

2021

**BHARAT HEAVY ELECTRICALS LIMITED
SOLAR BUSINESS DIVISION, BENGALURU
TENDER DOCUMENT**

Name: P K Pandit

Designation: Dy. Manager/WCC

BHEL- SBD, Bengaluru



NOTICE INVITING TENDER

1. BHEL/ SBD (A Govt. of India Enterprise) invites Tender for engaging a Contractor for “**Wiring Contract for Low Voltage Switchgear at BHEL-SBD CPBG shop floor**” in Malleswaram, Bengaluru.
2. The enquiry has been floated through e-procurement and offers shall be accepted through e-procurement only. BHEL shall neither entertain offers through hard copy nor provide any due date extension on account of the same. Interested vendors who do not have login ID and password are requested to register themselves on <https://eprocurebhel.co.in> through “Online Bidder Enrolment” link available on the portal.
3. Class III, SHA2 2048 BIT – Signing & Encryption, Digital Signature Certificate (DSC) is required for bidders for authentication purpose (log in and bid submission). Vendors, who do not possess the DSC, are requested to obtain the same. The procedure for obtaining DSCs is detailed in the “Seller Manual” available on the above-mentioned website.

E-procurement Event ID: 2021_BHEL_5857_1

For all clarifications/ issues related to the tender, please contact:

(i) Commercial:

Mr. P K Pandit, Dy. Manager / Works Engineering Contract, BHEL-SBD,
Prof CNR Rao Circle, IISc Post, Malleswaram, Bengaluru- 560 012

E-MAIL: pkpandit@bhel.in

Ph. No. +91-080-2218-2221 Or

Mr. P C Baro, SDGM / Works Contract Cell, BHEL-SBD,
Prof CNR Rao Circle, IISc Post, Malleswaram, Bengaluru- 560 012

E-MAIL: pradipcbaro@bhel.in

Ph. No. +91-080-2218-2142

(ii) Technical:

Mr. Debashish Paul, Dy. Manager/ CPBG
BHEL-SBD, Prof CNR Rao Circle, IISc Post, Malleswaram, Bengaluru- 560 012

E-MAIL: debashish@bhel.in

Ph. No. +91-080-22182126 Or

Mr. P. Samuthirapandi, Additional General Manager / CPBG
BHEL-SBD, Prof CNR Rao Circle, IISc Post, Malleswaram, Bengaluru- 560 012

E-MAIL: pspandi@bhel.in

Ph. No. +91-080-22182481



SOLAR BUSINESS DIVISION,
Bengaluru - 560 012

TENDER
DOCUMENT
(PART – A)
Vol. I

TENDER DOCUMENT

PART – A

VOLUME - I

1.	GENERAL INFORMATION
2.	SCOPE OF WORK
3.	ELIGIBILITY CRITERIA
4.	PRICE VARIATION CLAUSE
5.	PAYMENT TERMS
6.	ANNEXURES



**SOLAR BUSINESS DIVISION,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

1.	General Information	
1.1.	Tender Reference Number:	133661
1.2.	Tender Name:	“Wiring Contract for Low Voltage Switchgear at BHEL SBD CPBG shop floor”
1.3.	Tender System	Single Stage, Two Part Bid Part – A: Techno-Commercial & PQR Part – B: Price Bid
1.4.	Tender Type	Works Contract
1.5.	Estimated Value of Contract	Not Applicable
1.6.	Duration of Contract	02 years from the date of Work Order.
1.7.	Qualifying Requirement	As per NIT Terms & Conditions
1.8.	Earnest Money Deposit to accompany Tender	Rs 7,55,128 /- in the form of a crossed Demand Draft/EFT favoring BHEL-SBD, Bengaluru. If submitted through DD, the DD in original should reach to the office of undersigned within 7 days of Part A bid opening. NO EXEMPTION FOR MSME / NSIC/Startups since it's a Works Contract.
1.9.	Security Deposit	5% of the contract value
1.10.	Cost of Tender documents	NIL
1.11.	Issue of tender documents	As per Enquiry / RFQ / Notification on www.bhel.com & https://eprocurebhel.co.in
1.12.	Pre- BID Meeting	As per Enquiry / RFQ / Notification on www.bhel.com & https://eprocurebhel.co.in
1.13.	Last date for Issue of tender documents	As per Enquiry / RFQ / Notification on www.bhel.com & https://eprocurebhel.co.in
1.14.	Last date for submission of tender doc	As per Enquiry / RFQ / Notification on www.bhel.com & https://eprocurebhel.co.in
1.15.	Date and time of opening of Tender (Part-A)	As per Enquiry / RFQ / Notification on www.bhel.com & https://eprocurebhel.co.in
1.16.	Tender Submission Place	Online at https://eprocurebhel.co.in
1.17.	Tender Opening Place	Online at https://eprocurebhel.co.in
1.18.	Dealing Officer (For any Clarifications)	Pradeep Kumar Pandit, Dy. Manager – Works Contract Cell Contact No.: 080-2218-2221 Email: pkpandit@bhel.in P C BARO. SDGM – Works Contract Cell Contact No.: 080-2218-2142 Email: pradipcbaro@bhel.in
1.19.	Revers Auction	“BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among the techno commercially qualified bidders. Price bids of all techno commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.”
2.	SCOPE OF WORK	
2.1.	Wiring Contract for Low Voltage Switchgear at SBD CPBG shop floor. Details as per Annexure -I	
3.	ELIGIBILITY CRITERIA	
3.1.	The Firm of contractor/independent contractor (Proprietor) should be registered and having at least three years' existence in business consecutively for the past three financial years.	
3.2.	Bidder to submit declaration for obtaining the essential license under Contract Labor (Regulation & Abolition) Act 1970 after award of work. Form-5 will be issued to successful bidder by BHEL for applying the license. Successful bidder has to get the endorsement in the license for the areas and nature of work which they will be performing as part of the contract.	



**SOLAR BUSINESS DIVISION,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

3.3.	Bidder should have independent ESI Employer code under ESI Act 1948. Photocopy of letter from ESI Corp. to establish that bidder is independently registered as an employer under ESI to be produced.
3.4.	Bidder should have independent PF code under Employee Provident Fund and Miscellaneous Provisions Act 1952. Photocopy of letter from PF Commissioner's Office to establish that bidder is independently registered as an employer PF to be produced.
3.5.	Solvency Certificate: A Solvency Certificate from a Nationalized Bank/BHEL Consortium banks (State Bank of India, Canara Bank, Axis Bank, Bank of Baroda, Central Bank, Citi Bank N.A, Exim Bank, Federal Bank Limited, HDFC Bank Limited, Hong Kong and Shanghai Banking Corporation Ltd (HSBC), Indian Bank, ICICI Bank Limited, IDBI Bank Limited, Industrial Bank Limited, Indian Overseas Bank, Kotak Mahindra Bank Limited, Punjab National Bank, RBL Bank Ltd, Standard Chartered Bank, Union Bank of India, Yes Bank Limited) should be produced regarding the tenderer's financial position. The Solvency Certificate should not be older than 12 months from the due date of Techno-commercial bid opening. Value: 22.28 Lakhs
3.6.	Average Annual Financial turnover during the last 3 years ending 31 st March of the previous financial year, should be at least Rs. 66.83 Lakhs incl. of GST Audited Balance sheet and profit& Loss account OR Turn over Certificate from Chartered Accountant to be enclosed for the FY 2017-18, 2018-19 & 2019-20. Note: If Audited Balance sheet and profit& Loss account OR Turn over Certificate from Chartered Accountant available for FY 2020-21 same to be submitted, accordingly TO calculated for last 3 years.
3.7.	<p>Bidders who wish to participate should have executed works of similar nature during last seven years as per any one of the below three options, as on the date of opening of Technical Bid.</p> <p>Option 1: For Mounting & Wiring:</p> <ol style="list-style-type: none"> Three "similar works" completed and costing not less than the amount of Rs 89.11 Lakhs EACH including taxes/ GST. OR Two "similar works" completed and costing not less than the amount of Rs 111.38 Lakhs EACH including taxes/ GST. OR One "similar work" completed and costing not less than the amount of Rs 178.21 Lakhs including taxes/ GST. <p>Option 2: For Complete panel manufacturing (Low voltage switchgear) including wiring:</p> <ol style="list-style-type: none"> Three "similar works" completed and costing not less than the amount of Rs 445.53 Lakhs EACH including taxes/ GST. OR Two "similar works" completed and costing not less than the amount of Rs 556.91 Lakhs EACH including taxes/ GST. OR One "similar work" completed and costing not less than the amount of Rs 891.05 Lakhs including taxes/ GST. <p>Option 3: For Combination of both options 1 and 2:</p> <ol style="list-style-type: none"> One "mounting & wiring of switchgear" completed costing not less than the amount of Rs 111.38 Lakhs including taxes/ GST and One "complete control panel manufacturing including wiring" completed costing not less than the amount of Rs 556.91 Lakhs including taxes/ GST. OR Two "mounting & wiring of switchgear" completed costing not less than the amount of Rs 89.11 Lakhs EACH including taxes/ GST and One "complete control panel manufacturing including wiring" completed costing not less than the amount of Rs 445.53 Lakhs including taxes/ GST. OR One "mounting & wiring of switchgear" completed costing not less than the amount of Rs 89.11 Lakhs including taxes/ GST and Two "complete control panel manufacturing including wiring" completed costing not less than the amount of Rs 445.53 Lakhs EACH including taxes/ GST. <p>Bidder to submit relevant documents as proof of completion or execution of similar work like:</p> <ol style="list-style-type: none"> P. O./ W.O. with bills acknowledgement Or Certified note/email/ completion certificate by third party/ customer etc. to establish that amount of work is completed along with P.O./W.O. copy. <ol style="list-style-type: none"> The term "Similar works" means Wiring of switchgear/Control panels including Mounting & Wiring of switchgear/Control panel components in switchboard/control panels OR Complete control panel manufacturing (Low voltage switchgear) including wiring. The term 'executed' means the bidder should have achieved the criteria specified in the PQR even if the total contract has not been completed or closed.



**SOLAR BUSINESS DIVISION,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

	<p>c. Bidder should not have been banned by “any BHEL unit” or “Government of India” or “Government of Karnataka” or “Government of other states in India”.</p> <p>BHEL reserves the right for independent verification of Documents.</p>
3.8.	The bidder shall also mention the PAN Number issued by Income Tax Department, copy of the PAN card or PAN number allotment letter shall be submitted along with the tender documents.
3.9.	There should be no litigation or charge under investigation / enquiry / trial against the Tenderer, or conviction in a court of law or suspension or blacklisting by any organization on any ground. During the course of work, if any such information comes to light, the contract may be terminated.
3.10.	The opinion / decision of BHEL regarding the bid shall be final and conclusive. BHEL reserves the right to reject any or all the bids at any time without assigning any reason.
3.11.	In case the bidder has a relative employed in BHEL, the authority inviting tender shall be informed of this fact in writing at the time of submission of tender, failing which the tender may be disqualified, or if such fact comes to light subsequently, the contract may be terminated.
3.12.	If the bidder gives wrong information in his tender or creates conditions favorable for the acceptance of his tender, BHEL reserves the right to reject such tender at any stage.
3.13.	Start-ups registered with DIPP are exempt to fulfill the criteria of minimum turnover and minimum years of experience.
4.	PRICE VARIATION CLAUSE: Not Applicable
5.	<u>PAYMENT TERMS</u>
5.1.	After completion of complete wiring of a panel (completion of internal quality check for testing or customer inspection) & Verification of Work by BHEL and with in 45 Days from date of submission of Invoice. Payment shall be made in stages for one or more boards.
5.2.	GST will be reimbursed to the contractor after the contractor pays GST, files return and submits a proof of the same to BHEL. GST TDS will be done @ 2%. Income Tax TDS will be done as applicable.
6	<u>Annexures</u>
6.1	Detailed Scope of Work – Annexure I
6.2	Techno-commercial Bid Application – Annexure II
6.3	Bidder Information – Annexure III
6.4	Qualification Requirement – Annexure IV
6.5	Declaration by Bidder-I – Annexure V
6.6	Declaration by Bidder-II – Annexure VI
6.7	Unpriced BID and HSN / SAC Codes - Annexure VII
6.8	Price Break up format - Annexure VIII
6.9	PPP-MII Format- Annexure IX
6.10	Deviations Sheet- Annexure X
6.11	Border Sharing format
6.12	Schemes/Drawings



6.1 ANNEXURE – I: SCOPE OF WORK

Overview of the contract:

BHEL-SBD is supplier of LT-switchboards used for different power plants and industries. We assemble switchboards (draw-out & fixed) up to 5000A. This job is about assembling of LT- switchboards for thermal power plants at BHEL SBD CPBG shop floor. Work shall include boards of projects like: Yadadri TPS etc. The salient points of the contract are: - (Note this is not complete list of scope):

1. Sealed tender is sought from the bidders who are having experience in wiring of LV switchgear/ ACB in line with pre-qualifying requirement of tender.
2. Supply of enclosures with bus-bar assembly and switchgear (components) except wiring consumables (like wire, cables, TB, din rail, cable turf, fasteners components legend plates, ferrule, cable tie, saddle, cable trough, links etc.) are in BHEL scope under enclosure supply.
3. Supply of wire, cables, links, TB, din rail, cable turf, fasteners components legend plates, ferrule, cable tie, saddle, cable trough etc. are in scope of this contract within the quoted rates.
4. Contractor needs to mount the switchgear components including CT, CST, PT, meters etc. and other free issued item by BHEL on the mounting plates supplied with the bare enclosure with all necessary fasteners, fix cable turf, din rail, resistance, diode shall be supplied by the contractor and wiring termination wherever required to be done by the contractor, except breaker feeder.
5. All jobs need to be performed at BHEL-SBD-CPBG Bengaluru Malleshwaram complex only.
6. Contractor has to depute exclusively at-least one supervisor for this contract. Supervisor should have experience of monitoring similar work and shall report engineer in-charge for all work related issues.
7. Each switchboard consists of various modules which are different ratings (Power components) of different schemes and the bidders are advised to go through various schemes enclosed in the NIT.
8. Schemes mentioned in this contract as part of engineering documents and are tentative and are liable to be changed during detail engineering.
9. It is the responsibility of the contractor to deploy sufficient man power to complete the job to meet the delivery dates as per BHEL requirements.
10. It is the responsibility of the contractor to abide by the statutory norms as mentioned in NIT.
11. Contractors needs to bring their tools and tackles for the completion of the work on returnable basis. Tools shall be properly calibrated from NABL approved lab, if applicable and calibration certificate to be provided at start of work. BHEL shall provide storage facility of tools & contractor materials based on the availability of the space.
12. However major materials like wires, cables shall be checked monthly basis by production and quality to ensure quality of material used as per specification.



Manpower Requirement:

- i. The Contractor shall provide the required/skilled manpower for executing the wiring and integration. Requirement of manpower shall be decided by BHEL based on availability of enclosures/material and customer requirement. The contractor shall not engage a person who is less than 18 years of age and more than 58 years of age. BHEL may demand any time for requisite number of manpower for faster execution of work to suit customer requirement and vendor has to adhere to same without any additional price implication.
- ii. Skill of manpower may be tested at SBD shop floor on monthly/bi-monthly basis based on BHEL requirement.
- iii. Skill testing shall include check of lugging quality, routing of wire bunches, alignment of components, link work clearances etc. related to scope of work.
- iv. Skill test shall be jointly by Dealing Production engineer and CPBG quality, maximum of three warnings shall be given to wireman or mechanical person and after that workman shall be removed from wiring for minimum of 01 months till he passes the test.
- v. The contractor, as the employer of his workmen, shall manage them. In the event of any dispute arising between the Contractor and his employees, the contractor alone is solely responsible for resolving the dispute between them, and BHEL will in no way be responsible for settling the dispute either statutory or otherwise.
- vi. The contractor will be solely responsible for executing the agreed work and the employees of BHEL will only oversee the proper execution of work. The contractor or his representative one supervisor shall be available in the factory to control and supervise his workers and take down instructions from the designated officials of BHEL. Supervisor shall not be diverted to any other work without written consent from BHEL.
- vii. The contractor shall have full control over his employees including w.r.t determining service conditions, discharge, dismiss, or otherwise terminate their services at any time. The contractor shall be solely responsible for any claim arising out of employment or termination of employment of his employees and for statutory payments.
- viii. The contractor shall employ only such personnel who are medically fit. The company has right to direct the contractor to remove from the premises such of his personnel who may be physically, hygienically, clinically or medically unfit.
- ix. The contractor shall employ only such personnel who have not been found unfit for employment in Organizations such as Central/State/Public Undertakings by the Police authorities. Persons against whom criminal cases are pending or under investigation and persons found guilty of offences involving moral turpitude shall not be engaged for executing work.
- x. The Contractor shall comply with all the operational rules and regulations, including safety and security rules framed by the company from time to time wherein the Contractor or his workmen happen to be operating/working. In the event of any of the workmen of the contractor violating any of the said rules and regulations, the Contractor would be required to remove forthwith such workmen from the company's premises.

Working Hours:

1st Shift: 6:00 am to 2:00 pm
General Shift: 8:00 am to 4:30 pm
2nd Shift: 2:00 pm to 10:00 pm
Night Shift: 10:00 pm to 6:00 am.

Manpower is required to be deployed in shifts as per BHEL requirement on all working days of the week.

Note: In case of emergencies, the work is to be attended on Sundays and Holidays also. Alternate shift of similar working hours will be intimated as and when required and will have to be arranged by the contractor within the quoted rates.



SCOPE MATRIX:

SL NO	DESCRIPTION	MATERIAL		LABOUR		REMARKS
		BHEL	CONTR ACTOR	BHEL	CONTR ACTOR	
1.	Handling of breakers	YES	NA	NO	NO	Fixing & bus-bar work shall be done by enclosure manufacturer.
2.	Removal of packing for any switch gear	NA	NA	NO	YES	In-addition to these, wiring contractor needs to comply with cleanliness requirement of BHEL.
3.	Supply & fixing of din rail, cable tray (metallic & plastic) for component fixing	NO	YES	NO	YES	All associated tools and accessories like cable tie, saddle, supporting clamps, fasteners, drilling machine, hacksaw, crimping tool and grinder etc. - both material & labour are in the scope of wiring contractor.
4.	Supply of Terminal blocks (all types) & fasteners (all types)	NO	YES	NO	YES	-----DO-----
5.	Inter-locking wiring with supply of material.	NO	YES	NO	YES	Done by wiring contractor with supply of requisite material.
6.	Mounting of cradle inside switchboard for draw-out breaker.	NA	NO	NA	NO	Fixing & bus-bar work shall be done by enclosure manufacturer.
7.	Fixing of cradle incoming and outgoing power terminals to bus-bar as applicable	NA	NO	NA	NO	Fixing & bus-bar work shall be done by enclosure manufacturer.
8.	Fixing of CT considering CT Packing.	NA	NO	NA	NO	To fix CTs in bus bar, all the associated mechanical works like assembling & dis-assembling of bus bars with all required materials, tools are to be done only by the enclosure manufacturer.
9.	Providing suitable firm CT support (packing)	NA	NO	NA	NO	All necessary arrangements to fix CT firmly are to be done by enclosure manufacture.
10.	Supply of wire/cables	NO	YES	NA	YES	Wiring Contractor has to supply wires/ cables as per tender requirement.
11.	Arrangement of crimping tools, wire cutting tools & other tools required for wiring work	NO	YES	NA	YES	Wiring contractor to submit list before start of work.
12.	Handling of any type of components	YES	NA	NO	YES	Contractor is solely responsible for handling of components, issued from CPBG stores to fixing into panels except breaker feeders.
13.	Termination of wires/cables	NO	YES	NO	YES	Any wire/ cable termination related to the panel as per scope is in wiring contractor scope.
14.	Supply of MCCB/ SFU (fixed and draw-out)	YES	NO	NO	NO	Not in this contract.



**SOLAR BUSINESS DIVISION,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

15.	Mounting of MCCB/ SFU (fixed & draw –out)	NO	YES	NO	YES	Any wire / cable termination related to the panel as per scope is in the scope of contractor.
16.	Wiring work in MCCB/ SFU as applicable	NO	YES	NO	YES	Any wire / cable termination related to the panel as per scope is in the scope of wiring contractor.
17.	Mounting of all switch gear components other than breaker	NO	YES	NO	YES	All type of mechanical work inclusive of supply of necessary materials and work is solely in the scope of contractor.
18.	Supply and fixing of shrouding of Live parts	NO	YES	NO	YES	Wherever components in-built shrouds are provided, vendor shall be issued free of cost or same is to be arranged by them for shrouding inside module. Breaker shrouds are excluded from this contract.
19.	Making & fixing of ferrules, identification stickers, TB markers	NO	YES	NO	YES	Contractor has to supply & fix all related materials. Arranging ferrule printing machine is in contractor scope.
20.	Enumeration, supply legend plates for components	NO	YES	NO	YES	Necessary drilling or modification required, if any, to be done by the contractor.
21.	Assembly/ removal of feeders/ modules from panels	NO	NO	NO	YES	To be part of wiring contract.

Essential Scope of Work /Supply for the Contractor:

1.	Execution of wiring / mounting layout based on IGA provided by BHEL whenever necessary.
2.	Receiving of BHEL free issue material from CPBG –stores.
3.	Removal of packing of any component.
4.	Mounting of all components with all labour and supply of all necessary materials including but not limiting to all types of fasteners, cable-tray, cable-turf, din rail, with all types of operation like cutting, drilling, grinding, welding, soldering, and any other necessary work, except breaker cradle with breakers.
5.	All types wiring with link work with necessary crimping, ferruling, & termination with supply of ferrule, lugs, sleeves (sleeves shall be heat shrinkable type at terminal end). Bringing and arranging all necessary tools like crimping tool, ferrule printing machine etc. are in the scope of the contractor.
6.	All types of inter-panel wiring both labour & material are solely in the scope of the contractor.
7.	All drilling, opening, fixing, terminating, from & to bus-bar in the enclosure are in the scope of the contractor for / mounting of any components in tender scope.
8.	Any kind of termination with related to any module (fixed/ draw –out), both in-terms of material & labour are in the scope of the contractor.
9.	Contractor needs to fix shrouding of proper size in all live parts inside modules.
10.	Contractors needs to arrange for all types of mounting, wiring, fabrication or tools.
11.	Contractors needs to enumerate, supply and fix all types of types of legend plates, name plates, identification stickers, danger, Earthing stickers or any other informative product as and when required by BHEL on the module door mounted components only.
12.	Contractors needs to supply & fix bus-bar link wherever required for feeder except for breakers.
13.	Contractor needs to wire all types of CT.
14.	Contractor needs to supply & fix all types of CT supports and packing inside feeders except breaker feeder.
15.	Contractor need to supply & fix all necessary control terminal block & TB marker including those required for inter – panel wiring with necessary support & mounting as required.
16.	BHEL has bus-bar cutting machine, punching machine & bending machine with compressor & same may be used by contractor without any extra charges. However, any breakage due to mishandling shall be attributable to contractor.



WIRE/ CABLE SIZING & FURTHER SCOPE DURING WIRING CONTRACT EXECUTION:

A. Wiring:

1. CT & PT circuit wiring red, yellow, blue & black coloured copper wire of 2.5 sq. mm will be used for R phase, Y – phase, B- phase, & neutral respectively. In case of 5A secondary CT, 4 sq. mm copper wire shall be used.
2. AC control wiring will be done with black coloured 1.5 sq.mm copper wire.
3. DC control wiring will be done with grey coloured 1.5 sq. mm copper wire.
4. Each wire will be identified, at both ends, with permanent markers bearing wire numbers as per schematic drawing.
5. Wire termination will be made with crimping type connector with insulating sleeves.
6. Wires will not be spliced between terminals.
7. Terminals for CT secondary leads will have provisions for shorting.
8. Power & controls terminals will be segregated by end plate /end stopper.
9. Power terminals will be stud type only.
10. Standardized lead numbers of TSGENCO for wiring are as follows:

J Series	DC Incoming	J1(+ve), J2(-ve) etc.
K Series	Control – Closing, Tripping etc.	K1, K2, K3 etc.
L Series	Alarms, Indications and Annunciations	L1, L2, L3 etc.
E Series	Potential Transformer Secondaries	E1, E2, E3 etc.
H Series	LT AC Supply	H1, H2, H3 etc.
A Series	CT Secondary for special protection	A1, A2, A3 etc.
B Series	Bus bar protection	B1, B2, B3 etc.
C Series	Protection Circuits	C1, C2, C3 etc.
D Series	Metering Circuits	D1, D2, D3 etc.

11. Terminations of wires for CT connections & numerical relay connections will be ring type terminals.
12. Each trip signals wire will be identified with red ferrule and letter “T” mentioned on the both ferrule.
13. All the wires used for inter-panel wiring will have following identified on both ends:
 - a) Feeder location from where the wire started.
 - b) Destination feeder location of the wire.
14. Power connection will be done either by cables/ bus-bars. Size of cables / bus-bars used for power connection are as follows:
 - a) Supply feeder / Heater feeder:

Feeder Rating	Cable/ bus bar size (Minimum)
Up to 16A	4 sq. mm Cu
16.1 to 32A	10 sq. mm Cu
32.1 to 63A	16 sq. mm Cu
63.1 to 100A	35 sq. mm Cu/ 50 sq. mm Al/ 19mm x 6mm Al/ equivalent
100.1 to 125A	50 sq. mm Cu/ 70 sq. mm Al/ 19mm x 6mm Al/ equivalent
125.1 to 160A	70 sq.mm Cu/ 120 sq. mm Al/ 38mm x 6mm per Phase & 19mm x 6mm for N – Al/ equivalent
160.1 to 200 A	95 sq. mm Cu/ 150 sq. mm Al/ 38mm x 6mm per Phase & 19mm x 6mm for N- Al/ equivalent.
201.1 to 250A	120 sq.mm Cu/ 240 sq. mm Al/ 38mm x 6mm per Phase & 19 mm x 6mm for N- AL/ equivalent.



**SOLAR BUSINESS DIVISION,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

250.1 to 400A	240 sq. mm Cu/ 2 runs of 240 sq. mm Al/ 40mm x 10 mm per Phase & 20mm x 10mm for N- Al/ equivalent.
400.1 to 500A	400 sq.mm Cu / 2 runs of 240 sq. mm Al/ 60mm x 10mm per Phase & 30mm x 10mm for N- Al/ equivalent.

b) Motor Feeder:

Feeder Rating	Cable/ bus bar size (Minimum)
Up to 7.5 KW	4 sq. mm Cu
7.6KW – 13 KW	10 sq. mm Cu
13.1KW – 22KW	16 sq. mm Cu
22.1KW-45KW	35 sq. mm Cu/ 19mm x 6mm Al/ equivalent
45.1KW-55KW	50 sq. mm Cu/ 19mm x 6mm Al/ equivalent
55.1KW-80KW	70 sq.mm Cu/ 38mm x 6mm per Phase Al/ equivalent
80.1KW- 109.9KW	95 sq. mm Cu/ 50mm x 6mm per Phase Al/ equivalent

c) Panel Wiring 1100V grade PVC Coated Cu-Flexible FRLS:

AC Voltage Circuit	2.5 sq. mm Red, Yellow, Blue & Black coloured copper wire.
Current Circuit	2.5 sq. mm Red, Yellow, Blue & Black coloured copper wire.
AC Control Circuit	1.5 sq.mm black coloured copper wire
DC Control Circuit	1.5 sq.mm grey coloured copper wire
Inter-panel Wiring	1.5 sq.mm black coloured copper wire for AC circuit & 1.5 sq.mm grey coloured copper wire for DC circuit
Door Earthing	Minimum 2.5 sq. mm braided wire or yellow-green bicolour copper wire

15. All terminal lugs will made up of tinned copper only. For power cable (only) from 4 sq. mm and above, all shall be heavy duty tinned copper lug and from 25 sq. mm & above, all shall be heavy duty long barrel tinned copper lug only.

B. System Parameters:

1. Power Voltage:
 - a. AC: 415 \pm 10% for AC, 50Hz \pm 5%, solidly earthed.
 - b. DC: 220V + 10% and -15%, unearthed.
2. Control Voltage:
 - a. ACB Feeders: ACB spring charging motor, closing coil, tripping coil, indication lamps, auxiliary contactors, lockout relay, breaker multiplication relay (if any) & transducers (if any) – 220V DC.
 - b. Motor/ Heater feeders (DOL/ RDOL)/ Contactor Controlled Incomer/ test supply: Power contactors, auxiliary contactors, indication lamps & transducers (if any) – 110V AC.
 - c. Outgoing AC supply feeders/ SFU Incomer/ SFU Bus coupler: indication lamps – 110V AC.
 - d. DC Feeders: indication lamps – 220V DC.
 - e. Space heater supply – 240V AC.

C. Module:

1. All incomer, bus-coupler & outgoing feeders rated up to 630A will be SFU controlled.
2. All feeders rated 630A and above will be ACB controlled.
3. All motors rated 110KW & above will be ACB controlled. TDBFP lube oil pump motor and seal air fan will be ACB controlled even though the rating is less than 110KW.
4. All motors below 110kW will be protected by Fuse Type-II Coordination equipment.
 - a. All motors rated up to 90KW:
SFU + Power contactor + OLR.
 - b. All motors rated 90KW up to 110KW will be provided with Numerical Relay:
SFU + Power Contactor + Numerical Relay.
5. All motor feeders 30KW and above will be provided with Ammeter and CTD in Y-phase. All essential motors less than 30KW will be provided with Ammeter and CTD in Y-phase for remote metering.



6. All DC feeders rated less than 630A will be provided with AC SFU. Current rating for AC SFU shall be 2.5 times of DC current rating.
7. All DC feeders rated 630A and above will be provided with MDO type ACB.
8. All indicating instruments will be flush/ semi-flush mounted.
9. Draw-out trolleys of same size are physically interchangeable.
10. Draw-out modules of same size, type & rating are physically & electrically interchangeable.
11. All draw-out modules are provided with necessary arrangement to prevent accidental fall-down of the module, when it is drawn-up to isolated position.
12. Each draw-out module will be provided with Service, Test and Isolated positions.
13. All module handles will be provided with mechanical locking arrangement such that the module door cannot be opened until SFU/MCCB/MPCB is switched off.
14. All SFU/MCCB will have defeat interlock. ACB will not have defeat interlock.
15. All the components in the module will be identified with stickers as per the schematic drawing. Stickers will be put on the component and also below the component.
16. All outgoing ACB feeders will be arranged in single tier arrangement only.
17. Every load on emergency switchboard will be provided with CTD in Y-phase.
18. All motor feeders/ contactor controlled feeders will be provided with individual control transformer of adequate rating (minimum 100VA) for control supply of such module. Each switchboard which has motor feeders/ contactor controlled feeders will be provided with adequately rated 415/110V control transformer in each bus section with necessary taps and auto-changeover for providing test control supply to various modules in the switchboard. Each such control transformer will be sized for catering to test control supply of loads in both the bus sections.
19. All AC supply feeders of rating 200A and above will be provided with CT and ammeter in Y-phase.

D Bus bar:

1. Bus bars are made up of high conductivity Aluminium -63401.
2. Bus bar joints will be provided with HT nuts & bolts.
3. Bus bar clearances will be as follows:
 - a. Phase – Phase: 25mm
 - b. Phase – Neutral: 25mm
 - c. Phase – Earth: 19mm
 - d. Neutral – Earth: 19mm
 - e. Positive – Negative (for DC): 25mm
 - f. Positive/Negative – Earth (for DC): 19mm
4. All live connections will be shrouded in order to avoid accidental touch including live connections in cable alley.
5. All bus bar sleeves are of 1100V grade and heat shrinkable type.
6. Bus bar sleeves will be colour coded as follows:
 - a. R phase – Red
 - b. Y phase – Yellow
 - c. B phase – Blue
 - d. N phase – Black
 - e. Positive – Red
 - f. Negative – Black
7. Bimetallic connector will be used for connection between two dissimilar metals.

E Caution/ Safety Plates:

1. “Live terminals” caution inscription plates are provided on the top of all the verticals where the terminals are likely to remain live.
2. “Live Cable” inscription plates are provided on all the cable alley chamber doors.
3. “Danger” inscription plate will be provided at Incomers and bus-coupler in English & Telegu.



F Others:

1. CTs will not be directly mounted on bus bars. Separate CT mounting arrangement will be provided.
2. All glands will be double compression type and made up of brass.
3. All terminal lugs will be made up of tinned copper only.
4. Mechanical safety interlock will be provided to prevent ACB from being racked in or out of the service position when ACB is closed.
5. Phases of all outgoing feeders will be shrouded individually.

G NOTES:

1. Final colour coding or size of cable / wire of general note / BHEL instruction shall prevail.
2. All wires / cables used shall be: material – Copper, PVC, FRLS, voltage grade—min 1100V grades, IS-694 or relevant as per BHEL instruction.
3. To have flexibility in arranging GA of modules, suitable rating links may also be used in higher rating modules in place of copper wire, but vendor has to maintain the clearance as per IS/BHEL standard as well as the aesthetic look of the module and same shall be at discretion of BHEL.
4. Wiring bunches shall be done using spiral covers , all fixed modules like bus PT, CST, ACB, feeders wiring shall be done with trough only. Any change if there shall be intimated by BHEL during execution.
5. All ferrules, lugs, screws, spirals etc. shall be in scope of this contract wherever it is required for execution of the work. All materials shall be BIS marks (as applicable), zinc passivated (wherever necessary).
6. Diode circuit as per used in breaker circuit with resistor shall be in scope of wiring contractor within the quoted rate.
7. Customer approved drawing as given before or during course of execution shall be considered as final. Tentative drawings for the tender are attached herein for reference.
8. Specific make recommended for items:

Sl. no	Description of components	Make of components
1	TERMINAL BLOCK	Standard makes like: ELMEX/ CONNECT WELL /WAGO/ PHONEX or equivalent.
2	WIRES	ISI CERTIFIED meeting technical specification requirement.
3	CABLE LUGS	Standard makes like: DOWELLS/ HEX or equivalent.
4	NEUTRAL LINK	Standard makes like: CONTROLS & SWITCHGEAR/ L & T/ SIEMENS/ SCHENIDER or equivalent.
5	OTHER ITEMS	To be taken approval from BHEL before supply of materials.

NOTE: Above list is only indicative, BHEL may further approve new makes and vendor may follow same upon approval.



FURTHER SCOPE CLARIFICATION FOR WIRING CONTRACTOR UNDER THIS TENDER:

Wiring Contractor	Remarks/ Inclusions & Exclusions
Power cables and control cables along with necessary cable ties, saddles, trough, spirals, etc. required for all module wiring.	To be part of wiring contractor.
Shrouding for all live connections within the module. Shrouding of each phase individually in the cable alley. Shrouding of all live connections, shrouding of rear side of ACB feeders.	1. Shrouding for all live connections within the module in wiring contractor scope. However OEM shrouds should be supplied along with the components to aesthetic look. 2. Shrouding of each phase individually in the cable alley and Shrouding of all live connections. Shrouding of rear side of ACB feeders – to be part of enclosure manufacturer scope.
Tool fall preventing shrouds for all bus bar in cable alley	To be part of enclosure vendor.
Power links inside the modules for connection between components and between incoming terminal to SCPD and between outgoing terminal and component as per approved schematic.	To be the part of wiring contractor- however necessary draw-out & fixed terminals for connection - male female shall be in enclosure vendor scope. Engineering shall furnish the terminal size and IGA for bus bar / wire routing with in the module or breaker feeders.
Legend plates	To be part of enclosure manufacturer.
Component identification stickers (on the component & below the component)	To be part of wiring contractor. Yellow tape type printed identification sticker as per existing practice shall be followed.
Power TBs and control TB's.	Power TBs are already in enclosure vendor scope for draw out and fixed boards along with power O/G terminal with extension link. However, Control TBs shall be part of wiring contractor. Base plate for fixing component and TBs to be part of enclosure vendor.
Din rail channel	To be part of wiring contractor. Base plate & necessary support to fix din rails to be part of enclosure vendor.
Trough	To be part of wiring contractor.
Ring type insulated lugs for CT circuit connections.	To be part of wiring contractor.
Disconnecting type of TBs for CT circuit	To be part of wiring contractor.
Pin type / u- type insulated lugs for control wiring	To be part of wiring contractor. However, type of lug shall be as per component terminal requirement.
Internal wiring with separate conduit for inter panel wiring	To be part of wiring contractor. Detail shall be shown in IGA by engineering.
Ferrules as per schematic	To be part of wiring contractor. Tube type printed ferrules shall be used.
All dressing material for cables and their connections.	To be part of wiring contractor.
Neutral links, Resistors, Diodes and Grommets.	Neutral links, resistors, diodes - To be part of wiring contractor. Detail may be furnished beforehand for tender. Grommets – To be part of enclosure vendor.
Space heater along with thermostat, power socket and door limit switch in each cable alley and ACB vertical.	To be part of enclosure vendor scope as per existing practice.
Safety stickers on all live connections.	To be part of wiring contractor.
Caution plates on all verticals.	To be part of wiring contractor.
LED lamps along with holders	To be part of enclosure vendor as per existing practice.



**SOLAR BUSINESS DIVISION,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

Hardware required for termination wires.	To be part of wiring contractor.
Punching of drills on mounting plates of all modules as per mounting details.	To be part of wiring contractor scope. However IGA to be furnished before start of work.
Mounting of all components as per approved IGA.	To be part of wiring contractor scope as per IGA given by engineering.
Fixing of din rail, all power TBs, control TBs, disconnecting type TBs, neutral links, bodies, resistors, grommets and truoghs, as required in the approved schematic.	To be part of wiring contractor scope except grommets.
CT wiring, PT wiring, CST wiring, space heater-thermostat –power socket- door limit switch wiring in all cable alleys and ACB feeders.	1. CT wiring, PT wiring, CST wiring – To be part of wiring contractor scope. 2. Space heater-thermostat –power socket- door limit switch wiring in all cable alleys and ACB feeders - To be part of enclosure vendor scope as per existing practice.
Mounting & wiring of LED lamp & holder in all cable alleys and ACB feeders.	To be part of enclosure vendor scope as per existing practice
Tapping from control bus-bar using necessary crocodile clips/ equivalent.	To be part of wiring contractor scope. However, enclosure vendor shall do drilling & internal threading of bus-bar for wire termination.
Ferruling of wires as per approved schematic.	To be part of wiring contractor. Tube type printed ferrules shall be used.
Fixing of safety stickers & caution plates as per approved GA/ general notes.	To be purchased separately by wiring contractor.
Crimping of insulated lugs to wires.	To be part of wiring contractor.
SIC to TB wiring – i e extension of SIC contact to external TBs in cable alley.	To be part of enclosure vendor scope – supply of SIC, external TBs & wiring.
Approved lug make list for wiring inside board.	To be used as same as for project in general notes or other documents.



EXECUTION OF CONTRACT:

- a. Contractor shall be required to submit a list of his workers to be deployed for the works contract giving details regarding Name of contract worker, Fathers Name, permanent and Present Address, Date of Birth, ESI No, PF No. etc. in advance for arranging gate passes.
- b. BHEL shall be indemnified against all losses, Claims, prosecutions etc. under any law.
- c. The contractor will maintain proper discipline of his workmen and will ensure that his workers do not cause any loss or theft or damage to any company's property. The contractor will also be responsible for the good conduct of his workmen.
- d. The contractor shall ensure and maintain uninterrupted progress of the work in accordance with instructions given to him on behalf of BHEL Engineer In charge from time to time.
- e. The Contractor, shall, without fail, give up-to-date information in writing of the attendance of the workers engaged by him. The Contractor will also submit the required documents and certificates as prescribed from time to time for the clearance and the payment of the Bill.
- f. Whenever any sum of money is found to be recoverable from or payable by the contractor, the same will be deducted from any sum that may due or which at any time there after becomes due to the contractor under this contract or under any other contract or from his security deposit. In case the recoveries are not complete even after such deduction, the contractor shall pay the same or the balance thereof from the security deposit. The contractor shall immediately thereafter pay such further sums as may be required to replenish the shortage caused by such recoveries in the amount of security deposit.
- g. During the execution of the contract, if the contractor is awarded any other work contract in BHEL, the contractor will have to execute the work with additional and exclusively separate manpower.
- h. BHEL shall have the right to deduct any sum from the bill of the contractor for making good the loss suffered by a worker or workers by reason of non-fulfillment of the conditions of the contract, Non- payment of wages or of deduction made from his or them wages which are not justified by the terms of the contract or non-observance of the said contract Lab our regulations.
- i. All associated tools and accessories like cable tie, saddle, supporting clamps, fasteners, drilling machine, hacksaw, crimping tool, grinder; are in the scope of contractor within the quotes rates.
- j. The contractor shall be responsible for safe custody of BHEL's property like materials, tools etc., entrusted to him and if necessary arrange insurance at his own expense.
- k. The contractor shall be responsible to make good and rectify at his own expense any defect, which may develop or may be noticed within the period of the contract.
- l. BHEL shall be entitled to recover any payment made on behalf of the contractor under any law or otherwise.
- m. BHEL Engineer In-charge shall have the right to stop the work at any stage or at any time by giving the contractor seven days' notice in writing if work is not found satisfactory as per provision of the contract.

Bidder has to quote ONLY for overall price of the contract and not for the individual item. Weightage Percentage allocation (derived for item rate) against each item of the BOQ is disclosed in the tender document which becomes the basis for the allocation of item wise amount/rate against the total lump sum price for the entire contracted scope of BOQ. Evaluation of the L-1 offer shall be computed on overall lowest cost to BHEL basis. ("Cost to BHEL means-" Grand Total Price (including taxes, duties, freight, insurance ESI, PF etc.) for all the items indicated above" minus tax credit, if, any).



During the execution of the contract:

1. Contractor will be held responsible for any damage caused to BHEL-property and suitable actions will be taken against for the same for recovery with overheads.
2. Contractor needs to arrange all tools, tackles, other materials including ferrule-printing machine, drilling-cutting-fastening tools etc.
3. Each contractor should engage one full-time independent supervisor for this contract. Supervisor need to submit his work-plan, material-status, commitment-for-completion- of-work, attendance-of-his-man-power etc. as and when demanded by BHEL. Supervisor should have full control over the man-power deployed and full command on the work. BHEL will also issue any working drawing/material etc. directly to the supervisor only.
4. Each contractor should arrange necessary arrangement to keep the workplace clean (preferably by engaging additional person for sweeping and cleaning). If any contractor fails to keep the workplace clean, suitable actions will be taken by BHEL e.g. recovery of cleaning expenditure from the contractor's bill.
5. For any workmen, qualifying all terms and conditions of NIT, gate passes will be issued. Details for new person or for renewal of gate passes contractor has to furnish all necessary details and document at least 3 working days before.
6. Material (in the scope of the contractor) entry to BHEL-SBD is only permissible on working days from 8:00hrs - 15:00hrs through material gate. Contractor needs to follow the BHEL standard security policy for material entry.
7. Contractor should arrange required security mechanism for his tools, tackle or materials. BHEL is not responsible for any damage.
8. During the execution of the contract, contractors will be bind the terms and conditions as specified in NIT.
9. BHEL will furnish the relevant IGA to the contractor any particular module, if required. No components (purchased by BHEL) will be allowed to take outside BHEL-SBD during the contract without permission of BHEL. Once approved other contractors doing the same type module have to follow the same.
10. Bidder has to confirm that throughout the project only one type of wiring methodology is followed or as per BHEL INSTRUCTION ONLY. Further:
 - I. Wiring should be neatly arranged with the help cable-ties or suitable saddles or trough or other materials. Saddles should be of screw type.
 - II. Under normal circumstances, BHEL will provide all the materials in BHEL's scope required for wiring of a particular switchboard.
 - III. In case certain material under BHEL's scope, is not made available to the wiring contractor at the time of handing over the enclosure; the following rules should apply: - Wiring contractor should leave the crimped-lugged-ferruled wire even if measuring instruments (digital and analog



meters), indicating lamp & transducers are not made available to the wiring contractor at the time of handing over the enclosure.

IV. Unavailability of any other items other than measuring instruments (digital and analog meters), indicating lamp & transducers which is in BHEL's scope; delay due to such things will not be attributable to the contractor.

Scheme changes & Variations:

For any scheme change, final decision for rate shall be taken by BHEL Engineer In-charge, HOD production, concerned engineering executive & contractor representative for finalization of rate as per existing rate schedule.

Note: Chances of change in quantities are there and contract can be executed for similar work for variation up to 30 % (+/-) of contract value with same rate.

Bill of Quantity (BOQ): Refer 6.7 ANNEXURE VII Unpriced BID

Splitting the Contract: Splitting of the contract shall be done as per below:

The division of work among the 4, 3 and 2 wiring contractors to be awarded the contract is given in the table below:

SL No	BIDDER	SHARE OF LOAD / Contract Value		
		4 Contractors	3 Contractors	2 Contractors
1	L-1: Original	40%	50%	60%
2	L-2: Subject to accepting L-1 price	30%	30%	40%
3	L-3: Subject to accepting L-1 price	20%	20%	NIL
4	L-4: Subject to accepting L-1 price	10%	NIL	NIL

Maximum Percentage of work allocated to single vendor is 60% only.

In case of failure to execute the order by any of the qualified bidders/ contractors, the splitting of work will be between the remaining qualified bidders/ contractors as per the work sharing table mentioned above.

Schemes /Drawings: Refer Enclosed Schemes /Drawings along with NIT.



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

6.2 ANNEXURE – II TECHNO-COMMERCIAL BID APPLICATION

To,

Dy. Manager / WC
Bharat Heavy Electricals Limited
Solar Business Division,
IISc Post, Malleswaram,
Bengaluru – 560 012

Dear Sir,

I / We hereby offer to carry out the work **“Wiring Contract for Low Voltage Switchgear at BHEL SBD CPBG shop floor”**.

I /We have carefully perused the all the clauses mentioned in NIT and agree to abide with the same.

1. Notice Inviting Tender – Part A Volume 1
2. Notice Inviting Tender – Part A Volume 2
3. Price Bid Format - Part – B

I/ We further agree to execute all the works referred to in the said documents.

I declare that, there was never / is no litigation or charge under investigation / enquiry / trial against me / us, nor conviction in a court of law or suspended or blacklisted by any organization on any grounds.

Signature of Tenderer
Date:



BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012

TENDER
DOCUMENT
(PART – A)
Vol. I

6.3 ANNEXURE – III: BIDDER INFORMATION

S. No.	DETAILS REQUIRED	Requirement fulfilled (Yes / No / NA/ Value)
1	Name of the Company	
2	Name of Authorized Signatory	
3	Name of Contact person for this tender	
4	Email-id of contact person	
5	Contact number	
6	Bank Account Details (Name of Bank, Branch and Account Number). Cancelled Cheque to be enclosed	
7	Details of Relatives employed in BHEL, Name Designation and Unit - Clause 3.11	
	Relative 1	
	Relative 2	
	Relative 3	



6.4 ANNEXURE – IV: QUALIFICATION REQUIREMENTS

S. No.	DETAILS REQUIRED	Requirement fulfilled (Yes / No / NA/ Value)	Whether proof / document enclosed (YES / NO)
1	Bidder's firm should be registered and should have at least three years' existence in business consecutively for the past three financial years. (Cl 3.1)		
2	Declaration for Labor License submitted (Cl. 3.2)		
3	ESI Registration No. Clause 3.3		
4	PF Registration No. Clause 3.4		
5	Banker's Solvency Certificate Clause 3.5		
6	Average turnover of last 3 years - Clause 3.6		
7	Relevant Work Experience as per Clause 3.7 – 1		
	Relevant Work Experience – 2		
	Relevant Work Experience – 3		
8	PAN No. - Clause 3.8		
9	GST Registration Number		
10	MSME / NSIC Certificate to be enclosed (if applicable)		
11	EMD Details (DD No., Amount, Date & Bank)		
12	PPP-MII Format to be enclosed - Annexure VIII		
13	Boarder sharing		



BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012

TENDER
DOCUMENT
(PART – A)
Vol. I

6.5 ANNEXURE – V: BIDDER DECLARATION - I

S. No.	DETAILS REQUIRED	Requirement fulfilled (Yes / No / NA/ Value)
1	I have carefully read the Tender Terms and Conditions and I submit my agreement for the same.	
2	I have completely understood the scope of work and submit my agreement to carry out the work as per mentioned in Tender document.	
3	I have quoted rates for the total scope of work mentioned in the tender document	
5	I have understood and accepted the payment terms of BHEL as per Cl.5	
6	I am responsible for the safety of workmen deployed and agree to fulfil the requirements as per tender terms	
7	I have understood the LD clause mentioned in this tender and submit my agreement for the same	
8	I agree to participate in the tender and carry out the work (if awarded) ethically and submit my agreement to various requirements in this contract.	
9	I have carefully read the Tender Terms and Conditions and I submit my agreement for the same.	
10	Signed and submitted the deviations sheet	



6.6 ANNEXURE – VI, BIDDER DECLARATION - II

I, -----, aged-----Yrs., S/o -----,

Residing at -----

Hereby declare as follows:

- (i) That my nationality is _____.
- (ii) That I am a major and eligible to enter into contract / my firm / my company is competent to enter into an agreement.
- (iii) I shall employ only such personnel who have not been found unfit for employment in Organizations such as Central / state / Public undertaking by the Police Authorities.
- (iv) I shall not employ persons against whom Criminal cases are pending or under investigation.
- (v) I shall also not employ persons found guilty of offences involving moral turpitude for executing work in BHEL contracts.
- (vi) That there are no Criminal cases/Civil/Labor pending or under investigation against me or my firm or company.
- (vii) I have not been found guilty of offences involving moral turpitude nor any of the company directors / partners of my firm have been found guilty of offences involving moral turpitude.
- (viii) Neither I nor my firm nor my company has been declared insolvent in the past.
- (ix) I have taken due care and efforts to furnish only information which are true in the tender document.
- (x) I shall employ labor who is more than 18 years of age and less than 58 years and having sound physical and mental health.
- (xi) I shall keep Photograph / identity proof / residential proof of the laborers to be employed against this tender and arrange for police verification.
- (xii) I shall employ and deploy suitable qualified personnel for supervision of the work in each shift and additionally as required for monitoring compliance to process requirements and compliance to contract terms & conditions.

