Volume – I

Tender Notification for

PROCUREMENT OF VARIOUS RATINGS OF CONTROL & RELAY PANELS IN BRPL

CMC/BR/22-23/RB/PR/RJ/1045

Due Date for Submission of Bids: 17.08.2022

BSES RAJDHANI POWER LTD (BRPL)
BSES Bhawan, Nehru Place, New Delhi-110019
Corporate Identification Number: U74899DL2001PLC111527
Telephone Number: +91 11 3009 9999
Fax Number: +91 11 2641 9833
Website: www.bsesdelhi.com

BSES
RAJDHANI POWER LIMITED

Section – I

REQUEST FOR QUOTATION

Tender Notification: CMC/BR/22-23/RB/PR/RJ/1045

Procurement of Various Ratings of Control & Relay Panels in BRPL

BSES
RAJDHANI POWER LIMITED

INDEX

BSES
RAJDHANI POWER LIMITED

SECTION – I: REQUEST FOR QUOTATION

1.0 Event Information

1.01 BRPL invites sealed tenders for supply of Control & Relay Panels from the manufacturers. The bidder must qualify the technical requirements as specified in clause 2.0 stated below. The sealed envelopes shall be duly super scribed as — **"BID FOR SUPPLY OF VARIOUS RATINGS OFCONTROL & RELAY PANELS IN BRPL, TENDER NOTICE CMC/BR/22-23/RB/PR/RJ/1045 DUE FOR SUBMISSION ON DT. 17.08.2022"**.

Sl. No.	Item Description	Specification	Requirement	Estimated Cost
			Total Qty.	
BRPL, DELHI				
1	Supply of Various ratings of Control & Relay Panels	SECTION V	09 Nos	1.20 Crs

Note: Quantity may vary to any extent of +/- 30% of above mentioned total quantity.

1.02 The schedule of specifications with detail terms & conditions can be obtained from address given below against demand draft/Pay Order of **Rs.1180/- with GST**-, drawn in favour of **BSES RAJDHANI POWER LTD**, payable at New Delhi. The sale of tender documents will be issued from **28.07.2022** onwards on all working days upto **17.08.2022**. The tender documents can also be downloaded from the website "**www.bsesdelhi.com**".

In case tender papers are downloaded from the above website, then the bidder has to enclose a demand draft covering the cost of bid documents as stated above in a separate envelope with suitable superscription —"Cost of Bid Documents: Tender **Notice Ref: CMC/BR/22-23/RB/PR/RJ/1045"**.This envelope should accompany the Bid Documents.

1.03 Offers will be received upto **1530 Hrs. on dt. 17.08.2022** as indicated earlier and will be opened at the address given below dt. **17.08.2022 at 1600 Hrs.** in the presence of authorized representatives of the bidders. The schedule of specifications with detail terms & conditions are enclosed. It is the sole responsibility of the bidder to ensure that the bid documents reach this office on or before the due date.

HEAD OF THE DEPARTMENT, 1st FLOOR, 'C' BLOCK,
CONTRACTS & MATERIALS DEPARTMENT, BSES RAJDHANI POWER LTD,
BSES BHAWAN,
NEHRU PLACE, NEW DELHI-110019.

1.04 BRPL reserves the right to accept/ reject any or all Tenders without assigning any reason thereof and alter the quantity of materials mentioned in the Tender documents at the time of placing purchase orders. Tender will be summarily rejected if:

i) Earnest Money Deposit (EMD) @ 2% (Two percent) of the Tender value i.e. **Rs. 2,40,000/-** is not deposited in shape of Bank Draft in favour of BSES RAJDHANI POWER LTD, payable at New Delhi or Bank Guarantee executed on favour of BSES RAJDHANI POWER LTD.

ii) The offer does not contain "FOR, NEW DELHI price indicating break-up towards all taxes & duties".

iii) Complete Technical details are not enclosed.

iv) Tender is received after due time due to any reason.

1.05 BRPL reserves the right to reject any or all bids or cancel/ withdraw the invitation for bids without assigning any reason whatsoever and in such case no bidder/ intending bidder shall have any claim arising out of such action time of placing purchase orders.

2.0 Qualification Criteria:-

The prospective bidder must qualify all of the following requirements to be eligible to participate in the bidding. Bidders who meet following requirements will be considered as successful bidder and management has a right to disqualify those bidders who do not meet these requirements.

1) The bidder should have own manufacturing facility in India for 33KV or higher voltage class Control & relay panels for last 3 years..- *Factory incorporation certificate / Undertaking. Details of manufacturing units, locations and works from where supply against this tender shall be proposed to be furnished.*

2) The bidder should have servicing , repairing, testing & refurbishment facility in INDIA with necessary spares and testing equipment for providing prompt after sales service for Control & Relay Panels- *Relevant Details/certificates/Undertaking (Details of the set-up available shall be brought out in the offer.The bidder shall also submit undertaking along with the bid confirming the infrastructure details submitted)*

3) The bidder should have manufacturing capacity for a minimum of 10 nos 33KV or higher voltage class Control & relay panels per month.- *Installed Capacity Certificate*

4) The bidder should have successfully designed & supplied minimum 20 Nos of 33KV or higher grade control & relay panels to any utilities/SEB's/PSU's/reputed firm (for which end user shall be Utility/SEB's/PSU's for developing distribution Network) in last 5 years- *a. Work Order copies*

b. Work completion certificates

c. List of projects executed including customer name, PO number (with date), date of completion and rating (Capacity/Voltage etc)

5) Performance certificate for minimum 2 year satisfactory performance for similar rating or higher rating supplied in last 5 years from at least two utilities/ SEB/ PSUs / reputed firm wherin the end user shall be Utility/SEB's/PSU's. In case of bidder has a previous association with BRPL/BYPL for similar product and service, the performance feedback for that bidder by BRPL/BYPL shall only be considered irrespective of performance certificate issued by any third organization..- *Performance certificate*

6) The bidder must possess valid ISO 9001:2015 certification- *Valid copy of Certification*

7) Bidder should have Average Annual Sales Turnover of Rs 20 Crores or more in last three (3) Financial Years - *Balance Sheet and Duly certified CA certificate to be submitted.*

8) The Bidder shall submit an undertaking that "No Litigation" is pending with the BRPL or its Group/Associates Companies.- *Undertaking to be submit*

9) An undertaking (self-certificate) that the bidder has not been blacklisted/debarred by any central/state government institution/Electricity utilities- *Undertaking to be submit*

10) The bidder must have valid PAN No., GST Registration Number, in addition to other statutory compliances. The bidder must submit the copy of registrations and submit an undertaking that the bidder shall comply all the statuary compliances as per the laws/rules etc. before the start of the supply/work.- *Relevant Statutory Documents Copy/Undertaking*

3.0 Bidding and Award Process

Bidders are requested to submit their questions regarding the RFQ or the bidding process after review of this RFQ. BRPL response to the questions raised by various bidders will be distributed to all participating bidders through website.

a. Time schedule of the bidding process

The bidders on this RFQ package should complete the following within the dates specified as under:

S.No.	Steps	Activity description	Due date
1	Technical Queries	All Queries related to RFQ	On or before 10.08.2022 1500 Hrs.

2	Technical Offer	Documentary evidence in support of qualifying criteria. Technical Literature/ GTP/ Drawings/ Type test report, if any, etc., Testing facilities, any other relevant document, acceptance to commercial terms & conditions viz. delivery Schedule/ Period, Payment terms, PBG etc. Quality assurance plan, Deviation from the specification, list of plant & machinery and testing equipments Unpriced items.	17.08.2022, 1530 Hrs
3	Commercial Offer	Prices for Current Transformer and Break up regarding basic price and taxes. Delivery commitment	17.08.2022, 1530 Hrs
4	Opening of technical bid	As per RFQ	17.08.2022, 1600 Hrs

This is a two part bid process. Bidders are to submit the bids (a) Technical Bid (b) Price Bid. Both these parts should be furnished in separate sealed covers superscribing with specification no., validity etc, with particulars as **Part-I "Technical Particulars & Commercial Terms & Conditions"** and **Part-II "Financial bid"** and these sealed envelopes should again be placed in another sealed cover which shall be submitted before the due date & time specified.

Bidders are requested to submit the bid in one original plus one copy in duplicate.

- **The Part-I (Technical Bid) -** Technical Bid should not contain any cost information whatsoever. In case of Bids where the qualification requirements, technical suitability and other requirements are found to be inadequate, Part-II "Financial Bid" will be returned unopened.

- **The Part-II (Financial Bid) -** Qualified bidders will be intimated after technical evaluation of all the bids is completed. The date and time of same shall be intimated in due course to the qualified bidders. Notwithstanding anything stated above, the Purchaser reserves the right to assess bidder's capability to perform the contract, should the circumstances warrant such assessment in the overall interest of the purchaser. In this regard the decision of the purchaser is final.

4.0 Award Decision

Purchaser intends to award the business on a lowest bid basis, so suppliers are encouraged to bid competitively. The decision to place purchase order / letter of acceptance solely depends on purchaser on the cost competitiveness across multiple lots, quality, delivery and bidder's capacity, in addition to other factors that Purchaser may deem relevant.

The purchaser reserves all the rights to award the contract to one or more bidders so as to meet the delivery requirement or nullify the award decision without any reason.

BSES reserves the right to split the tender quantity amongst techno commercially qualified bidders on account of delivery requirement in tender, quantity under procurement etc.

Splitting of tender quantity amongst more than one bidder shall be governed by below mentioned guidelines:

- If the quantity is to be split among 2 bidders, it will be done in the ratio of 70:30 on L1 price.
- If the quantity is to be split among 3 bidders, it will be done in the ratio of 60:25:15 on L1 price.
- In case quantity needs to be distributed and order splitting is required, distribution of quantity shall be maximum among three (3) bidders.

In the event of your bid being selected by purchaser (and / or its affiliates) and your subsequent DEFAULT on your bid; you will be required to pay purchaser (and / or its affiliates) an amount equal to the difference in your bid and the next lowest bid on the quantity declared in RFQ.

In case any supplier is found unsatisfactory during the delivery process, the award will be cancelled and BRPL reserves the right to award other suppliers who are found fit.

Quantity Variation: The purchaser reserves the rights to vary the quantity by **+/- 30%** of the tender quantity.

Repeat Order: BRPL reserves the right to place repeat order at the same rates & terms and conditions as per this tender against additional requirement subject to mutual agreement between BRPL & supplier.

5.0 Market Integrity:

We have a fair and competitive marketplace. The rules for bidders are outlined in the Terms & Conditions. Bidders must agree to these rules prior to participating. In addition to other remedies available, we reserves the right to exclude a bidder from participating in future markets due to the bidder's violation of any of the rules or obligations contained in the Terms & Condition. Bidders who violate the marketplace rules or engage in behavior that disrupts the fair execution of the marketplace restricts a bidder to length of time, depending upon the seriousness of the violation. Examples of violations include, but are not limited to:

- Failure to honor prices submitted to the marketplace.
- Breach of the terms of the published in Request For Quotation.

6.0 Supplier Confidentiality

All information contained in this RFQ is confidential and may not be disclosed, published or advertised in any manner without written authorization from BRPL. This includes all bidding information submitted.

