11	1.5	1.5	2500
12	220V CT (2500A)	CT	12	1.5	1.5	2500
13	220V CT (2500A)	CT	13	1.5	1.5	2500
14	220V CT (2500A)	CT	14	1.5	1.5	2500
15	220V CT (2500A)	CT	15	1.5	1.5	2500
16	220V CT (2500A)	CT	16	1.5	1.5	2500
17	220V CT (2500A)	CT	17	1.5	1.5	2500
18	220V CT (2500A)	CT	18	1.5	1.5	2500
19	220V CT (2500A)	CT	19	1.5	1.5	2500
20	220V CT (2500A)	CT	20	1.5	1.5	2500

**NOTE:**

- FOR THE TYPE OF TRANSDUCER, REFER TO THE SPECIFICATIONS OF THE MANUFACTURER.
- REFER TO THE ELECTRICAL LAYOUT FOR THE LOCATION OF THE EQUIPMENT.
- REFER TO THE ELECTRICAL LAYOUT FOR THE LOCATION OF THE EQUIPMENT.

**LEGENDS:**

- PROTECT SCORE
- PROTECT SCORE
- PROTECT SCORE

**REVISIONS:**

REV	DESCRIPTION	DATE
1 <td>FOURTH SUBMISSION <td>11.01.2024</td> </td>	FOURTH SUBMISSION <td>11.01.2024</td>	11.01.2024
2 <td>THIRD SUBMISSION <td>11.01.2024</td> </td>	THIRD SUBMISSION <td>11.01.2024</td>	11.01.2024
3 <td>SECOND SUBMISSION <td>20.09.2023</td> </td>	SECOND SUBMISSION <td>20.09.2023</td>	20.09.2023
4 <td>FIRST SUBMISSION <td>10.07.23</td> </td>	FIRST SUBMISSION <td>10.07.23</td>	10.07.23

**SYSTEM PARAMETERS:**

S. NO.	DESCRIPTION	400V	220V
01	RATED VOLTAGE	400V	220V
02	RATED SYSTEM VOLTAGE	400V	220V
03	RATED FREQUENCY	50 Hz	50 Hz
04	RATED PHASES	3	3
05	RATED WINDING	Y	Y
06	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
07	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
08	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
09	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
10	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
11	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
12	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
13	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
14	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
15	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
16	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
17	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
18	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
19	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A
20	RATED SHORT CIRCUIT CURRENT	10000 A	10000 A