[Signature with Name & seal of the Tenderer]

Date :
Place :



BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012

**TENDER
DOCUMENT
(PART – A)
Vol. I**

6.7 ANNEXURE VII Unpriced BID and HSN / SAC Codes

Bill of Quantity (BOQ) and allocation /Weightage for unit

SL	MODULE/FEEDER/PANEL DESCRIPTION	RATING	Quantity	UOM	Reference Scheme No	Item Weightage /Allocation	Unit Price (Rs)	Total Price (Rs)
			(A)				(B)	(C)=A*B
1	ACB - AC (INCOMER - I/C)	ANY RATING	190	NOS	EP-4-CS-012-001	0.068154		
2	ACB - AC (BUSCOUPLER - B/C)	ANY RATING	90	NOS	EP-4-CS-012-003	0.032283		
3	ACB - AC (OUTGOING - O/G)	ANY RATING	250	NOS	EP-4-CS-012-014	0.089676		
4	SFU/MCCB (INCOMER - I/C)	UP TO 16A	5	NOS	EP-4-CS-012-016	0.000145		
5	SFU/MCCB (BUSCOUPLER - B/C)	UP TO 16A	2	NOS	EP-4-CS-012-018	0.000058		
6	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	UP TO 16A	2	NOS	EP-4-CS-012-020	0.000116		
7	SFU/MCCB (OUTGOING - O/G)	UP TO 16A	4500	NOS	EP-4-CS-012-027	0.130779		
8	SFU/MCCB (INCOMER - I/C)	16.1A-32A	5	NOS	EP-4-CS-012-016	0.000145		
9	SFU/MCCB (BUSCOUPLER - B/C)	16.1A-32A	2	NOS	EP-4-CS-012-018	0.000058		
10	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	16.1A-32A	2	NOS	EP-4-CS-012-020	0.000116		
11	SFU/MCCB (OUTGOING - O/G)	16.1A-32A	1800	NOS	EP-4-CS-012-027	0.052312		
12	SFU/MCCB (INCOMER - I/C)	32.1A-63A	5	NOS	EP-4-CS-012-016	0.000145		
13	SFU/MCCB (BUSCOUPLER - B/C)	32.1A-63A	2	NOS	EP-4-CS-012-018	0.000058		
14	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	32.1A-63A	2	NOS	EP-4-CS-012-020	0.000116		
15	SFU/MCCB (OUTGOING - O/G)	32.1A-63A	650	NOS	EP-4-CS-012-027	0.018890		
16	SFU/MCCB (INCOMER - I/C)	63.1A-100A	5	NOS	EP-4-CS-012-016	0.000145		
17	SFU/MCCB	63.1A-	2	NOS	EP-4-CS-	0.000058		



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

	(BUSCOUPLER - B/C)	100A			012-018			
18	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	63.1A- 100A	2	NOS	EP-4-CS- 012-020	0.000116		
19	SFU/MCCB (OUTGOING - O/G)	63.1A- 100A	500	NOS	EP-4-CS- 012-027	0.014531		
20	SFU/MCCB (INCOMER - I/C)	100.1A- 125A	5	NOS	EP-4-CS- 012-016	0.000145		
21	SFU/MCCB (BUSCOUPLER - B/C)	100.1A- 125A	2	NOS	EP-4-CS- 012-018	0.000058		
22	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	100.1A- 125A	2	NOS	EP-4-CS- 012-020	0.000116		
23	SFU/MCCB (OUTGOING - O/G)	100.1A- 125A	120	NOS	EP-4-CS- 012-027	0.003487		
24	SFU/MCCB (INCOMER - I/C)	125.1A- 160A	5	NOS	EP-4-CS- 012-016	0.000145		
25	SFU/MCCB (BUSCOUPLER - B/C)	125.1A- 160A	2	NOS	EP-4-CS- 012-018	0.000058		
26	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	125.1A- 160A	2	NOS	EP-4-CS- 012-020	0.000116		
27	SFU/MCCB (OUTGOING - O/G)	125.1A- 160A	40	NOS	EP-4-CS- 012-027	0.001162		
28	SFU/MCCB (INCOMER - I/C)	160.1A- 200A	5	NOS	EP-4-CS- 012-016	0.000165		
29	SFU/MCCB (BUSCOUPLER - B/C)	160.1A- 200A	2	NOS	EP-4-CS- 012-018	0.000066		
30	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	160.1A- 200A	2	NOS	EP-4-CS- 012-020	0.000132		
31	SFU/MCCB (OUTGOING - O/G)	160.1A- 200A	180	NOS	EP-4-CS- 012-027	0.005931		
32	SFU/MCCB (INCOMER - I/C)	200.1A- 250A	5	NOS	EP-4-CS- 012-016	0.000165		
33	SFU/MCCB (BUSCOUPLER - B/C)	200.1A- 250A	2	NOS	EP-4-CS- 012-018	0.000066		
34	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	200.1A- 250A	25	NOS	EP-4-CS- 012-020	0.001647		
35	SFU/MCCB (OUTGOING - O/G)	200.1A- 250A	140	NOS	EP-4-CS- 012-027	0.004613		
36	SFU/MCCB (INCOMER - I/C)	250.1A- 400A	10	NOS	EP-4-CS- 012-016	0.000329		
37	SFU/MCCB (BUSCOUPLER - B/C)	250.1A- 400A	5	NOS	EP-4-CS- 012-018	0.000165		
38	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	250.1A- 400A	15	NOS	EP-4-CS- 012-020	0.000988		



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

39	SFU/MCCB (OUTGOING - O/G)	250.1A-400A	620	NOS	EP-4-CS-012-027	0.020427		
40	SFU/MCCB (INCOMER - I/C)	400.1A-550A	5	NOS	EP-4-CS-012-016	0.000165		
41	SFU/MCCB (BUSCOUPLER - B/C)	400.1A-550A	2	NOS	EP-4-CS-012-018	0.000066		
42	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	400.1A-550A	2	NOS	EP-4-CS-012-020	0.000132		
43	SFU/MCCB (OUTGOING - O/G)	400.1A-550A	50	NOS	EP-4-CS-012-027	0.001647		
44	DOL-DK2	UP TO 7.5KW	2200	NOS	EP-4-CS-012-031	0.230255		
45	DOL-DK2	7.6KW-13KW	250	NOS	EP-4-CS-012-031	0.026165		
46	DOL-DK2	13.1KW - 29.9KW	180	NOS	EP-4-CS-012-031	0.019142		
47	DOL-DK2E	UP TO 7.5KW	10	NOS	EP-4-CS-012-033	0.001356		
48	DOL-DK2E	7.6KW-13KW	5	NOS	EP-4-CS-012-033	0.000678		
49	DOL-DK2E	13.1KW - 29.9KW	10	NOS	EP-4-CS-012-033	0.001356		
50	DOL-DK21	30KW-45KW	100	NOS	EP-4-CS-012-032	0.018902		
51	DOL-DK21	45.1KW-55KW	20	NOS	EP-4-CS-012-032	0.003780		
52	DOL-DK21	55.1KW-80KW	5	NOS	EP-4-CS-012-032	0.000945		
53	DOL-DK21	80.1KW - 89.9KW	10	NOS	EP-4-CS-18001-030	0.002115		
54	DOL-DK21	90KW-109.9KW	50	NOS	EP-4-CS-18001-030	0.010575		
55	DOL-DK21E	30KW-45KW	50	NOS	EP-4-CS-012-034	0.010525		
56	DOL-DK21E	45.1KW-55KW	20	NOS	EP-4-CS-012-034	0.004210		
57	DOL-DK21E	55.1KW-80KW	5	NOS	EP-4-CS-012-034	0.001052		
58	DOL-DK21E	80.1KW - 89.9KW	10	NOS	EP-4-CS-18001-030	0.002928		
59	DOL-DK21E	90KW-109.9KW	20	NOS	EP-4-CS-18001-030	0.005857		



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

60	RDOL-DN1	UP TO 7.5KW	20	NOS	EP-4-CS- 012-035	0.002125		
61	RDOL-DN1	7.6KW- 13KW	20	NOS	EP-4-CS- 012-035	0.002125		
62	RDOL-DN1	13.1KW - 29.9KW	20	NOS	EP-4-CS- 012-035	0.002412		
63	X- DC FEEDERS	UP TO 16A	600	NOS	EP-4-CS- 012-024	0.033468		
64	X- DC FEEDERS	16.1A- 32A	300	NOS	EP-4-CS- 012-024	0.016734		
65	X- DC FEEDERS	32.1A- 63A	20	NOS	EP-4-CS- 012-024	0.001116		
66	X- DC FEEDERS	63.1A- 100A	20	NOS	EP-4-CS- 012-024	0.001116		
67	X- DC FEEDERS	100.1A- 125A	40	NOS	EP-4-CS- 012-024	0.002231		
68	X- DC FEEDERS	125.1A- 160A	15	NOS	EP-4-CS- 012-024	0.000837		
69	X- DC FEEDERS	160.1A- 200A	10	NOS	EP-4-CS- 012-024	0.000558		
70	X- DC FEEDERS	200.1A- 250A	10	NOS	EP-4-CS- 012-024	0.000558		
71	X- DC FEEDERS	250.1A- 400A	30	NOS	EP-4-CS- 012-024	0.001673		
72	X- DC FEEDERS	400.1A- 550A	5	NOS	EP-4-CS- 012-024	0.000279		
73	EA3 - HEATER OUTGOINGS	0-20KW	800	NOS	EP-4-CS- 012-036	0.049349		
74	EA3 - HEATER OUTGOINGS	20.1- 40KW	70	NOS	EP-4-CS- 012-036	0.004318		
75	EA3 - HEATER OUTGOINGS	40.1- 60KW	25	NOS	EP-4-CS- 012-036	0.001542		
76	MARSHALLING IN ACP (EACH)	ANY RATING	20	NOS	3-00-114- 39254 & 3-00-114- 39255	0.029168		
77	CST FEEEDER PER PANEL	ANY RATING	117	SET	EP-4-CS- 012-047	0.007440		
78	BUS-PT FEEDER PER PANEL	ANY RATING	117	SET	EP-4-CS- 012-040	0.007391		
79	LUMPSUM REQUIREMENT FOR COMPLETION OF ENTIRE PANEL IN ALL RESPECT	ANY RATING	117	NOS	Refer Note 2	0.045819		
80						1.00		



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

81	Total Basic cost (in Rs)	Sum from sl no. 1-79
82	GST (age%)	On Total Basic cost
83	Total Cost (Rs)	Total Basic cost with GST amount
84	Landed Cost to BHEL (Rs)	Total Cost (Rs) minus 100% GST amount
	NOTES:	
1	Unit rate of wiring of each module/feeder consists of: A. Supply of materials (components etc.) as per BHEL approved Schematics/Drawings & Technical Specification given in scope of supply under Annexure-I. B. Labour cost of Wiring as per BHEL approved Schematics/Drawings & Technical Specification given in scope of supply under Annexure-I and C. Labour cost of mounting of components etc. as per BHEL approved Schematics/Drawings & Technical Specification given in scope of supply under Annexure-I.	
2	Schemes to be referred for Lump sum requirement price: A. For DC type LV Switchgear: EP-4-CS-012-022 EP-4-CS-012-023 EP-4-CS-012-042 B. For Balance LV Switchgear: EP-4-CS-012-043 EP-4-CS-012-045 EP-4-CS-012-046	
3	Contractors to quote Total Basic price (for complete package) and applicable GST as per BOQ uploaded in NIC at relevant excel sheet cells. Unit price of each line item shall be calculated as per weightage /Allocation mentioned above in this format.	
4	Bidder shall not indicate price in this format and write Quoted only.	
5	Overall L-1 shall be considered on Landed Cost to BHEL (for complete package) and not on individual line items.	
6	Price Break up of Unit Rate for each line item shall be given as per format given under this NIT.	

Remark: Bidder to quote only Basic Rate in cell for column M & Row 14, applicable GST (age%) in cell of column N & Row 14 and SAC / HSN Codes in cell column AY & Row 14 only in the Price bid format uploaded through eProcurement portal.



6.8 ANNEXURE VIII PRICE BREAK UP FORMAT OF MODULES/FEEDERS/PANELS FOR WIRING CONTRACT

SL.	MODULE/FEEDER DESCRIPTION	RATING	Quantity	UOM	Reference Scheme No	Material Supply cost in Rs (A)	Wiring Labour cost in Rs (B)	Component mounting except breaker(AC B) labour cost in Rs (C)
1	ACB - AC (INCOMER - I/C)	ANY RATING	1	NOS	EP-4-CS-012-001			
2	ACB - AC (BUSCOUPLER - B/C)	ANY RATING	1	NOS	EP-4-CS-012-003			
3	ACB - AC (OUTGOING - O/G)	ANY RATING	1	NOS	EP-4-CS-012-014			
4	SFU/MCCB (INCOMER - I/C)	UP TO 16A	1	NOS	EP-4-CS-012-016			
5	SFU/MCCB (BUSCOUPLER - B/C)	UP TO 16A	1	NOS	EP-4-CS-012-018			
6	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	UP TO 16A	1	NOS	EP-4-CS-012-020			
7	SFU/MCCB (OUTGOING - O/G)	UP TO 16A	1	NOS	EP-4-CS-012-027			
8	SFU/MCCB (INCOMER - I/C)	16.1A-32A	1	NOS	EP-4-CS-012-016			
9	SFU/MCCB (BUSCOUPLER - B/C)	16.1A-32A	1	NOS	EP-4-CS-012-018			
10	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	16.1A-32A	1	NOS	EP-4-CS-012-020			
11	SFU/MCCB (OUTGOING - O/G)	16.1A-32A	1	NOS	EP-4-CS-012-027			
12	SFU/MCCB (INCOMER - I/C)	32.1A-63A	1	NOS	EP-4-CS-012-016			
13	SFU/MCCB (BUSCOUPLER - B/C)	32.1A-63A	1	NOS	EP-4-CS-012-018			



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

14	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	32.1A- 63A	1	NOS	EP-4-CS-012- 020			
15	SFU/MCCB (OUTGOING - O/G)	32.1A- 63A	1	NOS	EP-4-CS-012- 027			
16	SFU/MCCB (INCOMER - I/C)	63.1A- 100A	1	NOS	EP-4-CS-012- 016			
17	SFU/MCCB (BUSCOUPLER - B/C)	63.1A- 100A	1	NOS	EP-4-CS-012- 018			
18	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	63.1A- 100A	1	NOS	EP-4-CS-012- 020			
19	SFU/MCCB (OUTGOING - O/G)	63.1A- 100A	1	NOS	EP-4-CS-012- 027			
20	SFU/MCCB (INCOMER - I/C)	100.1A- 125A	1	NOS	EP-4-CS-012- 016			
21	SFU/MCCB (BUSCOUPLER - B/C)	100.1A- 125A	1	NOS	EP-4-CS-012- 018			
22	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	100.1A- 125A	1	NOS	EP-4-CS-012- 020			
23	SFU/MCCB (OUTGOING - O/G)	100.1A- 125A	1	NOS	EP-4-CS-012- 027			
24	SFU/MCCB (INCOMER - I/C)	125.1A- 160A	1	NOS	EP-4-CS-012- 016			
25	SFU/MCCB (BUSCOUPLER - B/C)	125.1A- 160A	1	NOS	EP-4-CS-012- 018			
26	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	125.1A- 160A	1	NOS	EP-4-CS-012- 020			
27	SFU/MCCB (OUTGOING - O/G)	125.1A- 160A	1	NOS	EP-4-CS-012- 027			
28	SFU/MCCB (INCOMER - I/C)	160.1A- 200A	1	NOS	EP-4-CS-012- 016			
29	SFU/MCCB (BUSCOUPLER - B/C)	160.1A- 200A	1	NOS	EP-4-CS-012- 018			
30	SFU/MCCB	160.1A-	1	NOS	EP-4-CS-012-			



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

	(CONTACTOR CONTROLLED INCOMER -C/C)	200A			020			
31	SFU/MCCB (OUTGOING - O/G)	160.1A- 200A	1	NOS	EP-4-CS-012- 027			
32	SFU/MCCB (INCOMER - I/C)	200.1A- 250A	1	NOS	EP-4-CS-012- 016			
33	SFU/MCCB (BUSCOUPLER - B/C)	200.1A- 250A	1	NOS	EP-4-CS-012- 018			
34	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	200.1A- 250A	1	NOS	EP-4-CS-012- 020			
35	SFU/MCCB (OUTGOING - O/G)	200.1A- 250A	1	NOS	EP-4-CS-012- 027			
36	SFU/MCCB (INCOMER - I/C)	250.1A- 400A	1	NOS	EP-4-CS-012- 016			
37	SFU/MCCB (BUSCOUPLER - B/C)	250.1A- 400A	1	NOS	EP-4-CS-012- 018			
38	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	250.1A- 400A	1	NOS	EP-4-CS-012- 020			
39	SFU/MCCB (OUTGOING - O/G)	250.1A- 400A	1	NOS	EP-4-CS-012- 027			
40	SFU/MCCB (INCOMER - I/C)	400.1A- 550A	1	NOS	EP-4-CS-012- 016			
41	SFU/MCCB (BUSCOUPLER - B/C)	400.1A- 550A	1	NOS	EP-4-CS-012- 018			
42	SFU/MCCB (CONTACTOR CONTROLLED INCOMER -C/C)	400.1A- 550A	1	NOS	EP-4-CS-012- 020			
43	SFU/MCCB (OUTGOING - O/G)	400.1A- 550A	1	NOS	EP-4-CS-012- 027			
44	DOL-DK2	UP TO 7.5KW	1	NOS	EP-4-CS-012- 031			
45	DOL-DK2	7.6KW- 13KW	1	NOS	EP-4-CS-012- 031			
46	DOL-DK2	13.1KW- 29.9KW	1	NOS	EP-4-CS-012- 031			
47	DOL-DK2E	UP TO	1	NOS	EP-4-CS-012-			



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

		7.5KW			033			
48	DOL-DK2E	7.6KW-13KW	1	NOS	EP-4-CS-012-033			
49	DOL-DK2E	13.1KW-29.9KW	1	NOS	EP-4-CS-012-033			
50	DOL-DK21	30KW-45KW	1	NOS	EP-4-CS-012-032			
51	DOL-DK21	45.1KW-55KW	1	NOS	EP-4-CS-012-032			
52	DOL-DK21	55.1KW-80KW	1	NOS	EP-4-CS-012-032			
53	DOL-DK21	80.1KW-89.9KW	1	NOS	EP-4-CS-18001-030			
54	DOL-DK21	90KW-109.9KW	1	NOS	EP-4-CS-18001-030			
55	DOL-DK21E	30KW-45KW	1	NOS	EP-4-CS-012-034			
56	DOL-DK21E	45.1KW-55KW	1	NOS	EP-4-CS-012-034			
57	DOL-DK21E	55.1KW-80KW	1	NOS	EP-4-CS-012-034			
58	DOL-DK21E	80.1KW-89.9KW	1	NOS	EP-4-CS-18001-030			
59	DOL-DK21E	90KW-109.9KW	1	NOS	EP-4-CS-18001-030			
60	RDOL-DN1	UP TO 7.5KW	1	NOS	EP-4-CS-012-035			
61	RDOL-DN1	7.6KW-13KW	1	NOS	EP-4-CS-012-035			
62	RDOL-DN1	13.1KW-29.9KW	1	NOS	EP-4-CS-012-035			
63	X- DC FEEDERS	UP TO 16A	1	NOS	EP-4-CS-012-024			
64	X- DC FEEDERS	16.1A-32A	1	NOS	EP-4-CS-012-024			
65	X- DC FEEDERS	32.1A-63A	1	NOS	EP-4-CS-012-024			
66	X- DC FEEDERS	63.1A-100A	1	NOS	EP-4-CS-012-024			
67	X- DC FEEDERS	100.1A-125A	1	NOS	EP-4-CS-012-024			
68	X- DC FEEDERS	125.1A-160A	1	NOS	EP-4-CS-012-024			
69	X- DC FEEDERS	160.1A-200A	1	NOS	EP-4-CS-012-024			
70	X- DC FEEDERS	200.1A-250A	1	NOS	EP-4-CS-012-024			



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

71	X- DC FEEDERS	250.1A-400A	1	NOS	EP-4-CS-012-024			
72	X- DC FEEDERS	400.1A-550A	1	NOS	EP-4-CS-012-024			
73	EA3 - HEATER OUTGOINGS	0-20KW	1	NOS	EP-4-CS-012-036			
74	EA3 - HEATER OUTGOINGS	20.1-40KW	1	NOS	EP-4-CS-012-036			
75	EA3 - HEATER OUTGOINGS	40.1-60KW	1	NOS	EP-4-CS-012-036			
76	MARSHALLING IN ACP (EACH)	ANY RATING	1	NOS	3-00-114-39254 & 3-00-114-39255			
77	CST FEEEDER PER PANEL	ANY RATING	1	SET	EP-4-CS-012-047			
78	BUS-PT FEEDER PER PANEL	ANY RATING	1	SET	EP-4-CS-012-040			
79	LUMPSUM REQUIREMENT FOR COMPLETION OF ENTIRE PANEL IN ALL RESPECT	ANY RATING	1	NOS	Lump sum Schemes			
80	RESISTORS		1	NOS			Not Applicable	Not Applicable
81	DIODES		1	NOS			Not Applicable	Not Applicable
NOTE	1. Price break up under this format quoted against each feeder should be equal to Unit rate of wiring of each module/feeder (Please refer Unpriced format).For Sl. No. 80&81 material cost to be quoted.							
	2. Price break up shall be given after L- 1 price finalization.							



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol. I**

6.9 ANNEXURE- IX, PPP-MII Format

FORMAT FOR VERIFICATION OF LOCAL CONTENT UNDER PREFERENCE TO MAKE IN INDIA ORDER

(To be submitted with the offer)

[Applicable for procurement value from Rs. 5.00 Lac to Rs. 10.00 Crore]

Self-certification giving the percentage of local content, in line with PPP-MII order, if applicable [to be submitted on the letter head of the issuer.]

Item Name : **Wiring Contract for Low Voltage Switchgear at BHEL SBD CPBG shop floor**

Enquiry No. : **133661**

Project: **Wiring Contract for Low Voltage Switchgear at BHEL SBD CPBG shop floor**

Applicable percentage of Local Content.....

(Bidder to indicate local content in percentage)

We have read and understood the provisions of “Public Procurement (Preference to Make in India) Order, 2017” dated 15/06/2017, its revision dated 28/05/2018 and any subsequent modifications/Amendments, if any [hereinafter, “PPP-MII Order”] issued by Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry, Government of India.

In line with the provisions of the PPP-MII Order, We, M/s. [Enter the name of the Bidder] [hereinafter, “Local Supplier”] submits self-certification to M/s. Bharat Heavy Electricals Limited [hereinafter, BHEL] regarding Local Content in Goods/Services/Works to be supplied by the Local Supplier **Wiring Contract for Low Voltage Switchgear at BHEL SBD CPBG shop floor** (Enter the name of the Equipment/Item for Project), wherein we have agreed to abide by the terms and conditions of the PPP-MII Order.

Details of location at which local value addition will be made is as follows:

We also understand, false declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

For and on behalf of, Date:

Authorized Signatory

(With Company Seal & Signature)

Note: This is a guiding format. In case the bidder submits the certificate in a format different from the above, the same may be considered provided it meets the intent and purpose, as may be ascertained by BHEL.



BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012

**TENDER
DOCUMENT
(PART – A)
Vol. I**

6.10 ANNEXURE -X: DEVIATION SHEET

Sl No.	Volume	Part/Clause Sl no.	NIT requirement	Bidder's Deviation

Total No. of deviations proposed by the Bidder- _____ nos.

BIDDER'S SIGN & SEAL:

Note: The Offers should be in full conformity with the terms and conditions of this tender. Incorrect and incomplete tenders are liable to be rejected. Deviations, if any, should only be mentioned as per format for Non-Technical Deviations (i.e. General Terms & Conditions, Commercial Terms etc.) & Technical Deviations (i.e. Scope of Work, Modalities of Contract etc.). BHEL at its discretion whether to give any further chance to a bidder in case of any deviation or reject the same offer.

(Compliance to be submitted in the bidder's letter head)
(as applicable)

Sub: Compliance to Government of India order OM No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020 regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017

Item Name :	
Enquiry No. :	
Project :	

We M/s._____ (name of the bidder company) have read the clauses pertaining to Department of Expenditure's (DoE) Public Procurement Division Order (Public procurement no 1,2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020) regarding restrictions on procurement from a bidder of a country which shares a land border with India.

We hereby certify that **we are not from such a country** and eligible to be considered for this tender.

(Note: Non-compliance of above said GoI Order and its subsequent amendment, (if any), by any bidder(s) shall lead for commercial rejection of their bids by BHEL)

For and behalf of _____ (Name of the bidder)

(Signature, date & seal of authorized representative of the bidder)

(Compliance to be submitted in the bidder's letter head)
(as applicable)

Sub: Compliance to Government of India order OM No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020 regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017

Item Name :	
Enquiry No. :	
Project :	

We M/s._____ (name of the bidder company) have read the clauses pertaining to Department of Expenditure's (DoE) Public Procurement Division Order (Public procurement no 1,2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020) regarding restrictions on procurement from a bidder of a country which shares a land border with India.

We are from such a country which shares a land border with India & have been registered with the Competent Authority as specified in above said order. We hereby certify that we fulfil all requirements in this regard and are eligible to be considered.

Evidence of valid registration by the Competent Authority is attached.

(Note: Non-compliance of above said GoI Order and its subsequent amendment, (if any), by any bidder(s) shall lead for commercial rejection of their bids by BHEL)

For and behalf of _____ (Name of the bidder)

(Signature, date & seal of authorized representative of the bidder)



BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012

**TENDER
DOCUMENT
(PART – A)
Vol II**

TENDER DOCUMENT

PART – A

VOLUME - II

1.	INSTRUCTION TO BIDDER
2.	EARNEST MONEY DEPOSIT (EMD):
3.	SECURITY DEPOSIT (SD) :
4.	NON DISCLOSURE AGREEMENT
5.	CONFIDENTIALITY
6.	STATUTORY REQUIREMENTS
7.	MANPOWER
8.	PERIOD OF CONTRACT
9.	FAILURE TO COMPLY WITH CONTRACT
10.	SUB-CONTRACTING
11.	LAWS GOVERNING THE CONTRACT
12.	LEGAL JURISDICTION:
13.	DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR:
14.	ARBITRATION & CONCILIATION:
15.	COMPENSATION:
16.	PENALTY/ LD FOR DELAYED DELIVERY
17.	CONCILIATION CLAUSE – Annexure IA
18.	MAKE IN INDIA CLAUSE
19.	FORMATS



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol II**

1.	INSTRUCTION TO BIDDER
1.1.	Tender is a two part bid system. The tender documents consist of Part - A and Part - B as detailed below: a. Part 'A': Techno-commercial Bid duly sealed and signed to be uploaded at the web-portal (https://eprocurebhel.co.in) on or before the due date. b. Part 'B': Price Bid to be quoted in prescribed format available on web portal (https://eprocurebhel.co.in) on or before the due date.
1.2.	Envelope 1: Techno-Commercial Offer a. Documents to be uploaded in Envelope 1: i. Earnest Money Deposit (EMD) either in the form of DD or UTR Number (if paid through EFT) at the space provided. ii. Duly completed tender documents volume I&II(Part-A) sign and Sealed. iii. Each and every page of tender documents should be sealed signed. iv. Documents satisfying PQR/Eligibility Criteria as per relevant clause of NIT. v. Any other documents as per Tender requirements. vi. Each and every page of tender documents should be sealed & signed by the tenderer vii. Any other documents as per Tender requirements. b. The tenderer shall not indicate the price or rate in this Envelope. Envelope 2: Part 'B': Online Price-Bid. i. TO be submitted online.
1.3.	The tenderer shall expressly accept all the terms and conditions of the Tender. The tender which does not comply with the BHEL's Terms & Conditions may be rejected as Non-responsive/non-conforming and non-acceptable.
1.4.	The techno-commercial offer will be opened on the due date. The tenders meeting our techno-commercial requirements will be considered for online initial sealed bid auction at a later date for which eligible vendors will be intimated in due course.
1.5.	The tender forms duly filled in all respects shall be signed on each page by the tenderer. Any alteration, erasing will render the tender invalid. Corrections, over writing, cutting(s) etc. are not permitted. All entries in the tender document should be in one ink. All the columns in the tender form should be filled without leaving any column blank in any page of the tender. In case any of the relevant columns are left blank, the tender can be rejected. However, alteration neatly carried out and duly attested over with the full signature of the tenderer is permitted.
1.6.	The tenderer should submit the tender documents intact without detaching any page or pages
1.7.	Before making the offer, the bidders are advised to carefully go through the terms and conditions, which form part of the Agreement.
1.8.	Tender documents consisting of Part 'A' Volume I & II duly sealed and signed and Part 'B' shall be uploaded duly on or before the said Date and Time. Part 'A' Volume I & II of tender form i.e. PQR and Techno-commercial Bid will be opened on specified Tender Due Date and Time. Bidders who qualify the PQR & Techno-commercial Bid will be intimated to participate in R.A.
1.9.	BHEL reserves the right to assess the capacity and capability of the parties for pre-qualification. The company also reserves the right to accept or reject any or all the tenders or any part thereof at any stage of process without assigning any reason whatsoever. The company has no obligation to accept the lowest tender. Offer of the Tenderer if prima-facie found not comparable with the quantum of work envisaged and the bid is a desperate effort to be L1, then the offer is liable to be rejected. BHEL's decision in this regard shall be final and binding.
1.10.	PRICE BID - The tenderers are required to submit their quotation for all the items listed in the Price Bid format given along with the tender documents. The price should be quoted for each activity after careful study of the actual job requirement so that, in case the contract is awarded, contractor should not express any difficulties in execution of the contract.



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol II**

1.11.	Contractor to ensure payment of Minimum Wages payable as per statutory provisions of the Appropriate Govt.
1.12.	VALIDITY OF RATES: The rates quoted should be valid for 90 days initially from the date of opening of the Techno-Commercial bid. (Part-A)
1.13.	The rates shall include the payments on account of Employee contribution to PF, PF Admin. Charges, EDLI, Employer contribution to ESI, Gratuity, Bonus as per statutory requirement, applicable taxes, as per the directives issued by BHEL from time to time.
1.14.	BHEL reserves the right to reject any bid, which is technically unacceptable and unworkable. Further BHEL also reserves the right to reject any or all tenders without assigning any reasons thereof.
1.15.	BHEL reserves the right to cancel the contract at the initial stage or during the contract period without assigning any reason to the tenderer.
1.16.	Wherever prescribed formats are specified for the tenderers use, he shall use the same for making his Claims.
1.17.	Tender document should be complete in all respects.
1.18.	Successful tenderers shall enter into an Agreement on a non-judicial stamp paper of Rs.100/- as a token of having accepted the rates, terms and conditions of the contract as per the Proforma given by BHEL.
1.19.	The Offers should be in full conformity with the terms and conditions of this tender. No contradictions are acceptable. Incorrect and incomplete tenders are liable for rejection.
1.20.	Tenders not submitted in the prescribed forms are liable for rejection.
1.21.	BHEL reserves the right to accept or reject any tender in part or full at their discretion without assigning any reason.
1.22.	If a tenderer deliberately gives wrong information in his tender or creates conditions favorable for the acceptance of his tender, then BHEL reserves the right to reject such tender at any stage.
1.23.	If the tenderer indulges in any unethical practice for securing the contract, the offer of such tenderer shall be rejected.
1.24.	Any written communication required to be sent to the contractor in writing shall be sent at the address mentioned on the tender form or to any other address subsequently intimated by contractor in writing to BHEL SBD for the contract purposes.
1.25.	Benefit (including Turn Over and experience criteria) for MSME / NSIC bidders not available in this contract.
1.26.	Evaluation of Bids
1.27.	Techno-Commercial Bid & PQR: The techno-commercial bid & PQR will be evaluated based on the eligibility criteria and on acceptance of NIT terms and conditions of BHEL. Only qualified bids will be eligible for price-bid opening
1.28.	Evaluation of Price-Bids: <ol style="list-style-type: none"> Evaluation of the L-1 offer shall be computed on overall lowest cost to BHEL basis (Grand Total Price for all the items indicated in Price Bid minus tax credit, if, any) In the event of two or more tenderers becoming L1, the said tenderers would be called for negotiation and will be instructed to submit fresh price bid offers. Further, in the event of two or more tenderers becoming L1, the selection of the tenderer for the purpose of awarding contract will be on the basis of LOTTERY to be held in presence of representatives of L1 tenderer
1.29.	Compensation to Contractor No compensation to contractor shall be given for prior completion/ early closure or any negative/ positive variation in contract value.
2.	EARNEST MONEY DEPOSIT (EMD):
2.1.	Earnest Money Deposit (EMD) is to be paid by tenderers for securing fulfilment of any obligations in terms of the NIT. Earnest Money Deposit as indicated in the NIT (Ref. General Information) is to be submitted along with tender documents Part – A.



2.2.	<p>Modes of deposit The EMD may be accepted only in the following forms: (i) Cash deposit as permissible under the extant Income Tax Act (before tender opening) (ii) Electronic Fund Transfer credited in BHEL account (before tender opening) (iii) Banker's cheque/ Pay order/ Demand draft, in favor of BHEL (along with offer) In case total EMD amount is more than Rs. 20 Lakh, the amount in excess of Rs. 20 lakh may be accepted in the form of Bank Guarantee from scheduled bank. The Bank Guarantee in such cases shall be valid for at least six months.</p>
2.3.	<p>Forfeiture of EMD EMD by the Tenderer will be forfeited as per NIT conditions, if: i) After opening the tender and within the offer validity period, the tenderer revokes his tender or makes any modification in his tender which is not acceptable to BHEL. ii) The Contractor fails to deposit the required Security deposit or commence the work within the period as per LOI/ Contract EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged under the provisions of extant "Guidelines on Suspension of business dealings with suppliers/ contractors" and forfeited/ released based on the action as determined under these guidelines.</p>
2.4.	EMD given by all unsuccessful tenderers shall be refunded normally within fifteen days of award of work.
2.5.	EMD shall not carry any interest.
2.6.	EMD of successful tenderer will be retained as part of Security Deposit.
3.	SECURITY DEPOSIT (SD) :
3.1.	Security Deposit means the security provided by the Contractor towards fulfilment of any obligations in terms of the provisions of the contract.
3.2.	The total amount of Security Deposit will be 5% of the contract value. EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit.
3.3.	<p>Modes of deposit: The balance amount to make up the required Security Deposit of 5% of the contract value may be accepted in the following forms: i. Cash (as permissible under the extant Income Tax Act) ii. Local cheque of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favor of BHEL iii. Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL iv. Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL) v. Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL) (Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith)</p>
3.4.	<p>Collection of Security: At least 50% of the required Security Deposit, including the EMD should be collected before start of the work. Balance of the Security Deposit can be collected by deducting 10% of the gross amount progressively from each of the running bills of the Contractor till the total amount of the required Security Deposit is collected. If the value of work done at any time exceeds the contract value, the amount of Security Deposit shall be correspondingly enhanced and the additional Security Deposit shall be immediately deposited by the Contractor or recovered from payment/s due to the Contractor. The recoveries made from running bills (cash deduction towards balance SD amount) can be released against submission of equivalent Bank Guarantee in acceptable form, but only once, before completion of work, with the approval of the authority competent to award the work.</p>



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol II**

3.5.	Security Deposit shall be released to the Contractor upon fulfilment of contractual obligations as per terms of the contract.
3.6.	The Security Deposit shall not carry any interest.
3.7.	<i>“Bidder agrees to submit performance security required for execution of the contract within the time period mentioned. In case of delay in submission of performance security, enhanced performance security which would include interest (SBI rate + 6% for the delayed period, shall be submitted by the bidder. Further, if performance security is not submitted till such time the first bill becomes due, the amount of performance security due shall be recovered as per terms defined in NIT / contract, from the bills along with due interest ”</i>
4.	NON DISCLOSURE AGREEMENT. The contractor shall sign a Non-Disclosure Agreement (NDA) as per BHEL format (Copy enclosed) in compliance to Information Security Management System.
5.	CONFIDENTIALITY: The contractor and his representatives shall, at all times, undertake to maintain and ensure complete confidentiality and integrity of all data, information, software, drawings & documents, etc. belonging to BHEL and also of the systems, procedures, reports, input documents, results and any other company documents discussed and/or finalized during the course of execution of the order/contract.
6.	STATUTORY REQUIREMENTS:
6.1.	While quoting the rate, the tenderers are advised to take note of minimum wages payable to workmen.
6.2.	The tenderer will be required to comply with all the statutory provisions such as Minimum Wages prevailing at the time of payment or arrears thereof Bonus, PF, EDLI, ESI, Applicable Tax, declared Holidays, leave, etc. The contractor shall submit the documentary evidence of payment on account of submission of statutory payments made to the concerned agencies before clearance of bill of next month.
6.3.	The Contractor shall comply with the provisions of the Factories Act 1948, Contract Labour (Regulation and Abolition) Act 1970, ESI Act, Employees Provident Fund and Miscellaneous Act 1952, Minimum Wages Act 1948, Payment of Gratuity Act 1972, Industrial Disputes Act, 1947, Employers Liability Act 1938, Inter State Migrants Workmen (Regulation of employment and conditions of Service) Act 1979, Employees Compensation Act (...), Maternity Benefit Act 1961, and or any other Laws and Rules that may be applicable from time to time to the workers engaged by him. The contractor, when required by the Company shall produce the registers and records for verification and comply with other directions issued by the company for compliance of the statutory provisions.
6.4.	The contractor shall fully indemnify the loss if any caused to BHEL due to any default or non-observance of any of the laws, or any omission or commission or inability on the part of the contractor or his representative.
6.5.	The contractor shall, keep and produce for inspection at all times, forms, registers and other records required to be maintained under various statutes in order to enable scrutiny by the Company whenever required.
6.6.	The contractor shall produce to the Company, the documentary proof of payment of the said statutory dues. Non-observance of the provisions will be construed as default by the Tenderer in making such payment, and payment of his bill will be deferred.
6.7.	The Income tax as applicable will be deducted from the bill of the contractor.
6.8.	Each contractor will be required to maintain the daily attendance of his labors in the prescribed Performa for accounting payment of minimum wages, deduction towards ESI & PF Contributions, payment of Bonus, leave etc.
6.9.	The contractor will have to follow the provisions of Payment of Bonus Act 1965 and Rules 1975, and is liable to pay Bonus to his workers
6.10.	The contractor will have to extend paid National Holidays and Festival Holidays to their workmen as per the provisions of the relevant Act and the Rules thereof. However, if due to exigencies of work the contractor engages



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol II**

	his workmen on National Holidays or Festival Holidays contractor shall pay additional wages as prescribed under the provisions of the Act.
6.11.	COMPLAINEE WITH BOCW ACT: NA
7.	Manpower:
7.1.	The Contractor shall provide the minimum manpower required for executing the contracted work as per the scope of work. The contractor shall not engage a person who is less than 18 years of age and more than 58 years of age.
7.2.	The contractor shall be responsible for safety of his laborers while they are engaged for work connected with the Contract. The Contractor shall be responsible for the appropriate usage of the said safety appliances. In the event of violation of applicable safety, health & environment related norms, a penalty of Rs.500/- per occasion shall be imposed on the contractor.
7.3.	The contractor, as the employer of his workmen, shall manage them. In the event of any dispute arising between the contractor and his employees, the contractor alone is solely responsible for resolving the dispute between them and BHEL will in no way be responsible for settling the dispute either statutory or otherwise.
7.4.	The contractor shall be responsible for safety of his laborers while they are engaged for work connected with the Contract. The Contractor shall be responsible for the appropriate usage of the said safety appliances. In the event of violation of applicable safety, health & environment related norms, a penalty of Rs.500/- per occasion shall be imposed on the contractor.
7.5.	The contractor will be solely responsible for executing the agreed work and the employees of BHEL will only oversee the proper execution of work. The contractor or his representatives shall be available in the factory to control and supervise his workers and take down instructions from the designated officials of BHEL. The cost of deployment of Supervisor has to be borne by the Contractor.
7.6.	The contractor shall have full control over his employees including w.r.t determining service conditions, discharge, dismiss, or otherwise terminate their services at any time. However, the contractor shall not engage any person who has completed 58 years of age. The contractor shall be solely responsible for any claim arising out of employment or termination of employment of his employees and for statutory payments.
7.7.	The contractor shall employ only such personnel who are medically fit. The company has right to direct the contractor to remove from the premises such of his personnel who may be physically, hygienically, clinically or medically unfit.
7.8.	The contractor shall employ only such personnel who have not been found unfit for employment in Organizations such as Central/State/Public Undertakings by the Police authorities. For this purpose, contractor is required to submit the police verification report before engaging the contract labor. Persons against whom criminal cases are pending or under investigation and persons found guilty of offences involving moral turpitude shall not be engaged for executing work.
7.9.	The Contractor shall comply with all the operational rules and regulations, including safety and security rules framed by the company from time to time wherein the Contractor or his workmen happen to be operating/ working. In the event of any of the workmen of the contractor violating any of the said rules and regulations, the Contractor would be required to remove forthwith such workmen from the company's premises.
8.	PERIOD OF CONTRACT
8.1.	Duration of contract is as mentioned in the General Information of NIT
8.2.	The contract shall be, initially, for the period as mentioned in NIT – General Information from the date of award of contract.
8.3.	The parties are at liberty to terminate the Agreement by giving three calendar months' notice in writing and the loss if any caused to the other party due to termination of contract shall be compensated by the party terminating it.
8.4.	Price as per Awarded Work Order shall be firm for 02 years from the date of issue of Work Order / LOI. However, contract can be extended for 01 years or more (i.e. 3rd year) with same rate and Terms & conditions with mutual consent for similar kind of work at SBD PREMISES with vendor consent and prior approval of BHEL.
9.	FAILURE TO COMPLY WITH CONTRACT
9.1.	Notwithstanding anything contained in any other clause, BHEL reserves the right to terminate the contract due to



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol II**

	any failure on the part of the Tenderer in discharging his obligations under the contract or in the event of his becoming insolvent or going into liquidation. The decision of the BHEL about the failure on the part of the Tenderer shall be final and binding on the tenderer.
9.2.	In case of any damage to the existing building, structures, materials, tools, furniture and fixtures, machines etc., caused from contractor's end, the cost of its repairs or replacement will be recovered from the contractor. If there is any work stoppage in any area of the Plant due to the fault of the tenderer, the tenderer is liable to compensate the same.
9.3.	Please refer RISK & COST CLAUSE enclosed with this NIT.
10.	<u>SUB-CONTRACTING</u>
10.1.	The contractor shall not sub-contract or transfer or assign the contract in full or any part thereof to any other person or firm or company without the previous express written approval of BHEL.
11.	<u>LAWS GOVERNING THE CONTRACT</u>
11.1.	The contract will be governed by the Laws of India for the time being in force and as amended or made from time to time.
11.2.	All disputes shall be settled in accordance with the Laws of India for the time being in force and as amended from time to time.
11.3.	All disputes arising out of or in relation to this contract or Agreement shall be settled by mutual discussions and in the event of failure such disputes shall be referred to the Arbitrator.
12.	<u>LEGAL JURISDICTION:</u>
12.1.	In respect of all matters arising out of or pertaining to the contract, the cause of action thereof shall be deemed to have arisen only at Bengaluru, where BHEL – SBD is situated. All legal proceedings pertaining to the above matters or dispute shall be instituted only in courts having territorial jurisdiction over the place where BHEL-SBD is situated and no other court shall have the jurisdiction.
13.	<u>DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR:</u>
13.1.	The duties and responsibilities and obligation of the contractor including statutory responsibilities mentioned in this document are indicative and not exhaustive. Contractors are required to confirm with the concerned authorities for proper and complete compliance.
13.2.	The contractor will abide by the provisions of Child Labor (Prohibition & Regulation) Rules 1988. He should issue appropriate Appointment Letter to his Workmen.
13.3.	The following documents / forms under Contract Labor (Regulation & Abolition) Act 1970 and relevant rules therein shall be maintained by the contractor: <ul style="list-style-type: none"> (i) A notice showing the wage period and the place and time of disbursement of wages to be displayed at the place of work and a copy sent by the contractor to the HR Department (Rule 75). (ii) A register of workman From XIII (Rule 75) (iii) Employment card From XIV (Rule 76) (iv) Service Certificate From XV (Rule 77) (v) Muster Roll, Wage Register, Deductions Register, overtime Register, leave register etc. (vi) Half yearly return to be sent (In duplicate) by the contractor to the licensing officer. From – XXIV (Rule 82 (I) with a copy to HRM Department regularly. (vii) All statutory registers and records shall be preserved in original for a period of Ten years and should be made available even after the contract is over for verification.
13.4.	The contractor shall comply with the provisions of Contract Labor (R & A) Act including provisions relating to welfare and Health facilities as provided under the Contract Labor (R& A) Act 1970 and relevant rules.
13.5.	All the registered contractors shall submit the returns required under contract Labor (Regulation & Abolition) Act 1970 and forward a copy to HR Department of BHEL-EPD
13.6.	SBD– Bengaluru is a Notified Area under the provisions for ESI Act 1948. The contractor shall comply with the provision of ESI Act, and will be responsible for any liability arising during the tenure of the work contract under



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol II**

	the Act, The contractor should ensure ESI coverage and facilities to his workers (i.e. ESI code no. and ESI card etc.) as per ESI Scheme from ESI authorities including Medical Benefit etc, The contractor shall arrange for filing of family declaration forms in respect of their contract labors and deposit the same in ESI office for issue of Identity card by ESI authorities. The contractor may deduct required ESI contribution from the wages of their employees as per law and deposit the same (Employees share) along with his contribution to the ESI authorities.
13.7.	Workmen insured under ESI Act only shall be deployed in contract work.
13.8.	The contractor shall submit bi-annual return in Form 6 along with monthly Challans to the appropriate authority under the provisions of Employee's State Insurance Act 1948, and send an intimation to HR Department of BHEL-EPD.
13.9.	Not with standing anything contrary to this, in the event of accident the contractor shall be required to submit injury report to the concerned authorities with a copy of the same to the designated BHEL Executive immediately and ensure the compliance of the ESI Act and rules made therein.
13.10.	The contractor shall submit the following returns to the appropriate authority under the provisions of Employee's Provident Fund and Misc. Provisions Act 1952, Employees' Pension Scheme 1995 under intimation to HR Dept. (i) Monthly return in Form 12 A along with form 5 & 10 (addition and deletion) and monthly Challan. (ii) Annual Return in Form 6A along with Form 3A.
13.11.	The Contractor shall maintain the following records as required under the Employees Provident Fund and Miscellaneous Provisions Act 1952, Employee's Pension Scheme 1995 <ul style="list-style-type: none"> ▪ Declaration of Nomination, Form No.2 Para 33 and 61 (1). ▪ Pass Book. ▪ Cash Book. ▪ Attendance. ▪ Wage Register.
13.12.	The contractor shall regularly pay the amount of contribution (employer's contribution as well as the employee's contribution) as per the Employee's Provident Fund and Miscellaneous Provisions Act 1952, Employees' Pension Scheme 1995 and Employee's State Insurance Act 1948. (i) The contractor may recover from his workmen, the employee's contribution in accordance with the provision of the said act and the Scheme but shall not recover the employer's contribution or the other charges from his employees in any manner. (ii) The contractor shall submit along with monthly bills to BHEL, statement showing the recoveries of contributions in respect of employees employed by or through him along with the proof of Deposit of such contribution with the Concerned Authority and shall also furnish to BHEL such information, in the capacity of principal Employer, as required to furnish under the provisions of the schemes under the Employees P.F. and Misc. Provisions Act 1952 and ESI Act, 1948 to the authorities under the said acts. (iii) The Contractor shall arrange for his own P.F. and ESI Code No. from the PF and ESI authorities respectively. The contractor will be reimbursed by BHEL the expenditure incurred by the contractor towards payment of the Employers Contribution and PF Administrative charges.
13.13.	Any failure to comply with the statutory requirements on the part of contractor shall disqualify such contractor from all contracts awarded to him and his name shall be black listed for further tenders / contracts. In addition, the contractor's security deposit shall be forfeited apart from consequential legal action against him.
13.14.	The contractor shall maintain Form D as per Rule 5 of the Payment of Bonus Act, 1965. The contractor is further liable to pay bonus to his employees in accordance with the payment of Bonus Act 1965 and to keep all the records in Form C as per the said Act.
13.15.	In case the contractor employs women, he will discharge his obligation under law in respect of such women workers such as prohibition of engaging them during night hours, prohibition of employing them more than 9 hours per day, provision of crèche facility, grant of maternity leave as per rules etc.
13.16.	The Wage period for the Workmen of Contractors shall be Calendar Month and the contractor shall be responsible for making payment of wages within 7 days of the closure of the wage month. The disbursement shall be preponed to the 6 th day, if the 7 th day happens to be a holiday. Similarly, in case of Overtime wages, the