All RFQ documents remain the property of BRPL and all suppliers are required to return these documents to BRPL upon request.

Suppliers who do not honor these confidentiality provisions will be excluded from participating in future bidding events.

7.0 Contact Information

All communication as regards this RFQ shall be made (i) in English, (ii) in writing and (iii) sent by mail, facsimile to:

	Technical	Commercial
Contact Name	Mr. Abhinav Srivastava Copy to Mr. Sheshadri Krishnapura	Ms Rachna Jain Copy to Mr. Pankaj Goyal
Address	BSES RAJDHANI POWER LTD, 2nd Floor, B Block, Nehru Place, New Delhi – 110019	C&M Deptt. 1st floor, D- Block, BSES Rajhdhani Power Limited, BSES Bhawan, Nehru Place, New Delhi -110019
Email-ID	abhinav.r.srivastava@relianceada.com sheshadri.krishnapura@relianceada.com	rachna.jain@relianceada.com pankaj.goyal@relianceada.com

SECTION – II

INSTRUCTION TO BIDDERS (ITB)

PROCUREMENT OF VARIOUS RATINGS OF CONTROL & RELAY PANELS

CMC/BR/22-23/RB/PR/RJ/1045

A. GENERAL

1.00 BSES Rajdhani power Ltd, hereinafter referred to as the Purchaser are desirous of implementing the various Systems Improvement/Repair & Maintenance works at their respective licensed area in Delhi. The Purchaser has now floated this tender for procurement of various ratings of Control & Relay Panels as notified earlier in this bid document.

2.00 SCOPE OF WORK

The scope shall include Design, Manufacture, Testing at works conforming to the Technical Specifications enclosed along with Packing, Forwarding, Freight and Unloading and proper stacking at Purchaser's stores.

3.00 DISCLAIMER

3.01 This Document includes statements, which reflect various assumptions, which may or may not be correct. Each Bidder/ Bidding Consortium should conduct its own estimation and analysis and should check the accuracy, reliability and completeness of the information in this Document and obtain independent advice from appropriate sources in their own interest.

3.02 Neither Purchaser nor its employees will have any liability whatsoever to any Bidder or any other person under the law or contract, the principles of restitution or unjust enrichment or otherwise for any loss, expense or damage whatsoever which may arise from or be incurred or suffered in connection with anything contained in this Document, any matter deemed to form part of this Document, provision of Services and any other information supplied by or on behalf of Purchaser or its employees, or otherwise a rising in any way from the selection process for the Supply.

3.03 Though adequate care has been taken while issuing the Bid document, the Bidder should satisfy itself that Documents are complete in all respects. Intimation of any discrepancy shall be given to this office immediately.

3.04 This Document and the information contained herein are Strictly Confidential and are for the use of only the person(s) to whom it is issued. It may not be copied or distributed by the recipient to third parties (other than in confidence to the recipient's professional advisors).

4.00 COST OF BIDDING

The Bidder shall bear all cost associated with the preparation and submission of its Bid and Purchaser will in no case be responsible or liable for those costs.

B BIDDING DOCUMENT

5.00 BIDDING DOCUMENTS

5.01 The Scope of Work, Bidding Procedures and Contract Terms are described in the Bidding Documents. In addition to the covering letter accompanying Bidding Documents, the Bidding Documents include:

Volume –I

a)	Request for Quotation (RFQ)	- Section – I
b)	Instructions to Bidders (ITB)	- Section – II
c)	General Conditions of Contract	- Section - III
d)	Quantity and delivery requirement	- Section –IV
e)	Technical Specifications (TS)	- Section –V

Volume – II

a)	Bid Form	- Annexure – I
b)	Bid Format	- Annexure – II
c)	Price Schedule	- Annexure – III
d)	Commercial Terms & Conditions	- Annexure - IV
e)	No Deviation Sheet	- Annexure - V
f)	Qualification Criterion	- Annexure - VI

5.02 The Bidder is expected to examine the Bidding Documents, including all Instructions, Forms, Terms and specifications. Failure to furnish all information required by the Bidding documents or submission of a Bid not substantially responsive to the Bidding Documents in every respect will may result in the rejection of the Bid.

6.00 AMENDMENT OF BIDDING DOCUMENTS

6.01 At any time prior to the deadline for submission of Bids, the Purchaser may for any reasons, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by Amendment.

6.02 The Amendment shall be part of the Bidding Documents, pursuant to Clause 5.01, and it will be notified in writing by Fax/e-mail to all the Bidders who have received the Bidding Documents and confirmed their participation to Bid, and will be binding on them.

6.03 In order to afford prospective Bidders reasonable time in which to take the Amendment into account in preparing their Bids, the Purchaser may, at its discretion, extend the deadline for the submission of Bids.

C PREPARATION OF BIDS

7.00 LANGUAGE OF BID

The Bid prepared by the Bidder, and all correspondence and documents relating to the Bid exchanged by the Bidder and the Purchaser, shall be written in the English Language. Any printed literature furnished by the Bidder may be written in another Language, provided that this literature is accompanied by an English translation, in which case, for purposes of interpretation of the Bid, the English translation shall govern.

8.00 DOCUMENTS COMPRISING THE BID

The Bid prepared and submitted by the Bidder shall comprise the following components:

a) Bid Form ,Price & other Schedules (STRICTLY AS PER FORMAT)and Technical Data Sheets completed in accordance with Clause 9.0, 10.0, 11.0 and Technical Specification;

b) All the Bids must be accompanied with the required EMD as mentioned in the Section-I against each tender.

c) Power of Attorney or Authorization letter indicating that the person(s) signing the Bid have the authority to sign the Bid and thus that the Bid is binding upon the Bidder during the full period of its validity, in accordance with clause 12.0.

9.00 BID FORM

9.01 The Bidder shall complete an "Original" and another one "Copy" of the Bid Form and the appropriate Price & Other Schedules and Technical Data Sheets.

9.02 **EMD**

Pursuant to Clause 8.0(b) above, the bidder shall furnish, as part of its bid, a EMD amounting to 2% of the total bid value (FOR Destination) i.e. Rs. **2,40,000/-**. The EMD is required to protect the Purchaser against the risk of Bidder's conduct which would warrant the security's forfeiture.

The EMD shall be denominated in the currency of the bid, and shall be in the following form:

a) A bank guarantee issued by any scheduled bank strictly as per the form at enclosed and shall be valid for a period of thirty (30) days beyond the validity of the bid.

b) Bank Draft in favour of BSES RAJDHANI POWER LTD, payable at New Delhi.

Unsuccessful bidders' EMD will be discharged or returned as promptly as possible as but not later than thirty (30) days after the expiration of the period of bid validity.

The successful bidder's EMD will be discharged upon furnishing the performance security. The EMD may be forfeited:

a) If the Bidder:
i) Withdraws its bid during the period of bid validity specified by the Bidder in the Bid Form; or

b) in the case of a successful Bidder, if the Bidder fails:

i) to sign the Contract, or

ii) to furnish the required performance security.

10.00 BID PRICES

10.01 Bidders shall quote for the entire Scope of Supply with a break-up of prices for individual items. The total Bid Price shall also cover all the Supplier's obligations mentioned in or reasonably to be inferred from the Bidding Documents in respect of Design, Supply, Transportation to site, all in accordance with the requirement of Bidding Documents The Bidder shall complete the appropriate Price Schedules included herein , stating the Unit Price for each item & total Price.

10.02 The prices offered shall be inclusive of all costs as well as Duties, Taxes and Levies paid or payable during execution of the supply work, breakup of price constituents, should be there. Prices quoted by the Bidder shall be—Firm "and not subject to any price adjustment during the performance of the Contract. A Bid submitted with an adjustable price quotation will be treated as non -responsive and rejected.

11.00 BID CURRENCIES

Prices shall be quoted in **Indian Rupees (INR) only**.

12.00 PERIOD OF VALIDITY OF BIDS

12.01 Bids shall remain valid for **120 days** post bid date.

12.02 Notwithstanding Clause12.01 above, the Purchaser may solicit the Bidder's consent to an extension of the Period of Bid Validity. The request and the responses thereto shall be made in writing by Fax/e-mail.

13.00 ALTERNATIVE BIDS

Bidders shall submit Bids, which comply with the Bidding Documents. Alternative Bids will not be considered. The attention of Bidders is drawn to the provisions of Clause 22.03 & 22.04 regarding the rejection of Bids, which are not substantially responsive to the requirements of the Bidding Documents.

14.00 FORMAT AND SIGNING OF BID

14.01 The original Bid Form and accompanying documents (as specified in Clause9.0),clearly marked "Original Bid", plus one copy must be received by the Purchaser at the date, time and place specified pursuant to Clauses15.0 and16.0. In the event of any discrepancy between the original and the copies, the original shall govern.

14.02 The original and copy of the Bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to sign on behalf of the Bidder. Such authorization shall be indicated by written Power-of-Attorney accompanying the Bid.

14.03 The Bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the Bid.

D SUBMISSION OF BIDS

15.0 SEALING AND MARKING OF BIDS

15.01 Bid submission: One original & one Copy (hard copies) of all the Bid Documents shall be sealed and submitted to the Purchaser before the closing time for submission of the bid.

15.02 The Technical Documents and the EMD shall be enclosed in a sealed envelope and the said envelope shall be superscribed with **—Technical & EMD**. The Financial bid shall be inside another sealed envelope with superscription — **Financial Bid**. Both these envelopes shall be sealed inside another big envelope. All the envelopes should bear the Name and Address of the Bidder and marking for the Original and Copy. The envelopes should be superscribed with —**"Tender Notice No, Due date of submission, Tender opening date"**.

15.03 The Bidder has the option of sending the Bids in person. Bids submitted by Telex/ Telegram/ Fax will not be accepted. No request from any Bidder to the Purchaser to collect the proposals from Airlines/Cargo Agents etc shall be entertained by the Purchaser.

16.0 DEADLINE FOR SUBMISSION OF BIDS

16.01 The original Bid, together with the required copies, must be received by the Purchaser at the address specified not later than **1530 HRS on 17.08.2022**.

16.02 The Purchaser may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with Clause9.0, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

17.0 ONE BID PER BIDDER

Each Bidder shall submit only one Bid. A Bidder who submits or participates in more than one Bid will cause all those Bids to be rejected.

18.00 LATE BIDS

Any Bid received by the Purchaser after the deadline for submission of Bids prescribed by the Purchaser, pursuant to Clause 16.0, will be declared "Late" and rejected and returned unopened to the Bidder.

19.00 MODIFICATIONS AND WITHDRAWAL OF BIDS

19.01 The Bidder is not allowed to modify or withdraw its Bid after the Bid's submission.

E. EVALUATION OF BID

20.00 PROCESS TO BE CONFIDENTIAL

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process. Any effort by a Bidder to influence the Purchaser's processing of Bids or award decisions may result in the rejection of the Bidder's Bid.

21.00 CLARIFICATION OF BIDS

To assist in the examination, evaluation and comparison of Bids, the Purchaser may, at its discretion, ask the bidder for a clarification of its Bid. All responses to requests for clarification shall be in writing and no change in the price or substance of the Bid shall be sought, offered or permitted.

22.00 PRELIMINARY EXAMINATION OF BIDS / RESPONSIVENESS

22.01 Purchaser will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order.

22.02 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected.

