

COPYRIGHT AND CONFIDENTIAL

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LTD. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

REF. DRG. No.

SIGN. & DATE

INVENTORY No.

3-BHE-IR-SS-AC SLD

DRG. No.

2

3

4

5

6

7

8

A

B

C

D

E

F

G

A

B

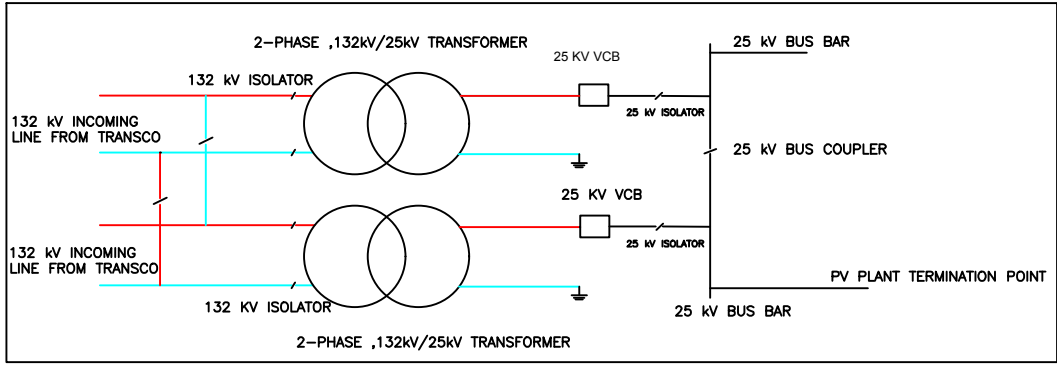
C

D

E

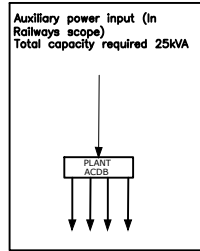
LEGEND DETAILS

SLNO.	SYMBOL	DESCRIPTION
1.		INVERTER(PCU) 850KVA
2.		Air Circuit Breaker 2500 A, SP,EDO
3.		Single winding 1000KVA, Dry Type TFMR.
4.		Off circuit tap changer
5.		Alternating current
6.		Direct Current
7.		Under Voltage Relay
8.		Over Voltage Relay
9.		Inst.Over current relay
10.		Neutral Instantaneous Overcurrent
11.		Idmt over current relay
12.		Idmt earth fault relay
13.		Multi function Meter
14.		Transformer Alarm
15.		Transformer Trip
16.		3 Core Potential Transformer
17.		Current Transformer
18.		Fuse
19.		Vacuum Circuit Breaker as per RDSO spec
20.		Master trip relay
21.		Trip circuit supervision relay
22.		Anti Pumping Relay
23.		DC circuit supervision relay
24.		Alternating Current Distribution Board
25.		BREAKER IN SERVICE
26.		BREAKER IN TEST
27.		SPRING CHARGING
28.		BREAKER ON
29.		BREAKER OFF
30.		BREAKER TRIP
31.		PHASE INDICATION
32.		BREAKER CONTROL SWITCH
33.		LOCAL/REMOTE SELECTOR SWITCH
34.		LIGHTNING ARRESTER



Schematic of 132 kV TSS feeders

NOTE:-1



NOTE:-2

- 110V DC supply for VCB at TSS shall be provided by IR from existing DC source.
- VCB(Vacuum circuit breaker),CRP(Control & Relay panel), CT(Current Transformer),PT(Potential Transformer) & LA(Lightning arrester) shall be connected to existing earth grid at TSS

Refer: MOM with IR-RDSO dated 14.03.19

BILL OF MATERIALS AT TSS

SL NO	ITEMS	VENDORS
1	OVER CURRENT RELAY(OCR)-Part of CRP	SIEMENS, ABB, GE, AREVA, ASHIDA, OR ALIND
2	CURRENT TRANSFORMER (CT)	LAXMI, KAPPA, PRAGATI, NARAYAN POWER, OR LAMCO
3	POTENTIAL TRANSFORMER (PT)	LAXMI, KAPPA, PRAGATI, NARAYAN POWER, OR LAMCO
4	42KV LIGHTENING ARRESTER	LAMCO OR ELPRO
5	1-PH,25KV VACUUM CIRCUIT BREAKER(VCB) & CRP(CONTROL & RELAY PANEL)	BHEL BHOPAL

BILL OF MATERIALS AT PV PLANT

SL NO	ITEMS	VENDORS
1	CONTROL & RELAY PANEL(CRP)	SIEMENS, ABB, GE, AREVA, ASHIDA, OR ALIND /BHEL APPROVED
2	CURRENT TRANSFORMER (CT)	LAXMI, KAPPA, PRAGATI, NARAYAN POWER, OR LAMCO /BHEL APPROVED
3	POTENTIAL TRANSFORMER (PT)	LAXMI, KAPPA, PRAGATI, NARAYAN POWER, OR LAMCO /BHEL APPROVED
4	42KV LIGHTENING ARRESTER	LAMCO OR ELPRO /BHEL APPROVED
5	DRY TYPE SINGLE PHASE 1000KVA INVERTER TRANSFORMER	BHEL JHANSI
6	POWER CONDITIONING UNIT (PCU)-850KW	BHEL EDN
7	PV MODULES	BHEL EPD
8	1-PH,25KV VACUUM CIRCUIT BREAKER(VCB) & CRP(CONTROL & RELAY PANEL)	BHEL BHOPAL

PROJECT

1.7 MWp SOLAR PHOTO VOLTAIC PLANT AT SUKHI SEWANIYA, Bhopal.

CUSTOMER

INDIAN RAILWAYS

CONTRACTOR

BHARAT HEAVY ELECTRICALS LIMITED.
ELECTRONICS DIVISION, BANGALORE

REV.	DATE	ALTERED
03	19.04.19	CHECKED
		APPROVED

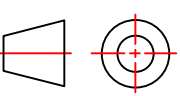
REV.	DATE	ALTERED
01	13.03.19	

	NAME	SIGN	DATE
DRAWN	RK		05.03.19
CHECKED	YJ		05.03.19
APPROVED	MS		05.03.19



DEPT. SC&PV

CODE 439



TITLE:
AC SINGLE LINE DIAGRAM OF 1.7 MWp SPV POWER PLANT

BHEL DRG.NO. -3-BHE-IR-SS-AC SLD

No. OF SHEETS
01

SHEET No.
01

REV
03

132kV feeder at TSS included in SLD

Refer RDSO comments dated 12.03.19
1 No. VCB and C&R panel added at TSS. LA 42 KV added at TSS end