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol II**

	contractor shall make the OT payment to his workmen along with the salary within 7 days of the closure of the wage month. The Contractor would be required to open an Account for Electronic Fund Transfer (EFT) of his Bills/Claims from BHEL as well as EFT of wages/OT/other payments of his workmen from his Account to the Accounts of his workmen so that risks associated with cash transactions can be avoided.
13.17.	The Contractor shall be required to issue monthly Wage /OT Slips to their workmen. Further, the Contractor's claims are to be accompanied by a Certificate from BHEL Official certifying that "the Wage /OT Slips for the previous month/current month have been issued by the contractor to all their workmen". Further, the contractor would be required to issue Annual PF Statement from the PF Authorities for all his workmen engaged in BHEL Malleswaram Complex before submitting Claim for refund of Security Deposit for the respective years.
13.18.	In case contractor fails to make payment of wages to his employees or remittance of contribution to the concerned authorities, the Security deposit / other dues payable under the contract can be utilized by BHEL to discharge the liability of the contractor.
13.19.	The workmen of the contractors shall wear uniform while attending duty in BHEL campus which must be different in color from the color of uniform of regular employees. The Contractor/his authorized representative shall ensure wearing of the Uniform and Safety Shoe by his workmen in the BHEL premises. The name of the contractor for which the worker is working should be made available on the uniform. The cost of the uniform and Safety Shoe will be borne by contractor. <i>The contractor should ensure and provide masks and gloves to the workmen engaged by him in view of the pandemic COVID-19, till such time it exists. The cost of the same will be borne by contractor.</i>
13.20.	The liability for compensation on account of injury sustained by an employee of the contractor will be exclusively that of the contractor.
13.21.	<u>NATIONAL & FESTIVAL HOLIDAYS</u> (as declared by BHEL): The contractor will give paid National Holidays and Festival Holidays to the workers as per Section 5 of National and Festival Holidays Act. However, if due to the exigency of work if any of his workmen is required to work on National Holiday or Festival Holiday, the contractor has to pay wages as per Section 5, sub section 2 and 3 of the said Act.
13.22.	Besides the three national holidays 15 th February, 26 th January and 2 nd October, if Govt. declares any other day as a national holiday same will be treated as paid holiday for the purpose of this contract. Accordingly, the contractor shall be required to provide paid holiday to its workers for the same. If any of the contract workmen works on such additional declared national holiday, he will be entitled to additional wage for the said day.
13.23.	<u>GENERAL ELECTIONS:</u> If the general elections are held for State Assembly / Parliament and Government declares a public holiday for exercising the franchise, the contractor shall give their workmen half day leave in "First" shift only. The contractor's workmen working in "Second" and "Night" shifts will be required to exercise their franchise during their own time.
13.24.	The Contractor shall maintain the following Documents, Registers, Forms as required under the FACTORIES Act 1948 and Rules 1969. (I) Leave Book Form No. 15 (Rule 121) (II) Nomination Form No. 25 (Rule 127)
13.25.	The contractor will extend leave with wage to his workers who have worked for a period of 240 days or more during a calendar year. To facilitate the proper execution of the Factories Act, these leaves shall be allowed during the same calendar year, at the rate of one day for every 20 working days. A worker commencing service on a day other than the 1st day of the January shall be entitled to leave with wages at the above rate (one day for every 20 days of work) only if he has worked for 2/3 of total no. of days in the remaining year. The contractor will pay the un-availed portion of leave in cash every Six month from the start of the contract.
13.26.	Contractor has to ensure that all his workmen are granted one day weekly off after every 48 hrs. of working. The workmen working for more than 48 hours in any week shall be paid wages twice the ordinary rate of wage in accordance with the provisions of Section 59 of the Factories Act, 1948 read with the Karnataka Factories Rules.
13.27.	The contractor shall follow safety rules and regulations as per provisions of Factories Act 1948, and Rules at his own expense and arrange for the safety provisions as appended to these conditions or rules framed by the government from time to time.
13.28.	Refund of Security Deposit: Security Deposit of contractor will be refunded only after the expiry of the contract period and based on the certification of successful completion of the contract by the concerned Officials and submission of an Indemnity Bond from the contractor, that in case of Claims from any of the statutory authorities,



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol II**

	the same would be indemnified by the Contractor. In case of completion of the contract before payment of bonus to the workers, Security Deposit, as deemed appropriate, will be withheld by BHEL. The same would be released to the Contractor after submission of proof of bonus payment to his workmen.
13.29.	The Contractor shall be required to deposit Tax as applicable, if same is applicable as per rules in force from time to time. The amount so spent can be claimed from BHEL after submitting the proof of the same. The contractor has to obtain GST registration wherever required. The Contractor must quote the Service Account Code (SAC) number at the time of raising invoice.
13.30.	Contractor shall inform his PAN to BHEL. Income tax as applicable will be deducted at source by BHEL from the bill of contractor.
13.31.	All the Registers and Records, forms, Notices maintained under the relevant Acts and Rules should be produced on demand before the Inspector or any other authority under the Act, failing which the contract may be terminated without any notice.
13.32.	Contractor shall be required to submit a list of his workers to be deployed for the works contract giving details regarding Name of contract worker, Fathers Name, permanent and Present Address, Date of Birth, Qualification, Caste-SC/ST/OBC, ESI No, PF No. and the family details.
13.33.	The contractor shall abide by all the labor legislations and other laws including the provisions of Contract Labor (Regulation & Abolition) Act, 1970, the Factories Act, 1948, the Payment of Wages Act, 1936, the Minimum Wages Act, 1948, ESI Act, Employee Provident Fund Act and other relevant Acts applicable to his workmen under this Contract.
13.34.	BHEL shall be indemnified against all losses, Claims, prosecutions etc. under any law.
13.35.	The contractor shall promptly furnish all information and document required by BHEL authorities for the purpose of complying with the responsibilities of Occupier of the factory and shall render all the necessary assistance for the same.
13.36.	The contractor will maintain proper discipline of his workmen and will ensure that his workers do not cause any loss or theft or damage to any company's property. The contractor will also be responsible for the good conduct of his workmen.
13.37.	The contractor shall ensure and maintain uninterrupted progress of the work in accordance with instructions given to him on behalf of BHEL from time to time.
13.38.	In case the contractor makes default in commencing the work within the time specified by BHEL without any reasonable cause, disputes any of the terms and conditions of the contract or refuses to execute the contract or any part thereof at any stage, the contract shall, without prejudice to any other right or remedies available to BHEL, be liable to be cancelled / terminated in part or in whole. In the event of such cancellation / termination of contract, the contractor shall be liable; to compensate BHEL for all losses incurred by BHEL including the loss suffered on account of having the work executed through any other contractor or department as may be convenient to BHEL, in accordance with the exigencies of the work. In case only a part of the contract is cancelled, the remaining portion of contract may be allowed be executed by the contractor.
13.39.	The Contractor, shall, without fail, give up-to-date information in writing of the attendance of the workers engaged by him. The Contractor will also submit the required documents and certificates as prescribed from time to time for the clearance and the payment of the Bill.
13.40.	Whenever any sum of money is found to be recoverable from or payable by the contractor, the same will be deducted from any sum that may due or which at any time there after becomes due to the contractor under this contract or under any other contract or from his security deposit. In case the recoveries are not complete even after such deduction, the contractor shall pay the same or the balance thereof from the security deposit. The contractor shall immediately thereafter pay such further sums as may be required to replenish the shortage caused by such recoveries in the amount of security deposit.
13.41.	During the currency of contract, if the contractor is awarded any other work contract in BHEL, the contractor will have to inform the designated BHEL official before accepting the other work.
13.42.	In case of failure on the part of the contractor to execute the work awarded to him within the stipulated time, the sum equivalent to the EMD as per BHEL Works Policy shall be forfeited as per the Undertaking provided by



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol II**

	tenderers, after a week's notice issued by the awarding officer and BHEL may in its discretion award the contract to any other party.
13.43.	In case of any extra work executed by the contractor, the contractor will be paid on pro-rata basis
13.44.	All the Terms and Conditions as mentioned in Work Order will also form a part of the Agreement.
13.45.	BHEL shall have the right to deduct any sum from the bill of the contractor for making good the loss suffered by a worker or workers by reason of non-fulfillment of the conditions of the contract, Non- payment of wages or of deduction made from his or their wages which are not justified by the terms of the contract or non-observance of the said contract Labor regulations.
13.46.	The contractor shall be responsible for observance of local laws, employment of personnel, payment of taxes etc. As far as possible, workers shall be engaged from the local areas in which the work is being executed.
13.47.	The contractor shall be wholly responsible for the behavior of the workmen at the work place and outside, in the BHEL premises.
13.48.	The contractor shall be responsible for safe custody of BHEL's property like materials, tools etc., entrusted to him and if necessary arrange insurance at his own expense.
13.49.	The contractor shall be responsible to make good and rectify at his own expense any defect, which may develop or may be noticed within the period of the contract.
13.50.	BHEL shall be entitled to recover any payment made on behalf of the contractor under any law or otherwise.
13.51.	BHEL Officer In-charge shall have the right to stop the work at any stage or at any time by giving the contractor seven days' notice in writing.
13.52.	CARTEL FORMATION: The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.
14.	ARBITRATION & CONCILIATION:
14.1.	Except as provided elsewhere in this Contract, in case amicable settlement is not reached between the Parties, in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract, then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the sole arbitration of an arbitrator appointed by Head of the BHEL Solar Business Division.
14.2.	The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the Parties
14.3.	Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause. The seat of arbitration shall be Bengaluru.
14.4.	The cost of arbitration shall be borne as per the award of the Arbitrator.
14.5.	Subject to the arbitration in terms of 11.3, the Courts at Bengaluru shall have exclusive jurisdiction over any matter arising out of or in connection with this Contract.
14.6.	Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the Contractor shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and expedition in a professional manner except where the Contract has been terminated by either Party in terms of this Contract.
15.	COMPENSATION:
15.1.	"BHEL shall recover the amount of compensation paid to victim(s) by BHEL towards loss of life / permanent disability due to an accident which is attributable to the negligence of contractor, agency or



	<p>firm or any of its employees as detailed below.</p> <p>a) Victim: Any person who suffers permanent disablement or dies in an accident as defined below.</p> <p>b) Accident: Any death or permanent disability resulting solely and directly from any unintended and unforeseen injurious occurrence caused during the manufacturing/ operation and works incidental thereto at BHEL factories/ offices and precincts thereof, project execution, erection and commissioning, services, repairs and maintenance, trouble shooting, serving, overhaul, renovation and retrofitting, trial operation, performance guarantee testing undertaken by the company or during any works / during working at BHEL Units/ Offices/ townships and premises/ Project Sites.</p> <p>c) Compensation in respect of each of the victims:</p> <p>(i) In the event of death or permanent disability resulting from Loss of both limbs: ₹10,00,000/- (Rupees Ten Lakhs)</p> <p>(ii) In the event of other permanent disability: ₹7,00,000/- (Rupees Seven Lakhs)</p> <p>d) Permanent Disablement: A disablement that is classified as a permanent total disablement under the provision to Section 2 (I) of the Employee’s Compensation Act, 1923.”</p>																							
16	PENALTY/ LD FOR DELAYED DELIVERY:																							
16.1	<p>Delivery period for LD calculation</p> <p>Number of verticals (double front & single front both considered as single vertical) to be delivered by contractor per month:</p> <table><tr><th rowspan="2">Bidder</th><th colspan="3">No of Verticals</th></tr><tr><th>4 Contractors</th><th>3 Contractors</th><th>2 Contractors</th></tr><tr><td>L-1: Original</td><td>29</td><td>36</td><td>43</td></tr><tr><td>L-2: Subject to accepting L-1 price</td><td>22</td><td>22</td><td>29</td></tr><tr><td>L-3: Subject to accepting L-1 price</td><td>14</td><td>14</td><td>NIL</td></tr><tr><td>L-4: Subject to accepting L-1 price</td><td>7</td><td>NIL</td><td>NIL</td></tr></table> <p>From the date of handing over of either Enclosure or raw material from BHEL store, whichever is later. Delivery delay due to BHEL material unavailability/other vendor material un-availability or delay in execution shall be on BHEL part and contractor under this contract shall not be liable for the same.</p> <p>Payment does not dissolve contractor from the responsibility of attending the defects upon subsequent inspections at SBD shop floor attributable to contractor. Any delay pertaining to same shall also add up in delivery time for LD calculation if not attended within 03 days of intimation for defect attributable to vendor.</p>	Bidder	No of Verticals			4 Contractors	3 Contractors	2 Contractors	L-1: Original	29	36	43	L-2: Subject to accepting L-1 price	22	22	29	L-3: Subject to accepting L-1 price	14	14	NIL	L-4: Subject to accepting L-1 price	7	NIL	NIL
Bidder	No of Verticals																							
	4 Contractors	3 Contractors	2 Contractors																					
L-1: Original	29	36	43																					
L-2: Subject to accepting L-1 price	22	22	29																					
L-3: Subject to accepting L-1 price	14	14	NIL																					
L-4: Subject to accepting L-1 price	7	NIL	NIL																					
16.2	<p>Minimum vertical to be delivered at shop floor as per Delivery period and availability</p> <p>The number of verticals (any rating) & breaker verticals if applicable per month as per below mentioned table:</p> <table><tr><th rowspan="2">Bidder</th><th colspan="3">Number of Verticals including Breaker Verticals, if applicable</th></tr><tr><th>4 Contractors</th><th>3 Contractors</th><th>2 Contractors</th></tr><tr><td>L-1: Original</td><td>36 including minimum 6</td><td>45 including minimum 6</td><td>54 including minimum 6</td></tr></table>	Bidder	Number of Verticals including Breaker Verticals, if applicable			4 Contractors	3 Contractors	2 Contractors	L-1: Original	36 including minimum 6	45 including minimum 6	54 including minimum 6												
Bidder	Number of Verticals including Breaker Verticals, if applicable																							
	4 Contractors	3 Contractors	2 Contractors																					
L-1: Original	36 including minimum 6	45 including minimum 6	54 including minimum 6																					



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol II**

		breaker verticals	breaker verticals	breaker verticals	
	L-2: Subject to accepting L-1 price	27 including minimum 3 breaker verticals	27 including minimum 3 breaker verticals	36 including minimum 6 breaker verticals	
	L-3: Subject to accepting L-1 price	18 including minimum 3 breaker verticals	18 including minimum 3 breaker verticals	NIL	
	L-4: Subject to accepting L-1 price	9	NIL	NIL	
16.3	Liquidated Damage formula 0.5 % per week up to 10% for full board value. Full board value will be calculated based upon the customer/ BHEL approved General Arrangement (GA) of that particular board and price quoted against each feeder. No addition/deletion list will be considered for LD purpose.				
17	REVERSE AUCTION- Terms and conditions “BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among all the techno-commercially qualified bidders. • Start price for RA to be L1 of e-bid/ sealed envelope price bids. • Minimum 2 Techno-commercially qualified bidders are required to conduct RA. • In case of two or three techno-commercially qualified bidders, there shall be no elimination of H1 bidder (whose quote is highest in sealed envelope price bid). • In case of four qualified bidders, H1 bidder to be eliminated whereas in case of five qualified bidders, H1 and H2 bidders are to be eliminated. • Wherever six or more techno-commercially qualified bidders are available, RA would be conducted amongst first 50% of the bidders arranged in the order of prices from lowest to highest. Number of bidders eligible for participating in RA would be rounded off to next higher integer value if number of techno - commercially qualified bidders is odd (e.g. if 7 bids are technically qualified, then RA will be conducted amongst lowest four bidders). However, there will be no elimination of bidders who are MSE or qualifying under PPP-MII Order,2017. Bidders have to submit ‘Process compliance form’ (to the designated service provider) in the Reverse Auction. Non submission of ‘Process compliance form’ by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com). However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/contractors (as available on www.bhel.com).” Start price in the REVERSE AUCTION shall be as per Clauses mentioned below. Business rule and event of auction will be furnished by our service provider. The terms and conditions specified herein are to be strictly adhered to for all the activities.				
18	CONCILIATION CLAUSE – Annexure IA				
19	MAKE IN INDIA CLAUSE				
	i. For this procurement, Public Procurement (Preference to MAKE IN INDIA) Order 2017 Dated 15.06.2017, 28.05.2018, 29.05.2019, 04.06.2020 and subsequent orders issued by the respective Nodal Ministry shall be applicable. Even if issued after issue of this NIT but before finalization of contract WO against this NIT. ii. In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and/ or local content in respect of this procurement same shall be applicable .				
20	FORMATS				
20.1	Agreement Format between BHEL & Contractor				
20.2	Third Party Non-Disclosure Agreement (NDA) format				



BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012

TENDER
DOCUMENT
(PART – A)
Vol II

20.3	EFT Format
20.4	GCC, Risk&Cost, Integrity Pact (enclosed with NIT)

Details related to Reverse Auction

LOG IN NAME & PASSWORD: Each Bidder is assigned a Unique User Name & Password by Service Provider. Bidders are requested to change the Password and edit the information in the Registration Page after the receipt of initial Password from Service Provider. All bids made from the Login ID given to the bidder will be deemed to have been made by the bidder.

BIDS PLACED BY BIDDER: The bid of the bidder will be taken to be an offer to sell. Bids once made by the bidder cannot be cancelled. The bidder is bound to sell the material as mentioned above at the price that they bid. Should any bidder back out and not make the supplies as per the rates quoted, BHEL and / or Service Provider shall take action as appropriate.

Auction Start price & Decremental Value: Start price for RA to be L1 of e-bid/ sealed envelope price bids & Decremental value applicable in the on line reverse auction will be decided by BHEL after evaluating the bids received from the vendors in the sealed envelope price bid/e-bid and will be available to the vendors on the bidding screen of the online reverse auction.

LOWEST BID OF A BIDDER: In case the bidder submits more than one bid, the lowest bid will be considered as the bidder's final offer to sell. The bidders to note that the first appreciable bid that comes in the system must be equal to or less than the auction start price which the bidder can view at the start of reverse auction and subsequent bids shall conform to minimum decremented value or multiples of the decremented value.

AUCTION TYPE: English No Ties Reverse (Refer Bidder Manual)

VISIBILITY TO BIDDER: The Bidder shall be able to view the following on his screen along with the necessary fields:

- Rank of the bidder
- Lowest bid in the reverse auction
- Bid Placed by him

AUCTION WINNER: At the end of the Reverse Auction, BHEL will evaluate all the bids submitted and will decide upon the winner.

GENERAL TERMS & CONDITIONS: Bidders are required to read the "Terms and Conditions" section of the auctions site ----- using the Login ID and passwords given to them.

The Supplier / Bidder shall not involve himself or any of his representatives in Price manipulation of any kind directly or indirectly by communicating with other suppliers / bidders.

The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.

BHEL's decision on award of Contract shall be final and binding on all the Bidders.

BHEL along with Service Provider can decide to extend, reschedule or cancel any Auction. Any changes made by BHEL and / or Service Provider after the first posting will have to be accepted if the Bidder continues to access the site after that time.

BHEL/Service Provider shall not have any liability to Bidders for any interruption or delay in access to the site for the reasons which include Power supply interruption, System failure, non-availability of WEB/Screen etc.

BHEL/Service Provider is not responsible for any damages, including damages that result from, but are not limited to negligence. BHEL / Service Provider will not be held responsible for consequential damages, including but not limited to systems problems, inability to use the system, loss of electronic information etc.

All the Bidders are required to submit the Agreement Form duly signed to Service Provider. After the receipt of the Agreement Form, Log in ID & Password shall be allotted to the suppliers (bidders).



BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012

TENDER
DOCUMENT
(PART – A)
Vol II

After the completion of the Auction event, all the Bidders have to submit the Price Breakup immediately to Service Provider for further proceedings.

Reverse Auction Form

Event Information

The “BHEL” has contracted to conduct this online bidding event. Service Provider shall answer all questions relating to the bidding process and conduct of the Reverse Auction Event.

1. Scheduled Date & Time of the event:

WILL BE INTIMATED BY

Any change in the scheduled time will be duly informed to you in advance.

2. Contact Information

“BHEL-SBD”

A. General Contract related Queries

Name:

Designation:

Tel Nos.

E-mail ID:

Mobile No:

“Service Provider”

Software Related Queries/ Process related Queries

Name:

Designation:

Tel Nos.

E-mail ID:

TO BE INTIMATED LATER



Process Compliance Form

To
Service Provider,

_____.

Sub: Agreement to the Process related Terms and Conditions

Dear Sir,

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the bid document for ----- (Items)
against BHEL Tender No. dated

This letter is to confirm that:

- 1) The undersigned is authorized official of the company.
- 2) We have studied the Reverse Auction Terms & Conditions and the Business rules governing the Reverse Auction as mentioned in your letter and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.

We, hereby confirm that we will honor the Bids placed by us during the auction process.

With regards

Signature with company seal -

Name –

Company / Organization –

Designation within Company / Organization –

Address of Company / Organization –



BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012

TENDER
DOCUMENT
(PART – A)
Vol II

AGREEMENT BETWEEN CONTRACTOR AND BHEL- EPD

This Agreement made on this _____ day of _____ Two Thousand and Nine between M/s / Shri _____ aged about _____ years S/O of Shri _____, residing at _____, hereinafter called the "**Contractor**" (which expression shall unless repugnant to the context or meaning thereof be deemed to mean and include its successors and permitted assigns) of the First part.

AND

BHARAT HEAVY ELECTRICALS LIMITED, SOLAR BUSINESS DIVISION, Prof. CNR Circle, P.B.1245, IISc Post, Malleswaram, BENGALURU-560012, a Company incorporated under the Companies Act 1956 and having its registered office at BHEL House, Siri Fort New Delhi - 110049, **hereinafter called " BHEL-SBD"** (which expression shall unless repugnant to the context or meaning thereof be deemed to mean and include its successors and permitted assigns) of the second part.

Whereas

1. BHEL, SBD is desirous of entrusting to the said contractor to engage and carryout the contract job of more specifically mentioned in the Annexure (hereinafter called the Contract work) to this Agreement.
2. The Contractor who is a specialized agency in the type of contract work in different establishments has agreed to undertake the said contract work on job contract basis.

NOW THEREFORE IT IS AGREED BETWEEN THE PARTIES:

The Terms and conditions of this agreement are as stipulated in:

- (i) Notice Inviting Tender
- (ii) Scope of Work
- (iii) Proforma for Offering Techno-Commercial Bid
- (iv) Special Terms & Conditions of the Contract
- (v) General Terms and Conditions
- (vi) Duties and Responsibilities of Contractor
- (vii) Price Bid Format
- (viii) Declaration By Contractor
- (ix) Any minutes of the meeting & written understanding between BHEL & Contractor
- (x) Work Orders and Work Instructions issued to the Contractor
- (xi) Agreement between Contractor and BHEL-EPD

Shall form part and parcel of this agreement.

IN WITNESS WHEREOF THE PARTIES HERETO through their authorized Representatives have signed these presents on the day, month and year mentioned above.

For and on behalf of M/s-----

133661 /Part-A Volume II



**BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012**

**TENDER
DOCUMENT
(PART – A)
Vol II**

[Authorized signatory]
Name & Designation

Witness : 1

Signature :

Designation :

Address :
For and on behalf of
Bharat Heavy Electricals Limited
Solar Business Division ,
Bengaluru 560012.

[Authorized signatory]
Name & Designation

Witness : 2

Signature :

Designation :

Address :



THIRD PARTY NON-DISCLOSURE AGREEMENT

I, _____ on behalf of the _____ (Name of Company),

acknowledge that the information received or generated, directly or indirectly, while working with BHEL on contract is confidential and that the nature of the business of the BHEL is such that the following conditions are reasonable, and therefore:

I warrant and agree as follows:

I, or any other personnel employed or engaged by our company, agree not to disclose, directly or indirectly, any information related to the BHEL. Without restricting the generality of the foregoing, it is agreed that we will not disclose such information consisting but not necessarily limited to:

- Technical information: Methods, drawings, processes, formulae, compositions, systems, techniques, inventions, computer programs/data/configuration and research projects.
- Business information: Customer lists, project schedules, pricing data, estimates, financial or marketing data,

On conclusion of contract, I, or any other personnel employed or engaged by our company shall return to BHEL all documents and property of BHEL, including but not necessarily limited to: drawings, blueprints, reports, manuals, computer programs/data/configuration, and all other materials and all copies thereof relating in any way to BHEL's business, or in any way obtained by me during the course of contract. I further agree that I, or any others employed or engaged by our company shall not retain copies, notes or abstracts of the foregoing.

This obligation of confidence shall continue after the conclusion of the contract also.

I acknowledge that the aforesaid restrictions are necessary and fundamental to the business of the BHEL, and are reasonable given the nature of the business carried on by the BHEL. I agree that this agreement shall be governed by and construed in accordance with the laws of country.

I enter into this agreement totally voluntarily, with full knowledge of its meaning, and without duress.

Dated at....., this.....day of20 .

Name

Company

Signature



ANNEXURE IA:

MODEL CONCILIATION CLAUSE FOR CONDUCT OF CONCILIATION UNDER THE BHEL CONCILIATION SCHEME,
2018.

BRIEF PROCEDURE FOR CONDUCT OF CONCILIATION PROCEEDINGS

1. The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided herein:
The party desirous of resorting to Conciliation shall send an invitation/notice in writing to the other party to conciliate specifying all points of Disputes with details of the amount claimed. The party concerned shall not raise any new issue thereafter. Parties shall also not claim any interest on claims/counter-claims from the date of notice invoking Conciliation till the conclusion of the Conciliation proceedings. If BHEL is to initiate Conciliation, then, the invitation to Conciliate shall be extended to the concerned Stakeholder in Format 7 hereto. Where the stakeholder is to initiate the Conciliation, the notice for initiation of Conciliation shall be sent in Format-8 hereto.
2. The party receiving the invitation/notice for Conciliation shall within 30 days of receipt of the notice of Conciliation intimate its consent for Conciliation along with its counter-claims, if any.
3. The Conciliation in a matter involving claim or counter-claim (whichever is higher) up to Rs 5 crores shall be carried out by sole Conciliator nominated by BHEL while in a matter involving claim or counter-claim (whichever is higher) of more than Rs 5 crores Conciliation shall be carried out by 3 Conciliators nominated by BHEL. The appointment of Conciliator(s) shall be completed and communicated by the concerned Department/Group of BHEL Unit/Division/Region/Business Group to the other party and the Conciliator(s) within 30 days from the date of acceptance of the invitation to conciliate by the concerned party in the **Format-9**. The details of the Claim, and counter-claim, if any, shall be intimated to the Conciliator(s) simultaneously in **Format-5**.
4. The Parties shall be represented by only their duly authorized in-house executives/officers and neither Party shall be represented by a Lawyer.
5. The first meeting of the IEC shall be convened by the IEC by sending appropriate communication/notice to both the parties as soon as possible but not later than 30 days from the date of his/their appointment. The hearings in the Conciliation proceeding shall ordinarily be concluded within two (2) months and, in exceptional cases where parties have expressed willingness to settle the matter or there exists possibility of settlement in the matter, the proceedings may be extended by the IEC by a maximum of further 2 months with the consent of the Parties subject to cogent reasons being recorded in writing.
6. The IEC shall thereafter formulate recommendations for settlement of the Disputes supported by reasons at the earliest but in any case within 15 days from the date of conclusion of the last hearing. The recommendations so formulated along with the reasons shall be furnished by the IEC to both the Parties at the earliest but in any case within 1 month from the date of conclusion of the last hearing.
7. Response/modifications/suggestions of the Parties on the recommendations of the IEC are to be submitted to the IEC within time limit stipulated by the IEC but not more than 15 days from the date of



receipt of the recommendations from the IEC.

8. In the event, upon consideration, further review of the recommendations is considered necessary, whether by BHEL or by the other Party, then, the matter can be remitted back to the IEC with request to reconsider the same in light of the issues projected by either/both the Parties and to submit its recommendations thereon within the following 15 days from the date of remitting of the case by either of the Parties.
9. Upon the recommendations by the Parties, with or without modifications, as considered necessary, the IEC shall be called upon to draw up the Draft Settlement Agreement in terms of the recommendations.
10. When a consensus can be arrived at between the parties only in regard to any one or some of the issues referred for Conciliation the draft Settlement Agreement shall be accordingly formulated in regard to the said Issue(s), and the said Settlement Agreement, if signed, by the parties, shall be valid only for the said issues. As regards the balance issues not settled, the parties may seek to resolve them further as per terms and conditions provided in the contract.
11. In case no settlement can be reached between the parties, the IEC shall by a written declaration, pronounce that the Conciliation between the parties has failed and is accordingly terminated.
12. Unless the Conciliation proceedings are terminated in terms of para 22 (b), (c) & (d) herein below, the IEC shall forward his/its recommendations as to possible terms of settlement within one (1) month from the date of last hearing. The date of first hearing of Conciliation shall be the starting date for calculating the period of 2 months.
13. In case of 3 members IEC, 2 members of IEC present will constitute a valid quorum for IEC and meeting can take place to proceed in the matter after seeking consent from the member who is not available. If necessary, videoconferencing may be arranged for facilitating participation of the members. However, the IEC recommendations will be signed by all members. Where there is more than one (1) Conciliator, as a general rule they shall act jointly. In the event of differences between the Members of IEC, the decision/recommendations of the majority of the Members of IEC shall prevail and be construed as the recommendation of the IEC.
14. The Draft Settlement Agreement prepared by the IEC in terms of the consensus arrived at during the Conciliation proceedings between the Parties shall be given by the IEC to both the parties for putting up for approval of their respective Competent Authority.
15. Before submitting the draft settlement agreement to BHEL's Competent Authority viz. the Board Level Committee on Alternative Dispute Resolution (BLCADR) for approval, concurrence of the other party's Competent Authority to the draft settlement agreement shall be obtained by the other party and informed to BHEL within 15 days of receipt of the final draft settlement agreement by it. Upon approval by the Competent Authority, the Settlement Agreement would thereafter be signed by the authorized representatives of both the Parties and authenticated by the members of the IEC.
16. In case the Draft Settlement Agreement is rejected by the Competent Authority of BHEL or the other Party, the Conciliation proceedings would stand terminated.
17. A Settlement Agreement shall contain a statement to the effect that each of the person(s) signing thereto (i) is fully authorized by the respective Party(ies) he/she represents, (ii) has fully understood the contents of the same and (iii) is signing on the same out of complete freewill and consent, without any pressure, undue influence.
18. The Settlement Agreement shall thereafter have the same legal status and effect as an arbitration award on agreed terms on the substance of the dispute rendered by an arbitral tribunal passed under



section 30 of the Arbitration and Conciliation Act, 1996.

19. Acceptance of the Draft Settlement Agreement/recommendations of the Conciliator and/or signing of the Settlement Agreement by BHEL shall however, be subject to withdrawal/closure of any arbitral and/or judicial proceedings initiated by the concerned Party in regard to such settled issues.
20. Unless otherwise provided for in the agreement, contract or the Memorandum of Understanding, as the case may be, in the event of likelihood of prolonged absence of the Conciliator or any member of IEC, for any reason/incapacity, the Competent Authority/Head of Unit/Division/Region/Business Group of BHEL may substitute the Conciliator or such member at any stage of the proceedings. Upon appointment of the substitute Conciliator(s), such reconstituted IEC may, with the consent of the Parties, proceed with further Conciliation into the matter either de-novo or from the stage already reached by the previous IEC before the substitution.
21. The proceedings of Conciliation under this Scheme may be terminated as follows:
 - a. On the date of signing of the Settlement agreement by the Parties; or,
 - b. By a written declaration of the IEC, after consultation with the parties, to the effect that further efforts at conciliation are no longer justified, on the date of the declaration; or,
 - c. By a written declaration of the Parties addressed to the IEC to the effect that the Conciliation proceedings are terminated, on the date of the declaration; or,
 - d. By a written declaration of a Party to the other Party and the IEC, if appointed, to the effect that the Conciliation proceedings are terminated, on the date of the declaration; or,
 - e. On rejection of the Draft Settlement Agreement by the Competent Authority of BHEL or the other Party.
22. The Conciliator(s) shall be entitled to following fees and facilities:

Sl No	Particulars	Amount
1	Sitting fees	Each Member shall be paid a Lump Sum fee of Rs 75,000/- for the whole case payable in terms of paragraph No. 27 herein below.
2	Towards drafting of settlement agreement	In cases involving claim and/or counter-claim of up to Rs 5 crores. Rs 50,000/- (Sole Conciliator) In cases involving claim and/or counter-claim of exceeding Rs 5 crores but less than Rs 10 crores. Rs 75,000 (per Conciliator) In cases involving claim and/or counter-claim of more than Rs 10 crores. Rs 1,00,000/- (per Conciliator) Note: The aforesaid fees for the drafting of the Settlement Agreement shall be paid on the,Signing of the Settlement Agreement after approval of the Competent Authority or Rejection of the proposed Settlement Agreement by the Competent Authority of BHEL.
3	Secretarial expenses	Rs 10,000/- (one time) for the whole case for Conciliation by a Sole Member IEC. Where Conciliation is by multi member Conciliators –Rs 30,000/- (one time)- to be paid to the IEC



4	Travel and transportation	As per entitlement of equivalent officer (pay scale wise) in BHEL
	Others	As per the extant entitlement of whole time Functional Directors in BHEL. Ordinarily, the IEC Member(s) would be entitled to travel by air Economy Class
5	Venue for meeting	Unless otherwise agreed in the agreement, contract or the Memorandum of Understanding, as the case may be, the venue/seat of proceedings shall be the location of the concerned Unit / Division / Region / Business Group of BHEL. Without prejudice to the seat/venue of the Conciliation being at the location of concerned BHEL Unit / Division / Region / Business Group, the IEC after consulting the Parties may decide to hold the proceedings at any other place/venue to facilitate the proceedings. Unless, Parties agree to conduct Conciliation at BHEL premises, the venue is to be arranged by either Party alternately.

23. The parties will bear their own costs including cost of presenting their cases/evidence/witness(es)/expert(s) on their behalf. The parties agree to rely upon documentary evidence in support of their claims and not to bring any oral evidence in IEC proceedings.
24. If any witness(es) or expert(s) is/are, with the consent of the parties, called upon to appear at the instance of the IEC in connection with the matter, then, the costs towards such witness(es)/expert(s) shall be determined by the IEC with the consent of the Parties and the cost so determined shall be borne equally by the Parties.
25. The other expenditures/costs in connection with the Conciliation proceedings as well as the IEC's fees and expenses shall be shared by the Parties equally.
26. Out of the lump sum fees of Rs 75,000/- for Sitting Fees, 50% shall be payable after the first meeting of the IEC and the remaining 50% of the Sitting Fees shall be payable only after termination of the conciliation proceedings in terms of para 22 hereinabove.
27. The travelling, transportation and stay at outstation shall be arranged by concerned Unit as per entitlements as per Serial No. 4 of the Table at para 23 above, and in case such arrangements are not made by the BHEL Unit, the same shall be reimbursed to the IEC on actuals limited to their entitlement as per Serial No. 4 of the Table at Para 23 above against supporting documents. The IEC Member(s) shall submit necessary invoice for claiming the fees/reimbursements.
28. The Parties shall keep confidential all matters relating to the conciliation proceedings. Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of its implementation and enforcement or as required by or under a law or as per directions of a Court/Governmental authority/ regulatory body, as the case may be.
29. The Parties shall not rely upon or introduce as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the Disputes that is the subject of the Conciliation proceedings:
- a. Views expressed or suggestions made by the other party in respect of a possible settlement of the Disputes;



- b.** admissions made by the other party in the course of the Conciliator proceedings;
 - c.** proposals made by the Conciliator;
 - d.** The fact that the other Party had indicated his willingness to accept a proposal for settlement made by the Conciliator.
- 30. The Parties shall not present the Conciliator(s) as witness in any Alternative Dispute Resolution or Judicial proceedings in respect of a Disputes that is/was the subject of that particular Conciliation proceeding.
- 31. None of the Conciliators shall act as an arbitrator or as a representative or counsel of a Party in any arbitral or judicial proceeding in respect of a Disputes that is/was the subject of that particular Conciliation proceeding.
- 32. The Parties shall not initiate, during the Conciliation proceedings, any arbitral or judicial proceedings in respect of a Disputes that is the subject matter of the Conciliation proceedings except that a Party may initiate arbitral or judicial proceedings where, in his opinion, such proceedings are necessary for preserving his rights including for preventing expiry of period of limitation. Unless terminated as per the provisions of this Scheme, the Conciliation proceedings shall continue notwithstanding the commencement of the arbitral or judicial proceedings and the arbitral or judicial proceedings shall be primarily for the purpose of preserving rights including preventing expiry of period of limitation.
- 33. The official language of Conciliation proceedings under this Scheme shall be English unless the Parties agree to some other language.



BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012

**TENDER
DOCUMENT
(PART – A)
Vol II**

Format 5 to BHEL Conciliation Scheme, 2018
STATEMENT OF CLAIMS/COUNTER CLAIMS TO BE SUBMITTED TO THE
IEC BY BOTH THE PARTIES

1. Chronology of the Disputes
2. Brief of the Contract/MoU/Agreement/LOI/LOA
3. Brief history of the Disputes:
4. Issues:
5. Details of Claim(s)/Counter Claim(s):

Sl. No.	Description of claim(s)/Counter Claim	Amount (in INR)Or currency applicable in the contract	Relevant contract clause

6. Basis/Ground of claim(s)/counter claim(s) (along with relevant clause of contract)

Note– The Statement of Claims/Counter Claims may ideally be restricted to maximum limit of 20 pages. Relevant documents may be compiled and submitted along with the statement of Claims/Counter Claims. The statement of Claims/Counter Claims is to be submitted to all IEC members and to the other party by post as well as by email.



BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012

TENDER
DOCUMENT
(PART – A)
Vol II

FORMAT-7

FORMAT FOR NOTICE INVOKING CONCILIATION CLAUSE BY BHEL FOR REFERRING THE DISPUTES TO CONCILIATION THROUGH IEC

To,

M/s. (Stakeholder's name)

Subject: NOTICE FOR INVOCATION OF THE CONCILIATION CLAUSE OF THE CONTRACT BY BHEL

Ref: ContractNo/MoU/Agreement/LOI/LOA& date_____.

Dear Sir/Madam,

As you are aware, with reference to above referred Contract/MoU/Agreement/LOI/LOA, certain disputes have arisen, which, in spite of several rounds of mutual discussions and various correspondences have remained unresolved. The brief particulars of our claims which arise out of the above- referred Contract/MoU/Agreement/LOI/LOA are reproduced hereunder:

Sl. No.	Claim description	Amount involved

As you are aware, there is a provision in the captioned Contract/MoU/Agreement/LOI/ LOA for referring disputes to conciliation.

In terms of Clause -----of Procedure i.e., Annexure ----- to the Contract/MoU /Agreement / LOI / LOA, we hereby seek your consent to refer the matter to Conciliation by Independent Experts Committee to be appointed by BHEL. You are invited to provide your consent in writing to proceed with conciliation into the above mentioned disputes within a period of 30 days from the date of this letter along with details of counter-claims, if any, which you might have with regard to the subject Contract/ MoU/ Agreement/ LOI/ LOA.

Please note that upon receipt of your consent in writing within 30 days of the date of receipt of this letter by you, BHEL shall appoint suitable person(s) from the BHEL Panel of Conciliators.

This letter is being issued without prejudice to our rights and contentions available under the contract and law.

Thanking you Yours
faithfully
Representative of BHEL

Note: The Format may be suitably modified, as required, based on facts and circumstances of the case.



BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012

TENDER
DOCUMENT
(PART – A)
Vol II

FORMAT-8 FORMAT FOR NOTICE INVOKING CONCILIATION CLAUSE BY A STAKEHOLDER FOR REFERRING THE DISPUTES TO CONCILIATION THROUGH IEC

To,
BHEL (Head of the Unit/Division/Region/Business Group)

Subject: NOTICE FOR INVOCATION OF THE CONCILIATION CLAUSE OF THE CONTRACT BY A STAKEHOLDER

Ref: ContractNo/MoU/Agreement/LOI/LOA& date_____.

Dear Sir/Madam,

As you are aware, with reference to above referred Contract/MoU/Agreement/LOI/LOA, certain disputes have arisen, which, in spite of several rounds of mutual discussions and various correspondences have remained unresolved. The brief particulars of our claims which have arisen out of the above- referred Contract/MoU/Agreement/LOI/LOA are enumerated hereunder:

Sl. No.	Claim description	Amount involved

As you are aware, there is a provision in the captioned Contract/MoU/Agreement/LOI/ LOA for referring inter-se disputes of the Parties to conciliation.

We wish to refer the above-said disputes to Conciliation as per the said Clause of the captioned Contract/MoU/Agreement/LOI/ LOA. In terms of Clause -----of Procedure i.e., Annexure ----- to the Contract/MoU /Agreement / LOI / LOA, we hereby invite BHEL to provide its consent in writing to proceed with conciliation into the above mentioned disputes within a period of 30 days from the date of this letter along with details of counter-claims, if any, which it might have with regard to the subject Contract/ MoU/ Agreement/ LOI/ LOA and to appoint suitable person(s) as Conciliator(s) from the BHEL Panel of Conciliators.

This letter is being issued without prejudice to our rights and contentions available under the contract and law.

Thanking you
Yours faithfully
Representative of the Stakeholder

Note: The Format may be suitably modified, as required, based on facts and circumstances of the case.



BHARAT HEAVY ELECTRICALS LIMITED,
Solar Business Division, Malleswaram,
Bengaluru - 560 012

TENDER
DOCUMENT
(PART – A)
Vol II

FORMAT-9

FORMAT FOR INTIMATION TO THE STAKEHOLDER ABOUT APPOINTMENT OF CONCILIATOR/IEC

To,

M/s. (Stakeholder's name)

Subject: INTIMATION BY BHEL TO THE STAKEHOLDER AND CONCILIATOR(S) ABOUT APPOINTMENT OF CONCILIATOR/IEC

Ref: ContractNo/MoU/Agreement/LOI/LOA& date_____.

Sir,

This is with reference to letter dated ----- regarding reference of the disputes arising in
connection with the subject Contract No
/MoU/Agreement/LOI/LOA to conciliation and appointment of Conciliator(s).

In pursuance of the said letter, the said disputes are assigned to conciliation and the following persons are
nominated as Conciliator(s) for conciliating and assisting the Parties to amicably resolve the disputes in terms of
the Arbitration & Conciliation Act, 1996 and the Procedure ---- to the subject Contract
...../MoU/Agreement/LOI/LOA, if possible. Name and contact

details of Conciliator(s)

- a)
- b)
- c)

You are requested to submit the Statement of Claims or Counter-Claims (strike off whichever is inapplicable)
before the Conciliator(s) in Format 5 (enclosed herewith) as per the time limit as prescribed by the Conciliator(s).

Yours faithfully,

Representative of BHEL

CC: To Conciliator(s)... for Kind Information please. Encl: As above

Note: The Format may be suitably modified, as required, based on facts and circumstances of the case.

Format for E-payment

To:

AGM (Finance)

BHEL-EPD/ Bengaluru

Opp. Indian Institute of Science

Prof. CNR Rao Circle

Bengaluru – 560093

Subject: E-payments vide RTGS/ NEFT.

I/ We request and authorize you to effect E-payment vide any two modes to my/ our bank account as per the details given below:

Vendor Name :

Title/ Name of Account in the bank :

Account Type (Saving/ Current) :

[illegible]

Name and address of bank :

Bank/ Branch contact person name :

Bank. Branch phone numbers with STD code :

Bank Branch MICR code :

--	--	--	--	--	--	--	--	--

[illegible][illegible]

Your E-mail address :

Name of the Authorized Signatory :

Contact person Name :

I/ We confirm that information provided above is correct & any consequences due to any mistake in above will be borne by us.

Thanking you,

For

(Authorized Signatory)

We confirm that we are enabled for receiving RTGS/ NEFT credits and we further confirm that the account number of (please mention here the name of account holder) _____, the signature of the Authorized Signatory and MICR and IFSC codes of our branch mentioned above are correct.

Bank's Verification
(Manager's/ Officer's signature under bank stamp)

Note: Please attach cancelled original cheque leaf.

Validate

Print

Help



Item Wise BoQ

Tender Inviting Authority: Pradep Kumar Pandit,DM/ WCC



Name of Work:Wiring Contract for Low Voltage Switchgear at BHEL-SBD CPBG shop floor.

Contract No: 133661

Name of the Bidder/ Bidding Firm / Company :												
<p align="center">PRICE SCHEDULE</p> <p align="center">(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)</p>												
NUMBER #	TEXT #	TEXT #	NUMBER #	TEXT #	NUMBER	NUMBER #	NUMBER	NUMBER	NUMBER #	NUMBER #	NUMBER #	TEXT #
Sl. No.	Description	Item Code / Make	Quantity	Units	Estimated Rate in Rs. P	BASIC RATE In Figures To be entered by the Bidder in Rs. P	GST (If applicable in Percentage)	GST Amount in Rs. P	HSN / SAC Code	TOTAL AMOUNT excluding taxes in Rs. P	TOTAL AMOUNT including taxes Rs. P	TOTAL AMOUNT In Words
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Wiring Contract for Low Voltage Switchgear at BHEL-SBD CPBG shop floor.											
1.01	Total cost of carrying out the work as per Scope of work as mentioned in tender document Annexure- I and BOQ as per Unpriced bid in 6.7 AnnexureVII of PartA-Vol-I .	BOQ as per unprice format 6.7 Annexure-VII of Part A-Vol-I	1.00	LOT				0.00		0.000	0.000	INR Zero Only
Total in Figures										0.000	0.000	INR Zero Only
Quoted Rate in Words		INR Zero Only										

 	SOLAR BUSINESS DIVISION (SBD)	SPECIAL CONDITIONS OF CONTRACT (SCC) Rev. No. 00	Item Description: : TENDER REF. :
---	--	--	-----------------------------------

	RISK & COST CLAUSE	<p>Risk & Cost Clause, in line with Conditions of Contract may be invoked in any of the following cases:</p> <p>Contractor/ supplier's poor progress of the work vis-à-vis execution timeline as stipulated in the Contract, backlog attributable to contractor/ supplier including unexecuted portion of work/ supply does not appear to be executable within balance available period (#) considering its performance of execution.</p> <p>Withdrawal from or abandonment of the work by contractor before completion of the work as per contract.</p> <p>Non completion of work/ Non-supply by the Contractor/ supplier within scheduled completion/delivery period as per Contract or as extended from time to time, for the reasons attributable to the contractor/ supplier.</p> <p>Termination of Contract on account of any other reason (s) attributable to Contractor/ Supplier.</p> <p>Assignment, transfer, subletting of Contract without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.</p> <p>Non-compliance to any contractual condition or any other default attributable to Contractor/ Supplier.</p> <p>RISK & COST</p> <p>Risk and Cost against Balance Work:</p> <p>Risk & Cost Amount= $[(A-B) + (A \times H/100)]$</p> <p>Where,</p> <p>A= Value of Balance scope of Work/ Supply (*) as per rates of new contract</p> <p>B= Value of Balance scope of Work/ Supply (*) as per rates of old contract being paid to the contractor/ supplier at the time of termination of contract i.e. inclusive of PVC & ORC, if any.</p> <p>H = Overhead Factor to be taken as 5</p> <p>In case (A-B) is less than 0 (zero), value of (A-B) shall be taken as 0 (zero).</p> <p>*(Balance scope of work/ supply)</p> <p>Difference of Contract Quantities and Executed Quantities as on the date of issue of Letter for 'Termination of Contract', shall be taken as balance scope of Work/ Supply for calculating risk & cost amount.</p> <p>Contract quantities are the quantities as per original contract. If, Contract has been amended, quantities as per amended Contract shall be considered as Contract Quantities.</p> <p>Items for which total quantities to be executed have exceeded the Contract Quantities based on drawings issued to contractor from time to time till issue of Termination letter, then for these items total Quantities as per issued drawings would be deemed to be contract quantities.</p> <p>Substitute/ extra items whose rates have already been approved would form part of contract quantities for this purpose. Substitute/ extra items which have been executed but rates have not been approved, would also form part of contract quantities for this purpose and rates of such items shall be determined in line with contractual provisions.</p> <p>However, increase in quantities on account of additional scope in new tender shall not be considered for this purpose.</p> <p>NOTE: Incase portion of work is being withdrawn, contract quantities</p>
--	-----------------------------------	---

 	SOLAR BUSINESS DIVISION (SBD)	SPECIAL CONDITIONS OF CONTRACT (SCC) Rev. No. 00	Item Description: : TENDER REF. :
---	--	--	-----------------------------------

		<p>pertaining to portion of work withdrawn shall be considered as 'Balance scope of work/supply' for calculating Risk & Cost amount.</p> <p>LD against delay in executed work/supply in case of Termination of Contract</p> <p>LD against delay in executed work/supply shall be calculated in line with LD clause of the contract for the delay attributable to contractor/supplier. For this purpose, contract value shall be taken as Executed Value of 30work/supply for the purpose of limiting maximum LD value.</p> <p>Method for calculation of "LD against delay in executed work/supply" is given below.</p> <ol style="list-style-type: none"> 1. Let the time period from scheduled date of start of work till termination of contract excluding the period of Hold (if any) not attributable to contractor/ supplier= T1 2. Let the value of executed work/supply till the time of termination of contract= X 3. Let the Total Executable Value of work/supply for which inputs/fronts were made available to contractor/ supplier and were planned for execution till termination of contract = Y 4. Delay in executed work/supply attributable to contractor/supplier i.e. $T2 = (1 - X/Y) \times T1$ 5. LD shall be calculated in line with LD clause of the Contract for the delay attributable to contractor/ supplier taking "X" as Contract Value and "T2" as delay attributable to contractor/ supplier. <p>Note: Incase portion of work/supply is withdrawn; no LD shall be applicable for portion of work/supply withdrawn.</p>
--	--	--

INTEGRITY PACT**Between**

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for

Wiring Contract for Low Voltage Switchgear at BHEL-SBD, CPBG ship-floor for 2 years. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions:

Section 2 - Commitments of the Bidder(s)/ Contractor(s)

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and will await their decision in the matter.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 4 - Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to

demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee, whichever is higher.