22.03 Prior to the detailed evaluation, Purchaser will determine the substantial responsiveness of each Bid to the Bidding Documents including production capability and acceptable quality of the Goods offered. A substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.

22.04 Bid determined as not substantially responsive will be rejected by the Purchaser and/or the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non -conformity.

23.0 EVALUATION AND COMPARISON OF BIDS

23.01 The evaluation of Bids shall be done based on the delivered cost competitiveness basis.

23.02 The evaluation of the Bids shall be a stage-wise procedure. The following stages are identified for evaluation purposes: In the first stage, the Bids would be subjected to a responsiveness check. The Technical Proposals and the Conditional ties of the Bidders would be evaluated. Subsequently, the Financial Proposals along with supplementary Financial Proposals, if any, of Bidders with Techno-commercially Acceptable Bids shall be considered for final evaluation.

23.03 The Purchaser's evaluation of a Bid will take into account, in addition to the Bid price, the following factors, in the manner and to the extent indicated in this Clause:

(a) Supply Schedule
(b) Deviations from Bidding Documents

Bidders shall base their Bid price on the terms and conditions specified in the Bidding Documents. The cost of all quantifiable deviations and omissions from the specification, terms and conditions specified in Bidding Documents shall be evaluated. The Purchaser will make its own assessment of the cost of any deviation for the purpose of ensuring fair comparison of Bids.

23.04 Any adjustment in price, which results from the above procedure, shall be added for the purposes of comparative evaluation only to arrive at an "Evaluated Bid Price". Bid Prices quoted by Bidders shall remain unaltered.

F. AWARD OF CONTRACT

24.0 CONTACTING THE PURCHASER

24.01 From the time of Bid submission to the time of contract award, if any Bidder wishes to contact the Purchaser on any matter related to the Bid, it should do so in writing.

24.02 Any effort by a Bidder to influence the Purchaser and/or in the Purchaser‘s decisions in respect of Bid evaluation, Bid comparison or Contract Award, will result in the rejection of the Bidder‘s Bid.

25.0 THE PURCHASER ’S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

The Purchaser reserves the right to accept or reject any Bid and to annul the Bidding process and reject all Bids at anytime prior toward of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Purchaser‘s action.

26.0 AWARD OF CONTRACT

The Purchaser will award the Contract to the successful Bidder whose Bid has been Determined to be the lowest-evaluated responsive Bid, provided further that the Bidder has been determined to be qualified to satisfactorily perform the Contract. Purchaser reserves the right to award order other bidders in the tender, provided it is required for progress of project & provided he agrees to come to the lowest rate.

27.0 THE PURCHASER’S RIGHT TO VARY QUANTITIES

The Purchaser reserves the right to vary the quantity i.e. increase or decrease the numbers/quantities without any change in terms and conditions during the execution of the Order.

28.0 LETTER OF INTENT/ NOTIFICATION OF AWARD

The letter of intent/ Notification of Award shall be issued to the successful Bidder whose bids have been considered responsive, techno-commercially acceptable and evaluated to be the lowest (L1). The successful Bidder shall be required to furnish a letter of acceptance within 7 days of issue of the letter of intent /Notification of Award by Purchaser.

29.0 PERFORMANCE BANK GUARANTEE

The successful Bidder shall furnish the Performance Bank Guarantee for an amount of 10% (Ten percent) of the Contract Price in accordance with the format provided. The Performance Bond shall be valid for a period of twenty four months (24) from the date of the commissioning or thirty months (30) from the date of receipt of material (last consignment) at site/stores whichever is earlier plus 3 months towards claim period. Upon submission of the performance security, the EMD shall be released.

30.00 CORRUPT OR FRADULENT PRACTICES

30.01 The Purchaser requires that the Bidders observe the highest standard of ethics during the procurement and execution of the Project. In pursuance of this policy, the Purchaser:

(a) Defines, for the purposes of this provision, the terms set forth below as follows:

i) "Corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them ,or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving, or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and

ii) "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Purchaser, and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition.

(b) Will reject a proposal forward if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question ;

(c) Will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract.

30.02 Furthermore, Bidders shall be aware of the provision stated in the General Conditions of Contract.

BSES
RAJDHANI POWER LIMITED

SECTION – III

GENERAL CONDITIONS OF CONTRACT (GCC)

Procurement of Various Ratings of Control & Relay Panels

CMC/BR/22-23/RB/PR/RJ/1045

GENERAL TERMS AND CONDITIONS

1.0 General Instructions

1.01 All the Bids shall be prepared and submitted in accordance with these instructions.

1.02 Bidder shall bear all costs associated with the preparation and delivery of its Bid, and the Purchaser will in no case shall be responsible or liable for these costs.

1.03 The Bid should be submitted by the Bidder in whose name the bid document has been issued and under no circumstances it shall be transferred/ sold to the other party.

1.04 The Purchaser reserves the right to request for any additional information and also reserves the right to reject the proposal of any Bidder, if in the opinion of the Purchaser, the data in support of RFQ requirement is incomplete.

1.05 The Bidder is expected to examine all instructions, forms, terms & conditions and specifications in the Bid Documents. Failure to furnish all information required in the Bid Documents or submission of a Bid not substantially responsive to the Bid Documents in every respect may result in rejection of the Bid. However, the Purchaser's decision in regard to the responsiveness and rejection of bids shall be final and binding without any obligation, financial or otherwise, on the Purchaser.

2.0 Definition of Terms

2.01 "Purchaser" shall mean BRPL Limited, on whose behalf this bid enquiry is issued by its authorized representative / officers.

2.02 "Bidder" shall mean the firm who quotes against this bid enquiry issued by the Purchaser. "Supplier" or "Supplier" shall mean the successful Bidder and/or Bidders whose bid has been accepted by the Purchaser and on whom the "Letter of Acceptance" is placed by the Purchaser and shall include his heirs, legal representatives, successors and permitted assigns wherever the context so admits.

2.03 "Supply" shall mean the Scope of Contract as described.

2.04 "Specification" shall mean collectively all the terms and stipulations contained in those portions of this bid document known as RFQ, Commercial Terms & Condition, Instructions to Bidders, Technical Specifications and the Amendments, Revisions, Deletions or Additions, as may be made by the Purchaser from time to time.

2.05 "Letter of Acceptance" shall mean the official notice issued by the Purchaser notifying the Supplier that his proposal has been accepted and it shall include amendments thereto, if any, issued by the Purchaser. The "Letter of Acceptance" issued by the Purchaser shall be binding on the "Supplier" The date of Letter of Acceptance shall be taken as the effective date of the commencement of contract.

2.06 "Month" shall mean the calendar month and "Day" shall mean the calendar day.

2.07 "Codes and Standards" shall mean all the applicable codes and standards as indicated in the Specification.

2.08 "Offer Sheet" shall mean Bidder's firm offer submitted to BRPL in accordance with the specification.

2.09 "Contract" shall mean the "Letter of Acceptance" issued by the Purchaser.

2.10 "Contract Price" shall mean the price referred to in the "Letter of Acceptance".

2.11 "Contract Period" shall mean the period during which the "Contract" shall be executed as agreed between the Supplier and the Purchaser in the Contract inclusive of extended contract period for reason beyond the control of the Supplier and/or Purchaser due to force majeure.

2.12 "Acceptance" shall mean and deemed to include one or more of the following as will be stipulated in the specification:

a) The written acceptance of material by the inspector at suppliers works to ship the materials.

b) Acceptance of material at Purchaser site stores after its receipt and due inspection/ testing and release of material acceptance voucher.

c) Where the scope of the contract includes supply, acceptance shall mean issue of necessary equipment / material takeover receipt after installation & commissioning and final acceptance.

3.0 Contract Documents & Priority

3.01 Contract Documents: The terms and conditions of the contract shall consist solely of these RFQ conditions and the offer sheet.

3.02 Priority: Should there be any discrepancy between any term hereof and any term of the Offer Sheet, the terms of these RFQ shall prevail.

4.0 Scope of Supply - General

4.01 The "Scope of Supply" shall be on the basis of Bidder's responsibility, completely covering the obligations, responsibility and supplies provided in this Bid enquiry whether implicit or explicit.

4.02 Bidder shall have to quote for the Bill of quantities as listed in Section – IV of this RFQ.

4.03 Quantity variation and additional requirement if any shall be communicated to successful bidder during project execution.

4.04 All relevant drawings, data and instruction manuals.

5.0 Quality Assurance and Inspection

5.01 Immediately on award of contract, the bidder shall prepare detailed quality assurance plan / test procedure identifying the various stages of manufacture, quality checks performed at each stage, raw material inspection and the Customer hold points. The document shall also furnish details of method of checking, inspection and acceptance standards / values and get the approval of Purchaser before proceeding with manufacturing. However, Purchaser shall have right to review the inspection reports, quality checks and results of suppliers in house inspection department which are not Customer hold points and the supplier shall comply with the remarks made by purchaser or his representative on such reviews with regards to further testing, rectification or rejection, etc.

5.02 Witness and Hold points are critical steps in manufacturing, inspection and testing where the supplier is obliged to notify the Purchaser in advance so that it may be witnessed by the Purchaser. Final inspection is a mandatory hold point. The supplier needs to proceed with the work past a hold point only after clearance by purchaser or a witness waiver letter from BRPL.

5.03 The performance of waiver of QA activity by Purchaser at any stage of manufacturing does not relieve the supplier of any obligation to perform in accordance with and meet all the requirements of the procurement documents and also all the codes & reference documents mentioned in the procurement document nor shall it preclude subsequent rejection by the purchaser.

5.04 On completion of manufacturing the items can be dispatched only after issue of shipping release by the Purchaser.

5.05 All testing and inspection shall be done without any extra cost.

5.06 Purchaser reserve the right to send any material out of the supply to any recognized laboratory for testing and the cost of testing shall be borne by the Purchaser. In case the material is found not in order with the technical requirement / specification, the charges along with any other penalty which may be levied is to be borne by the bidder. To avoid any complaint the supplier is advised to send his representative to the stores to see that the material sent for testing is being sealed in the presence of bidders representative.

5.07 Bidder has to sign quality agreement before supply of the material.

6.0 Packing, Packing List & Marking

6.01 Packing: Supplier shall pack or shall cause to be packed all Commodities in boxes and containers and otherwise in such a manner as shall be reasonably suitable for shipment by road or rail to BRPL without undue risk of damage in transit.

6.02 Packing List: The contents of each package shall be itemized on a detailed list showing the exact weight and the extreme outside dimensions (length, width and eight) of each container or box. One copy of the packing list shall be enclosed in each package delivered. There shall

also be enclosed in one package a master packing list identifying each individual package, which is part of the shipment. On any packaging where it is not feasible to place the packing list inside the container, all pertinent information shall be stenciled on the outside and will thus constitute a packing list.

7.01 Prices basis for supply of materials

Bidders require quoting their prices on Landed Cost Basis and separate price for each item.
For Supply to BRPL Delhi the price shall be inclusive of packing, forwarding, GST and freights. The above supply prices shall also include unloading at site stores. Transit and storage insurance will be arranged by BRPL; however bidder to furnish required details in advance for arranging the same by BRPL.

8.0 Variation in taxes, duties & levies:

8.01 The total order value shall be adjusted on account of any variations in Statutory Levies imposed by Competent Authorities by way of fresh notification(s) within the stipulated delivery period only. However, incase of reduction in taxes, duties and levies, the benefits of the same shall be passed on to BUYER.

8.02 No other Taxes, Duties & Levies other than those specified above will be payable by BUYER except in case of new Levies, Taxes & Duties imposed by the Competent Authorities by way of fresh notification(s) subsequent to the issue of PURCHASE ORDER but within the stipulated delivery period.

8.03 Notwithstanding what is stated above, changes in Taxes, Duties & Levies shall apply only to that portion of PURCHASE ORDER not executed on the date of notification by Competent Authority. Further, changes in Taxes, Duties & Levies after due date of Delivery shall not affect PURCHASE ORDER Terms and Value.

8.04 PURCHASE ORDER value shall not be subject to any variation on account of variation in Exchange rate(s).

9.0 Taxes & Duties on raw materials & bought out components:

9.01 Taxes & Duties on raw materials & bought out components are included in Order Value and are not subject to any escalation or variation for any reason whatsoever.

9.02 Taxes & Duties on raw materials & bought out components procured indigenously are included in Order Value and are not subject to any escalation or variation for any reason whatsoever.

10.0 Terms of payment and billing

10.01 For Supply of Equipments:

- 100% payment shall be made within 45 days from the date of receipt of material at store/ site against submission of 10 % performance bank guarantee. (Refer 10.01)

10.02 Bidder to submit the following documents against dispatch of each consignment:

i) Consignee copy of LR

ii) Supplier detailed invoice showing commodity description, quantity, unit price, total price and basis of delivery.

iii) Original certificate issued by BRPL confirming receipt of material at site and acceptance of the same.

iv) Dispatch clearance / inspection report in original issued by the inspection authority

v) Packing List.

vi) Test Reports

vii) Guarantee Certificate.

viii) Insurance policy to be obtained by supplier

11.0 Price Validity

11.01 All bids submitted shall remain valid, firm and subject to unconditional acceptance by BRPL Delhi for 120 days post bid-date. For awarded suppliers, the prices shall remain valid and firm till contract completion.

12.0 Performance Guarantee

12.01 Supplier shall establish a performance bond in favor of BRPL in an amount not less than Ten percent (10%) of the total price of the Contract (the "Performance Bond"). The Performance Bond shall be valid for a period of twenty four months (24) from the date of the commissioning or thirty months (30) from the date of receipt of material (last consignment) at site/stores whichever is earlier plus 3 months towards claim period. It shall be in accordance with one of the following terms:

a) Depositing pay order /demand draft of the relevant amount directly with BRPL at the address listed above or as otherwise specified by BRPL, either of which shall constitute the Performance Bond hereunder; or

b) Bank guarantee from any nationalized bank in favour of BSES RAJDHANI POWER LTD (BRPL). The performance Bank guarantee shall be in the format as specified by BRPL.

13.0 Forfeiture

13.01 Each Performance Bond established under Clause 10.0 shall contain a statement that it shall be automatically and unconditionally forfeited without recourse and payable against the presentation by BRPL of this Performance Bond to the ICICI Bank at Mumbai, or to the relevant company/ correspondent bank referred to above, as the case may be, together with a

simple statement that supplier has failed to comply with any term or condition set forth in the Contract.

13.02 Each Performance Bond established under will be automatically and unconditionally forfeited without recourse if BRPL in its sole discretion determines that supplier has failed to comply with any term or condition set forth in the contract.

14.0 Release

All Performance Bonds will be released without interest within seven (7) days from the last date up to which the Performance Bond has to be kept valid (as defined in Clause 10.0) except for the case set forth in Clause 21.0.

15.0 Defects Liability Period

15.01 The bidder to Guarantee the materials / items supplied against any defect of failure, which arise due to faulty materials, workmanship or design for the entire defects liability period. The Defect liability period shall be 60 months from the date of commissioning or 66 months from the date of delivery whichever is earlier. If during the defects liability period any materials / items are found to be defective, these shall be replaced or rectified by the bidder at his own cost within 30 days from the date of receipt of intimation.

16.0 Return, Replacement or Substitution.

BRPL shall give Supplier notice of any defective Commodity promptly after becoming aware thereof. BRPL may in its discretion elect to return defective Commodities to Supplier for replacement, free of charge to BRPL, or may reject such Commodities and purchase the same or similar Commodities from any third party. In the latter case BRPL shall furnish proof to Supplier of the cost of such substitute purchase. In either case, all costs of any replacement, substitution, shipping, labour and other related expenses incurred in connection with the return and replacement or for the substitute purchase of a Commodity hereunder should be for the account of Supplier. BRPL may set off such costs against any amounts payable by BRPL to Supplier. Supplier shall reimburse BRPL for the amount, if any, by which the price of a substitute Commodity exceeds the price for such Commodity as quoted in the Bid.

17.0 Effective Date of Commencement of Contract:

17.01 The date of the issue of the Letter of Acceptance shall be treated as the effective date of the commencement of Contract.

18.0 Time – The Essence of Contract

18.01 The time and the date of completion of the "Supply"" as stipulated in the Letter Of Acceptance / Purchase order issued to the Supplier shall be deemed to be the essence of the "Contract". The Supply has to be completed not later than the aforesaid Schedule and date of completion of supply.

19.0 The Laws and Jurisdiction of Contract:

19.01 The laws applicable to this Contract shall be the Laws in force in India.

19.02 All disputes arising in connection with the present Contract shall be settled amicably by mutual consultation failing which shall be finally settled as per the rules of Arbitration and Conciliation Act, 1996 at the discretion of Purchaser. The venue of arbitration shall be at Mumbai in India

20.0 Events of Default

20.01 Events of Default. Each of the following events or occurrences shall constitute an event of default ("Event of Default") under the Contract:

a) Supplier fails or refuses to pay any amounts due under the Contract;

b) Supplier fails or refuses to deliver Commodities conforming to this RFQ/ specifications, or fails to deliver Commodities within the period specified in P.O. or any extension thereof

c) Supplier becomes insolvent or unable to pay its debts when due, or commits any act of bankruptcy, such as filing any petition in any bankruptcy, winding-up or reorganization proceeding, or acknowledges in writing its insolvency or inability to pay its debts; or the Supplier's creditors file any petition relating to bankruptcy of Supplier;

d) Supplier otherwise fails or refuses to perform or observe any term or condition of the Contract and such failure is not remediable or, if remediable, continues for a period of 30 days after receipt by the Supplier of notice of such failure from BRPL.

21.0 Consequences of Default.

a) If an Event of Default shall occur and be continuing, BRPL may forthwith terminate the Contract by written notice.

b) In the event of an Event of Default, BRPL may, without prejudice to any other right granted to it by law, or the Contract, take any or all of the following actions;

i) present for payment to the relevant bank the Performance Bond;

ii) purchase the same or similar Commodities from any third party; and/or

iii) recover any losses and/or additional expenses BRPL may incur as a result of Supplier's default.

22.0 Penalty for Delay

22.01 If supply of items / equipments is delayed beyond the supply schedule as stipulated in purchase order then the Supplier shall be liable to pay to the Purchaser as penalty for delay, a sum of 1% (one percent) of the contract price for every week delay or part thereof for undelivered quantities.

22.02 The total amount of penalty for delay under the contract will be subject to a maximum of ten percent (10%) of the contract price for undelivered quantities.

22.03 The Purchaser may, without prejudice to any method of recovery, deduct the amount for such damages from any amount due or which may become due to the Supplier or from the Performance Bond or file a claim against the supplier.

23.0 Force Majeure

23.01 General

An "Event of Force Majeure" shall mean any event or circumstance not within the reasonable control directly or indirectly, of the Party affected, but only if and to the extent that:

i) Such event or circumstance materially and adversely affects the ability of the affected Party to perform its obligations under this Contract, and the affected Party has taken all reasonable precautions, due care and reasonable alternative measures in order to prevent or avoid the effect of such event on the affected party's ability to perform its obligations under this Contract and to mitigate the consequences thereof.

ii) For the avoidance of doubt, if such event or circumstance would not have materially and adversely affected the performance of the affected party had such affected party followed good industry practice, such event or circumstance shall not constitute force majeure.

iii) Such vent is not the direct or indirect result of the failure of such Party to perform any of its obligations under this Contract.

iv) Such Party has given the other Party prompt notice describing such events, the effect thereof and the actions being taken in order to comply with above clause.

23.02 Specific Events of Force Majeure subject to the provisions of above clause, Events of Force Majeure shall include only the following to the extent that they or their consequences satisfy the above requirements:

23.03 Mitigation of Events of Force Majeure Each Party shall:

i) Make all reasonable efforts to prevent and reduce to a minimum and mitigate the effect of any delay occasioned by an Event of Force Majeure including recourse to alternate methods of satisfying its obligations under the Contract;

ii) Use its best efforts to ensure resumption of normal performance after the termination of any Event of Force Majeure and shall perform its obligations to the maximum extent practicable as agreed between the Parties; and

iii) Keep the other Party informed at regular intervals of the circumstances concerning the event of Force Majeure, with best estimates as to its likely continuation and what measures or contingency planning it is taking to mitigate and or terminate the Event of Force Majeure.

23.04 Burden of Proof In the event that the Parties are unable in good faith to agree that a Force Majeure event has occurred to an affected party, the parties shall resolve their dispute in accordance with the provisions of this Agreement. The burden of proof as to whether or not a force majeure event has occurred shall be upon the party claiming that the force majeure event has occurred and that it is the affected party.

23.05 Termination for Certain Events of Force Majeure. If any obligation of any Party under the Contract is or is reasonably expected to be delayed or prevented by a Force Majeure event for a continuous period of more than 3 months, the Parties shall promptly discuss in good faith how to proceed with a view to reaching a solution on mutually agreed basis. If a solution on mutually agreed basis cannot be arrived at within a period of 30 days after the expiry of the period of three months, the Contract shall be terminated after the said period of 30 days and neither Party shall be liable to the other for any consequences arising on account of such termination.

23.06 Limitation of Force Majeure event. The Supplier shall not be relieved of any obligation under the Contract solely because cost of performance is increased, whether as a consequence of adverse economic consequences or otherwise.

23.07 Extension of Contract Period due to Force Majeure event The Contract period may be extended by mutual agreement of Parties by way of an adjustment on account of any period during which an obligation of either Party is suspended due to a Force Majeure event.

23.08 Effect of Events of Force Majeure. Except as otherwise provided herein or may further be agreed between the Parties, either Party shall be excused from performance and neither Party shall be construed to be in default in respect of any obligations hereunder, for so long as failure to perform such obligations shall be due to and event of Force Majeure."

24.0 Transfer And Sub-Letting

24.01 The Supplier shall not sublet, transfer, assign or otherwise part with the Contract or any part thereof, either directly or indirectly, without prior written permission of the Purchaser.

25.0 Recoveries

25.01 Whenever under this contract any money is recoverable from and payable by the bidder, the purchaser shall be entitled to recover such sum by appropriating in part or in whole by detecting any sum due to which any time thereafter may become due from the supplier in this or any other contract. Should the sum be not sufficient to cover the full amount recoverable the bidder shall pay to the purchaser on demand the remaining balance.