Section 5 - Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 - Equal treatment of all Bidders/ Contractors / Sub-contractors

- 6.1 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors. In case of sub-contracting, the Principal contractor shall be responsible for the adoption of IP by his sub-contractors and shall continue to remain responsible for any default by his sub-contractors:
- 6.2 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 - Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality in line with Non- disclosure agreement.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

- 8.5 The role of IEMs is advisory, would not be legally binding and it is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matter should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to CMD, BHEL, at the earliest. They may also send their report directly to the CVO and the Commission, in case of suspicion of serious irregularities requiring legal/ administrative action. IEMs will tender their advice on the complaints within 10 days as far as possible.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.9 IEM should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the organization should be looked into by the CVO of the concerned organisation.
- 8.10 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.
- 8.12 The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration

- 9.1 This Pact shall be operative from the date IP is signed by both the parties till the final completion of contract for successful bidder and for all other bidders 6 months after the contract has been awarded. Issues like warranty / guarantee etc. should be outside the purview of IEMs.
- 9.2 If any claim is made/ lodged during currency of IP, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 - Other Provisions

- 10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

- 10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- 10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- 10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders / contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

For & On behalf of the Principal

of the Principal

(Office Seal)

23. 7. 2021

ಅಧೀನ ಬಹುಮಾನ ಪಂದಿತ, ಒ. ಅಧೀನಬಹುಮಾನ/ಅಧೀನ ಬಹುಮಾನ

ब्रह्मदीप कुमार पंडित, वरिष्ठ अभियंता/इन्सु इन्जीनियर

Place IRAJEEP KUMAR PANDIT, Sr. Engineer/Asst. Engr
BHEL-SRD BANGALORE-560 012

Date _____

For & On behalf of the Bidder/

Contractor

(Office Seal)

Witness: _____

(Name & Address) Apert Fr. Janssen

WCC | SBD, Bangalore

Witness: _____

(Name & Address) _____



GENERAL CONDITIONS OF CONTRACT

**SOLAR BUSINESS DIVISION
BHARAT HEAVY ELECTRICALS LIMITED**
(A Govt. of India Undertaking)
PROF. CNR RAO CIRCLE, IISc POST
MALLESHWARAM
BENGALURU - 560012



CONTENTS

Chapter-1

1. General Instructions to Tenderers

1.1. Dispatch Instructions

1.2. Submission of Tenders

1.3. Language

1.4. Price Discrepancy

1.5. Evaluation of Bids

1.6. Data to be enclosed

1.7. Authorisation and Attestation

1.8. Earnest Money Deposit

1.9. Security Deposit

1.10. Return of Security Deposit

1.11. Bank Guarantee

1.12. Validity of offer

1.13. Execution of Contract Agreement

1.14. Rejection of Tender and other Conditions

1.15. BHEL Fraud Prevention Policy



2. Chapter-2

2.1. Definitions

2.2. Law Governing Contract and Court Jurisdiction

2.3. Issue of Notice

2.4. Use of land

2.5. Commencement of Work

2.6. Measurement of Work and Mode of Payment

2.7. Rights of BHEL

2.8. Responsibilities of Contractor in respect of Local Laws, Employment of Workers etc

2.9. Progress Monitoring, Monthly Review and Performance Evaluation

2.10. Time of Completion

2.11. Extension of Time for Completion

2.12. Over Run Compensation

2.13. Quantity Variation

2.14. Extra Works

2.15. Supplementary Items

2.16. Strikes & Lockout

2.17. Force Majeure

2.18. Arbitration and Reconciliation

2.19. Payments

2.20. Performance Guarantee for Workmanship

2.21. Closing of Contracts

2.22. Reverse Auction

2.23. Suspension of Business Dealings

2.24. Other Issues

CHAPTER -1

1. GENERAL INSTRUCTION TO TENDERERS

1.1. DESPATCH INSTRUCTION

i) The General Conditions of Contract form part of the Tender specifications. All pages of the tender documents shall be duly signed, stamped and submitted along with the offer in token of complete acceptance thereof. The information furnished shall be complete by itself. The tenderer is required to furnish all the details and other documents as required in the following pages

ii) Tenderers are advised to study all the tender documents carefully. Any submission of tender by the tenderer shall be deemed to have been done after careful study and examination of the tender documents and with the full understanding of the implications thereof. Should the tenderers have any doubt about the meaning of any portion of the Tender Specification or find discrepancies or omissions in the drawings or the tender documents issued are incomplete or shall require clarification on any aspects, the scope of work etc., he shall contact the authority inviting the tender well in time (so as not to affect last date of submission) for clarification before the submission of the tender. Tenderer's request for clarifications shall be with reference to Sections and Clause numbers given in the tender documents. The tender specifications and terms and conditions shall be deemed to have been accepted by the tenderer in the offer. Pre requirements and conditions shall be liable for rejection.

iii) Integrity pact (IP): If NIT calls for Integrity Pact, the same shall be duly signed & stamped by the authorised signatory & submitted along with tender document.

1.2. SUBMISSION OF TENDERS

1.2.1 The tenderers must submit their tenders as per instructions in the NIT

1.2.2 BHEL takes no responsibility for delay, loss or non-receipt of tenders sent by post/courier. The tenders received after the specified time of their submission are treated as 'Late Tenders' and shall not be considered under any circumstances. Offers received by Fax/Email/Internet shall be considered as per terms of NIT.

1.2.3 Tenders shall be opened by authorised Officer of BHEL at his office at the time and date as specified in the NIT, in the presence of such of those tenderers or their authorised representatives who may be present

1.2.4 Tenderers whose bids are found techno commercially qualified shall be informed the date and time of opening of the Price Bids and such Tenderers may depute their representatives to witness the opening of the price bids. BHEL's decision in this regard shall be final and binding.

1.2.5 Before submission of Offer, the tenderers are advised to inspect the site of work and the environments and be well acquainted with the actual working and other prevalent conditions, facilities available, position of material and labour, means of transport and access to Site, accommodation, etc. No claim will be entertained later on the grounds of lack of knowledge of any of these conditions.

1.3. **LANGUAGE**

1.3.1 The tenderer shall quote the rates in English language and international numerals. These rates shall be entered in figures as well as in words. For the purpose of the tenders, the metric system of units shall be used.

1.3.2 All entries in the tender shall either be typed or written legibly in ink. Erasing and overwriting is not permitted and may render such tenders liable for rejection. All cancellations and insertions shall be duly attested by the tenderer.

1.4 **PRICE DISCREPANCY:**

1.4.1 Conventional (Manual) Price Bid opening:

i) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of BHEL there is obvious misplacement of decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly

ii) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected;

iii) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject of (i) and (ii) above.

iv) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date up to which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of BHEL, the bid is liable to be ignored.

v) In case of lump sum price, if there is any difference between the amount in figures and in words, the amount quoted by the bidder in words shall be taken as correct.

vi) *In case of omission in quoting any rate for one or more items, the evaluation shall be done considering the highest quoted rate obtained against the respective items by other tenderers for the subject tender. If the tenderer becomes L-1, the notional rates for the omission items shall be the lowest rates quoted for the respective items by the other tenderers against the respective omission items for the subject job and the 'Total quoted price (loaded for omissions)' shall be arrived at. However, the overall price remaining the same as quoted originally, the rates for all the items in the 'Total quoted price (loaded for omissions)' shall be reduced item wise in proportion to the ratio of 'Original' total price and the 'Total quoted price (loaded for omissions)'.*

1.4.2 Reverse Auction: In case of Reverse Auction, the successful bidder shall undertake to execute the work as per overall price offered by him during the Reverse Auction process. In case of omission of rates, the procedure shall be as per 'Guidelines for Reverse Auction' enclosed.

i) Offers from tenderers who are under suspension (banned) by any Unit/Region/Division of BHEL shall not be considered. ii) Offers from tenderers who do not comply with the latest guidelines of Ministry/ Commissions of Govt of India shall not be considered.

1.5. EVALUATION OF BIDS

i) Technical Bids submitted by the tenderer will be opened first and evaluated for fulfilling the Pre-Qualification criteria and other conditions in NIT/Tender documents, based on documentary evidences submitted along with the offer, BHEL reserves the right to ask for proofs/documents, clarification in relation to Technical/commercial data during tender evaluation

ii) Price Bids of shortlisted bidders shall only be opened either through the conventional price bid opening or through electronic Reverse Auction, at the discretion of BHEL

iii) Price Bids of unqualified bidders shall not be opened. Reasons for rejection shall be intimated to the vendor before the opening of Price bid.

1.6. DATA TO BE ENCLOSED

The following information in full shall be furnished by the tenderer. Non-submission of this information may lead to rejection of the offer.

i) INCOME TAX PERMANENT ACCOUNT NUMBER, GSTIN, SAC, HSN Certified copies of PAN, GSTIN shall be furnished along with tender. The names, addresses and contact information of the Directors/Partners shall be furnished along with the offer.

ii) An attested copy of the Power of Attorney, in case the tender is signed by an individual other than the sole proprietor.



iii) IN CASE OF INDIVIDUAL TENDERER:

His / her full name, address, PAN, GSTIN and place & nature of business to be furnished. iv)

IN CASE OF PARTNERSHIP FIRM

The names of all the partners and their addresses, a copy of the partnership deed/instrument of partnership shall be enclosed.

v) IN CASE OF COMPANIES:

Date and place of registration including date of commencement certificate in case of Public Companies (certified copies of Memorandum and articles of Association are also to be furnished). Nature of business carried on by the Company and the provisions of the Memorandum relating thereof.

1.7. AUTHORISATION AND ATTESTATION

Tenders shall be signed by a person duly authorised/empowered to do so. An attested copy of the Power of Attorney, in case the tender is signed by an individual other than the sole proprietor shall be submitted along with the tenders

1.8. EARNEST MONEY DEPOSIT

1.8.1 Every tender must be accompanied by the prescribed amount of Earnest Money Deposit (EMD) in the manner described herein.

The EMD may be accepted only in the following forms:

- (i) Electronic Fund Transfer credited in BHEL account (before tender opening)*
- (ii) Banker's cheque/ Pay order/ Demand draft, in favour of BHEL (along with offer) In case total EMD amount is more than Rs.20 Lakh, the amount in excess of Rs.20 lakh maybe accepted in the form of Bank Guarantee from scheduled bank. The Bank Guarantee in such cases shall be valid for at-least six months.*
- (iii) Through SBI collect/RTGS (before tender opening)*
- (iv) No other form of EMD remittance shall be acceptable to BHEL*

1.8.2 EMD by the bidder will be forfeited as per Tender Documents if

- i) After opening the tender and within the offer validity period, the tenderer revokes his/her tender or makes any modification in his tender which is not acceptable to BHEL.*
- ii) The Contractor fails to deposit the required Security deposit or commence the work within the period as per LOI/ Contract.*
- iii) EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged in derailing the tender process by unlawful means.*

1.8.3 EMD shall not carry any interest.

1.8.4 In the case of unsuccessful bidders, the Earnest Money will be refunded to them within a reasonable time after acceptance of award by successful tenderer.

1.8.5 EMD of successful tenderer will be converted as part of Security Deposit

1.9. **SECURITY DEPOSIT**

"Bidder agrees to submit performance security required for execution of the contract within the time period mentioned. In case of delay in submission of performance security, enhanced performance security which would include interest (SB/ rate + 6%) for the delayed period, shall be submitted by the bidder. Further, if performance security is not submitted till such time the first bill becomes due, the amount of performance security due shall be recovered as per terms defined in NIT I contract, from the bills along with due interest "

The total amount of Security Deposit will be 5% of the contract value (including all applicable taxes) EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit.

1.9.1 Modes of Security deposit:

The balance amount to make up the required Security Deposit of 5% of the contract value may be accepted in the following forms:

i) Cash (as permissible under the extant Income Tax Act) ii) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL

iii) Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL iv) Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL)

v) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL) (Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith) vi) 50% of the required Security Deposit, including the EMD, should be paid before start of the work. Balance of the Security Deposit can be collected by deducting 10% of the gross amount progressively from each of the running bills of the Contractor till the total amount of the required Security Deposit is collected. If the value of work done at any time exceeds the contract value, the amount of Security Deposit shall be correspondingly enhanced and the additional Security Deposit shall be immediately deposited by the Contractor or recovered from payment/s due to the Contractor. Security Deposit shall be released to the Contractor upon fulfilment of contractual obligations as per terms of the contract.

1.9.2 The Security Deposit shall not carry any interest.

1.9.3 The validity of Bank Guarantees towards Security Deposit shall be initially up to the completion period as stipulated in the Letter of Intent/Award (plus maintenance period if applicable), and 03 months claim period. The same shall be kept valid by proper renewal till the acceptance of Final Bills of the Contractor, by BHEL

1.9.4 BHEL reserves the right of forfeiture of Security Deposit in addition to other claims and penalties in the event of the Contractor's failure to fulfil any of the contractual obligations or in the event of termination of contract as per terms and conditions of contract. BHEL reserves the right to set off the Security Deposit against any claims of other contracts with BHEL.

1.10. **REFUND OF SECURITY DEPOSIT**

50% of the security deposit may be refunded on completion of the work after payment of the final bill and the balance 50% of the security deposit is refunded only after the expiry of the maintenance period from date of completion of work as stipulated in the contract concerned.

1.10.1 DEFECTS LIABILITY PERIOD:

The contractor shall be responsible to make good and remedy at his own expenses within such period as may be stipulated by the Engineer-in-charge, any defect which may develop or may be noticed before the expiry of the maintenance period of six months or as stipulated in NIT hereto from the certified date of completion and intimation of which has been sent to the contractor within seven days of the expiry of the said period by a letter sent by hand delivery or by registered post or Email. If contractor fails to attend to the above, defect will be rectified at contractor's risk & cost and same will be deducted from the security deposit/payable amounts available with BHEL.

1.11. **BANK GUARANTEES**

Where ever Bank Guarantees are to be furnished/submitted by the contractor, the following shall be complied with

i) Bank Guarantees shall be from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. ii) The Bank Guarantees shall be as per prescribed BHEL formats.

iii) It is the responsibility of the bidder to get the Bank Guarantees revalidated/extended for the required period (subject to a minimum period of six months), as per the advice of BHEL. BHEL shall not be liable for issue of any reminders regarding expiry of the Bank Guarantees.

iv) In case extension/further extensions of any Bank Guarantees are not required, the bidders shall ensure that the same is explicitly endorsed by BHEL

- v) *In case the Bank Guarantees are not extended before the expiry date, BHEL reserves the right to invoke the same by informing the concerned Bank in writing, without any advance notice/communication to the concerned bidder.*
- vi) *Bidders to note that any corrections to Bank Guarantees shall be done by the issuing Bank, only through an amendment in an appropriate non judicial stamp paper.*
- vii) *The Original Bank Guarantee shall be sent directly by the Bank to BHEL under Registered Post (Acknowledgement Due).*

1.12. VALIDITY OF OFFER

The rates in the Tender shall be kept open for acceptance for a minimum period of Ninety (90) DAYS from latest due date of offer submission (including extension, if any). In case BHEL calls for negotiations, such negotiations shall not amount to cancellation or withdrawal of the original offer which shall be binding on the tenderers.

1.13 EXECUTION OF CONTRACT AGREEMENT

The successful tenderer's responsibility under this contract commences from the date of issue of the Letter of Intent by BHEL. The Tenderer shall submit an unqualified acceptance to the Letter of Intent/Award within the period stipulated therein.

The successful tenderer shall be required to execute an agreement in the prescribed form, with BHEL, within fifteen days (15 days) after the acceptance of the Letter of Intent/Award, and in any case before releasing the first running bill. The contract agreement shall be signed by a person duly authorized/empowered by the tenderer. The expenses for preparation of agreement document shall be borne by Tenderer.

1.14. REJECTION OF TENDER AND OTHER CONDITIONS

1.14.1 The acceptance of tender will rest with BHEL which does not bind itself to accept the lowest tender or any tender and reserves to itself full rights for the following without assigning any reasons whatsoever: -

- a. To reject any or all of the tenders.*
- b. To split up the work amongst two or more tenderers as per NIT*
- c. To award the work in part if specified in NIT*
- d. In case of either of the contingencies stated in (b) and (c) above, the time for completion as stipulated in the tender shall be applicable.*

1.14.2 Conditional tenders, unsolicited tenders, tenders which are incomplete or not in the form specified or defective or have been materially altered or not in accordance with the tender conditions, specifications etc., are liable to be rejected.

1.14.3 Tenders are liable to be rejected in case of unsatisfactory performance of the tenderer with BHEL, or tenderer under suspension (hold/banning /delisted) by any unit / region / division of BHEL or tenderers who do not comply with the latest guidelines of Ministry/Commissions of Govt of India. BHEL reserves the right to reject a bidder in case it is observed that they are overloaded and may not be in a position to execute this job. The decision of BHEL will be final in this regard.

1.14.4 If a tenderer who is a proprietor expires after the submission of his tender or after the acceptance of his tender, BHEL may at their discretion, cancel such tender. If a partner of a firm expires after the submission of tender or after the acceptance of the tender, BHEL may then cancel such tender at their discretion, unless the firm retains its character.

1.14.5 BHEL will not be bound by any Power of Attorney granted by changes in the composition of the firm made subsequent to the execution of the contract. They may, however, recognize such power of Attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the contractor concerned.

1.14.6 If the tenderer deliberately gives wrong information in his tender, BHEL reserves the right to reject such tender at any stage or to cancel the contract if awarded and forfeit the Earnest Money/Security Deposit/any other money due.

1.14.7 Canvassing in any form in connection with the tenders submitted by the Tenderer shall make his offer liable to rejection.

1.14.8 In case the Proprietor, Partner or Director of the Company/Firm submitting the Tender, has any relative or relation employed in BHEL, the authority inviting the Tender shall be informed, along with the Offer. Failing to do so, BHEL may, at its sole discretion, reject the tender or cancel the contract and forfeit the Earnest Money/Security Deposit.

1.14.9 The successful tenderer should not sub-contract part or complete work detailed in the tender specification undertaken by him without written permission of BHEL's Construction Manager/Site Incharge. The tenderer is solely responsible to BHEL for the work awarded to him.

1.14.10 The Tender submitted by a techno commercially qualified tenderer shall become the property of BHEL who shall be under no obligation to return the same to the bidder. However unopened price bids and late tenders shall be returned to the bidders after finalization of contract.

1.14.11 Unsolicited discount received after the due date and time of Bid Submission shall not be considered for evaluation. However, if the party who has submitted the unsolicited



discount/rebate becomes the L-I party, then the awarded price i.e contract value shall be worked out after considering the discount so offered.

1.14.12 BHEL shall not be liable for any expenses incurred by the bidder in the preparation of the tender irrespective of whether the tender is accepted or not.

1.15 BHEL Fraud Prevention Policy:

The bidder along with its associate/ collaborators/sub-contractors/ Sub-Vendors/ Consultants/service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice. Fraud prevention policy and list of Nodal officers shall be hosted on BHEL website, vendor portals of Units/Regions Internet.

CHAPTER-2

2.1 DEFINITION: The following terms shall have the meaning hereby assigned to them except where the context otherwise requires

- i) BHEL shall mean Bharat Heavy Electricals Limited, a company registered under Companies Act 1956, with its Registered Office at BHEL HOUSE, SIRI FORT, NEW DELHI – 110 049, or its Authorised Officers or its Site Engineers or other employees authorised to deal with any matters with which these persons are concerned on its behalf.
- ii) “EXECUTIVE DIRECTOR” or ‘GROUP GENERAL MANAGER’ or “GENERAL MANAGER (Incharge)” or “GENERAL MANAGER” shall mean the Officer in SOLAR BUSINESS DIVISION, Prof. CNR Rao Circle, IISc Post, Malleshwaram, BENGALURU - 560012
- iii) “COMPETENT AUTHORITY” shall mean Executive Director or Group General Manager or General Manager (In-charge) or General Manager or BHEL Officers who are empowered to act on behalf of the Executive Director or General Manager (In-charge) or General Manager of BHEL.
- iv) “ENGINEER” or “ENGINEER IN CHARGE” shall mean an Officer of BHEL as may be duly appointed and authorized by BHEL to act as “Engineer” on his behalf for the purpose of the Contract, to perform the duty set forth in this General Conditions of Contract and other Contract documents. The term also includes ‘CONSTRUCTION MANAGER’ or ‘SITE INCHARGE’ as well as Officers

- v) *"SITE" shall mean the places or place at which the plants/equipment are to be erected and services are to be performed as per the specification of this Tender.*
- vi) *"CLIENT OF BHEL" or "CUSTOMER" shall mean the project authorities with whom BHEL has entered into a contract for supply of equipment or provision of services.*
- vii) *"CONTRACTOR" shall mean the successful Bidder/Tenderer who is awarded the Contract and shall include the Contractor's successors, heirs, executors, administrators and permitted assigns.*
- viii) *"CONTRACT" or "CONTRACT DOCUMENT" shall mean and include the Work Order, Contract Agreement, the accepted appendices of Rates, Schedules, Quantities if any, General Conditions of Contract, Special Conditions of Contract, Instructions to the Tenderers, Drawings, Technical Specifications, the Special Specifications if any, the Tender documents, subsequent amendments mutually agreed upon and the Letter of Intent/Acceptance issued by BHEL. Any conditions or terms stipulated by the contractor in the tender documents or subsequent letters shall not form part of the contract unless, specifically accepted in writing by BHEL in the Letter of Intent/Award and incorporated in the agreement.*
- ix) *"GENERAL CONDITIONS OF CONTRACT" shall mean the 'Instructions to Tenderers' and 'General Conditions of Contract' pertaining to the work for which above tenders have been called for.*
- x) *"TENDER SPECIFICATION" or "TENDER" or "TENDER DOCUMENTS" shall mean General Conditions, Common Conditions, Special Conditions, Price Bid, Rate Schedule, Technical Specifications, Appendices, Annexures, Corrigendum's, Amendments, Forms, procedures, Site information, etc and drawings/documents pertaining to the work for which the tenderers are required to submit their offers. Individual specification number will be assigned to each Tender Specification.*
- xi) *"LETTER OF INTENT" shall mean the intimation by a Post/Fax/email to the tenderer that the tender has been accepted in accordance with provisions contained in the letter. The responsibility of the contractor commences from the date of issue of this letter and all terms and conditions of the contract are applicable from this date.*
- xii) *"COMPLETION TIME" shall mean the period by 'date/month' specified in the 'Letter of Intent/Award' or date mutually agreed upon for handing over of the intended scope of work, the erected equipment/plant which are found acceptable by the Engineer, being of required standard and conforming to the specifications of the Contract.*
- xiii) *"PLANT" shall mean and connote the entire assembly of the plant and equipment's covered by the contract.*



- xiv) *"EQUIPMENT" shall mean equipment, machineries, materials, structural, electrical and other components of the plant covered by the contract.*
- xv) *"TESTS" shall mean and include such test or tests to be carried out on the part of the contractor as are prescribed in the contract or considered necessary by BHEL, in order to ascertain the quality, workmanship, performance and efficiency of the contractor or part thereof.*
- xvi) *"APPROVED", "DIRECTED" or "INSTRUCTED" shall mean approved, directed or instructed by BHEL.*
- xvii) *"WORK or CONTRACT WORK" shall mean and include supply of all categories of labour, specified consumables, tools and tackles and Plants required for complete and satisfactory site transportation, handling, stacking, storing, erecting, testing and commissioning of the equipment's to the entire satisfaction of BHEL.*
- xviii) *"SINGULAR AND PLURALS ETC" words carrying singular number shall also include plural and vice versa, where the context so requires. Words imparting the masculine Gender shall be taken to include the feminine Gender and words imparting persons shall include any Company or Associations or Body of Individuals, whether incorporated or not.*
- xix) *"HEADING" – The heading in these General Conditions are solely for the purpose of facilitating reference and shall not be deemed to be part thereof or be taken as instructions thereof or of the contract.*
- xx) *"MONTH" shall mean calendar month unless otherwise specified in the Tender.*
- xxi) *Day' or 'Days' unless herein otherwise expressly defined shall mean calendar day or days of twenty-four (24) hours each. A week shall mean continuous period of seven (7) days.*
- xxii) *"COMMISSIONING" shall mean the synchronization testing and achieving functional operation of the Equipment with associated system after all initial adjustments, trials, cleaning, re-assembly required at site if any, have been completed and Equipment with associated system is ready for taking into service.*
- xxiii) *"WRITING" shall include any manuscript type written or hand written or printed statement or electronically transmitted messages, under the signature or seal or transmittal of BHEL.*
- xxiv) *"TEMPORARY WORK" shall mean all temporary works for every kind required in or for the execution, completion, maintenance of the work.*
- xxv) *'CONTRACT PRICE' or 'CONTRACT VALUE' shall mean the sum including applicable taxes mentioned in the LOI/LOA/Contract Agreement subject to such additions thereto or deductions there from as may be made under provisions hereinafter contained*

xxvi) "COMMENCEMENT DATE" or "START DATE" shall mean the commencement/start of work at Site as per terms defined in the Tender

xxvii) "SHORT CLOSING" or "FORE CLOSING" of Contract shall mean the premature closing of Contract, for reasons not attributable to the contractor and mutually agreed between BHEL and the contractor

xxviii) "TERMINATION" of Contract shall mean the premature closing of contract due to reasons as mentioned in the contract

2.2 LAW GOVERNING THE CONTRACT AND COURT JURISDICTION

The contract shall be governed by the Law for the time being in force in the Republic of India. The Civil Court having original Civil Jurisdiction at Bengaluru, shall alone have exclusive jurisdiction in regard to all claims in respect of the Contract. No other Civil Court shall have jurisdiction in case of any dispute, under this contract

2.3 ISSUE OF NOTICE

2.3.1 Service of notice on contractor: Any notice to be given to the Contractor under the terms of the contract shall be served by sending the same by Registered Post / Speed Post/ FAX / Email to or leaving the same at the Contractor's last known address of the principal place of business (or in the event of the contractor being a company, to or at its Registered Office). In case of change of address, the notice shall be served at changed address as notified in writing by the Contractor to BHEL. Such posting or leaving of the notice shall be deemed to be good service of such notice and the time mentioned to the condition for doing any act after notice shall be reckoned from the date so mentioned in such notice.

2.3.2 Service of notice on BHEL Any notice to be given to BHEL in-charge under the terms of the Contract shall be served by sending the same by post or Email or leaving the same at BHEL address or changed address as notified in writing by BHEL to the Contractor.

2.4 USE OF LAND

No land belonging to BHEL or their Customer under temporary possession of BHEL shall be occupied by the contractor without written permission of BHEL.

2.4.1 STORES AND MATERIALS:

The contractor shall, at his own expense, supply all stores and materials required for the contract, other than those which may be provided by BHEL at the rates detailed therein subject to their availability at the place of issue indicated therein. All stores and materials to be supplied by the Contractor shall be of the best kind as described in the Specifications and the Contractor shall, if required by the Engineer –in- charge furnish him with proof to his satisfaction that the store and materials so comply with the specifications.

The contractor shall, at his own expense and without delay, supply samples of stores and materials proposed to be used in the execution of the work for the approval of the Engineer-in charge, who may reject all stores and materials not corresponding either in quality or character to the approved samples.

In the case of stores provided by BHEL, the Contractor shall bear the cost of loading, transporting to site, unloading, storing under cover as required, assembling & jointing the several parts together as necessary and incorporating & fixing these stores & materials in the work, including all preparatory work of whatever description that may be required, and closing, preparing, loading and returning empty cases or containers to the place of issue without any extra charges.

Contractor is responsible for safe & secure storage of above material.

2.4.2 PATENT RIGHTS:

The contractor shall fully indemnify BHEL, or the agent, servant, or employee of BHEL, against any action, claim or proceeding relating to infringement or the use of any patent or design or any alleged patent or design rights, and shall pay any royalties which may be payable in respect of any article/ or part thereof included in the contract.

In the event of any claims being made or action brought against BHEL, or any agent, or servant or employee of BHEL., in respect of any of the matters aforesaid, the contractor shall not apply when such increment has taken place in complying with the specific directions issued by the BHEL but the contractor shall pay any royalties payable in respect of any such use.

2.4.3 WATER:

The contractor shall allow in his tender and provide at his cost all water required for the work or his employees on the work, together with all pipes and fittings or other means that may be necessary or required to ensure a proper and ample supply of water for all purpose connected with the work.

In the event of a provision existing in the Tender documents for supply of water on payment by BHEL, water will be supplied from the BHEL supply System, or other sources at any points fixed by the Site Engineer/ Engineer-in-charge on the site of work. The contractor shall make necessary arrangement for lifting, pumping, carrying or conveying the water as required at his own cost. The levy of water charges to be borne by the Contractor in such case shall be specifically mentioned in the Tender documents.

2.4.4 TEMPORARY WORKSHOPS, STORES ETC.:

The Contractor shall, during the progress of the work provide, erect and maintain at his own expense all necessary temporary workshops, store, offices, toilets etc., required for the proper and efficient execution of the work. The planning, siting and erection of these building shall have the approval of the Engineer-in-charge and the Contractor shall at all times keep them in a clean and sanitized condition to the entire satisfaction of the Engineer-in-charge.

On completion of the work all such temporary buildings shall be cleared and the site restored to its original state in a clean and tidy condition to the entire satisfaction of the Engineer-incharge.

2.5 COMMENCEMENT OF WORK

2.5.1 Time is essence of contract and is specified in the tender document or in each individual work order.

2.5.2 The contractor shall commence the work within seven (07) days from LOI/work order or as intimated by BHEL and shall proceed with the same with due expedition without delay.

2.5.3 If the contractor fails to start the work within stipulated time as per LOI or as intimated by BHEL, then BHEL at its sole discretion will have the right to cancel the contract. The Earnest Money and/or Security Deposit with BHEL will stand forfeited without any further reference to him without prejudice to any and all of BHEL's other rights and remedies in this regard.

2.5.4 All the work shall be carried out under the direction and to the satisfaction of BHEL.

2.6 MEASUREMENT OF WORK AND MODE OF PAYMENT:

2.6.1 All payments due to the contractors shall be made by electronic mode only, unless otherwise found operationally difficult.

2.6.2 For progress running bill payments: - The Contractor shall present detailed measurement sheets in triplicate, duly indicating all relevant details based on technical documents and connected drawings for work done during the month/period under various categories in line with terms of payment as per contract. The basis of arriving at the quantities, weights shall be relevant documents and drawings released by BHEL. These measurement sheets shall be prepared jointly with BHEL Engineers and signed by both the parties.

2.6.3 These measurement sheets will be checked by BHEL Engineer and quantities and percentage eligible for payment under various groups shall be decided by BHEL Engineer.

The abstract of quantities and percentage so arrived at based on the terms of payment shall be entered in Measurement Book and signed by both the parties.

2.6.4 Based on the above quantities, contractor shall prepare the bills in prescribed format and work out the financial value. These will be entered in Measurement Book and signed by both the parties. Payment shall be made by BHEL after effecting the recoveries due from the contractor.

2.6.5 All recoveries due from the contractor for the month/period shall be effected in full from the corresponding running bills unless specific approval from the competent authorities is obtained to the contrary.

2.6.6 Measurement shall be restricted to that portion of work for which it is required to ascertain the financial liability of BHEL under this contract.

2.6.7 The measurement shall be taken jointly by persons duly authorized on the part of BHEL and by the Contractor.

2.6.8 The Contractor shall bear the expenditure involved if any, in making the measurements and testing of materials to be used/used in the work. The contractor shall, without extra charges, provide all the assistance with appliances and other things necessary for measurement.

2.6.9 If at any time due to any reason whatsoever, it becomes necessary to re-measure the work done in full or in part, the expenses towards such re measurements shall be borne by the contractor unless such re measurements are warranted solely for reasons not attributable to contractor.

2.6.10 Passing of bills covered by such measurements does not amount to acceptance of the completion of the work measured. Any left out work has to be completed, if pointed out at a later date by BHEL.

2.6.11 Final measurement bill shall be prepared in the final bill format prescribed for the purpose based on the certificate issued by BHEL Engineer that entire works as stipulated in tender specification has been completed in all respects to the entire satisfaction of BHEL. Contractor shall give unqualified "No Claim" Certificate. All the tools and tackles loaned to him should be returned in satisfactory condition to BHEL. The abstract of final quantities and financial values shall also be entered in the Measurement Books and signed by both parties to the contract. The Final Bill shall be prepared and paid within a reasonable time after completion of work.

2.7 RIGHTS OF BHEL

BHEL reserves the following rights in respect of this contract during the original contract period or its extensions if any, as per the provisions of the contract, without entitling the contractor for any compensation.

2.7.1 To withdraw any portion of work and/or to restrict/alter quantum of work as indicated in the contract during the progress of work and get it done through other agencies to suit BHEL's commitment to its customer or in case BHEL decides to advance the date of completion due to other emergent reasons/ BHEL's obligation to its customer.

2.7.2 To terminate the contract or get any part of the work done through other agency or deploy BHEL's own/hired/otherwise arranged resources, at the risk and cost of the contractor after due notice of a period of two weeks by BHEL, in the event of: -

i) Contractor's continued poor progress

ii) Withdrawal from or abandonment of the work before completion of the work iii)

Contractor's inability to progress the work for completion as stipulated in the contract

iv) Poor quality of work

v) Corrupt act of Contractor

vi) Insolvency of the Contractor

vii) Persistent disregard to the instructions of BHEL

viii) Assignment, transfer, sub-letting of contract without BHEL's written permission

ix) Non fulfilment of any contractual obligations / non-compliance of statutory requirements

x) In the opinion of BHEL, the contractor is overloaded and is not in a position to execute the job as per required schedule

2.7.3 To meet the expenses including BHEL overheads of 35% & Liquidated damage/penalties arising out of "Risk & Cost" as explained above under SI.No. 2.7.2. BHEL shall recover the amount from any money due from Contractor, from any money due to the Contractor including Security Deposit or by forfeiting any T&P or material of the contractor under this contract or any other contract of BHEL or by any other means or any combination thereof

2.7.4 To terminate the contract or to restrict the quantum of work and pay for the portion of work executed in case BHEL's contract with their customer are terminated for any reason, as per mutual agreement.

2.7.5 To effect recovery from any amounts due to the contractor under this or any other contract or in any other form, the moneys BHEL is statutorily forced to pay to anybody, due to contractor's failure to fulfil any of his obligations. BHEL shall levy overheads of 35% on all such payments.

2.7.6 While every endeavour will be made by BHEL to this end, they cannot guarantee uninterrupted work due to conditions beyond their control. The Contractor will not be normally entitled for any compensation/extra payment on this account unless otherwise specified elsewhere in the contract.

2.7.7 In case the execution of works comes to a complete halt or reaches a stage wherein worthwhile works cannot be executed and there is no possibility of commencement of work for a period of not less than two months, due to reasons not attributable to the contractor and other than Force Majeure conditions, BHEL may consider permitting the contractor to de mobilize forthwith and re mobilize at an agreed future date. Cost of such demobilization/remobilization shall be mutually agreed. ORC (Over run Charges) in such cases shall not be applicable for the period between the period of demobilization and re mobilisation. The duration of contract/time extension shall accordingly get modified suitably. In case of any conflict, BHEL decision in this regard shall be final and binding on the contractor.

2.7.8 In the unforeseen event of inordinate delay in receipt of materials, drawings, fronts, etc, due to which inordinate discontinuity of work is anticipated, BHEL at its discretion may consider contractor's request to short close the contract, provided that the balance works are minor vis a vis the scope of work envisaged as per the contract. At the point of requesting for short closure, contractor shall establish that he has completed all works possible of completion and he is not able to proceed with the balance works due to constraints beyond his control. In such a case, the estimated value of the unexecuted portion of work as mutually agreed, shall however be reduced from the final contract value.

2.7.9 LIQUIDATED DAMAGES/PENALTY

COMPENSATION FOR DELAY:

If the contractor fails to maintain the required progress in terms of condition 2.10 or to complete the work and clear the site on or before the contracted or extended the period of completion, he shall, without prejudice to any other right or remedy of the BHEL on account of such breach, pay as agreed compensation an amount calculated as stipulated below

For unfinished anticipated value of work where finished portion is fit for use

Rate of compensation as follows:

- Completion period (as originally stipulated) not exceeding 6 months.@ 1 percent per week
- Completion period (as originally stipulated) Exceeding 6 months and not exceeding 2 years...@ 0.5 percent per week
- Completion period (as originally stipulated) exceeding 2 years..... @ 0.25 percent per week

Provided always that the total amount of compensation for delay to be paid under condition shall not exceed the under noted percentage of the anticipated contract value

- Completion period (as originally stipulated) not exceeding 6 months.@ 10 percent of anticipated value of work
- Completion period (as originally stipulated) Exceeding 6 months and not exceeding 2 years...@ 7.5 percent of anticipated value of work
- Completion period (as originally stipulated) Exceeding 2 years.....@ 5 percent of anticipated value of work

The amount of compensation may be adjusted or set off against any sum payable to the Contractor under this or any other contract with the BHEL.

2.7.10 POST TECHNICAL AUDIT OF WORK AND BILLS: BHEL reserve the right to carry out a post-payment audit and technical examination of the work and final bill including all supporting vouchers, abstract etc., and to enforce recovery of any sums becoming due as a result thereof in the manner provided in the proceeding sub-paragraph's provided however that no such recovery shall be enforced after three years of passing the final bill

2.8 RESPONSIBILITIES OF THE CONTRACTOR IN RESPECT OF LOCAL LAWS, EMPLOYMENT OF WORKERS ETC.

The following are the responsibilities of the contractor in respect of observance of local laws, employment of personnel, payment of taxes etc. The subcontractor shall fully indemnify BHEL against any claims of whatsoever nature arising due to the failure of the contractor in discharging any of his responsibilities hereunder:

2.8.1 *The contractor at all times during the continuance of this contract shall, in all his dealings with local labour for the time being employed on or in connection with the work, have due regard to all local festivals and religious and other customs.*

2.8.2 *The contractor shall comply with all applicable State and Central Laws, Statutory Rules, Maternity act, Regulations etc. such as contract labour(R&A) Act 1970, Minimum wage Act 1974, Payment of wages Act 1936,ESI Act 1948, EPF Act 1952, Employees' compensation Act 1923, Provision of Companies Act 1948 & rules thereof, The interstate Migrant Workmen 1979, The Karnataka Factories Rules 1969, Payment of Bonus Act 1965, Payment of Gratuity Act 1972. Child labour Prohibition act 1986, Karnataka Minimum Wage Act , Prevention of sexual harassment at work place Act 2013, Guidelines/notification related to Safai Karamchari Act , Equal Remuneration Act 1976, The company's instructions as*

issued from time to time in regard to working hours, wages, leaves, holidays etc. for labour as may be enacted by the Government during the tenure of the Contract and having force or jurisdiction at Site. The Contractor shall also give to the local Governing Body, Police and other relevant Authorities all such notices as may be required by the Law.

The contractor shall produce the following registers and forms:

- Form XIII- Register of work men employed by contractor(Rule 75)
- Form XIV- Employment Card issued by contractor(Rule 76)
- Form XVI- Muster Roll (Rule 78(1) (a)(i))
- Form XVII- Register of Wages (Rule 78(1) (a)(i))
- Form XVIII- Register of wages cum Muster Roll(in case of weekly payment)
- Form XIX- Wage slip (Rule 78(b))
- Form XX- Register of deduction for damages Or Loss Rule 78(1) (a)(ii))
- Form XXI- Register of files Rule 78(1) (a)(ii))
- Form XXII- Register of Advance Rule 78(1) (a)(ii)) x Form XXIII- Register of Overtime Rule 78(1) (a)(iii))
- Form XXIV- Return to be sent by the contractor to the Licensing officer (Rule 82(1))

2.8.3 The contractor shall obtain independent License under the Contract Labour (Regulations and Abolition Act) as required from the concerned Authorities based on the certificate (Form-V) issued by the Principal Employer/Customer

2.8.4 The contractor shall pay all taxes, fees, license charges, deposits, duties, tolls, royalties, commission or other charges which may be levied on account of his operations in executing the contract.

2.8.5 While BHEL would pay the inspection fees and Registration fees of Boiler & explosive/Electrical Inspectorate, all other arrangements for site visits periodically by the Inspectorate to site, Inspection certificate etc. will have to be made by contractor. However, BHEL will not make any payment to the Inspectorate in connection with contractor's Welders/Electricians qualification tests etc.

2.8.6 Contractor shall be responsible for provision of Health and Sanitary arrangements (more particularly described in Contract Labour Regulation & Abolition Act), Safety precautions etc. as may be required for safe and satisfactory execution of contract.

2.8.7 The contractor shall be responsible for proper accommodation including adequate medical facilities for personnel employed by him.

2.8.8 The contractor shall be responsible for the proper behavior and observance of all regulations by the staff employed by him.

2.8.9 The contractor shall ensure that no damage is caused to any person/property of other parties working at site. If any such damage is caused, it is responsibility of the contractor to make good the losses or compensate for the same.

2.8.10 All the properties/equipment/components of BHEL/their Client loaned with or without deposit to the contractor in connection with the contract shall remain properties of BHEL/their Client.

2.8.11 The contractor shall use such properties for the purpose of execution of this contract. All such properties/equipment/components shall be deemed to be in good condition when received by the contractor unless he notifies within 48 hours to the contrary. The contractor shall return them in good condition as and when required by BHEL/their Client. In case of non-return, loss, damage, repairs etc, the cost thereof as may be fixed by BHEL Engineer will be recovered from the contractor

2.8.12 Any delay in completion of works/or non-achievement of periodical targets due to the reasons attributable to the contractor, the same may have to be compensated by the contractor either by increasing manpower and resources or by working extra hours and/or by working more than one shift. All these are to be carried out by the contractor at no extra cost.

2.8.13 The contractor shall arrange, coordinate his work in such a manner as to cause no hindrance to other agencies working in the same premises.

2.8.14 All safety rules and codes applied by the Client/BHEL at site shall be observed by the contractor without exception. The contractor shall be responsible for the safety of the equipment/material and works to be performed by him and shall maintain all light, fencing guards, slings etc. or other protection necessary for the purpose. Contractor shall also take such additional precautions as may be indicated from time to time by the Engineer with a view to prevent pilferage, accidents, fire hazards. Due precautions shall be taken against fire hazards and atmospheric conditions. Suitable number of Clerical staff, watch and ward, store keepers to take care of equipment/materials and construction tools and tackles shall be posted at site by the contractor till the completion of work under this contract. The contractor shall arrange for such safety devices as are necessary for such type of work and carry out the requisite site tests of handling equipment, lifting tools, tackles etc. as per prescribed standards and practices. Contractor has to ensure the implementation of Health, Safety and Environment (HSE) requirements as per directions given by BHEL/Customer. The contractor has to assist in HSE audit by BHEL/Customer and submit compliance Report. The contractor has to generate and submit record/reports as per HSE plan/activities as per instruction of BHEL/Customer. All tools, plant and equipment brought to the site shall become the property of BHEL and shall not be removed from the site without the prior written approval from BHEL. When the work is finally completed or the Contractor is determined for reasons other than the defaults of the contract, he shall forthwith remove from the site all tools, plants, equipment etc., (other than those as may have been provided by BHEL) and upon such removal, the same shall revert in, and become the property of the contractor.

2.8.15 The contractor will be directly responsible for payment of wages to his workmen on specified date of respective month declared as per applicable Labour Act. A pay roll sheet giving all the payments given to the workers and duly signed by the contractor's representative should be furnished to BHEL site for record purpose.

2.8.16 In case of any class of work for which there is no such specification as laid down in the contract, such work shall be carried out in accordance with the instructions and requirements of the Engineer.

2.8.17 Also, no idle charges will be admissible in the event of any stoppage caused in the work resulting in contractor's labour and Tools & Plants being rendered idle due to any reason at any time.

2.8.18 The contractor shall take all reasonable care to protect the materials and work till such time the plant/equipment has been taken over by BHEL or their Client whichever is earlier.

2.8.19 The contractor shall not stop the work or abandon the site for whatsoever reason of dispute, excepting force majeure conditions. All such problems/disputes shall be separately discussed and settled without affecting the progress of work. Such stoppage or abandonment shall be treated as breach of contract and dealt with accordingly

2.8.20 The contractor shall keep the area of work clean and shall remove the debris etc. while executing day-to-day work. Upon completion of work, the contractor shall remove from the vicinity of work, all scrap, packing materials, rubbish, unused and other materials and deposit them in places specified by the Engineer. The contractor will also demolish all the hutments, sheds, offices, etc. constructed and used by him and shall clean the debris. In the event of his failure to do so, the same will be arranged to be done by the Engineer and the expenses recovered from the contractor. If the work is executed in Factory premises, no hutment will be allowed.

2.8.21 The contractor shall execute the work in the most substantial and workman like manner in the stipulated time. Accuracy of work and timely execution shall be the essence of this contract. The contractor shall be responsible to ensure that the quality, assembly and workmanship conform to the dimensions and clearance given in the drawings and/ or as per the instructions of the Engineer.

2.8.22 The Contractor to note that some of BHEL's T&Ps/MMDs may not be insured. The Contractor will take necessary precautions and due care to protect the same while in his custody from any damage/ loss till the same is handed over back to BHEL. In case the damage / loss is due to carelessness/ negligence on the part of the contractor, the Contractor is liable to get them repair/ replaced immediately and in case of his failure to do so within a reasonable time, BHEL will reserve the right to recover the loss from the contractor.

2.8.23 The contractor shall provide all watchmen necessary, for the protection of the site, the work, the materials, the tools, plant, equipment and anything else lying on the site during the progress of the work. He shall solely be responsible for and shall take all reasonable and proper steps for protecting, securing, lighting and watching all places on or about the work and the site which may be dangerous to any person whom so ever.

2.8.24 SITE DRAINAGE: All water that may accumulate on the site during the process of the work, or in trenches and excavations shall be removed to the entire satisfaction of the Engineering-charge and at Contractors expense.

2.8.25 INSPECTION OF THE WORK: BHEL Officers concerned with the Contract shall have power at any time to inspect and examine any part of the work and the contractor shall give such facilities as may be required to given for such inspection and examination.

2.8.26 In case the contractor is required to undertake any work outside the scope of this contract, the rates payable shall be those mutually agreed upon if the item rates are not mentioned in existing contract

- i. For any item of work required to be carried out after the contract has been awarded and which is not covered by Contractors Schedule but is covered by C.P.W.D. schedule of rates the rate payable for such a fresh item will be derived from updated C.P.W.D. schedule of rates by the method of proportion as follows:
- ii. Rate as per estimated updated C.P.W.D DSR and loading tender excess (plus or minus) on pro-rata basis for nearest analogous items. For other items rate as per estimated C.P.W.D DSR and loading tender excess (plus or minus)
- iii. If rates are not available in C.P.W.D. DSR, deviated item rates will be derived from market rate with 15% profit and overheads.

2.9 PROGRESS MONITORING, MONTHLY/ WEEKLY REVIEW AND PERFORMANCE EVALUATION

2.9.1 A detailed plan/programme for completion of the contractual scope of work as per the time schedule given in the contract shall be jointly agreed between BHEL and Contractor, before commencement of work. The above programme shall be supported by month/ week wise deployment of resources viz Manpower, T&P, Consumables, etc. Progress will be reviewed periodically (Daily/Weekly/Monthly) vis a vis this jointly agreed programme. The Contractor shall submit periodical progress reports (Daily/Weekly/Monthly) and other reports/information including manpower, consumables, T&P mobilization etc as desired by BHEL.

2.9.2 Monthly/ weekly progress review between BHEL and Contractor shall be based on the agreed programme as above, availability of inputs/fronts etc, and constraints if any, as per prescribed formats. Manpower, T&P and consumable reports as per prescribed formats shall

be submitted by contractor every month. Release of RA Bills shall be contingent upon certification by BHEL Site Engineer of the availability of the above prescribed formats duly filled in and signed.

2.9.3 The burden of proof that the causes leading to any shortfall is not due to any reasons attributable to the contractor is on the contractor himself. The monthly progress review shall record shortfalls attributable to (i) Contractor, (ii) Force Majeure Conditions, and (iii) BHEL

2.10 TIME OF COMPLETION

2.10.1 Time is essence of the contract. The time schedule shall be as prescribed in the Contract. The time for completion shall be reckoned from the date of commencement of work at Site as certified by BHEL Engineers

2.10.2 The entire work shall be completed by the contractor within the time schedule or within such extended periods of time as may be allowed by BHEL under clause 2.11

2.11 EXTENSION OF TIME FOR COMPLETION

2.11.1 If the completion of work as detailed in the scope of work gets delayed beyond the contract period, the contractor shall request for an extension of the contract and BHEL at its discretion may extend the Contract.

2.11.2 Based on the monthly reviews jointly signed, the works balance at the end of original contract period less the backlog attributable to the contractor shall be quantified, and the number of months of 'Time extension' required for completion of the same shall be jointly worked out. Within this period of 'Time extension', the contractor is bound to complete the portion of backlog attributable to the contractor. Any further 'Time extension' or 'Time extensions' at the end of the previous extension shall be worked out similarly.

2.11.3 However if any 'Time extension' is granted to the contractor to facilitate continuation of work and completion of contract, due to backlog attributable to the contractor alone, then it shall be without prejudice to the rights of BHEL to impose penalty/LD for the delays attributable to the contractor, in addition to any other actions BHEL may wish to take at the risk and cost of contractor.

2.11.4 A joint programme shall be drawn for the balance amount of work to be completed during the period of 'Time Extension', along with matching resources (with weightages) to be deployed by the contractor as per specified format. Review of the programme and record of shortfall shall be done every month of the 'Time extension' period in the same manner as is done for the regular contract period.

2.11.5 During the period of 'Time extension', contractor shall maintain their resources as per mutually agreed program

2.11.6 At the end of total work completion as certified by BHEL Engineer, and upon analysis of the total delay, the portion of time extensions attributable to (i) Contractor, (ii) Force majeure conditions, and (iii) BHEL, shall be worked out and shall be considered to be exhausted in the same order. The total period of time extensions shall be the sum of (i), (ii) and (iii) above and shall be equal to period between the scheduled date of completion and the actual date of completion of contract. LD shall be imposed/levied for the portion of time extensions attributable to contractor and recoverable from the dues payable to the contractor.

2.12 OVERRUN COMPENSATION (THIS CLAUSE IS NOT APPLICABLE IN BHEL FACTORY & TOWNSHIP PREMISES)

2.12.1 Over Run Compensation (ORC) is payable by way of rate revisions for periods beyond original, contract period subject to the following terms and conditions.

2.12.2 Rates shall be increased by 10% for the first twelve months of one or more extensions beyond original contract period. For the next twelve months of further extensions if any, rates shall be increased as above by 10% over the previous twelve months, and similarly for each subsequent twelve months extension.