26.0 Waiver

26.01 Failure to enforce any condition herein contained shall not operate as a waiver of the condition itself or any subsequent breach thereof.

27.0 Indemnification

27.01 Notwithstanding contrary to anything contained in this RFQ, Supplier shall at his costs and risks make good any loss or damage to the property of the Purchaser and/or the other Supplier engaged by the Purchaser and/or the employees of the Purchaser and/or employees of the other Supplier engaged by the Purchaser whatsoever arising out of the negligence of the Supplier while performing the obligations under this contract.

SECTION – IV: QUANTITY AND DELIVERY REQUIREMENT

Sl. No.	Item Description	Specification	Requirement	Delivery Schedule	Location
BRPL,DELHI					
1	Various Ratings of Control & Relay Panels	SECTION V	09 Nos	As per BRPL requirement	Stores BRPL Delhi
TOTAL					

Annexure –I

BID FORM

Supply of Various Ratings of Control & Relay Panels

To
Head of the Department Contracts & Materials BSES Rajdhani Power Ltd BSES Bhawan, Nehru Place New Delhi– 110019
Sir,

We understand that BRPL is desirous of procuring "Control & Relay Panels" in its licensed distribution network area in Delhi. Having examined the Bidding Documents for the above named works, we the undersigned, offer to deliver the goods in full conformity with the Drawings, Conditions of Contract and specifications for the sum of AS PER PRICE BID ENCLOSED or such other sums as may be determined in accordance with the terms and conditions of the contract .The above amounts are in accordance with the Price Schedules attached herewith and are made part of this bid.

If our Bid is accepted, we undertake to deliver the entire goods as per delivery schedule given by you from the date of award of purchase order/letter of intent.

If our Bid is accepted, we will furnish a performance bank guarantee for an amount of 10% (Ten) percent of the total contract value for due performance of the Contract in accordance with the General Conditions of Contract.

We agree to abide by this Bid for a period of 120 days from the date fixed for bid opening under clause 9.0 of GCC, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

We declare that we have studied the provision of Indian Income Tax Law and other Indian Laws for supply of equipments/materials and the prices have been quoted accordingly.

Unless and until Letter of Intent is issued, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest, or any bid you may receive.

There is provision for Resolution of Disputes under this Contract, in accordance with the Laws and Jurisdiction of Contract, Clause 19 of GCC .

Dated this.....day of.....20.....
Signature..... In the capacity of……
.....duly authorized to sign for and on behalf of (IN BLOCK CAPITALS)……

Annexure -II

FORMAT FOR EMD BANK GUARANTEE

(To be issued in a Non Judicial Stamp Paper of Rs.50/-purchased in the name of the bank)

Whereas [name of the Bidder] (hereinafter called the "Bidder") has submitted its bid dated [date of submission of bid] for the supply of [name and/or description of the goods] (hereafter called ''the Bid"). KNOW ALL PEOPLE by these presents that WE [name of bank]at[Branch Name and address],having our registered office at[address of the registered office of the bank](herein after called —"the Bank"),are bound unto BSES Rajdhani Power Ltd., with its Corporate Office at BSES Bhawan Nehru Place, New Delhi -110019, (herein after called —the "Purchaser") in the sum of_____ for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this____ day of__ 20__.

THE CONDITIONS of this obligation are:

If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or

If the Bidder, having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity:

fails or refuses to execute the Contract Form ,if required; or
fails or refuses to furnish the performance security, In accordance with the Instructions to Bidders/GENERAL CONDITIONS.;

We undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that is its demand the purchaser will note that amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including thirty (30) days after the period of bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the bank)

Signature of the witness

Annexure-III

PRICE FORMAT

ENQUIRY NO & DATE: NIT: CMC/BR/22-23/RB/PR/RJ/1045

PRICE SCHEDULE

ITEM DESCRIPTION	QTY AS PER RFQ	UOM	EX-WORKS RATE/ UNIT	CGST (%)	CGST AMOUNT	SGST (%)	SGST AMOUNT	IGST (%)	IGST AMOUNT	FREIGHT	LANDED RATE/ UNIT	TOTAL LANDED COST (INR)
PANEL,CNTRL, C&R F/TRAFO 66KV	1 No											
PANEL,CNTRL &RELAY,33KV, F/FEEDER LINE	1 No											
PNL,ELEC PWR,INDR BUS CPLR;33KV	1 No											
PNL,ELEC PWR,INDR INCOMER;33KV	4 Nos											
PANEL,CNTRL, C&R F/TRAFO 33KV	2 Nos											

Note: 1.Prices shall be Firm
2.The prices received without break up of ex works, Freight, GST are liable for rejection
3. Pls. Indicate the exact percentage of taxes in figures and words.
4. If there is a discrepancy between the unit price and the total price THE UNIT PRICE shall prevail.
5. Bidders are requested to attach the covering letter head alongwith the price bid indicating reference no and date.

Bidders seal & signature

Annexure – IV

Enquiry No. : CMC/BR/22-23/RB/PR/RJ/1045

COMMERCIAL TERMS AND CONDITIONS

S/NO	ITEM DESCIPTION	AS PER BRPL	CONFIRMATION OF BIDDER
1	Validity of prices	120 days from date of offer	
2	Price basis	Firm, FOR Delhi store basis, Prices shall be inclusive of all taxes & duties, freight upto Delhi stores. Unloading at stores be in vendor's scope Transit insurance in BRPL scope	
3	Payment Terms	100% payment within 45 days after receipt of material at stores	
4	Delivery schedule	As per our requirement	
5	Defect Liability Period	60 months after commissioning or 66 months from the last date of supply after commissioning, whichever is earlier.	
6	Penalty for delay	1% per week of delay of undelivered units or part thereof subject to maximum of 10% of total PO value of undelivered units	
7	Performance Bank Guarantee	10% of total PO value for 24 months after commissioning or 30 months from date of supply, whichever is earlier plus 3 months towards claim period	

ANNEXURE - V

ENQUIRY NO: CMC/BR/22-23/RB/PR/RJ/1045

NO DEVIATION SHEET

SL NO	SL NO OF TECHNICAL SPECIFICATION	DEVIATION, IF ANY

SIGNATURE & SEAL OF BIDDER

NAME OF BIDDER

BSES
RAJDHANI POWER LIMITED

CHECK LIST

Sl No	Item Description	YES/NO
1	INDEX	YES/NO
2	COVERING LETTER	YES/NO
3	BID FORM (UNPRICED) DULY SIGNED	YES/NO
4	BILL OF MATERIAL (UNPRICED)	YES/NO
5	TECHNICAL BID	YES/NO
6	ACCEPTANCE TO COMMERCILAL TERMS & CONDITIONS	YES/NO
7	FINANCIAL BIDS (IN SEALED ENVELOPE)	YES/NO
8	EMD IN PRESCRIBED FORMAT	YES/NO
9	DEMANT DRAFT OF RS 1180/- DRAWN IN FAVOUR OF	BSES RAJDHANI POWER LTD
10	POWER OF ATTORNEY/ AUTHORISATION LETTER FOR SIGNING THE BID	YES/NO

BSES
RAJDHANI POWER LIMITED

SECTION – V

TECHNICAL SPECIFICATIONS (TS)

Various Ratings of Control & Relay Panels

CMC/BR/22-23/RB/PR/RJ/1045

The detailed technical specifications of Control & Relay Panels (BSES-TS-86-CRP-R0)

BSES

Technical Specification

Of

66/33 kV Control and Relay Panel

Specification no – BSES-TS-86-CRP-R0

Rev:		0
Date:		03 Jun 2022
Prepared by	Abhishek Harsh	
	Alok Mandal	
Reviewed by	Srinivas Gopu	
	Abhinav Srivastava	
Approved by	Gaurav Sharma	
	Gopal Nariya	

Contents

1.0 SCOPE

- This specification covers design, manufacture, testing at manufacturer's works, packing and delivery of control and relay panel (CRP) for 66kV and 33kV substations.
- The control and relay panel shall be complete with all components and accessories, which are necessary or usual for their efficient performance and trouble free operation under the various operating and atmospheric conditions. Such parts that may have not been specifically included, but otherwise form part of the CRP as per standard trade and/or professional practice and/or are necessary for proper operation of control and relay panel, will be deemed to be included in this specification.
- Scope also Includes-Licensed programming software and communication cord for offered numerical relays, one set of special tools and tackles (if any) required for maintenance of CRP and its components, Spares as per Annexure C, All relevant drawings, data and instruction manuals.

2.0 CODES AND STANDARDS

Control and Relay panel should be designed and manufactured in accordance with the following standards.

2.1	IS-1248, Part 1- 1993	Direct acting indicating analogue electrical measuring instruments and their accessories.
2.2	IS-3231, Part 1- 1986 Part 2 &3 -1987	Electrical relays for power system protection
2.3	IS-9000 Part 1 -1988	Basic environmental testing procedures for electronics & electrical items
2.4	IS-13703 1993	Low voltage fuses for Voltages not exceeding 1000V AC or 1500 V DC
2.5	IS-13947 Part 1 - 1993	Low voltage switchgear & control gear
2.6	IEC-60255 - 1989	Specification for electrical relays
2.7	IEC 60688 1997	Electrical measuring transducers

3.0 PANEL CONSTRUCTION

3.1	Panel Type	Simplex panels with Width - 1000mm/1250 mm and Depth – 800 to 1000mm. Equipment shall be mounted on the front of the panel and doors for wiring access shall be at the back of panels.

3.2	Enclosure type	Completely metal enclosed and dust, moisture and vermin proof. Degree of protection not less than IP4X in accordance with IS 13947
3.3	Enclosure material	Pre-galvanized, cold-rolled sheet steel of thickness not less than 2.0 mm. Stiffeners shall be provided wherever necessary.
3.4	Doors	Double leaf doors shall be provided at the rear. Doors shall have handles with built-in locking facility. Locks of the door shall be lever type.
3.5	Gland Plate	At least two separate gland plates of removable type with gasket shall be provided for each panel. They shall be of sheet steel of thickness not less than 3.0 mm.
3.6	Cable Entry	Shall be from the bottom
3.7	Cable clamping	Cable glands shall not be used to support control cables. Vendor must provide clamping arrangement of control cable.
3.8	Gaskets	All doors, removable covers and panels shall be Gasketed all around with neoprene gaskets.
3.9	Ventilating louvers	Ventilating louvers, if required, shall have screens and filters. The screens shall be made of either brass or GI wires mesh.
3.10	Foundation	The panels shall be fixed on the embedded foundation channels with intervening layers anti vibration strips made of shock absorbing materials.
3.11	Base Frame	Base frames shall be supplied along with panels. 100mm channel painted black.
3.12	Mounting	Equipment on front of panel shall be flush mounted. No equipment shall be mounted on the doors.
3.13	Working level	The center lines of switches, push buttons and indicating lamps shall not be less than 750mm and higher than 1600mm from panel base. Height of relays, meters and recorders shall not be less than 450 mm from the bottom of the panel.
3.14	Appearance	The center lines of switches, push buttons and indicating lamps shall be matched to give a neat and uniform appearance. Likewise the top lines of all meters, relays and recorders etc, shall be matched.
3.15	Make	To be provided by Vendor

4.0 WIRING

4.1	Internal wiring	1100V grade, FRLS type, single core, stranded copper conductor wires with PVC insulation.
4.2	Size	2.5 sqmm for CT circuits, 2.5 sqmm for PT and control circuits.
4.3	Color Code	
4.3.1	CT & PT	R Ph – Red Y Ph – Yellow B Ph – Blue Neutral – Black
4.3.2	Others	DC– grey, AC-black, Earth – green
4.4	Ferrules	Ferrules marked to correspond with panel wiring diagram shall be fitted at both ends of each wire. Ferrules shall fit tightly on the wire. Wires directly connected to trip circuit shall be distinguished by the addition of red colored unlettered ferrule.
4.5	Termination	Fork type, pin type and ring type (as applicable) tinned copper lugs to be used. Only ring type lugs should be used in CT circuits. Insulated sleeves shall be provided at all the wire terminations.
4.6	Wiring Enclosure	Plastic channels to be used as enclosures. PVC sleeves to be used for interpanel wiring.
4.7	Spare Contacts	Spare contacts of relays and contactors etc. should be wired up to the terminal block.
4.8	Inter-panel wiring	When panels are arranged to be located adjacent to each other inter panel wiring of common bus wires between the panels should be supplied with one end terminated and the other end bunched and coiled. Inter panel wiring shall be clearly indicated in the wiring tables.
4.9	Auxiliary supply	Auxiliary bus wiring for AC and DC supplies, voltage transformer circuits, annunciation circuits and other common services shall be provided on the same set of terminals in all the panels with proper segregation.

5.0 TERMINAL BLOCKS

5.1	Rating and Type	1100 V grade, molded piece, stud type screw driver operated terminals complete with insulated barriers, washers, nuts and lock nuts.
5.2	Suitability	Unless otherwise specified, terminal blocks shall be suitable for connecting the following conductors of cable on each side- a. All circuits including current / voltage transformer circuits: 6mm^2 flexible copper. b. AC / DC power supply circuits: one no of 10 mm^2 Al./ 6 mm^2 flexible Cu.
5.3	Marking and covers	White fibre markings strip with clear plastic, slip-on / clip-on terminal covers to be provided.
5.4	Disconnecting Facility	To be provided in CT and PT terminals
5.5	Shorting & Earthing Facility	To be provided in CT Terminals
5.6	Spare Terminals	20% in each TB row
5.7	Segregation	TBs shall be segregated by application i.e separate terminal blocks shall be provided for each application as follows (a) CT (b) PT (c) Circuit Breaker (d) Bus Isolator (e) Line Isolator-1 (f) Line Isolator-2 (g) Earth Switch-1 (h) Earth Switch-2 (i) Interpanel Bus wiring etc.
5.8	Vertical clearance with gland plate	Minimum 250mm
5.9	Clearance between two rows of TBs	Minimum 150mm
5.10	Test Terminal Blocks	Screw driver operated stud type for metering circuits.
5.11	Arrangement	Arrangement of the terminal block assemblies and the wiring channel within the enclosure shall be such that a row of terminal block runs in parallel and close proximity to each side of the wiring duct. The side of the terminal block opposite the wiring duct shall be reserved for the external cable connection.

5.12	Categorization	For ease of external connections, terminal blocks shall be categorized based on their usage i.e all terminals for wiring of particular equipment like circuit breaker should form one terminal block.

6.0 PAINT

6.1	Paint Type	Powder coated. Pure Polyester base grade-A, structure finish.
6.2	Paint Shade	RAL7032 'Siemens Grey'
6.3	Paint Thickness	Minimum 50 microns

7.0 MIMIC DIAGRAM

7.1	System Representation	Colored mimic diagram and symbols showing the exact representation of the system shall be provided in the front of control panels
7.2	Material	Mimic diagram shall be made preferably of painted aluminum or plastic (approved material), which shall be screwed on to the panel and can be easily cleaned. Painted overlaid mimic is also acceptable. The mimic bus shall be 2-3 mm thick. The width of the mimic bus shall be 12mm for bus bars and 10 mm for other connections.
7.3	Mimic Indications	LED indications are to be used for breaker and isolator position and semaphore indicators shall be used for earth switch position.

8.0 NAMEPLATES AND MARKINGS

8.1	Nameplates	To be provided as per the following description
8.1.1	Equipment Nameplates	a. All equipment mounted on front side as well as equipment mounted inside the panels shall be provided with individual name plates with equipment designation engraved. b. All front mounted equipment shall be also provided at the rear with individual name plates engraved with tag numbers corresponding to the one shown in the panel internal wiring to facilitate easy tracing of the wiring.
8.1.2	Feeder Nameplates	(a) Large and bold name plate carrying the feeder identification numbers shall be provided for circuit / feeder designation on the top of each panel on front as well as rear side. (b) Rear bottom of each panel shall have a nameplate

		clearly indicating the following: (i) Customer Name (ii) BSES, PO No. & date (iii) Drawing Reference No (iv) Year of Manufacture (v) Control Voltage (vi) Customer care No
8.1.3	Material	Non-rusting metal or 3 ply lamicoid. Nameplates shall be black with white engraving lettering. Stickers are not allowed.
8.1.4	Fixing	All nameplates/rating plates shall be riveted to the panels at all four corners. Bolting/screwing is not acceptable.
8.2	Markings	Each switch shall bear clear inscription identifying its function. Similar inscription shall also be provided on each device whose function is not otherwise identified. If any switch or device does not bear this inscription separate nameplate giving its function shall be provided for it. Switch shall also have clear inscription for each position indicating e.g. Trip-Neutral close, ON-OFF etc.

9.0 EARTHING

9.1	Panel Earthing	All panels shall be equipped with an earth bus securely fixed.
9.2	Location of earthing earthing bus	Earthing bus shall be at rear side of CRP(Door Side)
9.3	Material	The material and the sizes of the bus bar shall be 25 x 6 mm copper flat unless specified otherwise.
9.4	Earth Bus joints	All bolted joints in the bus should be effected by connection of two bolts.
9.5	Hinged Doors	Earthed through flexible copper braid.
9.6	Instrument and Relay Earthing	All metallic cases of relays, instruments and other panel mounted equipment including gland plate, shall be connected to the earth bus by copper wires of size not less than 2.5 mm^2. The color code of earthing wires shall be green.
9.7	CT and PT circuit earthing	PT and CT secondary neutral shall be earthed at one place only at the terminal blocks through links.

10.0 INSTRUMENTS

10.1	Mounting	Flush mounted

10.2	Voltmeter	Digital type with programmable ratio
10.2.1	Size	96x96 mm
10.2.2	Panels where to be provided	Incomer and Buscoupler
10.2.3	Voltmeter selector switch	Required
10.2.4	Accuracy Class	1.0
10.2.5	Auxiliary Supply	48 – 240VDC and AC i.e universal type.
10.2.6	Make	To be Provided by Vendor
10.2.7	Type/Model	To be Provided by Vendor
10.2.8	VA Burden	To be Provided by Vendor
10.3	Multifunction Meter	Digital type with programmable ratio
10.3.1	Model	Rish Delta Energy,
10.3.2	Make	Rishabh
10.3.3	SCADA Interfacing	RS485 rear port suitable for integration on Modbus Protocol
10.3.4	Size	96x96 mm
10.3.5	Panels where to be provided	All panels
10.3.6	Accuracy Class	1.0
10.3.7	Auxiliary Supply	48 – 240VDC and AC i.e universal type.
10.4	Energy meter provision	Energy meter is not in supplier's scope. Only space and CT/PT wiring is to be provided in all panels except bus coupler and bus PT. Space shall be 350 mm (H)x200 mm (W)

11.0 RELAYS

11.1	General features of Protection Relays	
11.1.1	Technology and Functionality	Numerical, microprocessor based with provision for multifunction protection, control, metering and monitoring
11.1.2	Mounting	Flush Mounting, IP5X
11.1.3	Architecture	Hardware and software architecture shall be modular and dis-connectable to adapt the protection and control unit to the required level of complexity as per the application.
11.1.4	Programming and configuration	Relay shall utilize a user friendly setting and operating multi-lingual software in windows environment with menus and

		icons for fast access to the data required. Programming software and communication cord for offered relays should be included in scope of supply.
11.1.5	SCADA Interface port	(a) RS485 for IEC 103 communication. (b) LC Type Dual fibre optic port for interfacing with SCADA on IEC 61850 with PRP compatibility. Through this port relays shall be connected to Ethernet switches.
11.1.6	Communication Protocol	IEC103(Data Type 9) and Dual fibre optic port for interfacing with SCADA on IEC 61850 with PRP compatibility. Through these ports relays shall be connected to switches. Communication protocol shall be selectable at site.
11.1.7	Processing Indications	SCADA functions in monitoring direction shall be executed on SPI (Single Point Input) and DPI (Double Point Input). DPI shall only be used in case of Isolator and Circuit breaker “close” and “open” indication.
11.1.8	Command Processing	Functionality of command processing offered for SCADA interface shall include the processing of single and double commands i.e SCO (Single Command Output) and DCO (Double object command Output). DCO shall only be used in case of Isolator and Circuit Breaker close” and “open” command.
11.1.9	PC Interface port	Front port (preferably serial) for configuration/data download using PC.
11.1.10	GOOSE messaging	Relays shall communicate all status signals, commands and events on GOOSE messaging. Interlocks if any shall also be on GOOSE Messaging and wiring for that shall be in vendor’s scope.
11.1.11	User Interface	An alphanumeric key pad and graphical LCD display with backlight indicating measurement values and operating messages. It should be possible to access and change all settings and parameters without the use of PC.
11.1.12	Relay Characteristics	Relay shall integrate all necessary protections for different applications in accordance with IS and IEC. Relay shall provide wide setting ranges and choice of all IEC, IEEE and other tripping curves through a minimum of two setting groups.
11.1.13	Event and Fault records	(c) Relay shall have the facility of recording of various parameters during event/fault with option to set the duration of record through settable pre fault and post fault time. (d) Relay shall store records for last 100 events (minimum) (e) Relay shall store records for last 10 faults (minimum). (f) It should be possible to download records locally to PC and to remote SCADA.
11.1.14	Measurement	Relays shall communicate all measured and monitored parameters like current, voltage, active power, reactive power, apparent power, power factor, phase angle, event