2.12.3 Should there be any 'Time extension' for reasons attributable only to the contractor, then the work shall be executed by the contractor at the rates applicable for the period the work was planned

2.12.4 Payment of ORC shall be regulated as follows:

- i) Contractor is entitled to Over Run Compensation (ORC) only for the portion of backlog attributable to BHEL.
- ii) 50% of the compensation is allocated for deployment of resources agreed as per the joint programme drawn vide 2.11.4. Payment shall however be based on the actual deployment of resources for the month as certified by BHEL, as per weightages assigned therein
- iii) 50% of the compensation, is allocated for achieving of planned progress agreed as per the joint programme drawn vide 2.11.4. Payment shall be on pro rata basis for actual achieved quantities
- iv) Total Over Run Compensation shall be limited to 10% of the executed contract value as certified in Final Bill. For this purpose, executed contract value excludes PVC, ORC, Supplementary/Additional Items and Extra Works done on Man-day rate basis

2.12.5 Contractor shall not be entitled for any Over Run Compensation (ORC) for the portion of backlog attributable to the contractor. Such works shall be executed at the rates applicable for the period the work was planned

2.13 QUANTITY VARIATION

2.13.1 *The quoted rates shall remain firm irrespective of any variations in the individual quantities.*

2.14 EXTRA WORKS

2.14.1 All rectifications/modifications, revamping, and reworks required for any reasons not attributable to the contractor, or needed due to any change in deviation from drawings and design of equipment, operation/maintenance requirements, mismatching, or due to damages in transit, storage and erection/commissioning, and other allied works which are not very specifically indicated in the drawings, but are found essential for satisfactory completion of the work, will be considered as extra works.

2.14.2 Extra works arising on account of the contractor's fault, irrespective of time consumed in rectification of the damage/loss, will have to be carried out by the contractor free of cost. Under such circumstances, any material and consumable required for this purpose will also have to be arranged by the contractor at his cost.

2.14.3 All the extra work should be carried out by a separately identifiable gang, without affecting routine activities. Daily log sheets in the pro-forma prescribed by BHEL should be maintained and shall be signed by the contractor's representative and BHEL engineer. No claim for extra work will be considered/entertained in the absence of the said supporting documents i.e. daily log sheets. Signing of log sheets by BHEL engineer does not necessarily mean the acceptance of such works as extra works.

2.14.4 BHEL retains the right to award or not to award any of the major repair/rework/modification/rectification/fabrication works to the contractor, at their discretion without assigning any reason for the same

2.14.5 After eligibility of extra works is established and finally accepted by BHEL engineer/designer, payment will be released on competent authority's approval at the following rate.

MAN-HOUR RATE FOR ELIGIBLE EXTRA WORKS: Single composite average labour manhour rate, including overtime if any, supervision, use of tools and tackles and other site expenses and incidentals, consumables for carrying out any major rework/repairs/rectification/modification/fabrication as certified by site as may arise during the course of erection, testing, commissioning or extra works arising out of transit, storage and erection damages, payment, if found due will be as per applicable minimum wage act

2.14.6 The above composite labour man hour rate towards extra works shall remain firm and not subject to any variation during execution of the work. PVC will not be applicable for extra works. Rate revision, Over Run Charges/compensation etc will not be applicable due to extra works.

2.14.7 Extra Works for Civil Packages shall be regulated as follows

i) Rates for Extra Works arising due to (1) non availability of BOQ (Rate Schedule), OR (2) change in Specifications of materials/works (3) rectification/modification/dismantling & re-erecting etc due to no fault of Contractor, shall be in the order of the following:

a) Item rates are to be derived from similar nature of items in the BOQ (Rate Schedule) with applicable escalation derived from All India Consumer Price Index for Whole Sale Commodities.

b) As per applicable updated CPWD-DSR (or latest edition) with applicable escalation derived, Notification issued by the office of CPWD for 'Cost Index' in that Region where the project is being executed,

c) Item rates are to be worked out on the basis of prevailing market rates mutually agreed between BHEL and Contractor, plus 15% towards Contractor's overheads and profit.

ii) PVC and ORC will not applicable be for (i) above.

2.15 **SUPPLEMENTARY ITEMS**

2.15.1 For NON Civil Works

Supplementary items are items/works required for completion of entire work but not specified in the scope of work. Subject to certification of such items/works as supplementary items by BHEL Engineer, rates shall be derived on the basis of any one of the following on mutual agreement:

i) Based on percentage breakup/rates indicated for similar/nearby items

ii) In case (i) above does not exist, then BHEL/site may derive the percentage breakup/rates to suit the type of work

2.15.2 For Civil Works

i) Rates for Supplementary Works/Additional Works arising out due to additions/alterations in the original scope of works as per contract subject to certification of BHEL Engineer shall be worked out as under:

a) Item rates which are available in existing BOQ (Rate Schedule) shall be operated with applicable escalation derived from All India Consumer Price Index for Whole Sale Commodities

b) Items of works which are not available in existing BOQ shall be operated as an 'Extra Works' and rate shall be derived as per clause no 2.14

- ii) *Execution of Supplementary Works/Additional Works through the Contractor shall be at the sole discretion of BHEL, and shall be considered as part of executed contract value for the purpose of Quantity Variation as per clause 2.13*
- iii) *BHEL Engineer's decision regarding fixing the rate as above is final and binding on the contractor.* iv) *PVC and ORC will not be applicable for (i) above.*

2.16 STRIKES & LOCKOUT

2.16.1 The contractor will be fully responsible for all disputes and other issues connected with his labour/employee. In the event of the contractor's labour/employee resorting to strike or the Contractor resorting to lockout and if the strike or lockout declared is not settled within a period of 15 days, BHEL shall have the right to get the work executed through any other agencies and the cost so incurred by BHEL along with Overhead charges of 35% shall be deducted from the Contractor's bills along with overhead of 35%

2.16.2 For all purposes whatsoever, the employees of the contractor shall not be deemed to be in the employment of BHEL

2.17 FORCE MAJEURE

The following shall amount to Force Majeure: -

2.17.1 Acts of God, act of any Government, War, Sabotage, Riots, Strike, Civil commotion, Police action, Revolution, Flood, Fire, Cyclones, Earth quake and Epidemic and other similar causes over which the contractor has no control.

2.17.2 If the contractor suffers delay in the due execution of the contractual obligation due to delays caused by force majeure as defined above, the agreed time of completion of the job covered by this contract or the obligations of the contractor shall be extended by a period of time equal to period of delay, provided that on the occurrence of any such contingency, the contractor immediately reports to BHEL in writing the causes of delay and the contractor shall not be eligible for any compensation.

2.18 ARBITRATION & RECONCILIATION

2.18.1 In case amicable settlement is not reached in the event of any dispute or difference arising out of the execution of the Contract or the respective rights and liabilities of the parties or in relation to interpretation of any provision by the Contractor in any manner touching upon the Contract, such dispute or difference shall (except as to any matters, the decision of which is specifically provided for therein) be referred to the sole arbitration of the arbitrator appointed by BHEL/In charge.

The award of the Arbitrator shall be binding upon the parties to the dispute Subject as aforesaid, the provisions of Arbitration and Reconciliation Act 1996 (India) or statutory

modifications or reenactments thereof and the rules made there under and for the time being in force shall apply to the arbitration proceedings under this clause. The venue of the arbitration shall be the place from which the contract is issued or such other place as the Arbitrator at his discretion may determine

2.18.2 In case of Contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable:

In the event of any dispute or difference relating to the interpretation and application of the provisions of the Contract, such dispute or difference shall be referred to by either party to the arbitration of one of the arbitrators in the department of public enterprises. The award of the arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the parties hereto finally and conclusively.

2.18.3 The cost of arbitration shall be borne equally by the parties.

2.18.4 Work under the contract shall be continued during the arbitration proceedings

2.19 PAYMENTS

Payments to Contractors are made in any one of the following forms

2.19.1 Running Account Bills (RA Bills)

i) These are for interim payments when the contracts are in progress. The bills for such interim payments are to be prepared by Contractor in prescribed formats (RA Bill forms).

ii) Payments shall be made according to the extent of work done as per measurements taken up to the end of the calendar month and in line with the terms of payments described in the Tender documents along with relevant statutory documents applicable for the work.

iii) Recoveries on account of electricity, water, statutory deductions, etc are made as per terms of contract

iv) Full rates for the work done shall be allowed only if the quantum of work has been done as per the specifications stipulated in the contract. If the work is not executed as per the stipulated specifications, BHEL may ask the contractor to re do the work according to the required specifications, without any extra cost. However, where this is not considered necessary 'OR' where the part work is done due to factors like non-availability of material to be supplied by BHEL 'OR' non availability of fronts 'OR' non availability of drawings, fraction payment against full rate, as is considered reasonable, may be allowed with due regard for

the work remaining to be done. BHEL decision in this regard will be final and binding on the contractor.

v) In order to facilitate part payment, BHEL Site Engineer at his discretion may further split the contracted rates/percentages to suit site conditions, cash flow requirements according to the progress of work

2.19.2 Final Bill

Final Bill is used for final payment on closing of Running Account for works or for single payment after completion of works. *Final Bill* shall be submitted as per prescribed format after completion of works as per scope and upon material reconciliation, along with the following.

- i) *'No Claim Certificate'* by contractor
- ii) Clearance certificates where ever applicable viz Clearance Certificates from Customer, various Statutory Authorities like Labour department, PF Authorities, Commercial Tax Department, etc
- iii) Indemnity bond as per prescribed format BHEL shall settle the final bills after deducting all liabilities of Contractor to BHEL

2.20 PERFORMANCE GUARANTEE FOR WORKMANSHIP

2.20.1 Even though the work will be carried out under the supervision of BHEL Engineers the Contractor will be responsible for the quality of the workmanship and shall guarantee the work done for a period of as mentioned in the contract/NIT from the date of commencement of guarantee period as defined in Technical Conditions of Contract, for good workmanship and shall rectify free of cost all defects due to faulty erection detected during the guarantee period. In the event of the Contractor failing to repair the defective works within the time specified by the Engineer, BHEL may proceed to undertake the repairs of such defective works at the Contractor's risk and cost, without prejudice to any other rights and recover the same from the balance security deposit.

2.20.2 BHEL shall release the balance security deposit subject to the following

- i) Contractor has submitted *'Final Bill'*
- ii) Guarantee period as per contract has expired
- iii) Contractor has furnished *'No Claim Certificate'* in specified format
- iv) BHEL Site Engineer/Construction Manager has furnished the *'No Demand Certificate'* in specified format

v) Contractor has carried out the works required to be carried out by him during the period of Guarantee and all expenses incurred by BHEL on carrying out such works is included for adjustment from the Guarantee money refundable.

2.21 CLOSING OF CONTRACTS

The Contract shall be considered completed and closed upon completion of all contractual obligations and settlement of Final Bill or completion of Guarantee period whichever is later. Upon closing of Contract, BHEL shall issue a completion certificate as per standard format, based on specific request of Contractor.

2.22 REVERSE AUCTION/PRICE BID OPENING:

- BHEL reserves the right to go for reverse auction at any point of time before opening of Price Bid.
- Bids with non-acceptance of reverse auction will be liable for rejection.
- Opening of Price Bid at discretion of BHEL.
- BHEL shall be at liberty to cancel the tender at any time, before ordering, without assigning any reason.

2.23 SUSPENSION OF BUSINESS DEALINGS

BHEL reserves the right to take action against Contractors who either fail to perform or Tenderers/Contractor who indulge in malpractices, by suspending business dealings with them in line with BHEL guidelines issued from time to time.

2.24 OTHER ISSUES

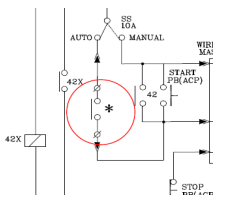
2.24.1 Value of Non judicial Stamp Paper for Bank Guarantees and for Contract Agreement shall be not less than Rs 200/- unless otherwise required under relevant statutes.

2.24.2 In case of any conflict between the General Conditions of Contract and Special Conditions of Contract, provisions contained in the Special Conditions of Contract shall prevail.

2.24.3 Unless otherwise specified in NIT, offers from consortium/JVs shall not be considered.

2.24.4 BHEL may not insist for signing of Contract Agreements in respect of low value and short time period contracts





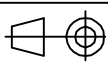
	Client	Telangana State Power Generation Corporation limited			
	Project	5x800MW Yadadri TPS, Nalgonda			
	Cotractor/Vendor	BHEL , RANIPET			
	Drawing No.	3-00-114-39138			
	Title	SINGLE LINE DIAGRAM FOR ACP (TYPICAL)			
Sl. No.	Item/clause/ Page No.	TCE/ TSGENCO comments Dt. 13-02-2019	BHEL Reply dt. 7-6-19	TCE/ TSGENCO comments Dt. 15-11-2019 (Rev.01)	BHEL Reply Dt:04.01.20
1	General	Please correct Consultant's name on all the sheets.	Corrected.	Noted	
2	General	This document consists of 12 sheets with different drawing numbers (each one having sh 1 of 1), which is not a correct practice. Please submit with a cover sheet indicating the drawing number as per PEDM & total no.of sheets, followed by an index sheet listing all the subsequent drawings.	Corrected.	Noted	
3	Sh 1/12	Minimum size of 3 core LT cable for aluminium is 16sq.mm. Please correct for HH and HS feeders.	Accepted.	Noted	
4	Sh 1/12	For breaker protected circuits minimum size of power cable is 240sq.mm. Please correct incomer cable size.	There is no outgoing feeder in ACP panels with ACB. Only incomers are provided with 3 runs of 3.5C-150 sq.mm. cable. This is provided for ease of termination of cable based on panel vendor's feedback and these are our standard cable sizes for incomers. Please accept as 3 runs of cable meets the load current requirements.	Though 3nos., 150sqmm cables satisfy load current requirement, each cable shall be able to carry the full short circuit current for the specified period. This is because should there be a fault on one cable very near to upstream source that cable will carry much higher s.c. current compared to other cables. Hence please change the size and number of cables to reflect minimum size of 3.CX240sqmm.	In switchgear panel we provide protection for short circuit , earth fault protection with numerical relay. When S.C. fault occurs in cables in a single phase, numerical relay will identify the fault and trips the breaker. This will protect the entire system.
5	Sh 1/12	The supply for 415/240V control transformers(CST) shall be derived from switchboard incoming supply before the incoming circuit breaker. This is to ensure availability of control supply even if the I/C breaker is open.	This is the standard practice adopted for any panels. Two CSTs are provided in order to maintain continuity of supply in case any one of the breakers is open.	Not clear. As per SLD the 415/240V supplies are derived from bus. In the circuit diagram it is indicated as "Before breaker". Which is being proposed? From bus is acceptable to us.	The incomer to space heater CST is taken before incomer ACB and incomer for CST to other control supply is taken after ACB.
6	Sh 1/12	CST incomers are shown as MCB. The same shall be MCCB.	Accepted.	It is shown in SLD as MCCB. Circuit diagram shows it as just fuse on in comer and nothing on secondary. Please correct the circuit diagram. Also please not that the secondaries can be MCB since falt level is reduced to within the.s.c. rating of MCB. B) This comment applies to the 110V control supply too.	Noted & Incorporated.
7	Sh 1/12	In the incomer feeders, VT supply shall be taken through suitably rated Fuses as MCBs are not suitable for that fault level.	SFUs of suitable ratings shall be provided instead of MCBs for incomer feeder VTs.	Noted	
8	Sh 1/12	O/L relay ranges selected may be checked & confirmed for 0.37kW and 1.1kW motor feeders.	This will be checked based on vendor's components make.	Noted	
9	Sh 2/12, Note:8	Cables shall be Fire resistant PVC type.	Accepted.	Noted	

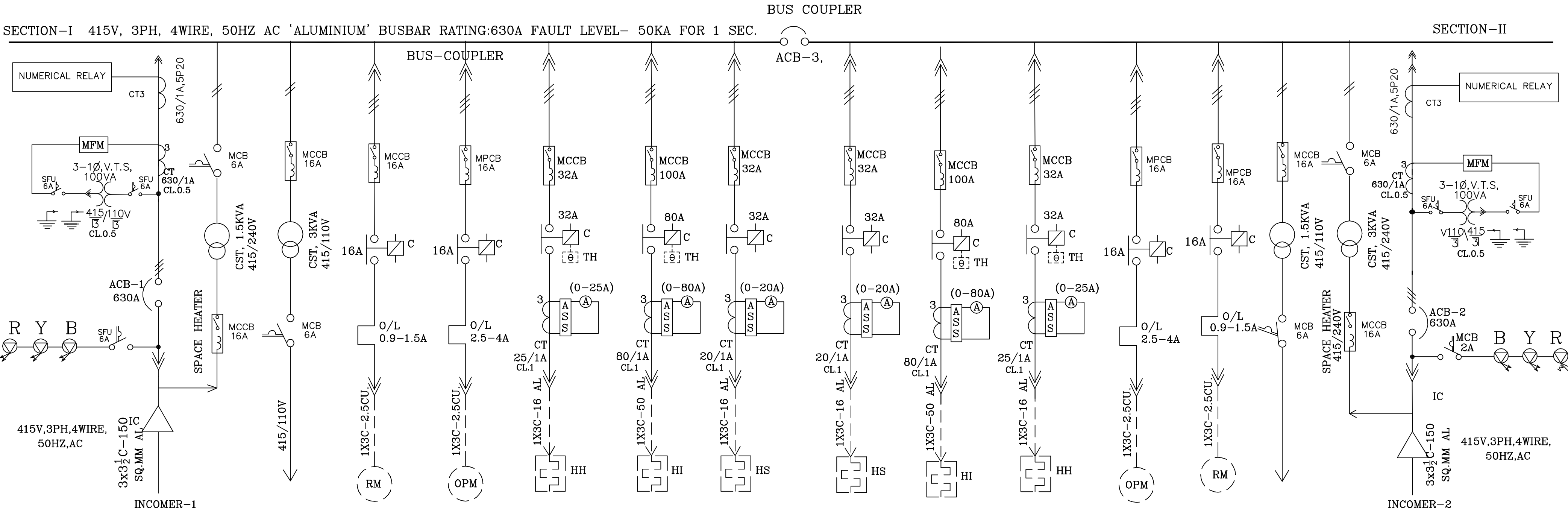
10	Sh 2/12	Please mention color code for AC (3 phase and 1 phase) and DC cables	Red, Yellow, Blue & Black for phases and neutral. Control circuit: black colour for AC and grey wire for DC.	Noted	
11	Incomer circuit (Typical)- Sh 3/12	Note 1: ACB shall be 4 pole	Incomer ACB shall be 4 pole and all other ACBs shall be 3 pole as per KTPS tender specification.	a) Noted. However in any circuit, if 3ph., 4 wire is used for the circuit the breaker shall be 4 pole only. B) Bus coupler breaker shall also be 4pole type.	As incomer ACBs are provided with 4 pole breaking, bus coupler doesn't require 4 pole as neutral breaking will be taken care by incomer ACBs itself during fault. Hence 3 pole ACB is sufficient for bus coupler.
12	Sh 3/12	Please mention rating and accuracy class of CT and VT, and ratings of ACB.	Mentioned in revised drawings. Incomer metering CT, VT class 0.5 and all other CT, VT class 1.	Noted	
13	Sh 3/12	Mention protection functions provided in numerical relay for incomer.	Relays functions: Anti pumping 94, trip ckt supervision 95,trip annunciation 30A,B, lock out 86, Undervoltage 27, overvoltage.	Noted. Over current instantaneous with timer, inverse time over current (phase as well as earth) protections are missing.	Instantaneous Overcurrent Relay (50) & AC Inverse Time Overcurrent Relay (51) will be available in Numerical relay.
14	Sh 3/12	MCB in primary circuit of VT is not suitable for the fault level of 50kA. Please provide suitable rating of fuse.	6A SFU shall be provided.	Noted	
15	Sh 3/12	Details in Note 10 for CDG relay with 2 O/C elements are irrelevant for Numerical relay.	Point deleted.	Noted.	
16	Sh 3/12	Please provide DC supply monitoring relay on each DC incomer	This relay is not required in this panel.	Noted	
17	Sh 3/12, Note 12	Please provide facility for Manual Live changeover for ACP.	Manual Live changeover facility will be provided.	Noted. Corresponding check synchronising shall be provided.	Synchronizing relay (25) will be provided.
18	Sh 3/12	Please provide No voltage relay and undervoltage relay for Auto changeover scheme (Note 7).	No voltage relay and undervoltage relay functions will also be provided.	Noted.	
19	Sh 3/12	Please show the control circuit of incomer breaker also.	These details with complete scheme will be provided in final vendor's drawings.	Noted	
20	Sh 4 & 5/12	Each motor feeder module shall be provided with its own 415/110V control transformer rated suitably. Separate 240V bus for motor feeder shall be removed.	As per TSGENCO resolutions on BHEL EPD for Kothagudem TPS, All feeders will be fed by single control Transformer of sufficient rating in each Bus section.	Please refer latest approved EPD datasheet/General notes and accordingly provide individual CST	Being a fractional HP motor (0.5HP) separate CST is not required. Common CST will be used for control supply of Rapping Motors. This is standard practice. Pl. accept for Common CST.
21	Sh 4/12	Control voltage for all outgoing modules shall be 110V and service voltage for space heater, panel lighting, socket etc. is 240V AC. Please correct panel schematic accordingly.	Corrected.	Noted	
22	Sh 4/12	Power supply socket shall be 5 pin plug socket.	Accepted.	Noted	
23	Sh 4/12	Panel lighting is missing. Please indicate.	Accepted.	Noted	
24	Sh 5/12	We presume indicated NO contact is for Start command from Remote. If so, please indicate the same on the scheme drawing. 	Indicated NO contact is for Start command from Remote and indicated in revised drawing with * mark.	Noted	
25	Sh 5/12	Stop command is not available from remote. Please modify scheme to incorporate the same.	The motor is controlled by microprocessor based Areca controller. The motor is designed to run only for 1 minute at particular time intervals. The motor will run only when the contact closes and when the contact opens, motor will stop. This will act as start and stop command from remote.	Noted	

26	Sh 5/12	Motor fault feedback shall also be provided to DDIMS/PLC. Please indicate the same.	Motor feedback is already taken to microprocessor based Areca controller and IOS system (IOS-PC) in boiler control room.	Noted	
27	Sh 5/12	Stop PB shall be in only available in Manual operation circuit. It shall not be provided in series with Auto operation	As it is Emergency Stop, Stop PB is enables for both Auto and Manual operation.	Noted	
28	Sh 5/12	Under LEGEND, Please correct the spelling "TEXT" as "TEST"	Corrected.	Noted	
29	Sh 5/12	Please clarify under LEGEND / NOTES, the meaning of * and ** .	Clarified in Notes.	Noted	
30	Sh 5/12	Please clarify whether local operation is possible from local SSSB station. Motor Running, Stop and Fault indication shall be available in SSSB station.	Local operation is possible from local SS push button station also. The motor status will be available in ACP panel, EC Panel-Areca controller and IOS system.	Noted	
31	Hopper heater-Sh 6/12	In each section of SLD, there are 10 working + 2Spare feeders shown for Hopper Heaters, which can feed 40 Hopper heaters. There are only 36 Hoppers shown in Hopper Key Diagram for one ESP. Please clarify. Check and correct the Hopper key diagram.	Corrected.	Noted	
32	Sh 6/12	Under LEGEND, Please correct the spelling "TEXT" as "TEST"	Corrected.	Noted	
33	Sh 7,8 & 9/12	Please clarify where the SW(10A) is located and whether it is manually operated to switch on shaft & support insulator Heaters and OPM blower motors.	Switch is located in the ACP panel and it is manually operated to switch on shaft & support insulator Heaters and OPM blower motors..	Noted	
34	Sh 7,8 & 9/12	Under LEGEND, Please correct the spelling "TEXT" as "TEST"	Corrected.	Noted	

TELENGANA STATE POWER GENERATION CORPORATION LTD
TELEGANA STATE, INDIA 5X800MW YADADRI, NALGONDA

S.NO	DRAWING DESCRIPTION	DRAWING NUMBER	REV
01	LIST OF DRAWINGS	3-00-114-39138	02
02	SINGLE LINE DIAGRAM FOR ACP (TYPICAL)	2-00-114-39138	02
03	NOTES AND LEGENDS FOR ACP (TYPICAL)	3-00-114-39246	02
04	INCOMER CIRCUIT (TYPICAL)	3-00-114-39247	02
05	CONTROL SUPPLY TRANSFORMER AND SPACE HEATER CIRCUIT (TYPICAL)	3-00-114-39248	01
06	P&C CIRCUIT FOR RAPPING MOTOR (TYPICAL)	3-00-114-39249	01
07	P&C CIRCUIT FOR HOPPER HEATRE (TYPICAL)	3-00-114-39250	01
08	P & C CIRCUIT FOR SUPPORT INSULATOR HEATER (TYPICAL)	3-00-114-39251	01
09	P & C CIRCUIT FOR SHAFT INSULATOR HEATER	3-00-114-39252	01
10	P & C CIRCUIT FOR OPACITY MONITOR (TYPICAL)	3-00-114-39253	01
11	TB ARRANGEMENT FOR 'ON' COMMOND 'ON' FEEDBACK TO ECP PANEL (BUS-SEC-1) (TYPICAL)	3-00-114-39254	01
12	TB ARRANGEMENT FOR 'ON' COMMOND 'ON' FEEDBACK TO ECP PANEL (BUS-SEC-2) (TYPICAL)	3-00-114-39255	01
13	MAKE OF COMPONENTS FOR ACP/LTMSB (TYPICAL)	3-00-114-39448	01
14	IN-HOUSE WIRELESS SYSTEM WIRING DIAGRAM	3-00-114-40638	01

CUSTOMER:	TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA STATE, INDIA 5x800MW YADADRI TPS, NALGONDA												
CONSULTANT NAME			CONSULTING ENGINEERS LIMITED										
	BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT NOIDA												
COPY RIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.										DEPT CODE	NAME	SIGN	DATE
										DRN	SASIKLA V	-SD-	05.06.19
										DESN	A.P.C.	-SD-	05.06.19
										CHD	M.J.M		05.06.19
										APPD	M.J.M		05.06.19
TITLE LIST OF DRAWINGS													
										DEPT.	SCALE	DRAWING NO.	
										SIGN		3-00-114-39138	
										REV. 02			



NO.OF FEEDERS	1	1	1	21+4(SP)	1	10+2(SP)	1+1(SP)	1+1(SP)	1	1	10+2(SP)	1(SP)	21+4(SP)	1	1	1
FEEDER RATING	512 A	1.5KVA	3KVA	0.37KW	1.1KW	12KW	40KW	10KW	10KW	40KW	12KW	1.1KW	0.37KW	3KVA	1.5KVA	512 A



LEGEND

R - RED
G - GREEN
A - AMBER
Y - YELLOW
B - BLUE

ESP SIZE : 4XFAA-9X45M+1X45M-2X116150-2

NOTE

01. NUMBER OF AUXILIARY CONTROL PANEL PER BOILER IS FOUR.

CUSTOMER:	TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA STATE, INDIA 5x800MW YADADRI TPS, NALGONDA				
CONSULTANT NAME	TATA CONSULTING ENGINEERS LIMITED				
	BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT NOIDA				
COPY RIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or Indirectly in any way detrimental to the Interest of the company.					
DEPT CODE		NAME		SIGN	DATE
M		DRN	SASIKLA V	-SD-	05.06.19
		DESJN	A.P.C	-SD-	05.06.19
		CHD	M.J.M	-SD-	05.06.19
		APPD	M.J.M	-SD-	05.06.19
TITLE SINGLE LINE DIAGRAM FOR ACP (TYPICAL)					
		DEPT.	SCALE	DRAWING NO.	
		SIGN		2-00-114-39138	
				REV. 02	

NOTE:

01. CONSTRUCTION : SINGLE FRONT FOR ACB AND DOUBLE FRONT FOR OTHER OUTGOING FEEDERS. DRAW-OUT FOR INCOMER AND OUTGOING FEEDERS, EXCEPT CST, ALI AND MARSHALLING COMPARTMENTS.
02. NO.OF AUXILIARY CONTROL PANEL : FOUR NUMBER PER BOILER.
03. ACP SHALL BE SUITABLE FOR 3PH, 4WIRE, 415V, 50HZ SUPPLY.
04. ALL POWER, CONTROL SWITCHES AND RESET PUSH BUTTONS SHALL BE MOUNTED ON MODULE DOORS. ALL INSTRUMENTS AND SWITCHES SHALL BE FLUSH MOUNTED.
05. DOUBLE COMPRESSION TYPE BRASS CABLE GLANDS AND HEAVY DUTY ANNEALED TINNED COPPER(ATC) LUGS ARE ENVISAGED FOR ALL MODULES AND THE SAME SHALL BE SUPPLIED BY THE ACP PANEL MANUFACTURER.
06. DOOR INTERLOCK SHALL BE SUCH THAT THE DOOR CAN NOT BE OPENED WITH THE BREAKER AND FSU IN 'ON' POSITION.
07. TWO SET OF OPERATION AND MAINTANANCE MANUAL WILL BE SUPPLIED BY PANEL MANUFACTURER ALONG WITH THE PANEL.
08. PANEL CONTROL WIRING 1100V GRADE PVC INSULATED COPPER. FIRE RESISTANT 2.5SQMM FOR CT/PT AND 2.5SQMM FOR OTHER CONTROL WIRING.
09. ALL INSTRUMENTS AND SWITCHES SHALL BE FLUSH MOUNTED.
10. OVERLOAD RELAYS SHALL BE WITH BUILT-IN SINGLE PHASING PROTECTION. RESET PUSH BUTTON SHALL BE PROVIDED ON DOOR.
11. INDICATION LAMPS SHALL BE OF CLUSTERED LED TYPE.
12. THE CIRCUIT IS DRAWN FOR THE FOLLOWING CONDITIONS:

i). POWER AND CONTROL SUPPLY OFF.


ii). ALL CONTACTORS IN DE-ENERGISED CONDITION.
13. EQUIPMENTS SHOWN IN DOTTED LINES IN DETAILED SCHEMES ARE EXTERNAL TO THE PANEL.
14. OPERATING HEIGHT (HANDLE/PUSH BUTTON POSITION) SHALL BE RESTRICTED BETWEEN 250MM AND 1900MM FROM THE FLOOR LEVEL.
15. CABLE ENTRY SHALL BE FROM THE BOTTOM.
16. CT(METERING) ACCURACY SHALL BE CLASS-1.
17. PANEL COLOUR SHALL BE EXTERIOR:OPALINE GREEN 275 OF IS-5, INTERIOR SHALL BE SEMI GLOSSY WHITE. (WILL BE CONFIRMED DURING VENDOR DRAWING APPROVAL
18. DEGREE OF PROTECTION : IP-52 AS PER IS-13947.
19. ALL SPARE CONTACTS SHALL BE WIRED UP TO TB.
20. THE ACP SHALL BE EXTENDABLE AT BOTH ENDS WITH OUTGOING FEEDERS.
21. ALL INSTRUMENTS SHALL HAVE ACCURACY CLASS OF 1.
22. THE CONTROL BUS SHALL BE MADE OF COPPER.
23. THE ACP MANUFACTURER SHALL PROVIDE 6 NOS. MARSHALLING COMPARTMENTS IN EACH ACP (THREE NUMBERS ON EACH BUS-SECTION), AT DIFFERENT VERTICAL SECTIONS, FOR HOUSING RAPPING MOTOR& HOPPER THERMOSTAT WIRELESS MASTER MODULE. 20% SPARE TB SHALL BE PROVIDED.
24. MINIMUM MODULE HEIGHT SHALL BE 300mm.
25. THE THICKNESS OF PANEL LOAD BEARING – 2MM (MIN) (CRCA)

NON LOAD BEARING – 1.6MM (MIN) (CRCA)



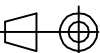
GLAND PLATE – 3MM (CRCA)
26. INDICATING METER SHALL BE OF SIZE 96X96 SQ. MM.
27. TWO NUMBERS INTERPOSING RELAYS FOR EACH BREAKERS (ONE FOR CLOSING, ONE FOR TRIPPING THE BREAKERS) SHALL BE SUPPLIED AND WIRED BY THE ACP PANEL MANUFACTURER.
28. EARTHING BUS-BAR SHALL BE OF COPPER OF SIZE 50X6MM SHALL BE PROVIDED.
29. ALL PROTECTION RELAYS (O/C RELAY, E/F RELAY, U/V RELAY, TRIP CIRCUIT SUPER VISION RELAY, LOCK OUT RELAY, 50 & 51 OVER CURRENT RELAY & 25 SYNCHRONIZING ANTI PUMPING 94, TRIP CIRCUIT SUPERVISION 95, TRIP ANNUNCIATION 30A,B & UNDER VOLTAGE 27) SHALL BE BE OF NUMERICAL TYPE WITH IEC-61850 PROTOCOL (SAME WILL BE CONFIRMED DURING VENDOR DRAWING APPROVAL STAGE).

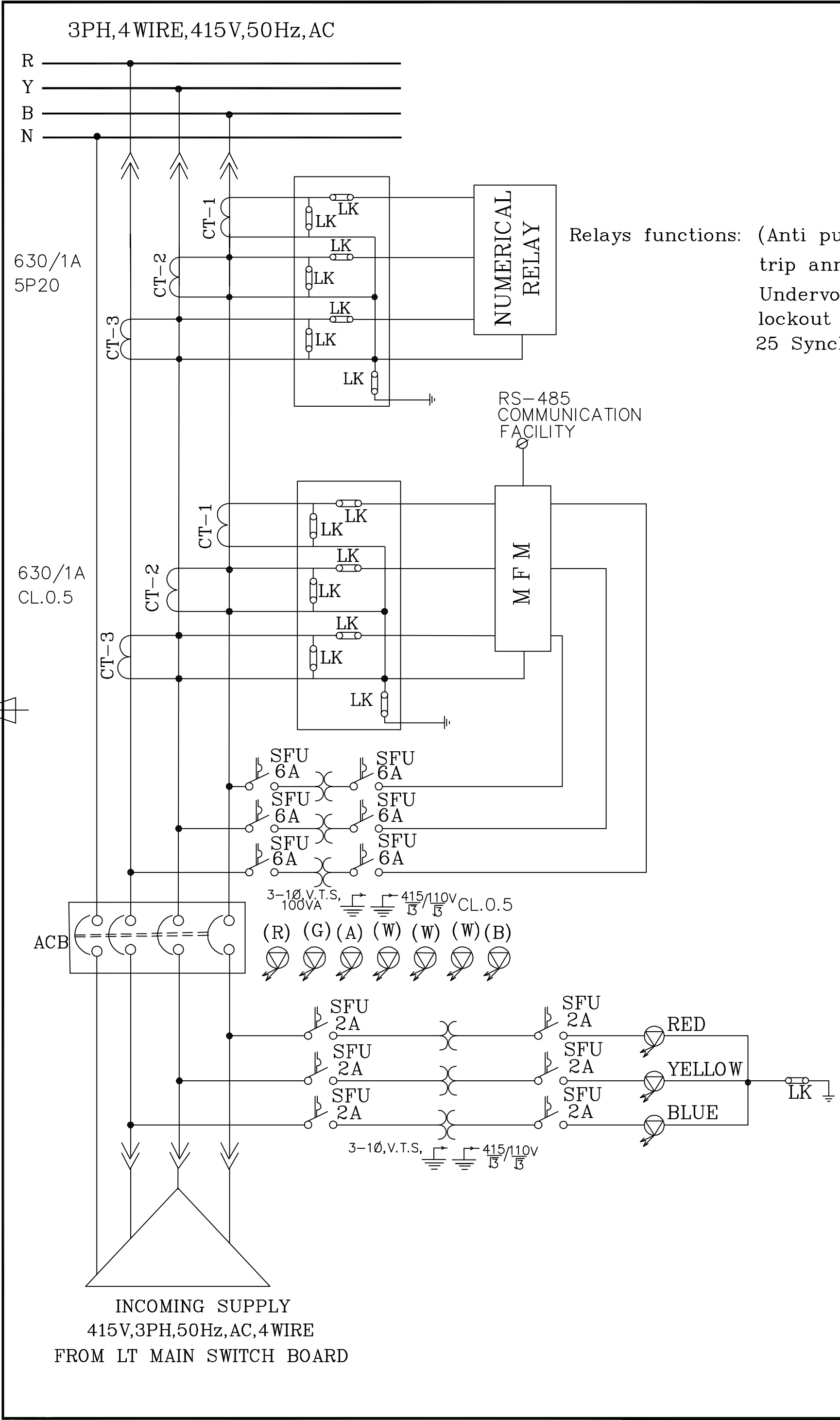
30. WIRELESS CONTROLLER / REPEATER WILL BE BHEL RANIPET SCOPE OF SUPPLY.
31. INCOMER ACB SHALL BE 4 POLE BREAKER & BUS COUPLER ACB SHALL BE 3 POLE.

LEGEND:—

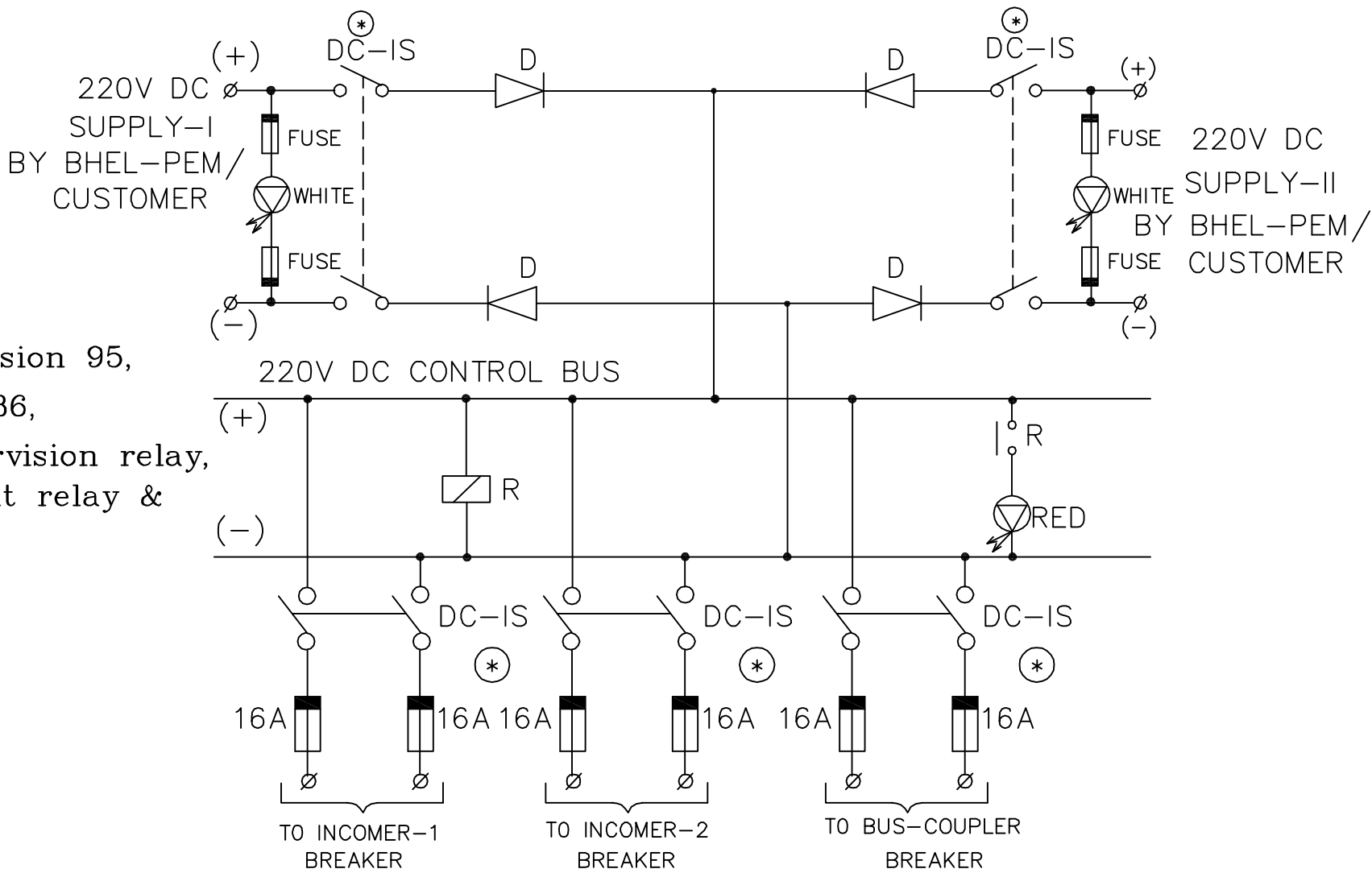
A	AMMETER	ALI	ASH LEVEL INDICATOR
V	VOLTMETER	O/L	THERMAL OVERLOAD RELAY
ASS	AMMETER SELECTOR SWITCH		FIXED TERMINAL
RM	RAPPING MOTOR	LK	LINK
IS	ISOLATING SWITCH	---	EXTERNAL TO THE PANEL
CT	CURRENT TRANSFORMER	>>	DRAWOUT TERMINAL
HH	HOPPER HEATER		INDICATION LAMP(LED TYPE)
HI	SUPPORT INSULATOR HEATER		
HS	SHAFT INSULATOR HEATER		
C	CONTACTOR		
TH	THERMOSTAT		
TPDT	TRIPPLE POLE DOUBLE THROW SWITCH		
GDRM	GAS DISTRIBUTION RAPPING MOTOR		
CERM	COLLECTING ELECTRODE RAPPING MOTOR		
EERM	EMITTING ELECTRODE RAPPING MOTOR		
SSPB	START STOP PUSH BUTTON STATION		
ACB	AIR CIRCUIT BREAKER		
MCB	MINIATURE CIRCUIT BREKER		
MCCB	MOULDED CASE CIRCUIT BREAKER		
MPCB	MOTOR PROTECTION CIRCUIT BREAKER		
MFM	MULTIFUNCTION METER.		
30(A,B)	TRIP ANNUNCIATION RELAY		
JB	JUNCTION BOX		
SS	SELECTOR SWITCH		
CST	CONTROL SUPPLY TRANSFORMER		
ACP	AUXILIARY CONTROL PANEL		
EC	ELECTRONIC CONTROLLER		
SW	CONTROL SWITCH		
PB	PUSH BUTTON		

CABLE COLOUR CODING:	
R –	RED
Y –	YELLOW
B –	BLUE
B –	BLACK
AC	CONTROL SUPPLY – BLACK
DC	CONTROL SUPPLY – GRAY

CUSTOMER:	TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA STATE, INDIA 5x800MW YADADRI TPS, NALGONDA						
CONSULTANT NAME	 CONSULTING ENGINEERS LIMITED						
	BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT NOIDA						
COPY RIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED It must not be used directly or indirectly in any way detrimental to the interest of the company.				DEPT CODE	NAME	SIGN	DATE
				M	DRN DESIGN	SASIKLA V	-SD- 05.06.19
					CHD APPD	MJM	-SD- 05.06.19
TITLE				NOTES AND LEGENDS FOR ACP (TYPICAL)			
				DEPT. SIGN	SCALE	DRAWING NO. 3-00-114-39246	
						REV. 02	






Relays functions: (Anti pumping 94, trip ckt supervision 95, trip annunciation 30A,B, lock out 86, Undervoltage 27, overvoltage, supervision relay, lockout relay, 50 & 51 over current relay & 25 Synchronization).






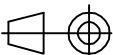


AIR CIRCUIT BREAKER
CONTROL SUPPLY CIRCUIT
(TYPICAL)

NOTE

01. THE ACB SHALL BE FOUR POLE FOR INCOMER OF THREE OF THREE POLE FOR ALL OTHER ACB ELECTRICALLY OPERATED, DRAW-OUT TYPE WITH ON, OFF & AUTO TRIP LAMP INDICATION, DOOR INTERLOCK, LOCKING IN ISOLATED POSITION.
02. INDICATING LAMP SHALL BE PROVIDED FOR THE FOLLOWING.
 - a) MAINS ON R, Y, B
 - b) BREAKER ON, OFF, AUTO TRIP
 - c) BREAKER SPRING CHARGED
 - d) BREAKER IN TEST POSITION
 - e) BREAKER IN SERVICE POSITION
 - f) BREAKER TRIP CIRCUIT HEALTHY
03. ALL ACB SHALL BE PROVIDED WITH THE FOLLOWING PROTECTIVE RELAYS IN COMBINED TYPE NUMERICAL RELAY.
 - a) ANTIPUMPING RELAY (94)
 - b) TRIP CIRCUIT SUPERVISION RELAY (74) SELF RESET TYPE.
 - c) TRIP ANNUNCIATION RELAY (30 A,B) SELF RESET TYPE.
 - d) LOCK-OUT RELAY (86) - HAND RESET TYPE
04. THE ACB SHALL BE SUITABLE FOR 220V DC CONTROL SUPPLY.
05. ACB's WILL BE OPERATED LOCALLY FROM THE AUXILIARY CONTROL PANEL AND ALSO FORM DDCMIS.
06. TWO NOS INTERPOSING RELAY FOR EACH BREAKER (ONE FOR CLOSING, ONE FOR TRIPPING THE BREAKER SHALL BE SUPPLIED AND WIRED BY THE ACP MANUFACTURER).
07. AUTO CHANGE OVER SCHEME SHALL BE PROVIDED FOR INCOMERS AND BUS COUPLER.NO VOLTAGE & UNDER VOLTAGE FUCTIONS WILL BE PROVIDED IN REALY.
08. BREAKER CONTROL SWITCH SHALL BE PROVIDED FOR ACB.
09. 2NOS 220V DC CONTROL SUPPLY SHALL BE PROVIDED BY BHEL - PEM/CUSTOMER.
10. CT TERMINALS SHALL BE DISCONNECTING LINK TYPE.
11. THE INCOMERS AND BUS COUPLERS SHALL BE INTERLOCKED ELECTRICALLY, SUCH THAT ONLY TWO BREAKERS WILL BE IN "CLOSE" POSITION AT ANY POINT OF TIME. MANUAL LIVE CHANGE OVER FACILITY WILL BE PROVIDED.
12. ALL PROTECTION RELAYS (O/C RELAY, E/F RELAY, U/V RELAY, TRIP CIRCUIT SUPER VISION RELAY, LOCK OUT RELAY& MASTER TRIP RELAY)SHALL BE OF NEUMERICAL TYPE WITH IEC-61850 PROTOCOL (SAME WILL BE CONFIRMED BY BHEL/ PEM DURING VENDOR DRAWING APPROVAL.

CUSTOMER:	TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA STATE, INDIA 5x800MW YADADRI TPS, NALGONDA							
CONSULTANT NAME	CONSULTING ENGINEERS LIMITED							
								
	BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT NOIDA							
COPY RIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.				DEPT CODE		NAME	SIGN	DATE
				M	DRN	SASIKLA V	-SD-	05.06.19
					DESIGN	A.P.C.	-SD-	05.06.19
					CHD	M.J.M	MJM	05.06.19
					APPD	M.J.M	MJM	05.06.19
TITLE								
INCOMER CIRCUIT (TYPICAL)								
					DEPT.	SCALE		
					SIGN			
					DRAWING NO.			
					3-00-114-39247			
								REV. 02

CUSTOMER: 		TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA STATE, INDIA 5x800MW YADADRI TPS, NALGONDA																											
CONSULTANT NAME 		TATA CONSULTING ENGINEERS LIMITED																											
		BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT NOIDA																											
COPY RIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.		DEPT CODE M	NAME DRN SASIKLA V DESN A.P.C. CHD M.J.M APPD M.J.M	SIGN ~SD~  	DATE 05.06.19 05.06.19 05.06.19 05.06.19																								
TITLE CONTROL SUPPLY TRANSFORMER AND SPACE HEATER CIRCUIT (TYPICAL)																													
<table border="1"> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>																										DEPT. SCALE SIGN 	DRAWING NO. 3-00-114-39248		
		REV. 02																											

415V,3PH,4WIRE,50HZ AC

MPCB

OLR

0.37KW

RAPPING MOTOR

MPCB

MCB
2A

TEST POSITION

FROM DRG NO.3-00-114-39248
(CST)

AUTO

MANUAL

SS
10A

42X

42

42

2.6W
(AMBER)

30A

MOTOR
TRIPPED

42X

42

R2

Y2

B2

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

SPARE

42X

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

42Y

OUTGOING TERMINALS FOR SSPB CONTROL TO BE LOCATED
AT SEPARATE MARSHALLING COMPARTMENT WHERE THE
WIRELESS CONTROLLER FITTED. WIRELESS CONTROLLER / REPEATED
WILL BE BHEL-RANIPET SCOPE OF SUPPLY.