		record, fault record, DIs , DOs etc to SCADA SCADA Integration Relays shall communicate all measured and monitored parameters like current, voltage, power, event record, fault record, DIs , DOs etc to SCADA
11.1.15	Self-diagnosis	Relay shall be able to detect internal failures and same shall be transmitted to SCADA as a soft signal. A watchdog relay with changeover contact shall provide information about the failure for annunciation.
11.1.16	Time synchronization	All relays shall be capable of being synchronized with the system clock through SCADA, PC and GPS.
11.1.17	Operation Indicators	(a) LEDs with push button for resetting. (b) Resetting of LEDs shall be possible from SCADA
11.1.18	Test Facility	Inbuilt
11.1.19	Coating	Conformal Type
11.2	Protection Relay Requirement for Line CRP (66kV/33kV)	
11.2.1	Relay 1	Combined Line differential (Dual channel, ST Port Compatible for Single Mode Fibre having wavelength 1310 nm) and distance protection
		Power Swing Blocking
		Software based CT ratio correction
		Dedicated port for communication with remote end relay through optical fibre. This port should be in addition to PC interface and SCADA interface ports.
11.2.2	Relay 2	Bay Control unit having MIMIC with 3-phase Directional Overcurrent and Earth fault protection with IDMT, Definite time and instantaneous characteristics.
		Under and Over voltage
		Sync check function
		Trip Circuit Supervision- 1&2
		Reverse Blocking Function
		Under Frequency, Over Frequency and Rate of change of frequency
		PT supervision
		Circuit Breaker failure protection (CBFP)
11.2.3	User Configurable DIs and DOs	(a) Relay-1 should have DIs and DOs as per scheme requirement. Same shall be finalized during detailed engineering. 2 DIs and 2 DO shall be spare for future use. (b) Relay-2 should have minimum of 32 DIs and 16 DOs Exclusively for SCADA interfacing. DIs and DOs for tripping and interlocking shall be additional as per scheme

		requirement. If DIs and DOs for tripping and interlocking are integrated with DIs and DOs meant for SCADA (may be done to optimize DI/DO configuration), atleast 4 DIs and 4 DOs should be available as spare in each panel for future use.
11.2.4	Note	Combining functions of Relay-1 and Relay-2 in single relay is not acceptable.
11.2.5	SLD	Refer annexure D1 and D5 for SLD of 66kV and 33kV line bays respectively
11.3	Protection Relay Requirement for Transformer CRP (66kV/33kV)	
11.3.1	Relay-1	Biased Differential Protection
		High Impedance REF protection
		Software based ratio and vector correction feature (without ICT)
		H2 and H5 harmonic restraint
11.3.2	Relay-2	Bay Control unit having MIMIC with 3-phase Directional Overcurrent and Earth fault protection with IDMT, Definite time and instantaneous characteristics.
		Under and Over voltage
		Sync check function
		Trip Circuit Supervision- 1&2
		Reverse Blocking Function
		Under Frequency, Over Frequency and Rate of change of frequency
		PT supervision
		Circuit Breaker failure protection (CBFP)
11.3.3	User Configurable DIs and DOs	(a) Relay-1 should have DIs and DOs as per scheme requirement. Same shall be finalized during detailed engineering. 2 DIs and 2 DO shall be spare for future use. (b) Relay-2 should have minimum of 32 DIs and 16 DOs Exclusively for SCADA interfacing. DIs and DOs for tripping and interlocking shall be additional as per scheme requirement. If DIs and DOs for tripping and interlocking are integrated with DIs and DOs meant for SCADA (may be done to optimize DI/DO configuration), atleast 4 DIs and 4 DOs should be available as spare in each panel for future use.
11.3.4	Note	Combining the functions of Relay-1 and Relay-2 in a single relay is not acceptable.
11.3.5	SLD	Refer annexure D2 and D6 for SLD of 66kV and 33kV transformer bays respectively

11.4	Protection Relay Requirement for Bus Coupler CRP (66kV/33kV)	
11.4.1	Relay-1	Bay Control unit having MIMIC with 3-phase Directional Overcurrent and Earth fault protection with IDMT, Definite time and instantaneous characteristics.
		Under and Over voltage
		Sync check function
		Trip Circuit Supervision- 1&2
		Reverse Blocking Function
		Under Frequency, Over Frequency and Rate of change of frequency
		PT supervision for Bus PT-1 and Bus PT-2
		Circuit Breaker failure protection (CBFP)
11.4.2	Relay-2	PT supervision (fuse failure monitoring) for Bus PT-2 if not provided as part of relay-1
		Reverse Blocking Function
11.4.3	User Configurable DIs and DOs	(a) Relay-1 should have DIs and DOs as per scheme requirement. Same shall be finalized during detailed engineering. 2 DIs and 2 DO shall be spare for future use. (b) Relay-2 should have minimum of 32 DIs and 16 DOs Exclusively for SCADA interfacing. DIs and DOs for tripping and interlocking shall be additional as per scheme requirement. If DIs and DOs for tripping and interlocking are integrated with DIs and DOs meant for SCADA (may be done to optimize DI/DO configuration), atleast 4 DIs and 4 DOs should be available as spare in each panel for future use.
11.4.4	SLD	Refer annexure D3 and D7 for SLD of 66kV and 33kV bus coupler bays respectively
11.5	Protection Relay Requirement for Capacitor CRP (66kV/33kV)	
11.5.1	Relay-1	Neutral unbalance relay (current based)
		Timer for ON time delay (600 seconds minimum)
11.5.2	Relay-2	Bay Control unit having MIMIC with 3-phase Directional Overcurrent and Earth fault protection with IDMT, Definite time and instantaneous characteristics.
		Overvoltage and Under voltage protection
		Sync check function
		Trip Circuit Supervision- 1&2

		Reverse Blocking Function
		Under Frequency, Over Frequency and Rate of change of frequency
		PT supervision
		Circuit Breaker failure protection (CBFP)
11.5.3	User Configurable DIs and DOs	(a) Relay-1 should have DIs and DOs as per scheme requirement. Same shall be finalized during detailed engineering. 2 DIs and 2 DO shall be spare for future use. (b) Relay-2 should have minimum of 32 DIs and 16 DOs Exclusively for SCADA interfacing. DIs and DOs for tripping and interlocking shall be additional as per scheme requirement. If DIs and DOs for tripping and interlocking are integrated with DIs and DOs meant for SCADA (may be done to optimize DI/DO configuration), atleast 4 DIs and 4 DOs should be available as spare in each panel for future use.
11.5.4	Note	Combining the functions of Relay-1 and Relay-2 in a single relay is not acceptable
11.5.5	SLD	Refer annexure D4 and D8 for SLD of 66kV and 33kV capacitor bays respectively
11.6	SCADA Interfacing of Protection Relays	
11.6.1	Configuration and wiring of DIs of protection relays for routing status signals to SCADA	DI-1 – CB Open DI-2 – CB Close DI-3 – Earth switch 1 close DI-4 – Earth switch 2 close DI-5 – Line Isolator Open (For Bus Coupler Panel - Earth switch 3 close) DI-6 – Line Isolator Close (For Bus coupler panel - Earth switch 4 close) DI-7 – Bus 1 Isolator Open DI-8 – Bus 1 Isolator Close DI-9 – Bus 2 Isolator Open DI-10 – Bus 2 Isolator Close DI-11 – TC Healthy DI-12 – CB Spring Charged DI-13 – SF6 Low/ SF6 Lockout DI-14 – Local/Remote switch in Remote DI-15 – CB Autotrip DI-16 – Protection/Trip relay faulty DI-17 – DC fail/DC MCB trip from adjacent panel (DC -1/2 fail for bus coupler panel) DI-18 – PT MCB trip (wherever relevant) Sequence of DIs should be strictly as mentioned above. Change in sequence of DIs will not be acceptable.
11.6.2	Configuration and	DO-1 – CB Open

	wiring of DOs of protection relays for executing SCADA commands through SCADA interface port (refer clause 12.1.5).	DO-2 – CB Close DO-3 – Line Isolator Open DO-4 – Line Isolator Close DO-5 – Bus 1 Isolator Open DO-6 – Bus 1 Isolator Close DO-7 – Bus 2 Isolator Open DO-8 – Bus 2 Isolator Close Sequence of DOs should be strictly as mentioned above. Change in sequence of DOs will not be acceptable.
11.6.3	Looping	All relays should be looped to form a common bus for interfacing with SCADA.
11.7	Transformer Monitoring Cum AVR Relay	
11.7.1	Functions	As per annexure –A
11.7.2	Requirement	To be provided in Transformer CRP (Take off price to be mentioned in price bid)
11.8	General Features of Auxiliary Relays	
11.8.1	Type	Static or electromechanical.
11.8.2	Reset Characteristic	Self reset contacts except for lockout relays.
11.8.3	Operation Indicators	(a) Hand reset operation indicators or LEDs with pushbutton for resetting. (b) Resetting of LEDs shall be possible from SCADA
11.8.4	Lockout relay	Manual and Electrical reset type
11.8.5	Operational Data	Bidder shall provide the reference list of the type of relays offered
11.8.6	Spare Contacts	Minimum 1NO and 1NC. To be wired upto the terminal block.
11.9	Auxiliary relays – Panel wise requirement	
11.9.1	Lockout relay	To be provided in all panels
11.9.2	DC fail relay	
11.9.3	AC fail relay	
11.9.4	Trip circuit supervision relay	To be provided in all panels for supervision of two trip coils.
11.9.5	Bistable Relays	To be provided in all panels for multiplication of auxiliary contact of breakers, isolators and earth switches. Multiplied contacts to be used for interlocks, indications and numerical relay input. 2NO + 2NC contacts shall be spare after multiplication in each case.
11.9.6	PT selection relays	To be provided in all panels as per scheme requirement.
11.9.7	Contact Multiplication relay	a. To be provided in all panels b. SCADA Close and Open Command shall be wired

		up through CMR to Closing and Tripping circuit
11.9.8	Transformer Trouble Relays	Auxiliary relays with indicating flags (contactors will not be accepted) should be provided in transformer panel for the following trip and alarm commands – (a) Buchholz trip (b) OSR trip (c) PRV trip (d) SPR trip (e) WTI Trip (f) OTI Trip (g) OLTC PRV Trip (h) Buchholz Alarm (i) Low oil level alarm (j) OTI Alarm (k) WTI Alarm.
11.9.9	Transformer Trouble Relay Contact Multiplication	(a) Contact multiplication of Transformer trouble relays shall be provided with 2 NO and 2 NC contact as spare. (b) 1 NO contact of Buchholz, Differential, OSR, PRV, SPR, REF contact multiplication relay for NIFPS (Nitrogen Injection fire protection system) shall be provided.
11.9.10	SF6 low and SF6 lockout relay	To be provided in all 66kV control and relay panels
11.9.11	DC selection scheme	Fed by two DC incoming sources in Bus coupler panel with auto changeover facility
11.10	General Requirements for all relays/contactors	
11.10.1	Auxiliary supply	(a) 48-250 VDC. All relays/contactors shall be suitable for continuous operation at 15% overvoltage and 15% under voltage. (b) No external resistor shall be provided in relays /contactor to achieve desired voltage.
11.10.2	Spare contacts	Shall be wired upto the terminal block
11.10.3	Signal Integration	All signal integration shall only be through NO Contact

12.0 SYNCH CHECK PHILOSPHY

12.1	Dead Bus – Live Line	(a) Application - Required for Charging of Bus from Line Supply (b) Logic - Sync check relay installed on line panel will check the line and bus voltage and derive that the line is live and bus is in dead condition i.e bus has to be charged by the line breaker. Hence Sync check relay will allow the line breaker to close in this

		condition.
12.2	Dead Line – Live Bus	(a) Application - Required for Charging of Line from Bus Supply (b) Logic - Sync check relay installed on line panel will check line and bus voltage and derive that the line is dead and bus is in live condition i.e line has to charged from bus. Hence Sync check relay will allow the line breaker to close in this condition.
12.3	Live Bus – Live Line	(a) Application - Required for paralleling of bus and line supply (b) Logic - Sync check relay installed on line panel will compare magnitude and phase sequence of line and bus voltages. If the variations are within the range set in the relay, sync check relay will allow the closing of line breaker.
12.4	Live Bus – Dead Bus	(a) Application – Required for charging of dead bus through another live bus. (b) Logic – Sync check relay installed on bus coupler/bus section panel will check voltage of both buses and derive that one bus is dead and other bus is live i.e dead bus is being charged from live bus. Hence Sync check relay will allow the bus coupler/bus section breaker to close in this condition.
12.5	Live Bus – Live Bus	(a) Application – Required for paralleling of two buses/bus sections. (b) Logic – Sync check relay installed on bus coupler/bus section panel will compare the magnitude and phase sequence of voltage of both buses (or bus sections). If the variations are within the range set in the relay, sync check relay will allow the bus coupler/bus section breaker to close.