LEGEND

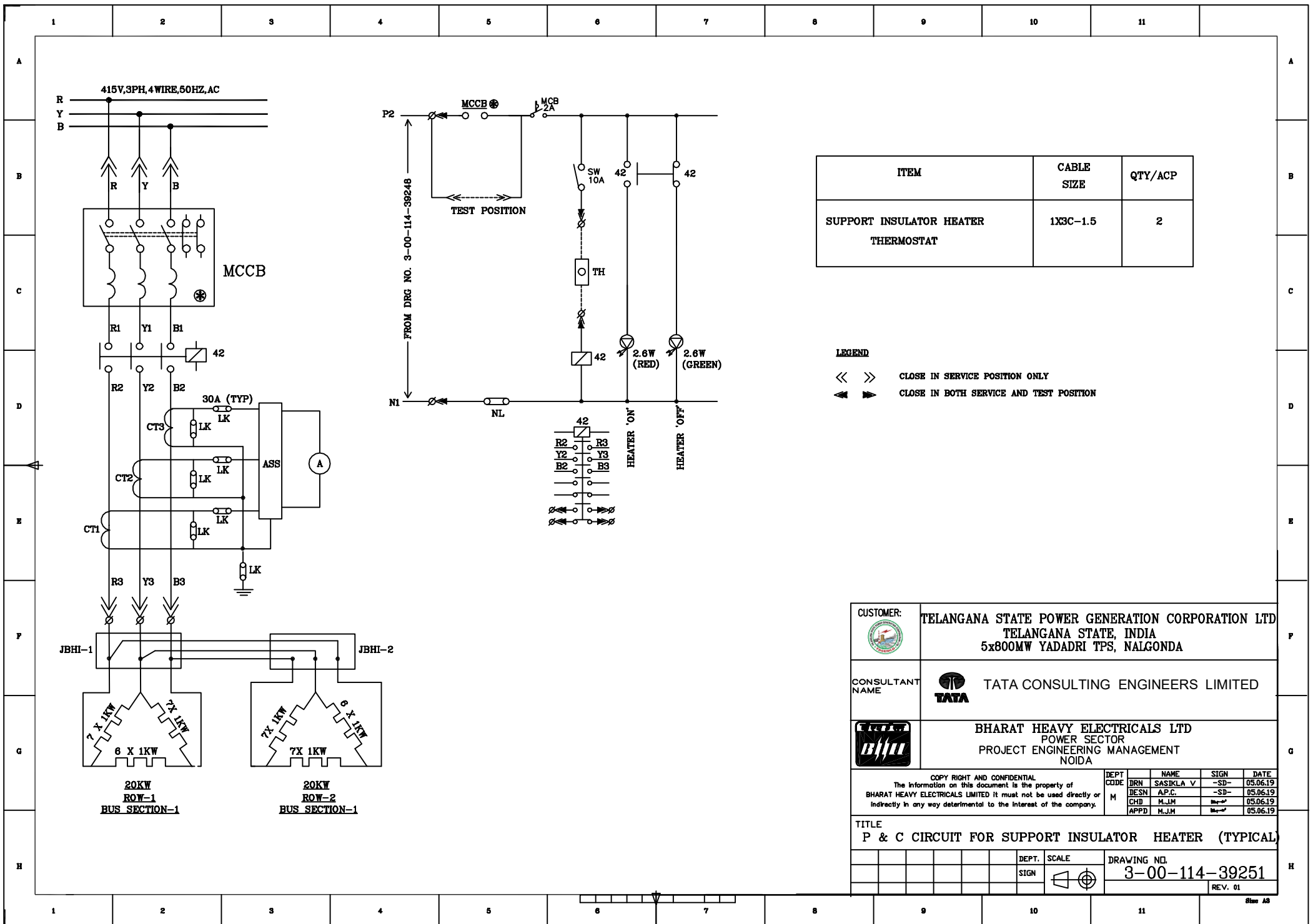
<< >> CLOSE IN SERVICE POSITION ONLY
<< >> CLOSE IN BOTH SERVICE AND TEST POSITION

NOTE AUTO/MANUAL SLECTOR SWITCH SHALL BE LOCATED
INSIDE THE PANEL

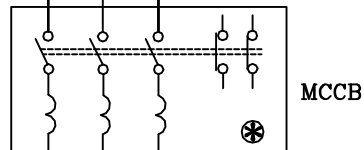
* REMOTE START COMMAND

** MOTOR ON FEEDBACK TO ARECA-II/IOS-PC

CUSTOMER:	 TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA STATE, INDIA 5x800MW YADADRI TPS, NALGONDA			
CONSULTANT NAME	 TATA CONSULTING ENGINEERS LIMITED			
	 BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT NOIDA			
COPY RIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.				
DEPT. CODE	DRN	SAS	LA	V
DEPT. CODE	DESN	A.P.C.	-SB-	05.06.19
DEPT. CODE	CHD	N.L.H	Rev	05.06.19
DEPT. CODE	APPB	N.L.H	Rev	05.06.19
TITLE P&C CIRCUIT FOR RAPPING MOTOR (TYPICAL)				
DRAUGHTSMAN		SCALE		DRAWING NO.
SIGN		SIGN		3-00-114-39249
SIGN		SIGN		REV. 01

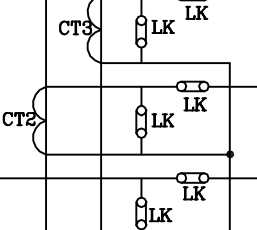


415V,3PH,4WIRE,50HZ,AC
R
Y
B



R1 Y1 B1
R2 Y2 B2

30A (TYP)
LK

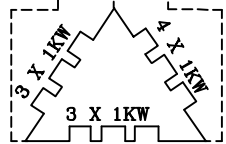


R3 Y3 B3

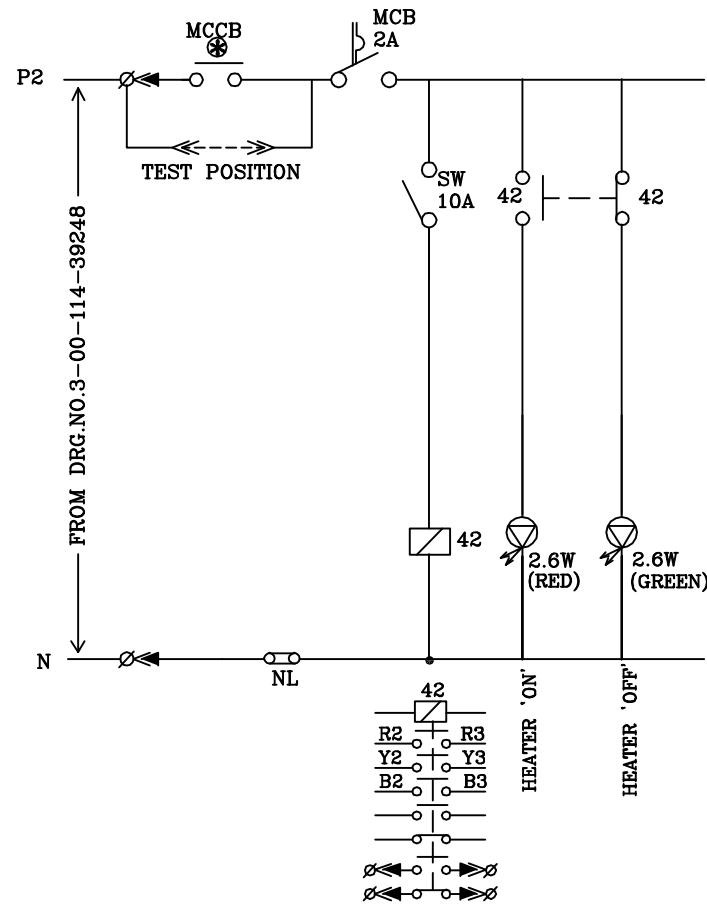
LEGEND




<< >> CLOSE IN SERVICE POSITION ONLY
<< >> CLOSE IN BOTH SERVICE AND TEST POSITION

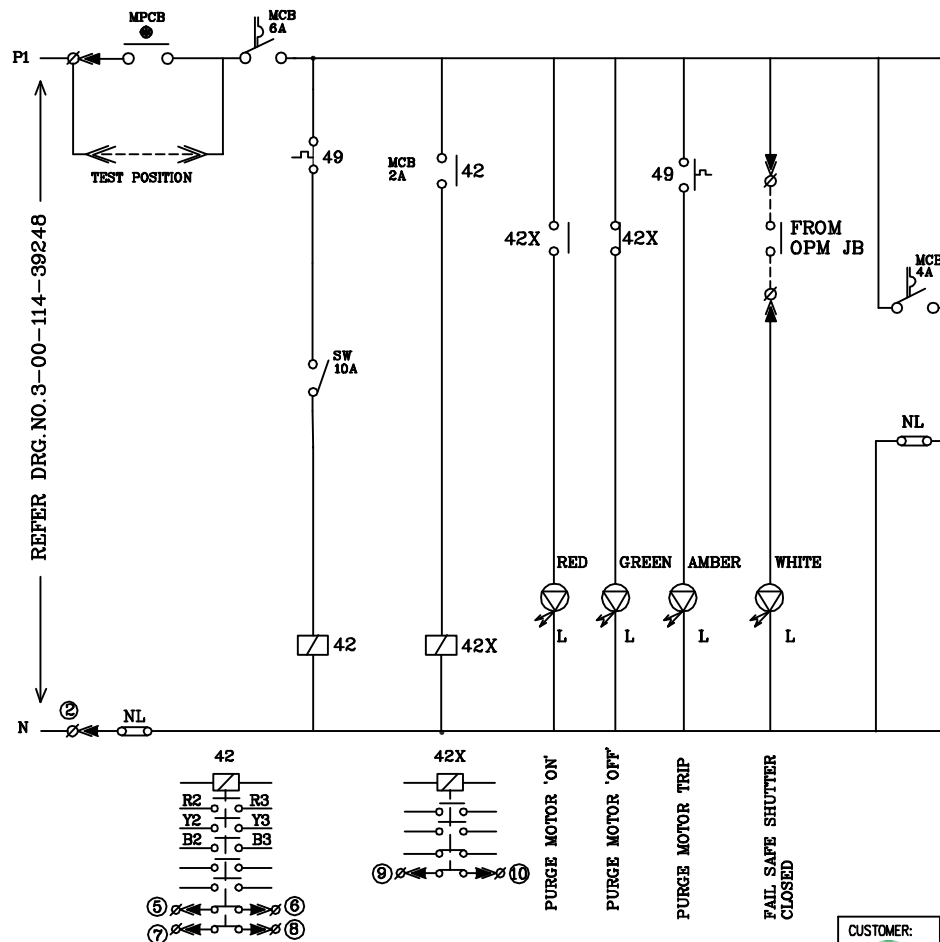
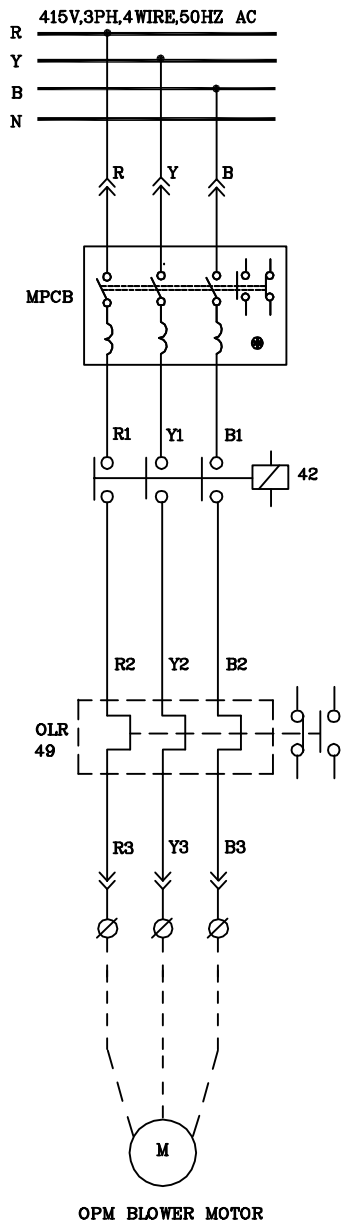
JBHS



10KW



CUSTOMER:	 TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA STATE, INDIA 5x800MW YADADRI TPS, NALGONDA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
CONSULTANT NAME	 TATA CONSULTING ENGINEERS LIMITED																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT NOIDA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
COPY RIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.		DEPT CODE M	<table><tr><th>NAME</th><th>SIGN</th><th>DATE</th></tr><tr><td>DRN SASIKLA V</td><td>-SD-</td><td>05.06.19</td></tr><tr><td>DESN A.P.C</td><td>-SD-</td><td>05.06.19</td></tr><tr><td>CHK M.J.W</td><td>-SD-</td><td>05.06.19</td></tr><tr><td>APPD M.J.W</td><td>-SD-</td><td>05.06.19</td></tr></table>		NAME	SIGN	DATE	DRN SASIKLA V	-SD-	05.06.19	DESN A.P.C	-SD-	05.06.19	CHK M.J.W	-SD-	05.06.19	APPD M.J.W	-SD-	05.06.19																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
NAME	SIGN	DATE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
DRN SASIKLA V	-SD-	05.06.19																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
DESN A.P.C	-SD-	05.06.19																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
CHK M.J.W	-SD-	05.06.19																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
APPD M.J.W	-SD-	05.06.19																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
TITLE P&C CIRCUIT FOR SHAFT INSULATOR HEATER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
<table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		



LEGEND





<< >> CLOSE IN SERVICE POSITION ONLY

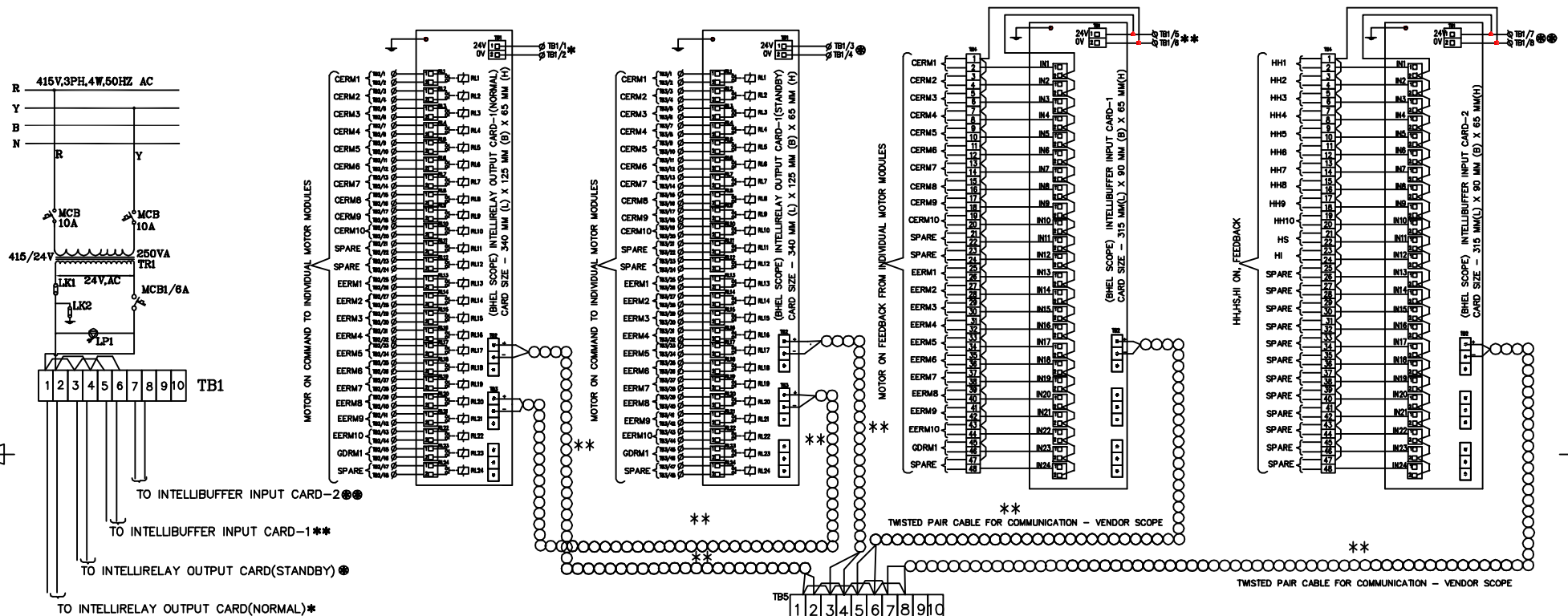
◀ ▶ CLOSE IN BOTH SERVICE AND TEST POSITION

CONTROL CABLE GROUPING CHART:

ITEM	CABLE SIZE	QTY/ACP
OPACITY MONITOR CONTROL SUPPLY	1X7C-1.5	1

TO OPACITY MONITOR
(CONTROL SUPPLY)
240 V

CUSTOMER:	 TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA STATE, INDIA 5x800MW YADADRI TPS, NALGONDA				
CONSULTANT NAME	 TATA CONSULTING ENGINEERS LIMITED				
	 BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT NOIDA				
COPY RIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED It must not be used directly or indirectly in any way detrimental to the interest of the company.		DEPT CODE M	NAME SASIKLA V A.P.C. M.J.M	SIGN -SD- -SD- -SD- -SD-	DATE 05.06.19 05.06.19 05.06.19 05.06.19
TITLE P&C CIRCUIT FOR OPACITY MONITOR (TYPICAL)					
		DEPT.	SCALE	DRAWING NO.	
		SIGN		3-00-114-39253	
				REV. 01	



BUS-SECTION-1

NOTES:-

01. WIRING BETWEEN TB AND TB IS IN SUPPLIER'S SCOPE.
02. LOOPING SHOWN IN DRAWING IS IN SUPPLIER'S SCOPE.
03. THE PANEL MANUFACTURER SHALL PROVIDE SUITABLE DIN RAIL AS PER EN 50 022(NS35/15) FOR MOUNTING THE INTELLIRELAY OUTPUT CARDS AND INTELLIBUFFER INPUT CARDS.
04. THE FOLLOWING CONNECTORS SHALL BE PROVIDED BY THE PANEL MANUFACTURER FOR EACH INTELLIRELAY OUTPUT CARDS.
MAKE AND TYPE OF CONNECTOR : PHOENIX/COMBICON TYPE
1) RELAY CARD TB NUMBER TYPE OF CONNECTOR
RL1/1 TO RL1/2 MVSTBR 2.5/2-ST-5.08
RL2/1 TO RL2/2 MVSTBR 2.5/2-ST-5.08
RL24/1 TO RL24/2 MVSTBR 2.5/2-ST-5.08
2) TB1(24V,AC) TB1/1 TO TB1/2 MVSTBR 2.5/2-ST-5.08
3) TB2(RS485-1) TB2/1 TO TB2/2 MVSTBR 2.5/3-ST-5.08
3) TB3(RS485-1) TB3/1 TO TB3/2 MVSTBR 2.5/3-ST-5.08
05. BOTH RELAY CARDS AND BUFFER CARD ARE SUITABLE FOR 35 MM DIN RAIL.
06. TBs 1,2,3,4&5 (IN SUPPLIER'S SCOPE) SHALL BE MOUNTED SUITABLY IN THE INTELLIRAP MODULE FOR WIRING TO INDIVIDUAL CARDS.
07. THE INTELLIRAP MODULE SHALL BE PLACED AT A HEIGHT OF APPROX. 1200 MM FROM THE FLOOR.
08. THE FOLLOWING CONNECTORS SHALL BE PROVIDED BY THE PANEL MANUFACTURER FOR EACH INTELLIBUFFER INPUT CARDS.
MAKE AND TYPE OF CONNECTOR : PHOENIX/COMBICON TYPE
1) INPUT DIGITAL BUFFER CARD TB NUMBER TYPE OF CONNECTOR
IN1/1 TO IN1/2 MVSTBR 2.5/2-ST-5.08
IN2/1 TO IN2/2 MVSTBR 2.5/2-ST-5.08
IN24/1 TO IN24/2 MVSTBR 2.5/2-ST-5.08
2) TB1(24V,AC) TB1/1 TO TB1/2 MVSTBR 2.5/2-ST-5.08
3) TB2(RS485-1) TB2/1 TO TB2/2 MVSTBR 2.5/3-ST-5.08
09. THE CONNECTION BETWEEN TB2 OF INTELLI RELAY & INTELLIBUFFER CARDS AND TB5 IN THE PANEL SHALL BE TWISTED PAIR CABLE. TB3s OF THE INTELLI RELAY OUTPUT CARDS SHALL ALSO BE TWISTED PAIR CABLE.
10. ** - TWISTED PAIR CABLE FOR COMMUNICATION - SUPPLIER SCOPE.
11. TBs WITHIN THE RELAY CARD AND BUFFER CARD ARE IN BHEL SCOPE.

CUSTOMER	TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA STATE, INDIA 5x800MW YADADRI TPS, NALGONDA
CONSULTANT NAME	TATA CONSULTING ENGINEERS LIMITED
	BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT Noida
<small>COPY RIGHT AND CONFIDENTIAL</small> <small>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.</small>	
<small>REVISION</small> <small>NO.</small> <small>DATE</small> <small>BY</small> <small>CHKD</small> <small>APPD</small> <small>DATE</small> 01 01/01/2011 M 01/01/2011 M 01/01/2011 M 01/01/2011 M 01/01/2011 M 01/01/2011 M	
TITLE TB ARRANGEMENT FOR 'ON' COMMAND, 'ON' FEEDBACK TO EC PANEL(BUS-SEC-1) (TYPICAL)	
DEPT.	SCALE
3-00-114-39254	DRAWING NO.
REV. 01	





MAKE OF COMPONENTS FOR AUXILIARY CONTROL PANEL/LT MAIN SWITCH BOARD.

ALL DIMENSIONS ARE IN MILLIMETRES

01. FUSE SWITCH UNIT	L & T / SIEMENS / CONTROLS & SWITCHGEAR(STROMBERG)/ SCHENIDER / GE /SPACEAGE SWITCH GEAR
02. POWER SWITCH	L & T / SIEMENS / CONTROLS & SWITCHGEAR / SCHENIDER / GE /SPACEAGE SWITCH GEAR
03. CONTROL SWITCH	L & T(SALZER) / SIEMENS / KAYCEE / CONTROLS & SWITCHGEAR / SCHENIDER / GE
04. SELECTOR SWITCH	L & T(SALZER) / SIEMENS / KAYCEE/ SCHENIDER / GE
05. POWER FUSE	L & T / SIEMENS / CONTROLS & SWITCHGEAR / BUSMAN / GE
06. CONTROL FUSE & FUSE BASE	L & T / SIEMENS / CONTROLS & SWITCHGEAR/ BUSMAN / GE
07. POWER CONTACTORS	L & T / SIEMENS / TELEMCHANIQUE(SCHNEIDER) / CONTROLS & SWITCHGEAR(TC) / GE
08. AUXILIARY CONTACTOR	L & T / SIEMENS / TELEMCHANIQUE(SCHNEIDER) / CONTROLS & SWITCHGEAR(TC) / GE
09. BIMETAL OVERLOAD RELAYS WITH BASE	L & T / SIEMENS / TELEMCHANIQUE(SCHNEIDER) / CONTROLS & SWITCHGEAR(TC) / GE
10. FUSE CARRIERS	L & T / SIEMENS / CANS / CONTROLS & SWITCHGEAR/ BUSMAN / GE
11. PUSH BUTTON	L & T / SIEMENS / BCH / TEKNIC / CONTROLS & SWITCHGEAR(RAAS CONTROLS)/ SCHENIDER
12. INDICATING LAMP (LED CLUSTERED TYPE)	L & T / RAAS CONTROLS / BINAY / TEKNIC/ SCHENIDER / SECO / GE
13. INDICATING METERS	A.E / IMP / RISHAB/ L&T / MECO
14. CURRENT TRANSFORMER	A.E / KAPPA / IND COIL / PRAYAG / PARGATI / AVK - SEG & CONTROLS(CONTROLS & SWITCHGEAR) / PRECISE / SOUTHERN ELECTRICAL
15. CONTROL & AUXILIARY TRANSFORMER	A.E / KAPPA / IND COIL / PRECISE / SOUTHERN ELETRICAL / KALPA
16. TERMINAL BLOCK	ELMEX / TOSHA / CONTROLS & SWITCHGEAR / CONNECTWELL / WAGO / PHONEX / ESSEN
17. WIRES	ISI CERTIFIED
18. CABLE GLANDS	COMET / SIEMENS / SUNIL&CO / BRACCO / CONTROLS & SWITCHGEAR/ SCHENIDER / DIAMOND / COSMOS / SMI
19. CABLE LUGS	DOWELLS / JAINSON / 3D / LOTUS
20. NEUTRAL LINK	CANS / CONTROLS & SWITCHGEAR/ L & T / SIEMENS/ SCHENIDER
21. SWITCH PLUGS / SOCKETS	CROMPTON GREAVES / ANCHOR / BEST & CROMPTON / BCH
22. KWH METER / KW	BHEL / SIMCO / GEC / IMP / M & I / L & T / SECURE METERS
23. SPACE HEATER	CANS / VILECO / PYROSYSTEM/CONTROLS & SWGR / SOPHIA / CROMPTON GREAVES / KS INSTRUMENTS
24. THERMOSTAT	TEMPROL / VIKAS ELECTRIC / AI / RENUTROL / ANCO
25. AIR CIRCUIT BREAKER	L & T / SIEMENS / CONTROLS & SWITCHGEAR(STROMBERG)/ SCHENIDER(MERLINGERIN) / GE / SPACEAGE SWITCH GEAR
26. PROTECTION RELAYS(NUMERICAL TYPE)	SIEMENS / ABB / ALSTHOM / EASSUN REYROLLE / AREVA / SCHENIDER
27. TIMERS	TELEMCHANIQUE(SCHNEIDER) / CONTROLS & SWITCHGEAR(TC) / L & T / SIEMENS / ALSTOM(AREVA)
28. POTENTIAL TRANSFORMER	G & M / AE / KAPPA / IND COIL / PRAYAG / PRAGATI / LOGICSTAT / PRECISE / SOUTHERN ELECTRICAL / STATIC TRANSFORMER
29. BREAKER CONTROL SWITCH	ALSTHOM(AREVA) / KAYCEE / L & T / SEIMENS/ SCHENIDER/ GE
30. OTHER ITEMS	AS PER BHEL STANDARD
31. TRANSDUCERS	ABB / AE / SOUTHERN TRANSDUCERS
	RISHAB INSTRUMENTS / TRANS MEASUREMENT/ SCHENIDER / AREVA / ELSTER
32. INTERPOSSING RELAY	JHOTHI/OEN

NOTE: -

THE PANEL MANUFACTURER CAN USE ANY ONE OF THE MAKES INDICATED AGAINST EACH ITEM. HOWEVER FOR THE SUPPLY OF PANEL TO ONE SITE, ONLY ONE MAKE SHALL BE USED AGAINST EACH ITEM, ie, NO MIX-UP IN MAKES AGAINST EACH ITEM IS ALLOWED.

CUSTOMER:	 TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA STATE, INDIA 5x800MW YADADRI TPS, NALGONDA				
CONSULTANT NAME	 TATA CONSULTING ENGINEERS LIMITED				
	BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT NOIDA				
COPY RIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED It must not be used directly Indirectly in any way detrimental to the interest of the company.		DEPT CODE	NAME DRN SASIKLA V DESIN A.P.C. CHK M.J.H APPD M.J.H	SIGN -SD- -SD- -SD- -SD-	DATE 05.06.19 05.06.19 05.06.19 05.06.19
TITLE MAKE OF COMPONENTS FOR ACP/LTMSB (TYPICAL)					
		DEPT.	SCALE	DRAWING NO.	
		SIGN		3-00-114-39448	
		REV. 01			




TATA CONSULTING ENGINEERS LIMITED

VENDOR DOCUMENT REVIEW STATUS

☐ A Drawing/Document approved as submitted. Proceed with fabrication/construction.
 ☒ B Drawing/Document approved subjected to comments noted. Proceed with fabrication/ construction considering our comments.
 ☐ C Our comments are noted on this marked up print.
 ☐ D Our comments are noted in memo attached to the forwarding transmittal letter No.Dated:.....
 ☐ E Correct original of this drawing/document to reflect our comments and resubmit for approval.
 ☐ F Correct original of this drawing/document to reflect our comments and resubmit for records.
 ☐ G Drawings/Documents of this category are for information only and not for approval. Information furnished on the drawing/document is noted.
 ☒ H Drawing/Document reviewed against our previous comments and other revisions highlighted and identified by the vendor.
 ☐ I Drawing/Document returned without review.
 ☐ J Print not enclosed.

Approval conveyed herein neither relieves the Vendor/Contractor of his contractual obligations and his responsibilities for correctness of dimensions, materials of construction, weights, quantities, design details, assembly fits, performance requirements and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limit the purchaser's rights under the contract.

Reviewed by:..[Signature].....Date:..[Date]..



	CUSTOMER TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA INDIA YADADRI TPS(5X800MW)						
	CONSULTANT TATA CONSULTING ENGINEERS LIMITED BANGALORE INDIA						
	BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE						
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.		DEPT. CODE M		NAME	SIGN	DATE	
				DESIGN	DJ		19/06/21
				CHECKED	DP		19/06/21
				APPROVED	PSP		19/06/21
03		NAME	DATE	SIGN	DRAWING NO. EP-4-CS-012-047		
02							
01	REVISED AS PER CUSTOMER COMMENTS	DJ	26.07.21		NO. OF SHEET. 03		
REV HISTORY		DESCRIPTION			SCALE	TITLE: SCHEME FOR CONTROL SUPPLY MODULE (CS)	

COPYRIGHT AND CONFIDENTIAL
The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED
It must not be used directly or indirectly in any way detrimental to the interest of the company

DRG. NO. EP-4-CS-012-047

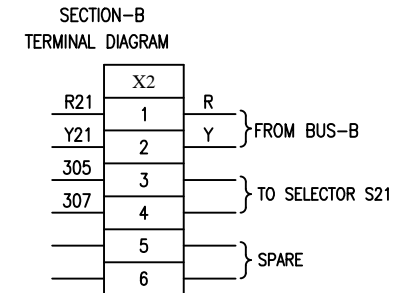
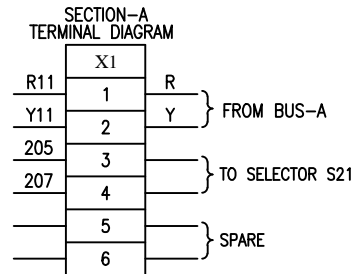
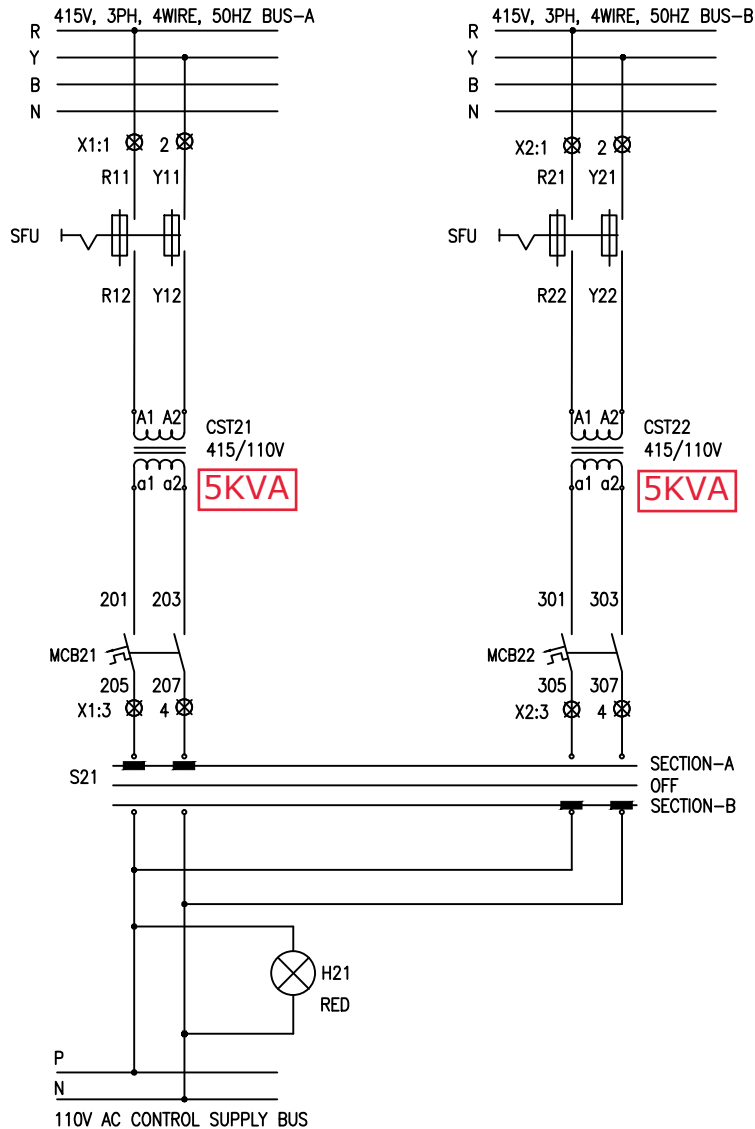
INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	PSP	NAME	SIGN.	DATE
4									
3					DESIGNED	DJ			19.06.21
2					DRAWN				
1	26.07.21	REVISED AS PER CUSTOMER COMMENTS	DJ	DJ	CHECKED	DP			19.06.21

	BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE				
	TITLE : POWER & CONTROL SCHEME FOR CONTROL SUPPLY MODULE (CS)			NO. OF SHEETS	03
				SHEET. NO.	02
SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-047			REV. 01

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



NOTE: NEUTRAL (N) IS NOT APPLICABLE FOR 3PHASE 3-WIRE SWITCHBOARDS

Copyright and Confidential

The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.

DRG. NO. EP-4-CS-012-047

INVENTORY NO.

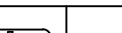

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---

BILL OF MATERIAL FOR EP-4-CS-012-047			
SL NO.	DESCRIPTION	MAKE	QTY
1	SWITCH FUSE UNIT **A	C&S ELECTRIC	2
2	POWER FUSE **A	C&S ELECTRIC	4
3	DP AC MCB **A ,C-CURVE	EATON	2
4	415/110V CST **KVA 5KVA	PRAGATI	2
5	SELECTOR SWITCH 4POLE 3WAY	RECOM	1
6	INDICATING LAMP RED 110V AC	CUSTOMER APPROVED	1
7	TERMINAL BLOCKS		12

NOTE: 1. TB'S ARE OF STUD TYPE AND SUITABLE FOR RING TYPE LUGS.
2. **—RATING AS PER SLD

4						NAME	SIGN.	DATE		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE				
3					DESIGNED	DJ		19.06.21		TITLE : POWER & CONTROL SCHEME FOR CONTROL SUPPLY MODULE (CS)	NO. OF SHEETS. NO.	03		
2					DRAWN									
1	26.07.21	REVISED AS PER CUSTOMER COMMENTS			DJ	DJ	CHECKED	DP						19.06.21
REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP		19.06.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-047	REV. 01

TATA CONSULTING ENGINEERS LIMITED
VENDOR DOCUMENT REVIEW STATUS

☒ A Drawing/Document approved as submitted. Proceed with fabrication/construction.

☐ B Drawing/Document approved subjected to comments noted. Proceed with fabrication/construction considering our comments.

☐ C Our comments are noted on this marked up print.

☐ D Our comments are noted in memo attached to the forwarding transmittal letter No. _____ Dated: _____

☐ E Correct original of this drawing/document to reflect our comments and resubmit for approval.

☐ F Correct original of this drawing/document to reflect our comments and resubmit for records.

☐ G Drawings/Documents of this category are for information only and not for approval. Information furnished on the drawing/document is noted.




☒ H Drawing/Document reviewed against our previous comments and other revisions highlighted and identified by the vendor.

☐ I Drawing/Document returned without review.

☐ J Print not enclosed.

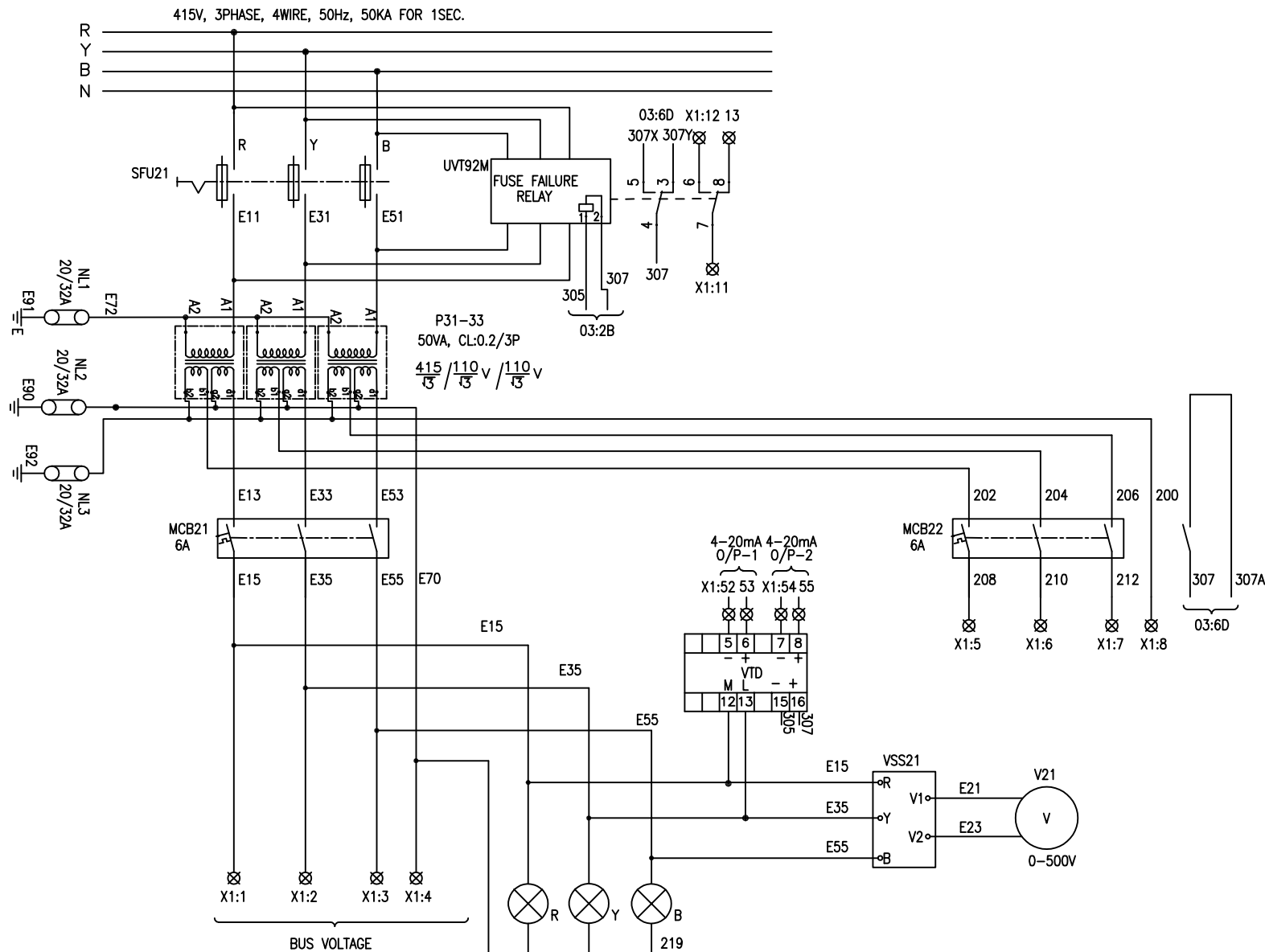
Approval conveyed herein neither relieves the Vendor/Contractor of his contractual obligations and his responsibilities for correctness of dimensions, materials of construction, weights, quantities, design details, assembly fits, performance requirements and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limit the purchaser's rights under the contract.


Reviewed by: PODate: 24.09.2021

	TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA INDIA YADADRI TPS(5X800MW)																				
	TATA CONSULTING ENGINEERS LIMITED BANGALORE INDIA																				
	BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE																				
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.			DEPT. CODE M	<table border="1"> <tr> <td></td> <td>NAME</td> <td>SIGN</td> <td>DATE</td> </tr> <tr> <td>DESIGN</td> <td>DJ</td> <td></td> <td>29/07/21</td> </tr> <tr> <td>CHECKED</td> <td>DP</td> <td></td> <td>29/07/21</td> </tr> <tr> <td>APPROVED</td> <td>PSP</td> <td></td> <td>29/07/21</td> </tr> </table>		NAME	SIGN	DATE	DESIGN	DJ		29/07/21	CHECKED	DP		29/07/21	APPROVED	PSP		29/07/21	
	NAME	SIGN	DATE																		
DESIGN	DJ		29/07/21																		
CHECKED	DP		29/07/21																		
APPROVED	PSP		29/07/21																		
03		NAME	DATE	SIGN	DRAWING NO. EP-4-CS-012-040																
02																					
01					NO. OF SHEET.06	REV. 00															
REV HISTORY	DESCRIPTION			SCALE	TITLE: SCHEME FOR BUS PT FOR PMCC (G2)																

The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.

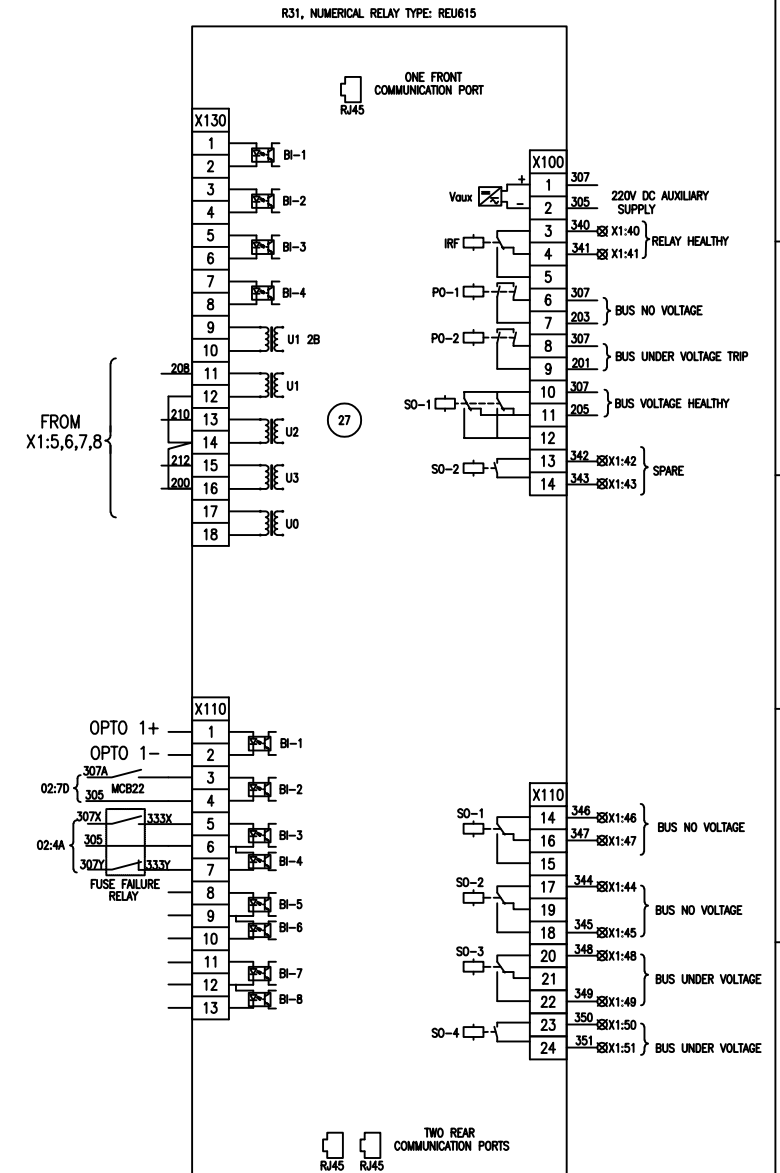
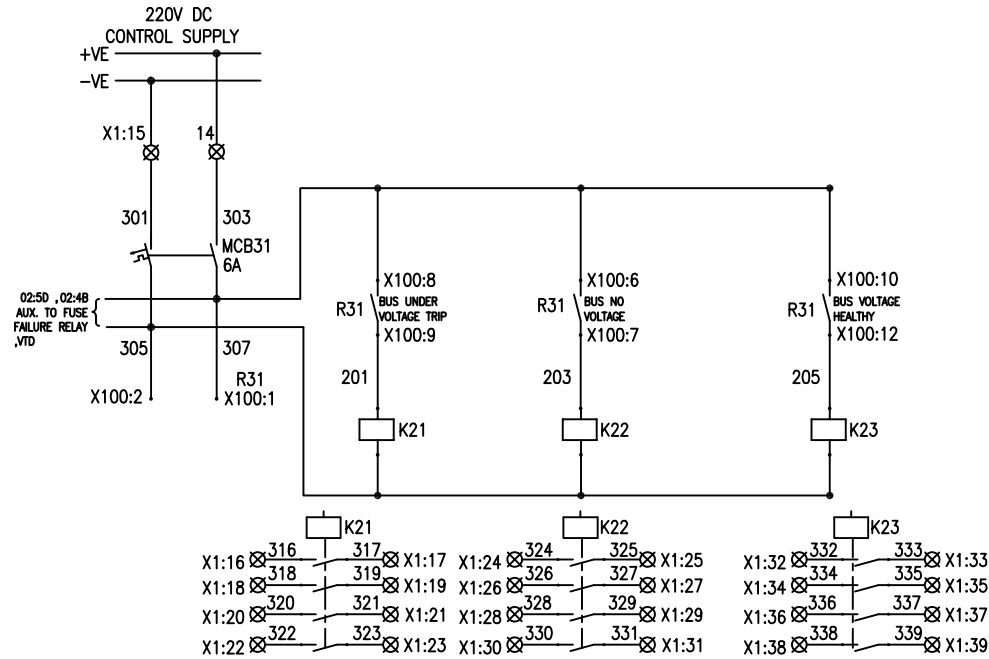
DRG. NO. EP-4-CS-012-040



INVENTORY NO.	4					NAME	SIGN.	DATE	<div><div>बी एच ई लि</div><div>BHEL</div></div>	BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE			
	3				DESIGNED	DJ	29.07.21	TITLE : POWER & CONTROL SCHEME FOR BUS PT FOR PMCC (G2)		NO. OF SHEETS	06		
	2				DRAWN					SHEET. NO.	02		
	1				CHECKED	DP	29.07.21						
REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP	29.07.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-040	REV. 00

The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED
It must not be used directly or indirectly in any way detrimental to the interest of the company

DRG. NO. EP-4-CS-012-040



INVENTORY NO.	4						NAME	SIGN.	DATE
	3					DESIGNED	DJ		29.07.21
	2					DRAWN			
	1					CHECKED	DP		29.07.21
REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP	29.07.21



BHARAT HEAVY ELECTRICALS LIMITED
SOLAR BUSINESS DIVISION BANGALORE

TITLE : POWER & CONTROL SCHEME
FOR BUS PT FOR PMCC (G2)

JOB NO. CP-012

DRG. NO. EP-4-CS-012-040



NO. OF SHEETS	06
SHEET. NO.	03

REV.
00

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1

2

3

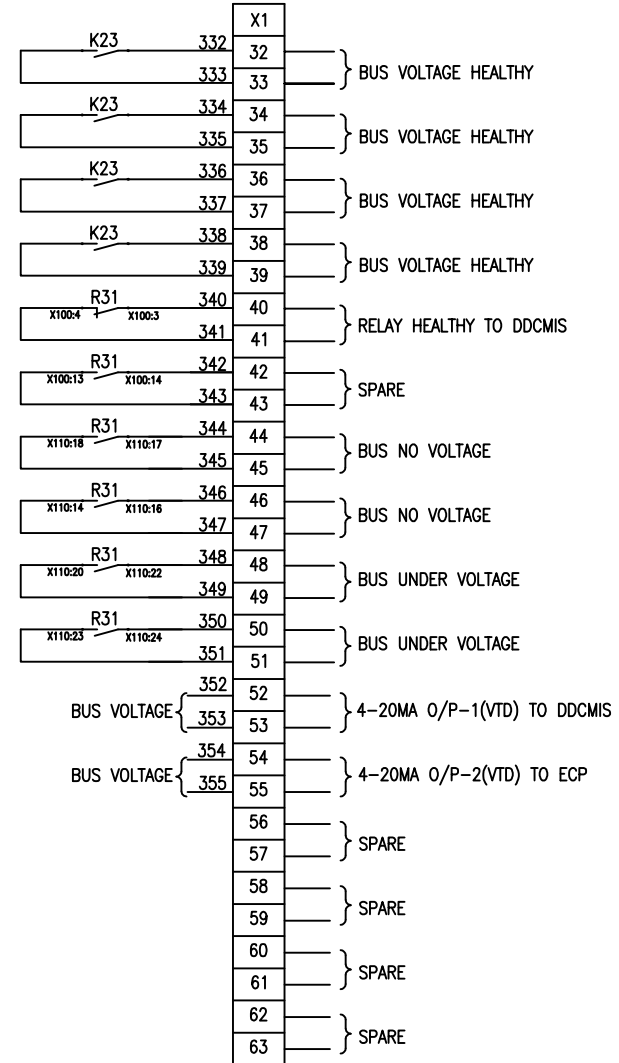
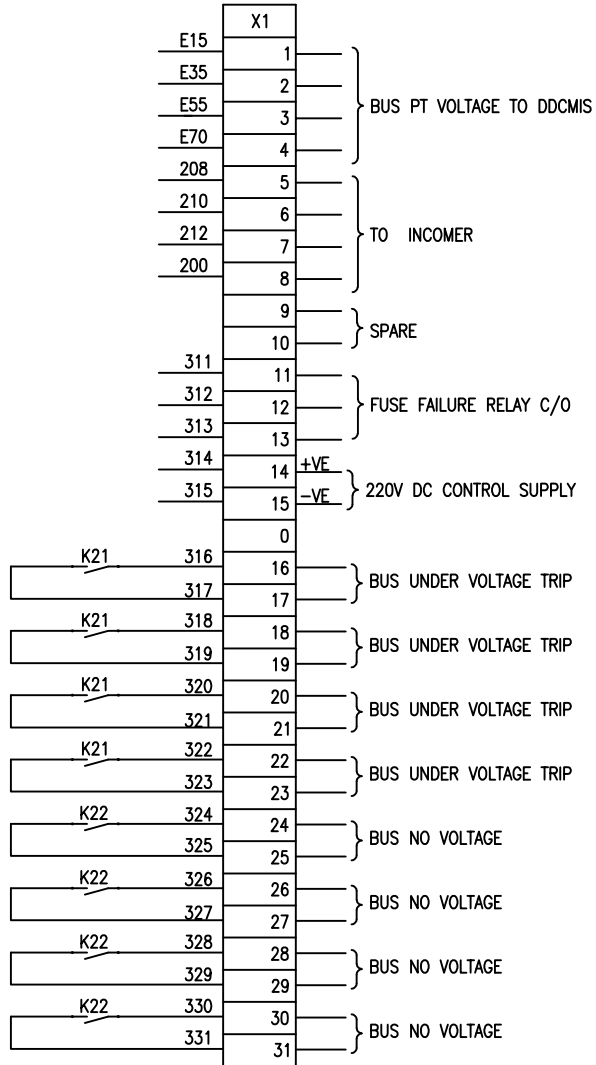
4

5

6

7

8



INVENTORY NO.	4						NAME	SIGN.	DATE
	3					DESIGNED	DJ		29.07.21
	2					DRAWN			
	1					CHECKED	DP		29.07.21
REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP	29.07.21



BHARAT HEAVY ELECTRICALS LIMITED
SOLAR BUSINESS DIVISION BANGALORE

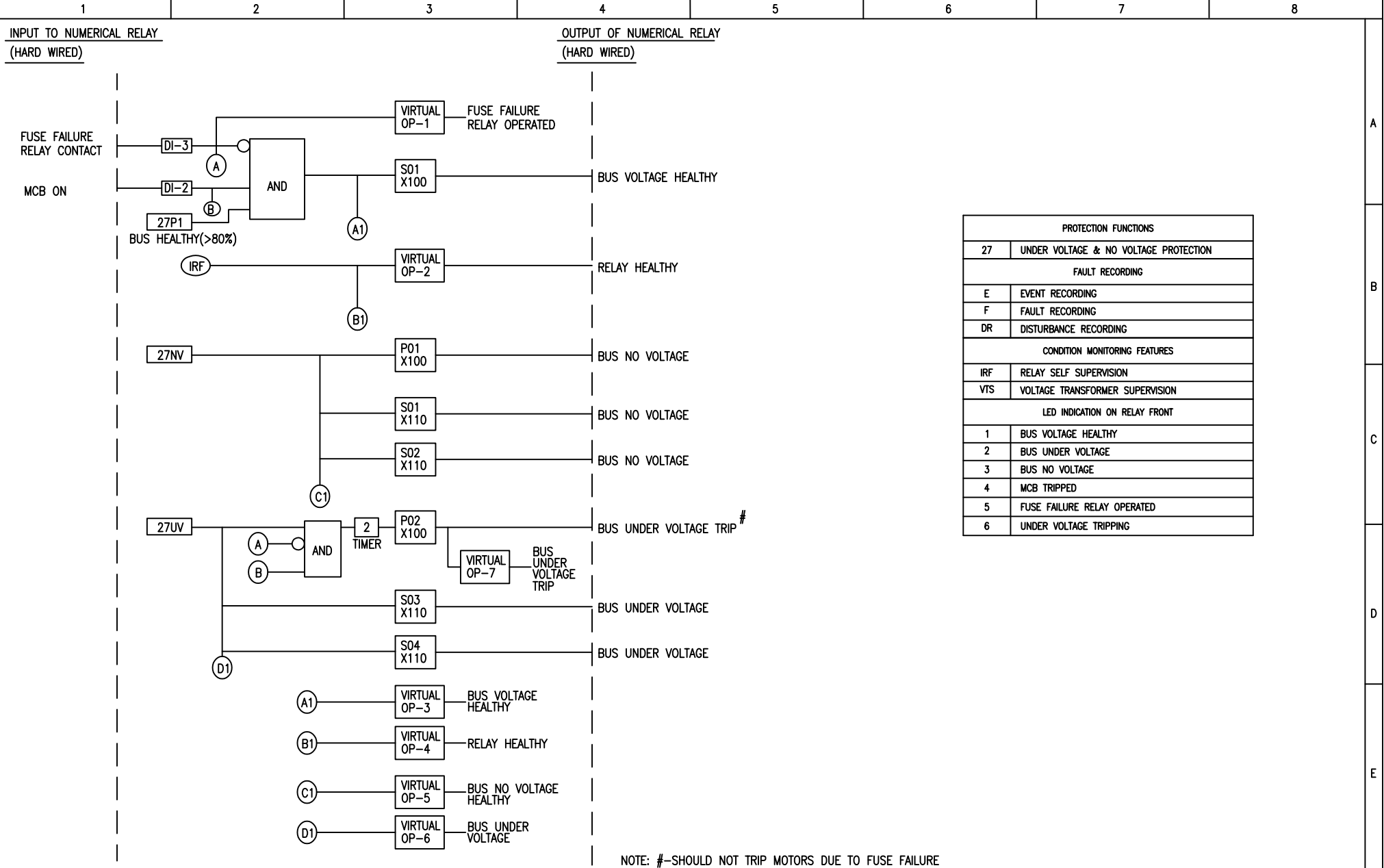
TITLE : POWER & CONTROL SCHEME
FOR BUS PT FOR PMCC (G2)



NO. OF SHEETS	06
SHEET. NO.	04

JOB NO. CP-012 DRG. NO. EP-4-CS-012-040

REV. 00



NOTE: #-SHOULD NOT TRIP MOTORS DUE TO FUSE FAILURE

INVENTORY NO.	4					NAME	SIGN.	DATE		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE			
	3				DESIGNED	DJ	29.07.21						
	2				DRAWN								
	1				CHECKED	DP	29.07.21						
	REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED		PSP	29.07.21	SCALE: NA	

COPYRIGHT AND CONFIDENTIAL
The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED
it must not be used directly or indirectly in any way detrimental to the interest of the company

DRG. NO. EP-4-CS-012-040

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

1 2 3 4 5 6 7 8

BILL OF MATERIAL FOR EP-4-CS-012-040

SL NO.	DESCRIPTION	MAKE	QTY
1	SWITCH FUSE UNIT **A	C&S ELECTRIC	1
2	POWER FUSE **A	C&S ELECTRIC	3
3	FUSE FAILURE RELAY(UVT92M)	ABB	1
4	MCB TP 6A AC ,**A, C-CURVE	EATON	1
5	MCB FP 6A AC, **A, C-CURVE	EATON	1
6	MCB DP 6A DC	EATON	1
7	AUX CONTACTOR	C&S ELECTRIC	3
8	DUAL PT 1-PH 415/RT(3) / 110/RT(3) 50VA CL-0.2/3P	CUSTOMER APPROVED	3
9	VOLTMETER SELECTOR SWITCH(C10P339VM)	RECOM	1
10	VOLTMETER 0-500V AC	RISHABH	1
11	VOLTAGE TRANSDUCER	SECURE	1
12	NUMERICAL RELAY-REU615	ABB	1
13	INDICATING LAMP RED 63.5V AC	C&S ELECTRIC/ L&T (ESBEE)	1
14	INDICATING LAMP YELLOW 63.5V AC	C&S ELECTRIC/ L&T (ESBEE)	1
15	INDICATING LAMP BLUE 63.5V AC	C&S ELECTRIC/ L&T (ESBEE)	1
16	NEUTRAL LINK 20A		3
17	TERMINAL BLOCK 4SQ.MM		64

INVENTORY NO.

4						NAME	SIGN.	DATE
3					DESIGNED	DJ		29.07.21
2					DRAWN			
1					CHECKED	DP		29.07.21
REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	PSP		29.07.21



BHARAT HEAVY ELECTRICALS LIMITED
SOLAR BUSINESS DIVISION BANGALORE




TITLE :

POWER & CONTROL SCHEME
FOR BUS PT FOR PMCC (G2)



NO. OF SHEETS 06
SHEET. NO. 06

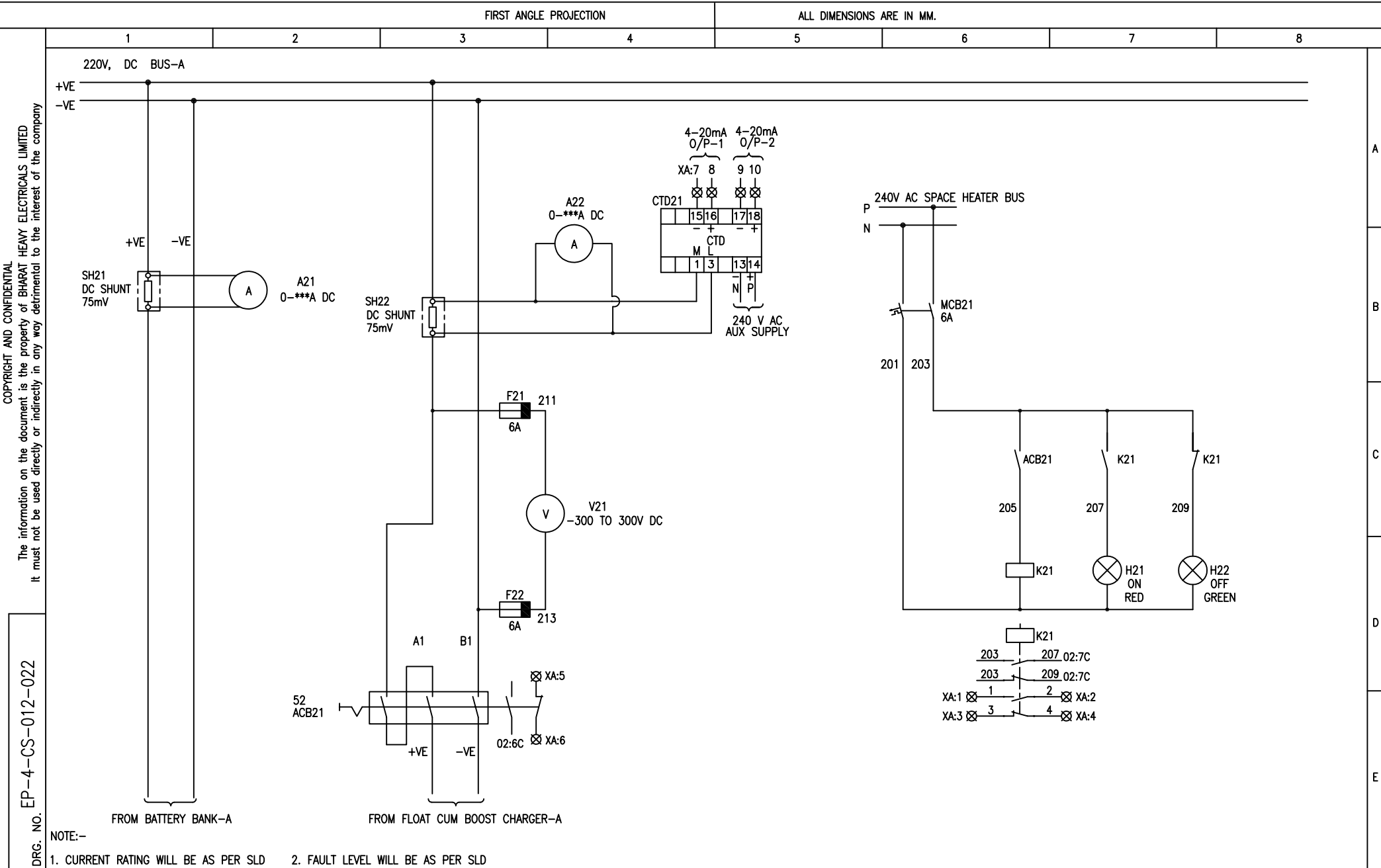
SCALE: NA JOB NO. CP-012 DRG. NO. EP-4-CS-012-040 REV. 00

	TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA INDIA YADADRI TPS(5X800MW)				
	TATA CONSULTING ENGINEERS LIMITED BANGALORE INDIA				
	BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE				
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.			DEPT. CODE M	NAME DESIGN CHECKED APPROVED	SIGN DATE 19/08/21 22/09/2021
<div style="float: right; border: 1px solid black; padding: 5px; width: 150px;"> TATA CONSULTING ENGINEERS LIMITED VENDOR DOCUMENT REVIEW STATUS <input checked="" type="checkbox"/> A Drawing/Document approved as submitted. Proceed with fabrication/construction. <input type="checkbox"/> B Drawing/Document approved subjected to comments noted. Proceed with fabrication/ construction considering our comments. <input type="checkbox"/> C Our comments are noted on this marked up drawing. <input type="checkbox"/> D Our comments are noted in memo attached to the forwarding transmittal letter No. 22/09/2021 <input type="checkbox"/> E Correct original of this drawing/document to reflect our comments and resubmit for approval. <input type="checkbox"/> F Correct original of this drawing/document to reflect our comments and resubmit for records. <input type="checkbox"/> G Drawings/Documents of this category are for information only and do not require approval. Information furnished on the drawing/document is noted. <input checked="" type="checkbox"/> H Drawing/Document reviewed against our previous comments and other revisions highlighted and identified by the vendor. <input type="checkbox"/> I Drawing/Document returned without review. <input type="checkbox"/> J Print not enclosed. Approval conveyed herein neither relieves the Vendor/Contractor of his contractual obligations and his responsibilities for correctness of dimensions, materials of construction, weights, quantities, design details, assembly fits, performance requirements and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limit the purchaser's rights under the contract. </div>					
03		DEPT.	DATE	SIGN	DRAWING NO. EP-4-CS-012-022 NO. OF SHEET. 09
02					
01	REVISED AS PER CUSTOMER COMMENTS	DJ	13.09.21		
REV HISTORY	DESCRIPTION			SCALE	TITLE: SCHEME FOR DCDB INCOMER FROM BATTERY AND CHARGER (DB+CH)

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	PSP	NAME	SIGN.	DATE
4									
3					DESIGNED	DJ			19.06.21
2					DRAWN				
1	13.09.21	REVISED AS PER CUSTOMER COMMENTS	DJ	DJ	CHECKED	DP			19.06.21



BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE			
TITLE : POWER & CONTROL SCHEME FOR DCDB INCOMER FROM BATTERY AND CHARGER (DB+CH)		NO. OF SHEETS	09
		SHEET. NO.	02
JOB NO. CP-012		DRG. NO. EP-4-CS-012-022	
		REV. 01	

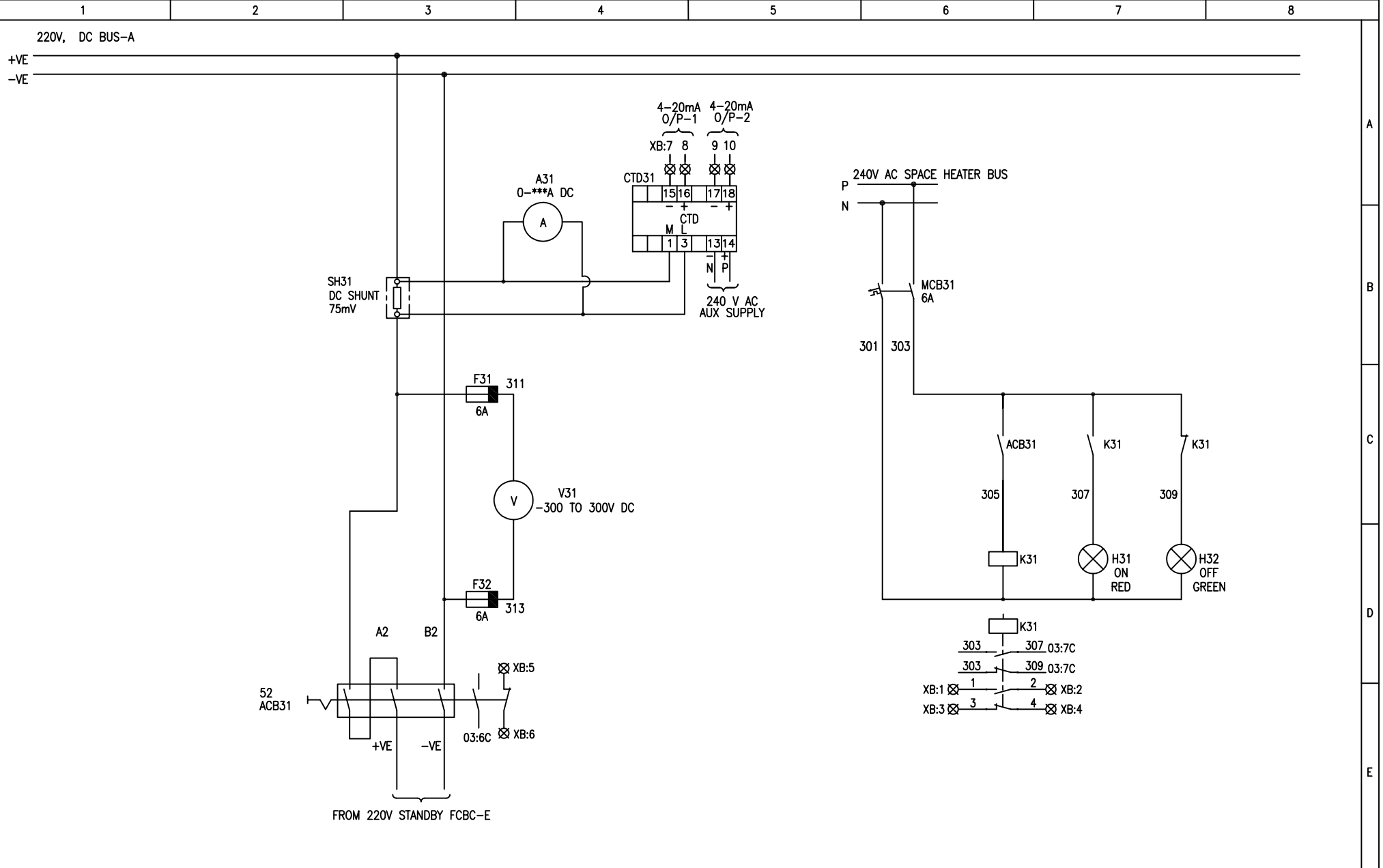


COPYRIGHT AND CONFIDENTIAL
The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED
it must not be used directly or indirectly in any way detrimental to the interest of the company

DRG. NO. EP-4-CS-012-022

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	NAME	SIGN.	DATE
4								
3					DESIGNED	DJ		19.06.21
2					DRAWN			
1	13.09.21	REVISED AS PER CUSTOMER COMMENTS	DJ	DJ	CHECKED	DP		19.06.21



BHARAT HEAVY ELECTRICALS LIMITED
SOLAR BUSINESS DIVISION BANGALORE

TITLE :

POWER & CONTROL SCHEME
FOR DCDB INCOMER FROM BATTERY AND CHARGER (DB+CH)



NO. OF SHEETS	09
SHEET. NO.	03

SCALE: NA

JOB NO. CP-012

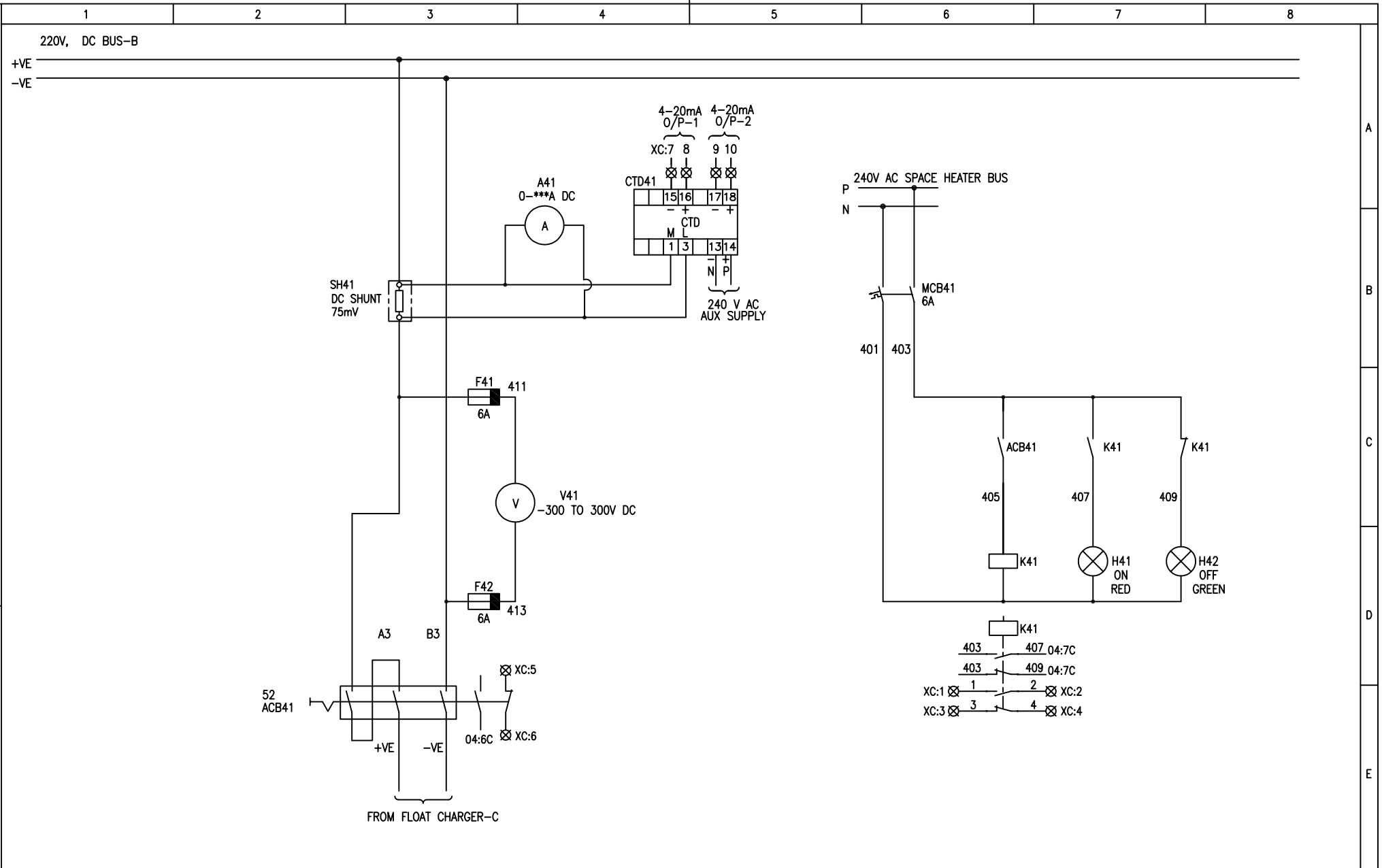
DRG. NO. EP-4-CS-012-022

REV. 01

COPYRIGHT AND CONFIDENTIAL

The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.

DRG. NO. EP-4-CS-012-022



4						NAME	SIGN.	DATE
3					DESIGNED	DJ		19.06.21
2					DRAWN			
1	13.09.21	REVISED AS PER CUSTOMER COMMENTS	DJ	DJ	CHECKED	DP		19.06.21
REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	PSP		19.06.21



BHARAT HEAVY ELECTRICALS LIMITED
SOLAR BUSINESS DIVISION BANGALORE

TITLE : POWER & CONTROL SCHEME
FOR DCDB INCOMER FROM BATTERY AND CHARGER (DB+CH)



NO. OF SHEETS	09
SHEET. NO	04

SCALE: NA

JOB NO. CP-012

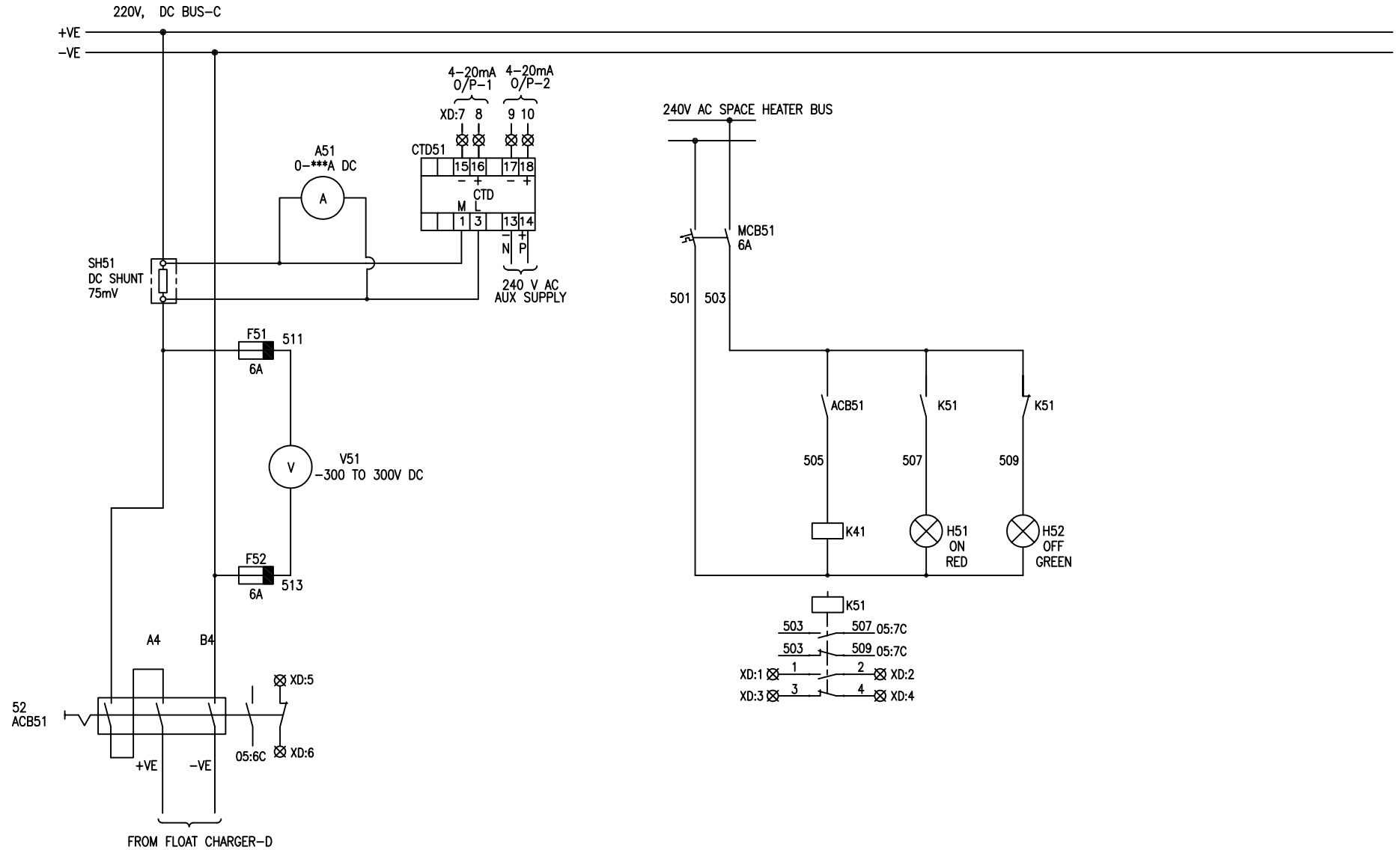
DRG. NO. EP-4-CS-012-022

REV.
01

COPYRIGHT AND CONFIDENTIAL



The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.

DRG. NO. EP-4-CS-012-022



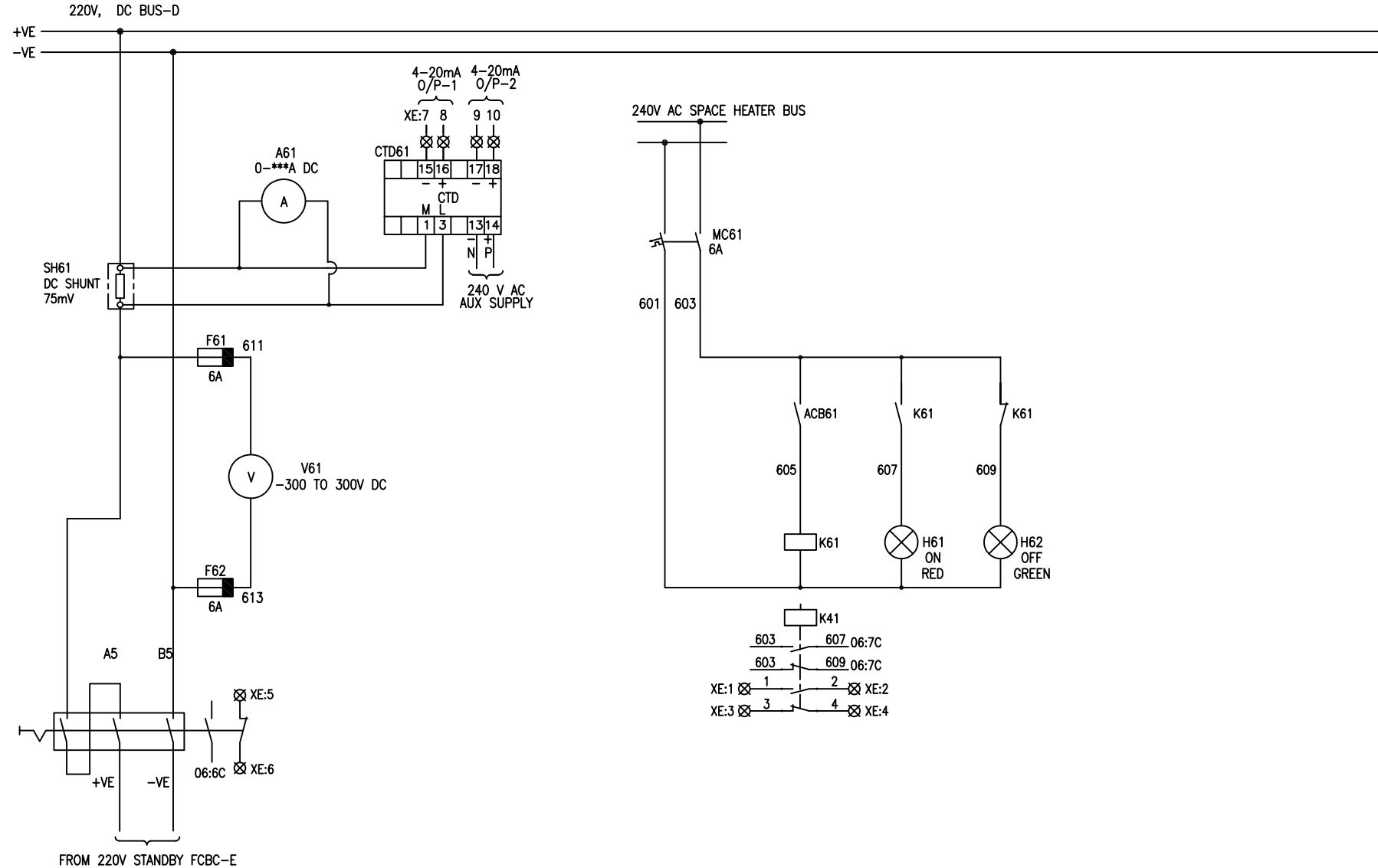
NOTE:-

1. TB's WILL BE OF STUD TYPE

INVENTORY NO.	4					NAME	SIGN.	DATE		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE			
	3				DESIGNED	DJ		19.06.21		TITLE : POWER & CONTROL SCHEME FOR DCDB INCOMER FROM BATTERY AND CHARGER (DB+CH)	NO. OF SHEETS	09	
	2				DRAWN						SHEET. NO.	05	
	1	13.09.21	REVISED AS PER CUSTOMER COMMENTS	DJ	DJ	CHECKED	DP				19.06.21	SCALE: NA	
REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP		19.06.21			

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



NOTE:--

1. TB's WILL BE OF STUD TYPE

DRG. NO. EP-4-CS-012-022

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	PSP	NAME	SIGN.	DATE
4									
3					DESIGNED	DJ			19.06.21
2					DRAWN				
1	13.09.21	REVISED AS PER CUSTOMER COMMENTS	DJ	DJ	CHECKED	DP			19.06.21

BHARAT HEAVY ELECTRICALS LIMITED
SOLAR BUSINESS DIVISION BANGALORETITLE : POWER & CONTROL SCHEME
FOR DCDB INCOMER FROM BATTERY AND CHARGER (DB+CH)NO. OF SHEETS 09
SHEET. NO. 06

SCALE: NA

JOB NO. CP-012

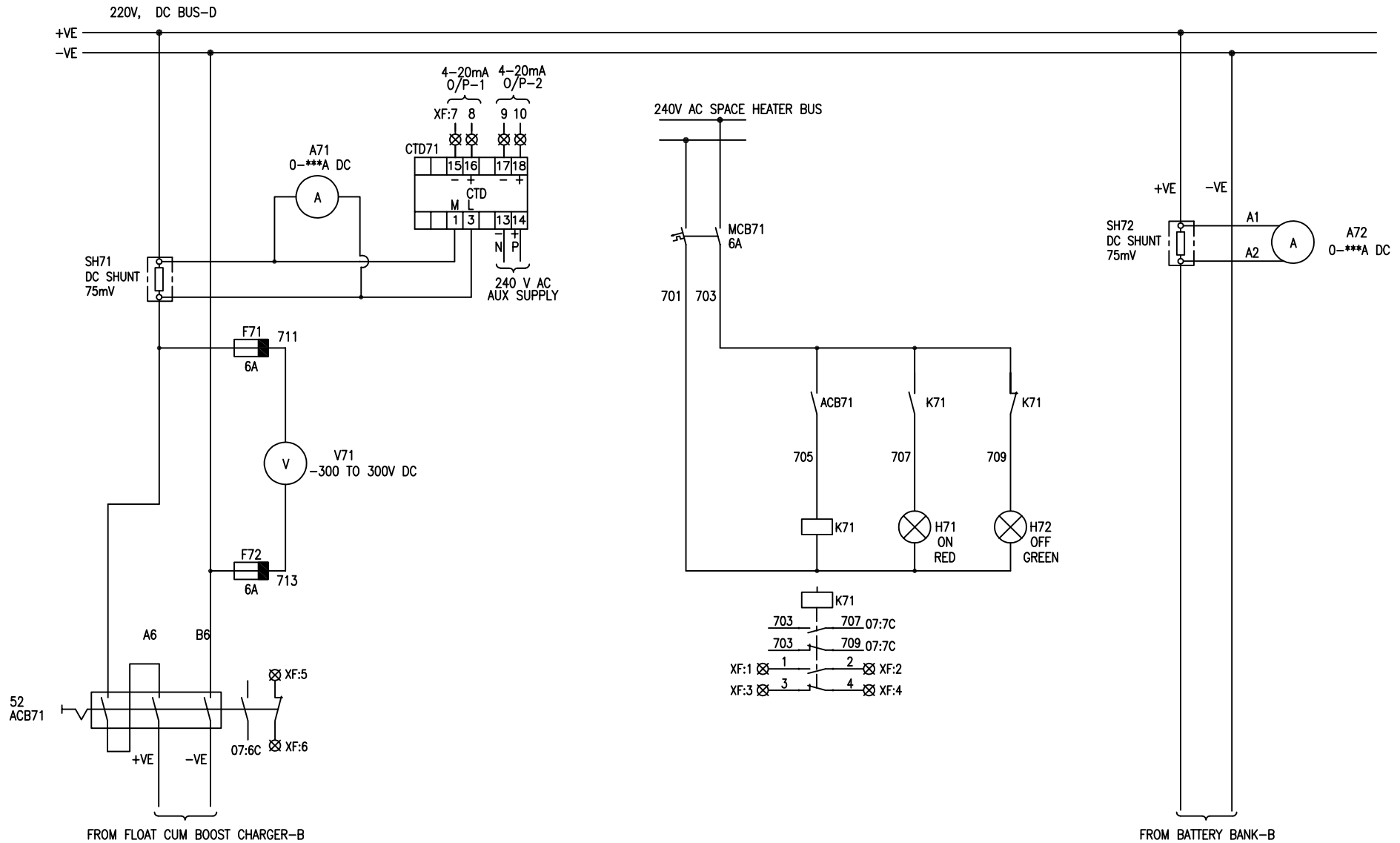
DRG. NO. EP-4-CS-012-022

REV. 01

COPYRIGHT AND CONFIDENTIAL


The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.

DRG. NO. EP-4-CS-012-022



NOTE:-

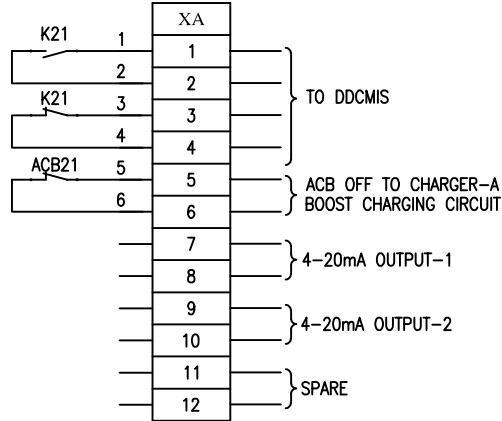
1. TB's WILL BE OF STUD TYPE

INVENTORY NO.	4						NAME	SIGN.	DATE	<div><div>बी.एच.ई.एल</div><div>BH&E</div></div>	BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE				
	3					DESIGNED	DJ		19.06.21		TITLE : POWER & CONTROL SCHEME FOR DCDB INCOMER FROM BATTERY AND CHARGER (DB+CH)	NO. OF SHEETS	09		
	2					DRAWN						SHEET. NO.	07		
	1	13.09.21	REVISED AS PER CUSTOMER COMMENTS		DJ	DJ	CHECKED	DP				19.06.21			
	REV. NO.	DATE	DESCRIPTION		BY	APPD.	APPROVED	PSP			19.06.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-022	REV. 01

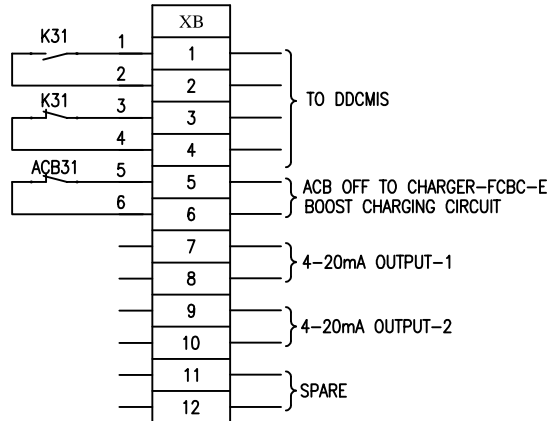
FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

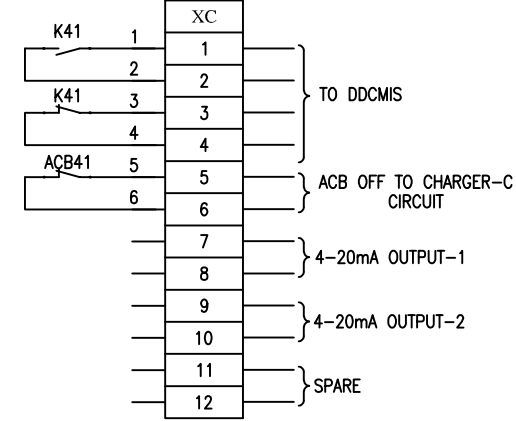
TERMINAL DIAGRAM
FROM FLOAT CUM BOOST CHARGER-A



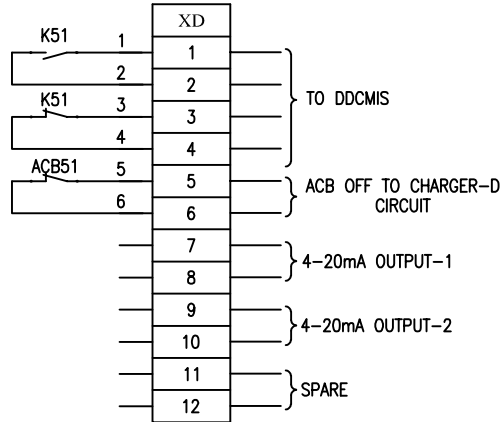
TERMINAL DIAGRAM
FROM 220V STANDBY FCBC-E



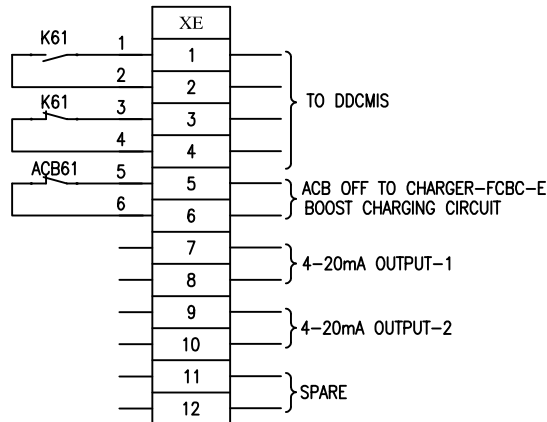
TERMINAL DIAGRAM
FROM FLOAT CHARGER-C



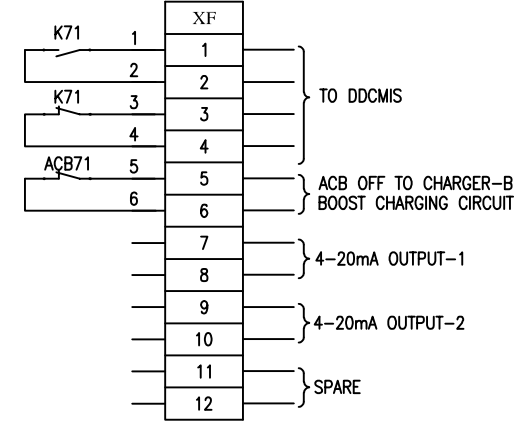
TERMINAL DIAGRAM
FROM FLOAT CHARGER-D



TERMINAL DIAGRAM
FROM 220V STANDBY FCBC-E



TERMINAL DIAGRAM
FROM FLOAT CUM BOOST CHARGER-B



NOTE:-

1. TB's WILL BE OF STUD TYPE

INVENTORY NO.

4						NAME	SIGN.	DATE
3					DESIGNED	DJ		19.06.21
2					DRAWN			
1	13.09.21	REVISED AS PER CUSTOMER COMMENTS	DJ	DJ	CHECKED	DP		19.06.21
REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	PSP		19.06.21



BHARAT HEAVY ELECTRICALS LIMITED
SOLAR BUSINESS DIVISION BANGALORE

TITLE :

POWER & CONTROL SCHEME
FOR DCDB INCOMER FROM BATTERY AND CHARGER (DB+CH)



NO. OF SHEETS	09
SHEET. NO.	08


JOB NO. CP-012

DRG. NO. EP-4-CS-012-022

REV. 01

COPYRIGHT AND CONFIDENTIAL
The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED
It must not be used directly or indirectly in any way detrimental to the interest of the company

DRG. NO. EP-4-CS-012-022

INVENTORY NO.	4							NAME	SIGN.	DATE		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE				
	3						DESIGNED	DJ		19.06.21		TITLE : POWER & CONTROL SCHEME FOR DCDB INCOMER FROM BATTERY AND CHARGER (DB+CH)	NO. OF SHEETS	09		
	2						DRAWN									
	1	13.09.21	REVISED AS PER CUSTOMER COMMENTS			DJ	DJ	CHECKED	DP						19.06.21	
	REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP			19.06.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-022	REV. 01

NOTE:-
1. TB's WILL BE OF STUD TYPE

#-FUSE FAULT LEVEL SHALL BE MINIMIUM 80KA AC RATING




SFU SELECTION CHART			
DC CURRENT RATING		RATING AS PER MOM 09092021	
2.5TIMES	AC FUSE #	AC SFU RATING	
2A	5	6A	32A
4A	10	10A	32A
6A	15	16A	32A
10A	25	32A	32A
16A	40	63A	63A
20A	50	63A	63A
32A	80	100A	100A
40A	100	125A	125A
63A	157.5	160A	160A
100A	250	250A	250A
125A	312.5	320A	320A
160A	400	400A	400A
200A	500	500A	500A
250A	625	630A	630A
300A	750	800A MDO ACB	
400A	1000	1000A MDO ACB	
630A	1575	1600A MDO ACB	
1000A	2500	2500A MDO ACB	
1250A	3125	3200A MDO ACB	
1600A	4000	4000A MDO ACB	

BILL OF MATERIAL FOR EP-4-CS-012-022			
SL NO.	DESCRIPTION	MAKE	QTY
1	***A ACB 3P MDO 50KA WITHOUT RELEASE	ABB	6
2	DC SHUNT 75mV	RISHABH	8
3	AUX CONTACTOR WITH 2NO+2NC 240V AC	C&S ELECTRIC	6
4	DC VOLTMETER (-300 TO 300V)	RISHABH	6
5	DC AMMETER (0-***A)	RISHABH	8
6	FUSE BASE WITH FUSE 6A 50KA	L&T	12
7	MCB 6A AC	EATON	6
8	CURRENT TRANSDUCER	SECURE	6
9	INDICATING LAMP RED 240V AC	C&S ELECTRIC/L&T(ESBEE)	6
10	INDICATING LAMP GREEN 240V AC	C&S ELECTRIC/L&T(ESBEE)	6
11	TERMINAL BLOCK		72

A
B
C
D
E

SHEET 2 TO 3 IS APPLICABLE FOR MAIN DCDB(1FA, 2FA, 3FA, 4FA, 5FA)

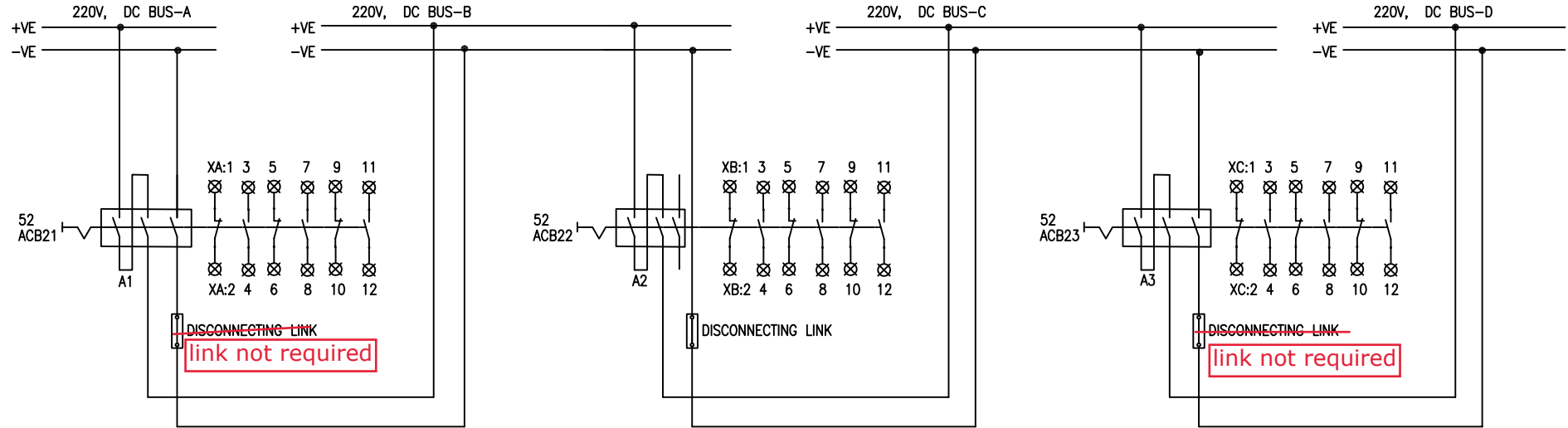
SHEET 4 TO 5 IS APPLICABLE FOR 220V DCDB(SWITCHYARD)

		CUSTOMER TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA INDIA YADADRI TPS(5X800MW)				
		CONSULTANT TATA CONSULTING ENGINEERS LIMITED BANGALORE INDIA				
		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE				
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.				DEPT. CODE M	DESIGN CHECKED APPROVED	DATE 19/06/21 19/06/21 19/06/21
				TATA CONSULTING ENGINEERS LIMITED VENDOR DOCUMENT REVIEW STATUS <input type="checkbox"/> A Drawing/Document approved as submitted. Proceed with fabrication/construction. <input checked="" type="checkbox"/> B Drawing/Document approved subjected to comments noted. Proceed with fabrication/ construction considering our comments. <input type="checkbox"/> C Our comments are noted on this marked up print. <input type="checkbox"/> D Our comments are noted in memo attached to the forwarding transmittal letter No. Dated. 22/09/2021 <input type="checkbox"/> E Correct original of this drawing/document to reflect our comments and resubmit for approval. <input type="checkbox"/> F Correct NAME of this drawing/document to reflect our comments and resubmit for records. <input type="checkbox"/> G Drawings/Documents of this category are for information only and not for approval. Information furnished on the drawing/document is noted. <input checked="" type="checkbox"/> H Drawing/Document reviewed against our previous comments and other revisions highlighted and identified by the vendor. <input type="checkbox"/> I Drawing/Document returned without review. <input type="checkbox"/> J Print not enclosed. Approval conveyed herein neither relieves the Vendor/Contractor of his contractual obligations and his responsibilities for correctness of dimensions, materials of construction, weights, quantities, design details, assembly fits, performance requirements and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limit the purchaser's rights under the contract. Reviewed by..... Date. 22/09/2021		
03		DEPT.	DATE	SIGN	DRAWING NO. EP-4-CS-012-023 NO. OF SHEET: 05 REV. 01	
02						
01	REVISED AS PER CUSTOMER COMMENTS	DJ	13.09.21			
REV HISTORY	DESCRIPTION			SCALE	TITLE: SCHEME FOR DCDB BUSCOUPLER & SPACE HEATER (DC)	

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

BUSCOUPLER ARRANGEMENT

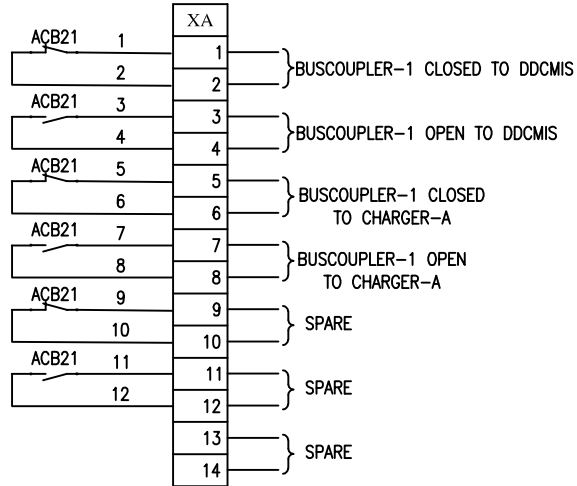


BUSCOUPLER-1

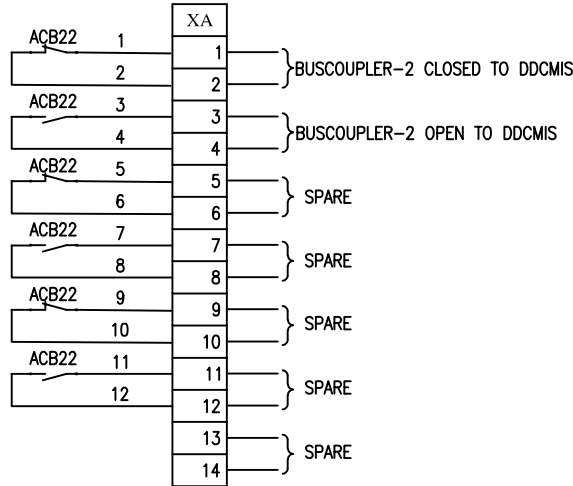
BUSCOUPLER-2

BUSCOUPLER-3

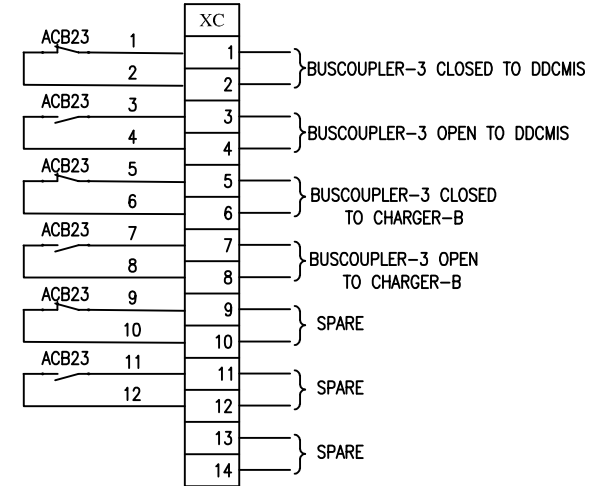
TERMINAL DIAGRAM
BUSCOUPLER-1



TERMINAL DIAGRAM
BUSCOUPLER-2




TERMINAL DIAGRAM
BUSCOUPLER-3



NOTE: -

- MECHANICAL INTERLOCK WILL BE PROVIDED WITH CASTLE LOCK AND KEY BETWEEN ACB21, ACB22 & ACB23 TO AVOID PARALALLING

#APPLICABLE FOR 220V MAIN DCDB(1FA, 2FA, 3FA, 4FA & 5FA)

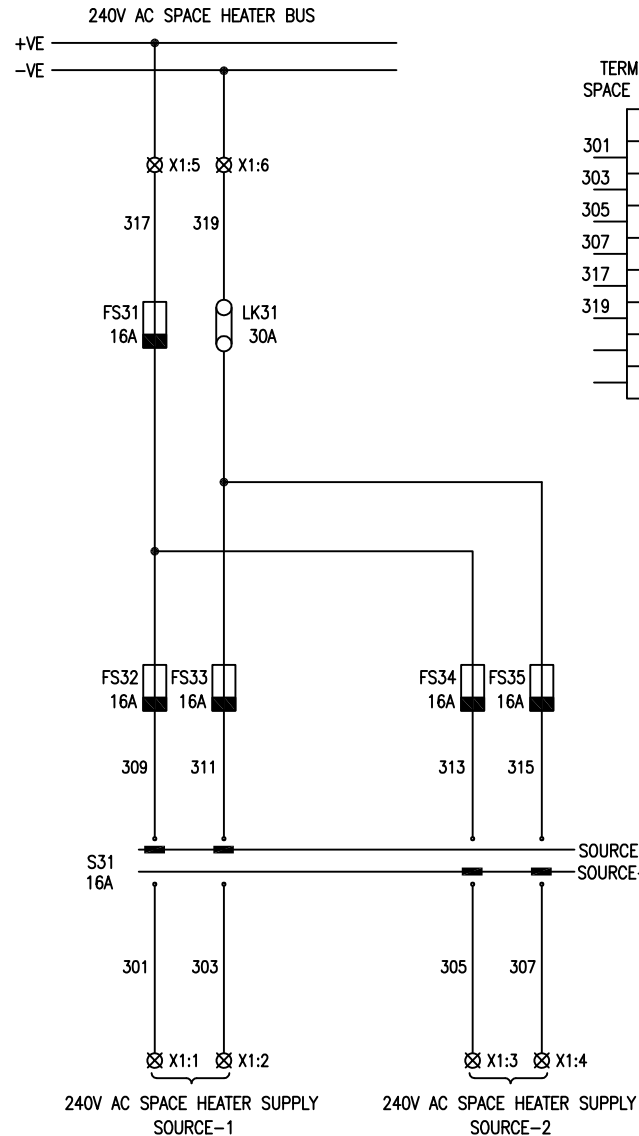
INVENTORY NO.	4						NAME	SIGN.	DATE		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE				
	3					DESIGNED	DJ		19.06.21		TITLE : POWER & CONTROL SCHEME FOR DCDB BUSCOUPLER & SPACE HEATER (DC)	NO. OF SHEETS	05		
	2					DRAWN						SHEET. NO.	02		
	1	13.09.21	REVISED AS PER CUSTOMER COMMENTS			DJ	DJ	CHECKED	DP			19.06.21			
REV. NO.	DATE	DESCRIPTION				BY	APPD.	APPROVED	PSP		19.06.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-023	REV. 01

TITLE :		POWER & CONTROL SCHEME FOR DCDB BUSCOUPLER & SPACE HEATER (DC)		NO. OF SHEETS	05
				SHEET. NO.	02

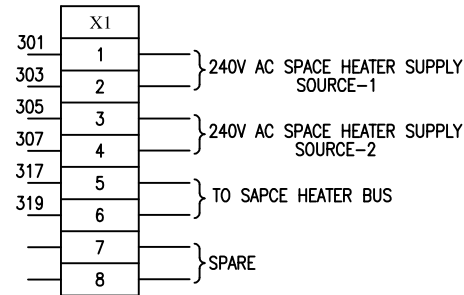
COPYRIGHT AND CONFIDENTIAL

The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.

DRG. NO. EP-4-CS-012-023



TERMINAL DIAGRAM
SPACE HEATER SUPPLY



#-FUSE FAULT LEVEL SHALL BE MINIMUM 80KA AC RATING

SFU SELECTION CHART



		RATING AS PER MOM 09092021	
DC CURRENT RATING	2.5TIMES	AC FUSE #	AC SFU RATING
2A	5	6A	32A
4A	10	10A	32A
6A	15	16A	32A
10A	25	32A	32A
16A	40	63A	63A
20A	50	63A	63A
32A	80	100A	100A
40A	100	125A	125A
63A	157.5	160A	160A
100A	250	250A	250A
125A	312.5	320A	320A
160A	400	400A	400A
200A	500	500A	500A
250A	625	630A	630A
300A	750	800A MDO ACB	
400A	1000	1000A MDO ACB	
630A	1575	1600A MDO ACB	
1000A	2500	2500A MDO ACB	
1250A	3125	3200A MDO ACB	
1600A	4000	4000A MDO ACB	

BILL OF MATERIAL FOR EP-4-CS-012-023

SL NO.	DESCRIPTION	MAKE	QTY
1	***A ACB 3P MDO 50KA WITHOUT RELEASE	ABB	3
2	FUSE BASE WITH FUSE 16A 50KA	L&T	5
3	2POLE 2WAY SWITCH 16A 240V AC LOCKABLE	RECOM	1
4	NEUTRAL LINK		1
5	TERMINAL BLOCK		50

NOTE:-

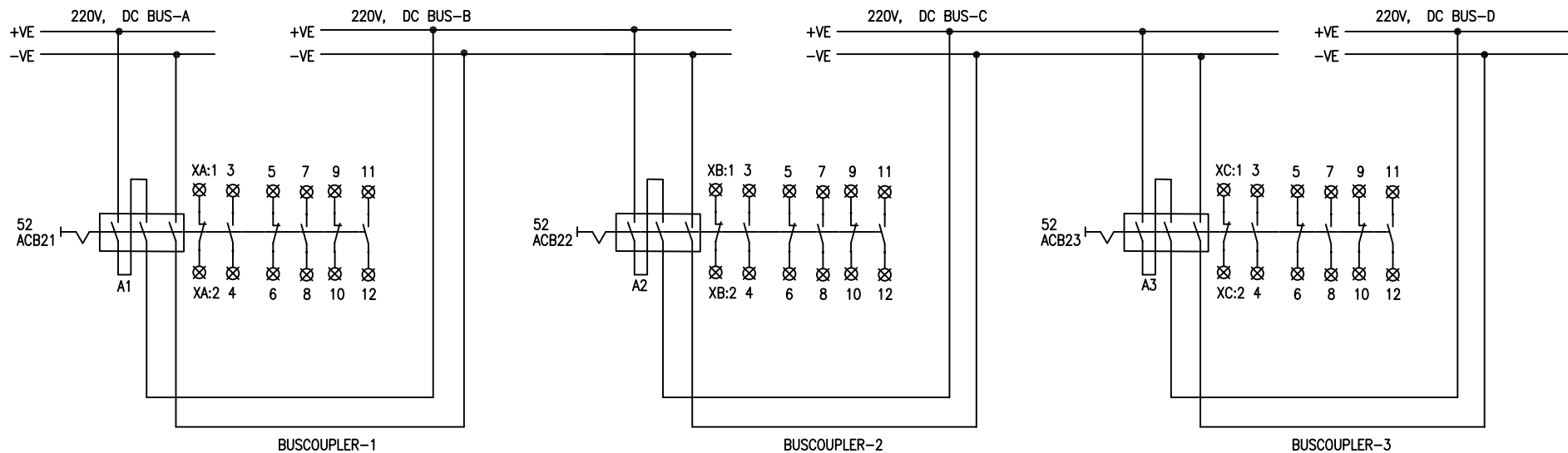
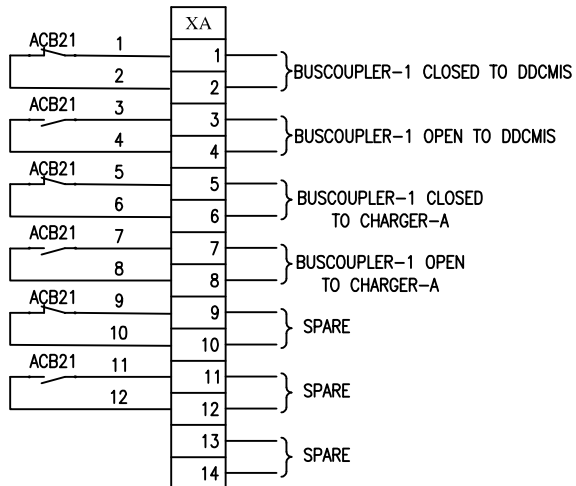
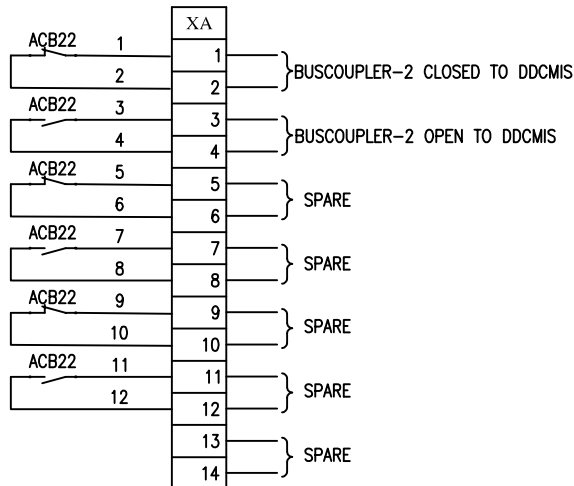
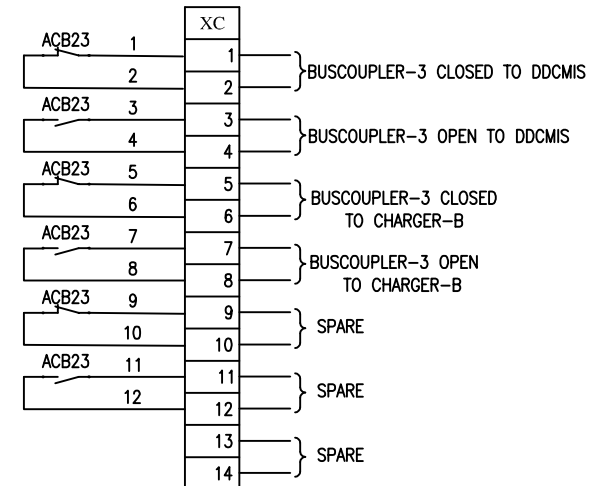
*WILL BE 2.5TIMES DC CURRENT RATING

INVENTORY NO.	4						NAME	SIGN.	DATE		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE			
	3				DESIGNED	DJ			19.06.21		TITLE : POWER & CONTROL SCHEME FOR DCDB BUSCOUPLER & SPACE HEATER (DC)	NO. OF SHEETS	05	
	2				DRAWN							SHEET. NO.	03	
	1	13.09.21	REVISED AS PER CUSTOMER COMMENTS			DJ	DJ	CHECKED	DP			19.06.21		
REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP	19.06.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-023		REV. 01

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

BUSCOUPLER ARRANGEMENT

TERMINAL DIAGRAM
BUSCOUPLER-1TERMINAL DIAGRAM
BUSCOUPLER-2TERMINAL DIAGRAM
BUSCOUPLER-3

NOTE: -

- MECHANICAL INTERLOCK WILL BE PROVIDED WITH CASTLE LOCK AND KEY BETWEEN ACB21, ACB22 & ACB23 TO AVOID PARALALLING

#APPLICABLE FOR 220V DCDB(SWITCHYARD)

EP-4-CS-012-023

DRG. NO.

INVENTORY NO.

REV. NO.	DATE	DESCRIPTION	BY	APPD.	APPROVED	PSP	NAME	SIGN.	DATE
4									
3					DESIGNED	DJ			19.06.21
2					DRAWN				
1	13.09.21	REVISED AS PER CUSTOMER COMMENTS	DJ	DJ	CHECKED	DP			19.06.21
									19.06.21

BHARAT HEAVY ELECTRICALS LIMITED
SOLAR BUSINESS DIVISION BANGALORE

TITLE :

POWER & CONTROL SCHEME
FOR DCDB BUSCOUPLER & SPACE HEATER (DC)NO. OF SHEETS
SHEET. NO.05
04

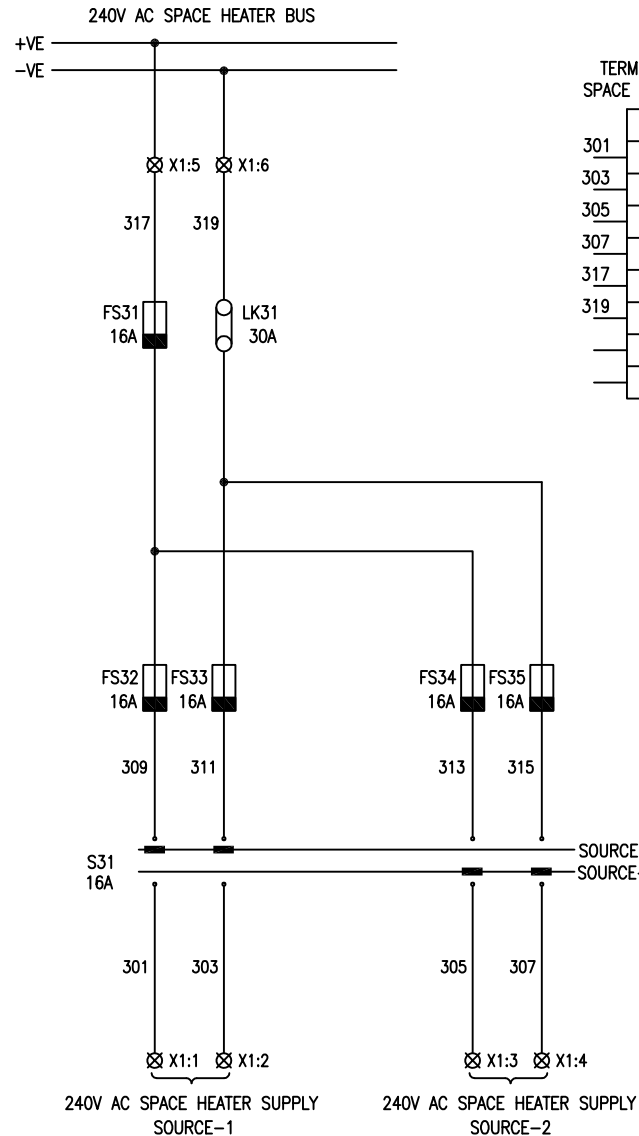
JOB NO. CP-012

DRG. NO. EP-4-CS-012-023

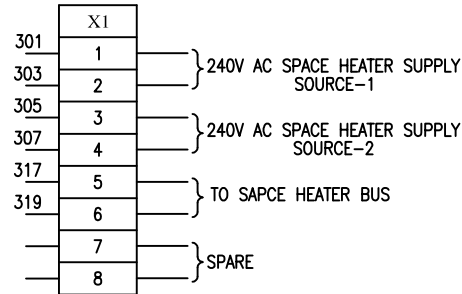
REV. 01

The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED
It must not be used directly or indirectly in any way detrimental to the interest of the company

DRG. NO. EP-4-CS-012-023



TERMINAL DIAGRAM
SPACE HEATER SUPPLY



#-FUSE FAULT LEVEL SHALL BE MINIMUM 80KA AC RATING

SFU SELECTION CHART


		RATING AS PER MOM 09092021	
DC CURRENT RATING	2.5TIMES	AC FUSE #	AC SFU RATING
2A	5	6A	32A
4A	10	10A	32A
6A	15	16A	32A
10A	25	32A	32A
16A	40	63A	63A
20A	50	63A	63A
32A	80	100A	100A
40A	100	125A	125A
63A	157.5	160A	160A
100A	250	250A	250A
125A	312.5	320A	320A
160A	400	400A	400A
200A	500	500A	500A
250A	625	630A	630A
300A	750	800A MDO ACB	
400A	1000	1000A MDO ACB	
630A	1575	1600A MDO ACB	
1000A	2500	2500A MDO ACB	
1250A	3125	3200A MDO ACB	
1600A	4000	4000A MDO ACB	




BILL OF MATERIAL FOR EP-4-CS-012-023

SL NO.	DESCRIPTION	MAKE	QTY
1	***A ACB 3P MDO 50KA WITHOUT RELEASE	ABB	3
2	FUSE BASE WITH FUSE 16A 50KA	L&T	5
3	2POLE 2WAY SWITCH 16A 240V AC LOCKABLE	RECOM	1
4	NEUTRAL LINK		1
5	TERMINAL BLOCK		50

NOTE:-

*WILL BE 2.5TIMES DC CURRENT RATING

INVENTORY NO.	4						NAME	SIGN.	DATE	<div><div>बी एच ई लि</div><div>BHEL</div></div>	BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE				
	3				DESIGNED	DJ			19.06.21		TITLE : POWER & CONTROL SCHEME FOR DCDB BUSCOUPLER & SPACE HEATER (DC)	NO. OF SHEETS	05		
	2				DRAWN							SHEET. NO.	05		
	1	13.09.21	REVISED AS PER CUSTOMER COMMENTS			DJ	DJ	CHECKED	DP				19.06.21		
REV. NO.	DATE	DESCRIPTION				BY	APPD.	APPROVED	PSP		19.06.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-023	REV. 01

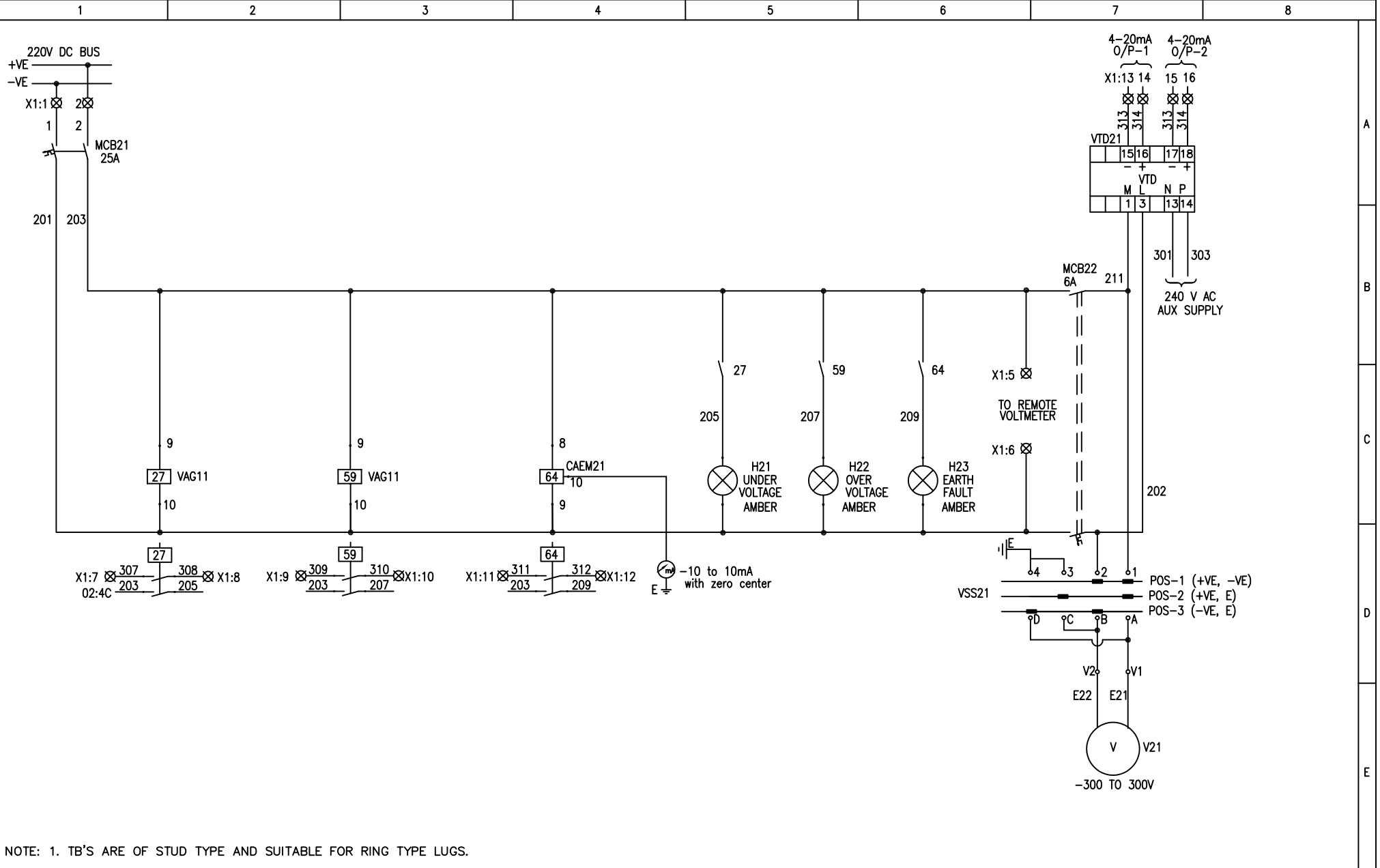
	CUSTOMER TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA INDIA YADADRI TPS(5X800MW)													
	CONSULTANT TATA CONSULTING ENGINEERS LIMITED BANGALORE INDIA													
	BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE													
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.			DEPT. CODE M	<table border="1"> <tr> <td></td> <td>DESIGN</td> <td>DJ</td> </tr> <tr> <td></td> <td>CHECKED</td> <td>DP</td> </tr> <tr> <td></td> <td>APPROVED</td> <td>PSP</td> </tr> </table>		DESIGN	DJ		CHECKED	DP		APPROVED	PSP	TATA CONSULTING ENGINEERS LIMITED VENDOR DOCUMENT REVIEW STATUS <input checked="" type="checkbox"/> A Drawing/Document approved as submitted. Proceed with fabrication/construction. <input type="checkbox"/> B Drawing/Document approved subjected to comments noted. Proceed with fabrication/construction considering our comments. <input type="checkbox"/> C Our comments are noted on this marked up print. <input type="checkbox"/> D Our comments are noted in memo attached to the forwarding transmittal letter No. 22/09/2021 Dated..... <input type="checkbox"/> E Correct original of this drawing/document to reflect our comments and resubmit for approval. <input type="checkbox"/> F Correct original of this drawing/document to reflect our comments and resubmit for approval. <input type="checkbox"/> G Drawings/Documents of this category are for information only and not for approval. Information furnished on the drawing/document is noted. <input checked="" type="checkbox"/> H Drawing/Document reviewed against our previous comments and other revisions highlighted and identified by the vendor. <input type="checkbox"/> I Drawing/Document returned without review. <input type="checkbox"/> J Print not enclosed. Approval conveyed herein neither relieves the Vendor/Contractor of his contractual obligations and his responsibilities for correctness of dimensions, materials of construction, weights, quantities, design details, assembly fits, performance requirements and conformity of the supplies with the Indian Statutory laws which may be applicable, nor does it limit the purchaser's rights under the contract. Reviewed by..... <i>Harika</i> Date 22/09/2021
	DESIGN	DJ												
	CHECKED	DP												
	APPROVED	PSP												
03		NAME	DATE	SIGN	DRAWING NO. EP-4- NO. OF SHEET. 03									
02	REVISED AS PER CUSTOMER COMMENTS	DJ	19.09.21											
01	REVISED AS PER CUSTOMER COMMENTS	DJ	26.07.21											
REV HISTORY	DESCRIPTION			SCALE	TITLE: SCHEME FOR DC METERING MODULE (S)									

COPYRIGHT AND CONFIDENTIAL
The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED
it must not be used directly or indirectly in any way detrimental to the interest of the company



DRG. NO. EP-4-CS-012-042

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.

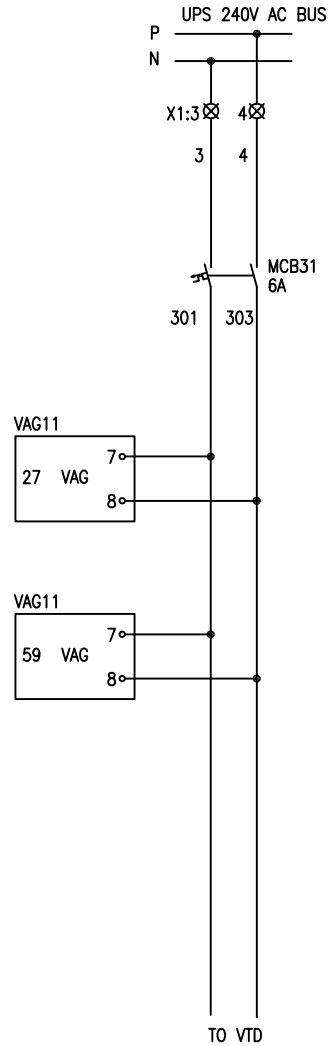


NOTE: 1. TB'S ARE OF STUD TYPE AND SUITABLE FOR RING TYPE LUGS.

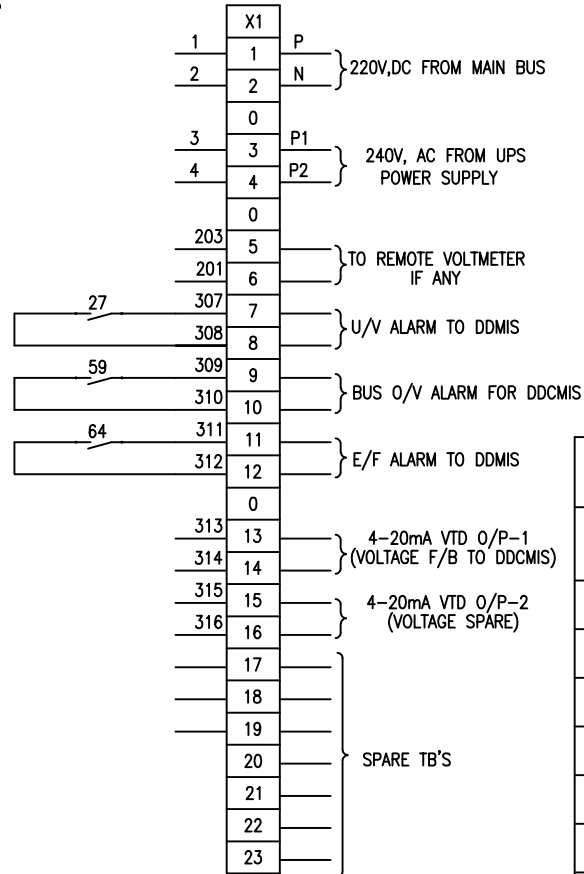
INVENTORY NO.	4						NAME	SIGN.	DATE		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE				
	3				DESIGNED	DJ			19.06.21		TITLE : POWER & CONTROL SCHEME FOR DC METERING MODULE (S)	NO. OF SHEETS	03		
	2	19.09.21	REVISED AS PER CUSTOMER COMMENTS	DJ	PSP	DRAWN						SHEET. NO.	02		
	1	26.07.21	REVISED AS PER CUSTOMER COMMENTS	DJ	PSP	CHECKED	DP		19.06.21						
REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP		19.06.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-042		REV. 02

The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED
It must not be used directly or indirectly in any way detrimental to the interest of the company

DRG. NO. EP-4-CS-012-042



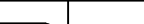

TERMINAL DIAGRAM






BILL OF MATERIAL FOR EP-4-CS-012-042

SL NO.	DESCRIPTION	MAKE	QTY
1	MCB 6A DC,	EATON	1
2	MCB 25A DC,	EATON	1
3	MCB 6A AC, C-CURVE	EATON	1
4	VOLTMETER -300 TO 300V	RISHABH	1
5	VOLTMETER SELECTOR SWITCH	RECOM	1
6	AMMETER -10-0-10mA	RISHABH	1
7	VOLTAGE TRANSDUCER	SECURE	1
8	INDICATING LAMP AMBER 220V DC	C&S ELECTRIC/ L&T (ESBEE)	3
9	DC UNDER VOLTAGE RELAY	GE	1
10	DC OVER VOLTAGE RELAY	GE	1
11	DC EARTH FAULT RELAY	GE	1
12	TERMINAL BLOCK 4SQ.MM		26

NOTE:1.TBS ARE OF STUD TYPE

INVENTORY NO.	4						NAME	SIGN.	DATE		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE			
	3					DESIGNED	DJ		19.06.21		TITLE : POWER & CONTROL SCHEME FOR DC METERING MODULE (S)	NO. OF SHEETS		03
	2	19.09.21	REVISED AS PER CUSTOMER COMMENTS		DJ	PSP	DRAWN						SHEET. NO.	03
	1	26.07.21	REVISED AS PER CUSTOMER COMMENTS		DJ	PSP	CHECKED	DP				19.06.21		
REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP	19.06.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-042	REV. 02	



TATA CONSULTING ENGINEERS LIMITED
VENDOR DOCUMENT REVIEW STATUS
☐ A Drawing/Document approved as submitted. Proceed with fabrication/construction.
☒ B Drawing/Document approved subjected to comments noted. Proceed with fabrication/construction considering our comments.
☐ C Our comments are noted on this marked up print.
☐ D Our comments are noted in memo attached to the forwarding transmittal letter No. Dated:
☐ E Correct original of this drawing/document to reflect our comments and resubmit for approval.
☐ F Correct original of this drawing/document to reflect our comments and resubmit for records.
☐ G Drawings/Documents of this category are for information only and not for approval. Information furnished on the drawing/document is noted.
☒ H Drawing/Document reviewed against our previous comments and other revisions highlighted and identified by the vendor.
☐ I Drawing/Document returned without review.
☐ J Print not enclosed.
Approval conveyed herein neither relieves the Vendor/Contractor of his contractual obligations and his responsibilities for correctness of dimensions, materials of construction, weights, quantities, design details, assembly fits, performance requirements and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limit the purchaser's rights under the contract.
Reviewed by: ..[Signature].....Date: 04/08/2021

	TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA INDIA YADADRI TPS(5X800MW)																				
	TATA CONSULTING ENGINEERS LIMITED BANGALORE INDIA																				
	BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE																				
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.			DEPT. CODE M	<table border="1"> <tr> <td></td> <td>NAME</td> <td>SIGN</td> <td>DATE</td> </tr> <tr> <td>DESIGN</td> <td>DJ</td> <td></td> <td>14/08/21</td> </tr> <tr> <td>CHECKED</td> <td>DP</td> <td></td> <td>14/08/21</td> </tr> <tr> <td>APPROVED</td> <td>PSP</td> <td></td> <td>14/08/21</td> </tr> </table>		NAME	SIGN	DATE	DESIGN	DJ		14/08/21	CHECKED	DP		14/08/21	APPROVED	PSP		14/08/21	
	NAME	SIGN	DATE																		
DESIGN	DJ		14/08/21																		
CHECKED	DP		14/08/21																		
APPROVED	PSP		14/08/21																		
03		NAME	DATE	SIGN	DRAWING NO. EP-4-CS-012-043																
02																					
01																					
				NO. OF SHEET. 03																	
				REV. 00																	
REV HISTORY	DESCRIPTION			SCALE	TITLE: SCHEME FOR SPACE HEATER SUPPLY (SH)																

COPYRIGHT AND CONFIDENTIAL
The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED
It must not be used directly or indirectly in any way detrimental to the interest of the company

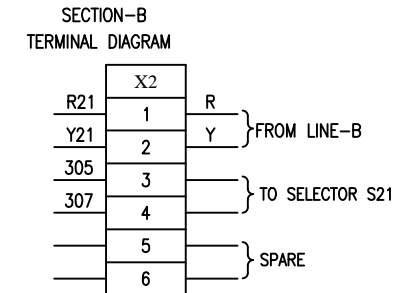
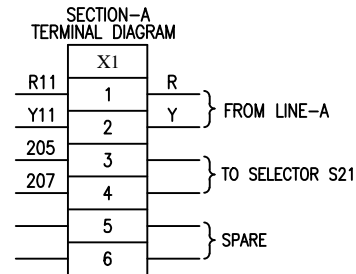
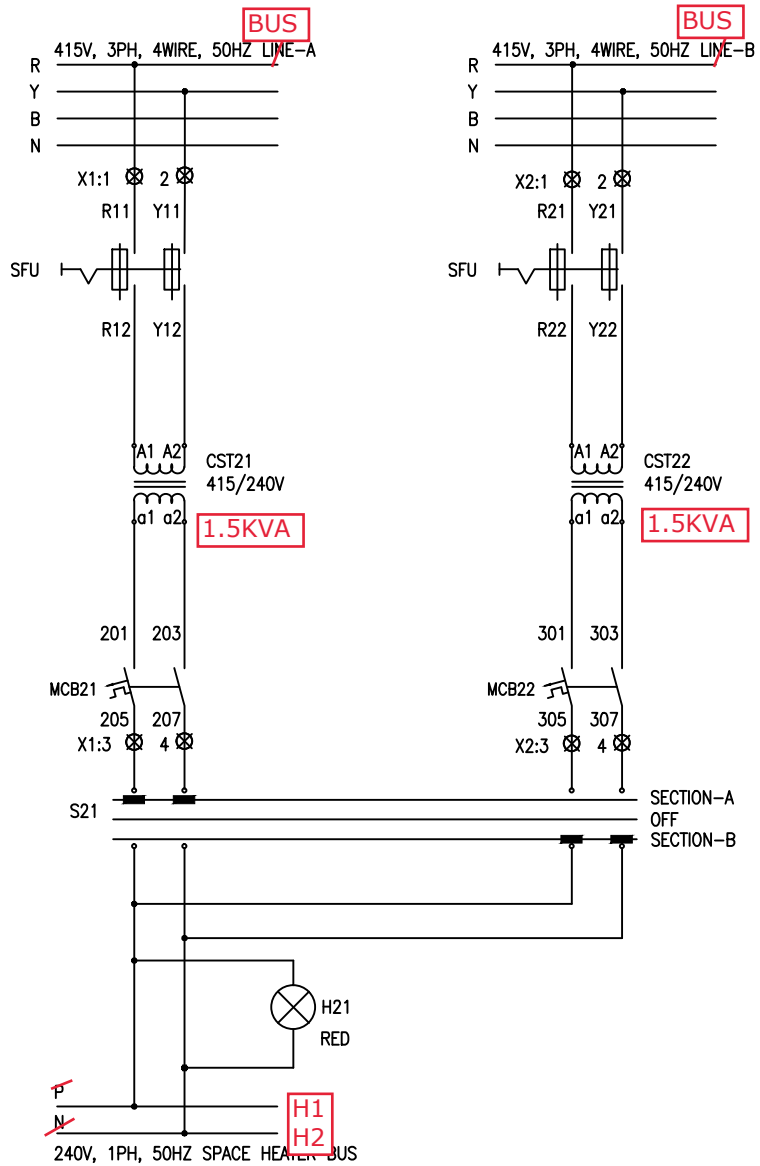
DRG. NO. EP-4-CS-012-043

INVENTORY NO.

4						NAME	SIGN.	DATE		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE			
3					DESIGNED	DJ		14.08.21		TITLE : POWER & CONTROL SCHEME FOR SPACE HEATER SUPPLY (SH)	NO. OF SHEETS	03	
2					DRAWN						SHEET. NO.	02	
1					CHECKED	DP		14.08.21					
REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP	14.08.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-043	REV. 00

FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM.



COPYRIGHT AND CONFIDENTIAL



INVENTORY NO.




REV. NO.	DATE	DESCRIPTION
-------------	------	-------------

ALL DIMENSIONS ARE IN MM.

BILL OF MATERIAL FOR EP-4-CS-012-043			
SL NO.	DESCRIPTION	MAKE	QTY
1	SWITCH FUSE UNIT **A	C&S ELECTRIC	2
2	POWER FUSE **A	C&S ELECTRIC	4
3	DP AC MCB **A ,C-CURVE	EATON	2
4	415/240V CST **KVA 1.5KVA	PRAGATI	2
5	SELECTOR SWITCH 4POLE 3WAY	RECOM	1
6	INDICATING LAMP RED 240V AC	CUSTOMER APPROVED	1
7	TERMINAL BLOCKS		12

E

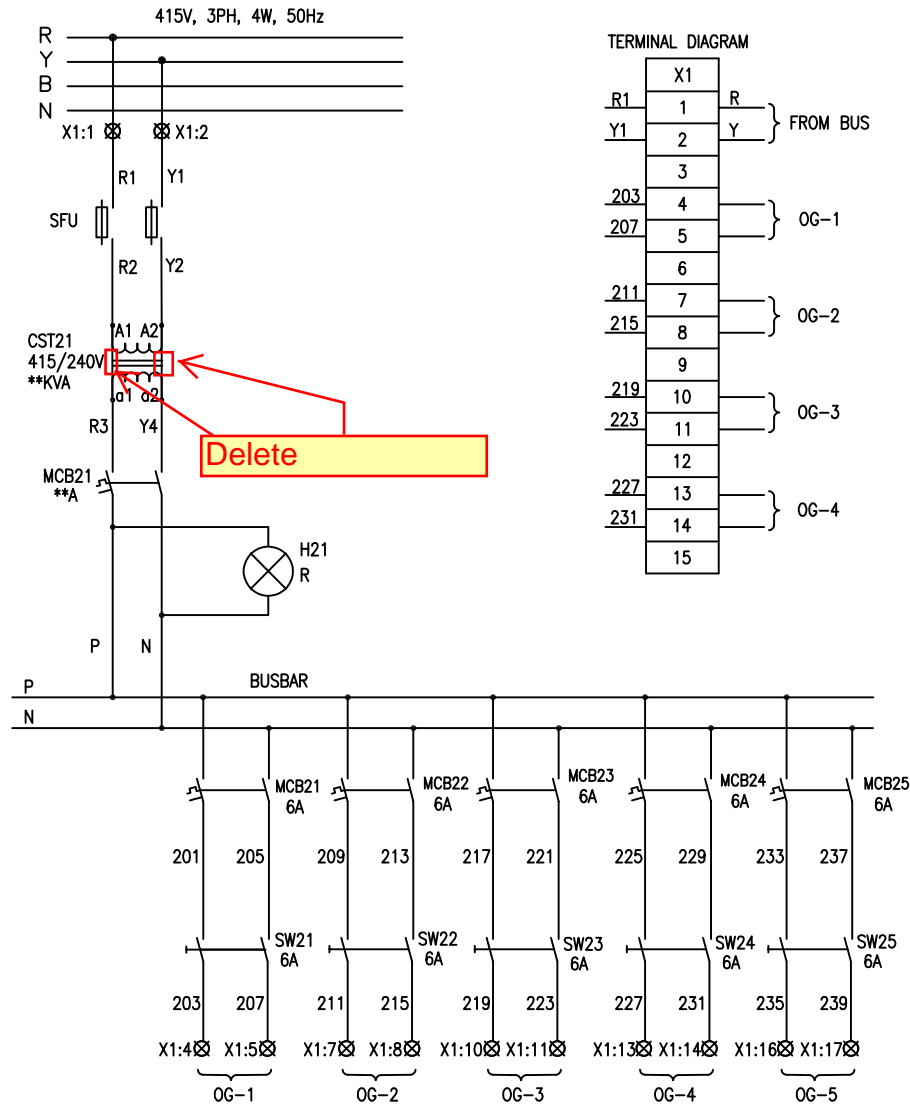
4					NAME	SIGN.	DATE		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE					
3				DESIGNED	DJ		14.08.21		TITLE : POWER & CONTROL SCHEME FOR SPACE HEATER SUPPLY (SH)	NO. OF SHEETS	03			
2				DRAWN						SHEET. NO.	03			
1				CHECKED	DP		14.08.21							
REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP		14.08.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-043	REV. 00

	TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA INDIA YADADRI TPS(5X800MW)					
	TATA CONSULTING ENGINEERS LIMITED BANGALORE INDIA					
	BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE					
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.			DEPT. CODE M		NAME	TATA CONSULTING ENGINEERS LIMITED VENDOR DOCUMENT REVIEW STATUS <input type="checkbox"/> B Drawing/Document approved as designed. <input type="checkbox"/> C Drawing/Document approved as designed. <input checked="" type="checkbox"/> D Drawing/Document approved subject to comments noted. Proceed with fabrication/construction considering the comments noted. <input type="checkbox"/> E Our comments are noted on this marked up print. <input type="checkbox"/> F Our comments are noted in event of the forwarding transmission. <input type="checkbox"/> G Correct original of this drawing/document to reflect our comments and other revisions highlighted and identified by the vendor. <input type="checkbox"/> H Drawing/Document reviewed against our previous comments and other revisions highlighted and identified by the vendor. <input type="checkbox"/> I Drawing/Document returned without review. <input type="checkbox"/> J Print not enclosed. Approval conveyed herein neither relieves the Vendor/Contractor of his contractual obligations and his responsibilities for correctness of dimensions, materials of construction, weights, quantities, design details, assembly fits, performance requirements and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limit the purchaser's rights under the contract.
					DESIGN	DJ
					CHECKED	DP
					APPROVED	PSP
03		NAME	DATE	SIGN	DRAWING NO. EP-4-CS-012-045 NO. OF SHEET. 02	
02						
01	REVISED AS PER CUSTOMER COMMENTS	DJ	26.07.21			
REV HISTORY	DESCRIPTION			SCALE	TITLE: SCHEME FOR ESSENTIAL SUPPLY MODULE (J1)	

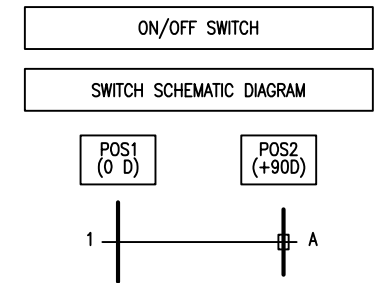
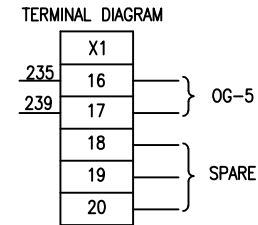
COPYRIGHT AND CONFIDENTIAL

The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.

DRG. NO. EP-4-CS-012-045






NOTE: 1. TB'S ARE OF STUD TYPE AND SUITABLE FOR RING TYPE LUGS.
2. **--RATING AS PER SLD



BILL OF MATERIAL FOR EP-4-CS-012-045			
SL NO.	DESCRIPTION	MAKE	QTY
1	SWITCH FUSE UNIT **A	C&S ELECTRIC	1
2	POWER FUSE **A	C&S ELECTRIC	2
3	DP AC MCB **A ,C-CURVE	EATON	1
4	DP AC MCB 6A, C-CURVE	EATON	5
5	415/240V CST **KVA	PRAGATI	1
6	ON/OFF SELECTOR SWITCH 6A(SPD3125BB2/TB3)	RECOM	5
7	INDICATION LAMP(RED) 240V AC	CUSTOMER APPROVED	1
8	TERMINAL BLOCKS		20

INVENTORY NO.	4						NAME	SIGN.	DATE		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE					
	3					DESIGNED	DJ		19.06.21		TITLE : POWER & CONTROL SCHEME FOR ESSENTIAL SUPPLY MODULE (J1)	NO. OF SHEETS	02			
	2					DRAWN						SHEET. NO.	02			
	1	26.07.21	REVISED AS PER CUSTOMER COMMENTS			DJ	DJ	CHECKED	DP				19.06.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-045
	REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP			19.06.21				

	CUSTOMER TELANGANA STATE POWER GENERATION CORPORATION LTD TELANGANA INDIA YADADRI TPS(5X800MW)				
	CONSULTANT TATA CONSULTING ENGINEERS LIMITED BANGALORE INDIA				
	BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE				
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.			DEPT. CODE M	NAME DESIGN CHECKED APPROVED	DJ DP PSP
03		NAME	DATE	SIGN	DRAWING NO. EP-4-CS-012-046 NO. OF SHEET. 02
02					
01	REVISED AS PER CUSTOMER COMMENTS	DJ	26.07.21		
REV HISTORY	DESCRIPTION			SCALE	
					TITLE: SCHEME FOR TEST SUPPLY MODULE (J2)

TATA CONSULTING ENGINEERS LIMITED
VENDOR DOCUMENT REVIEW STATUS

☐ A Drawing/Document approved as submitted. Proceed with fabrication/construction.

☒ B Drawing/Document approved subjected to comments noted. Proceed with fabrication/construction considering our comments.

☐ C Our comments are noted on this marked up SIGN DATE

☐ D Our comments are noted in memo attached to the forwarding transmittal letter No. 19/06/21 12/08/2021..

☐ E Correct original of the drawing/document to reflect our comments and resubmit for approval. 19/06/21

☐ F Correct original of this drawing/document to reflect our comments and resubmit for records. 19/06/21

☐ G Drawings/Documents/Details/Category are for information only and not for approval. Information furnished on the drawing/document is noted.

☒ H Drawing/Document reviewed against our previous comments and other revisions highlighted and identified by the vendor.

☐ I Drawing/Document returned without review.



☐ J Print not enclosed.

Approval conveyed herein neither relieves the Vendor/Contractor of his contractual obligations and his responsibilities for correctness of dimensions, materials of construction, weights, quantities, design details, assembly fits, performance requirements and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limit the purchaser's rights under the contract.

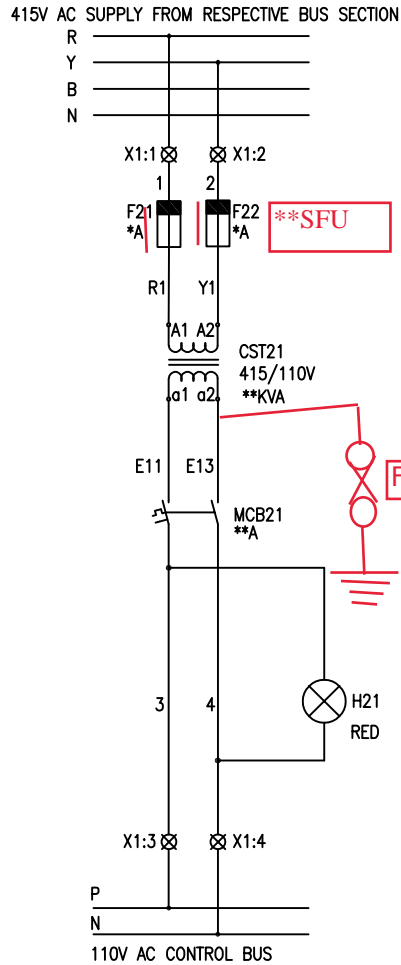
Reviewed by: *Handwritten Signature* Date: 12/08/2021
 REV. 01

COPYRIGHT AND CONFIDENTIAL
The information on the document is the property of BHARAT HEAVY ELECTRICALS LIMITED
It must not be used directly or indirectly in any way detrimental to the interest of the company

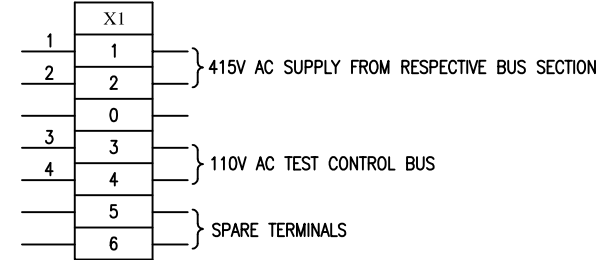
EP-4-CS-012-046
DRG. NO.

INVENTORY NO.	4					NAME	SIGN.	DATE		BHARAT HEAVY ELECTRICALS LIMITED SOLAR BUSINESS DIVISION BANGALORE			
	3				DESIGNED	DJ		19.06.21					
	2				DRAWN								
	1	26.07.21	REVISED AS PER CUSTOMER COMMENTS		CHECKED	DP		19.06.21					
REV. NO.	DATE	DESCRIPTION			BY	APPD.	APPROVED	PSP	19.06.21	SCALE: NA	JOB NO. CP-012	DRG. NO. EP-4-CS-012-046	REV. 01

NOTE: 1. TB'S ARE OF STUD TYPE AND SUITABLE FOR RING TYPE LUGS.
2. **--RATING AS PER SLD



TERMINAL DIAGRAM



BILL OF MATERIAL FOR EP-4-CS-012-046

SL NO.	DESCRIPTION	MAKE	QTY
1	FUSE BASE **A **SFU	C&S ELECTRIC	2
2	FUSE *A	C&S ELECTRIC	2
3	DP AC MCB **A, C-CURVE	EATON	1
4	415/110V CST **KVA	PRAGATI	1
5	INDICATION LAMP(RED) 110V AC	CUSTOMER APPROVED	1
6	TERMINAL BLOCKS		7