13.0 MANAGED ETHERNET SWITCH

13.1	Ethernet Switch	
13.1.1	Numbers	Two at each site
13.1.2	FO Port	Minimum 16 Nos
13.1.3	RJ 45 Port	4 Nos
13.1.4	Communication Protocol	IEC 61850
13.1.5	Network Protocol	PRP
13.1.6	Downlink Rate	100 MBPS

13.1.7	Uplink Rate	1 GBPS
13.1.8	Coating	Conformal
13.1.9	Power Supply Voltage	220 / 50 VDC as per site condition
13.1.10	Grade	Industrial
13.1.11	Certification required	KEMA,CE & FCC for IEC 61850 compliance
13.1.12	Operating Temperature	
13.1.13	Mounting	In Switchgear Panel
13.1.14	Blinking LED Indicators	On each RJ45 ports
13.1.15	Separate Maintenance/console Part	Required
13.1.16	Latency	Less than or equal to 10 ms
13.1.17	Fibre Optic Compatibility	Multimode, 1310 nm
13.1.18	Placement	Din Rail Arrangement Inside Switchgear
13.2	Fibre Optics (Patch Cord) and Ethernet cable	
13.2.1	Connection	From Relays, Meters to Ethernet Switch
13.2.2	Mode of Fibre Optics	Multimode
13.2.3	Wavelength	1310 nm
13.2.4	Ethernet Cable Type	CAT VI
13.2.5	Associated Connectors and Accessories	Required

14.0 ANNUNCIATION

14.1	Type	Static type alongwith alarm. Annunciations shall be repetitive type and shall be capable of registering the fleeting signal. Fascia test facility should also be provided.
14.2	Mounting	Flush mounted
14.3	Fascia	16 window
14.4	Signals to provided on Fascia	Window 1 – Main Protection Operated (Distance /Differential) Window 2 – Backup O/C & E/F Protection Operated Window 3 – CBFP operated Window 4 – CB Autotrip Window 5 – SF6 Low/SF6 Lockout (For 66kV CRP only) Window 6 – Trip Circuit Unhealthy Window 7 – DC Fail Window 8 – AC Fail Window 9 – VT Fuse Fail Window 10 – Protection Relay/Trip relay Faulty Window 11 – Tarfo Trouble trip (For trafo panel only)

		Window 12 – Trafo Trouble alarm (For trafo panel only)
14.5	Push Buttons	For test, accept and reset
14.6	Potential Free Contacts	To be provided for event logger
14.7	Alarm	For all signals wired to the annunciator
14.8	Overall Dimension of Group	To be Provided by Vendor

Sequence of operation of the annunciator shall be as follows-

S No.	Alarm Condition	Fault Contact	Visual Annunciation	Audible Annunciation
a.	Normal	Open	Off	Off
b.	Abnormal	Close	Flashing	On
c.	Accept	Close	Steady on	Off
d.	Return to normal	Open	Steady On	Off
e.	Reset	Open	Off	Off
f.	Reset before return to normal	Close	Flashing	On

15.0 INDICATIONS

15.1	Indicating Lamps	Flush mounted Clustered LED type with rear terminal connections. Lamp Cover to be screwed type an moulded from heat resistant material
15.1.1	Breaker On	Red
15.1.2	Breaker Off	Green
15.1.3	Isolator Close	Red
15.1.4	Isolator Open	Green
15.1.5	Spring Charged	Blue
15.1.6	DC control supply healthy	Amber
15.1.7	Heater circuit healthy	Yellow
15.1.8	Trip circuit healthy	White
15.1.9	PT supply	R, Y, B
15.1.10	Voltage	220VDC/50 VDC
15.1.11	Rating	To be Provided by Vendor
15.1.12	Wattage	To be Provided by Vendor

15.1.13	Series Resistance	To be Provided by Vendor
15.1.14	10% extra Lamp Furnished?	To be Provided by Vendor
15.1.15	Size of lens	To be Provided by Vendor
15.1.16	Make	To be Provided by Vendor
15.1.17	Type	To be Provided by Vendor
15.2	Semaphores	To be provided for all earth switches.
15.2.1	Make	To be Provided by Vendor
15.2.2	Type	To be Provided by Vendor
15.2.3	Diameter of the Disc	To be Provided by Vendor
15.2.4	Operating voltage	220VDC/50 VDC
15.2.5	Burden (Watt DC)	To be Provided by Vendor
15.2.6	Whether latch in type or supply Failure type	To be Provided by Vendor

16.0 SELECTOR SWITCHES AND PUSH BUTTONS

16.1	Switches	Flush Mounted with shrouded terminals
16.1.1	TNC Switch	Lockable Pistol Grip type with spring return to normal position
16.1.2	Local/SCADA selector switch	2 pole
16.1.3	Rotary On/Off Switches	For heater/illumination circuit
16.1.4	Rating of switches	16 A
16.2	Push buttons	Flush Mounted with shrouded terminals
16.2.1	Accept Push Button	Black Color- Trip alarm/DC fail alarm
16.2.2	Reset Push Button	Yellow Color- Trip alarm/DC fail alarm
16.2.3	Test Push Button	Blue Color
16.2.4	Rating	10A

17.0 ACCESSORIES

17.1	Space heaters	Thermostat controlled with switch for isolation
17.1.1	Voltage	240 V AC

17.1.2	Wattage	To be provided by Vendor
17.1.3	Thermostat Range	To be provided by Vendor
17.1.4	Provided with Individual fuse unit	To be provided by Vendor
17.2	Socket and switch	240V, 5/15A universal type socket to be provided in each panel with on-off switch
17.3	MCBs and Fuses	Provision for receiving, distribution, isolation and fusing of DC and AC supplies to various control circuits should be made using MCBs and Fuses of appropriate ratings
17.4	Panel illumination	240V AC illumination lamp controlled by panel door switch to be provided in each panel

18.0 APPROVED MAKES OF COMPONENTS

18.1	Numerical Relays	(a) R Series of ABB (b) Siprotec series of Siemens (c) Micom series(PX40) of Schneider (d) Micom Series of GE (e) All numerical relays in a panel should be of same make. Use of two different makes of relays in a panel is not acceptable.
18.2	Trafo Monitoring Cum AVR relay	A-Eberle/Easun MR
18.3	Auxiliary Relays & Contact Multiplication Relays	Alstom/Schneider/ABB/Siemens/ER
18.4	Miniature Relays	ABB/ OMRAN
18.5	Contactors	ABB/Siemens/Schneider
18.6	MCBs	Siemens/Schneider/Legrand/ABB
18.7	Control switches	Switron/Kaycee
18.8	Annunciator	Minilec/Alan
18.9	Test terminal block	IMP/DAV
18.10	Terminal blocks	Elmex/Connectwell
18.11	Indicating lamps	Siemens/ Teknic/ Binay
18.12	Meters	Rishabh/Conzerv
18.13	Multi Function Meter	Rishabh (Rish Delta Energy)
18.14	Managed Ethernet Switch	Ruggedcom/ Hirschman/ GarrettCom

19.0 QUALITY ASSURANCE, INSPECTION & TESTING

19.1	Vendor quality plan	To be submitted for purchaser approval
19.2	Type tests	Product must be type tested as per Indian Standards or IEC
19.3	Type test report validity	Last five years from the date of bid submission
19.4	Acceptance and Routine tests	As per specifications and relevant standards. Charges of these tests shall be deemed to be included in the equipment price. Purchaser reserves the right to witness all the tests.
19.5	Notice to Purchaser for conducting tests	Atleast three weeks in advance
19.6	Test reports of acceptance and routine test before dispatch	Six copies to be submitted.

20.0 DEVIATIONS

Deviation from this specification shall be stated in writing with the tender by reference to the specification clause/ GTP/ Drawing and description of alternative offer. In absence of such a statement, it shall be assumed by the buyer that the seller complies fully with this specification.

21.0 DRAWINGS AND DATA SUBMISSION MATRIX

- Document checklist for each stage is given in table below. (Refer equipment specification for details)
- Document check sheet compliance shall be the first sheet for each submission stage i.e. Technical bid, Drawing Approval, Pre Dispatch, Pre closure.
- No submission is acceptable without check list compliance.
- Deficient/ improper document/ drawing submission shall be liable for rejection.
- Order of documents shall be strictly as per the check list with in Soft copy with separate folder in proper nomenclature.
- Any drawing not included in the below table but necessary for detailed engineering shall be deemed to be included in bidder's scope.

S. No	Head	Bid	Drawing Approval	Pre Dispatch	Pre Closure
21.1	Contact Person Name, Email ID and Mobile Number	Required			
21.2	Consolidated Deviation Sheet	Required	Required		
21.3	GTP	Required	Required		
21.4	Relevant Type Test as per IS/IEC	Required			
21.5	Manufacturer's quality assurance plan and certification for quality standards		Required		
21.6	Sizing Calculation of Associated Equipment		Required		
21.7	Recommended Spares Apart from spares stated in Spec(for five years of operation)		Required		
21.8	Schematic		Required		
21.9	CRP				
21.9.1	General Arrangement	Required	Required		
21.9.2	Sectional Layout		Required		
21.9.3	Door Layout		Required		
21.9.4	Panel wise BOQ		Required		
21.9.5	Index Sheet		Required		
21.9.6	Symbols		Required		
21.9.7	SLD	Required	Required		
21.9.8	Trip Logic		Required		
21.9.9	AC Distribution Circuit		Required		
21.9.10	DC Distribution Circuit		Required		
21.9.11	CT Distribution Circuit		Required		
21.9.12	VT Distribution Circuit		Required		
21.9.13	Voltage Selection Circuit		Required		
21.9.14	Metering Circuit		Required		
21.9.15	Indication Circuit		Required		

S. No	Head	Bid	Drawing Approval	Pre Dispatch	Pre Closure
21.9.16	Isolator Control Circuit		Required		
21.9.17	Protection Circuit		Required		
21.9.18	Relay Circuit with DI and DOs		Required		
21.9.19	DI and DO Sheet of each relay		Required		
21.9.20	Schematic Circuit diagram and Scheme of Each type of Panel		Required		
21.9.21	Logic Operation Diagram		Required		
21.9.22	Communication Architecture		Required		
21.9.23	Trafo Monitoring Relay Circuit in case of Transformer Panel		Required		
21.9.24	CB Closing interlock circuit		Required		
21.9.25	Tripping Circuit		Required		
21.9.26	CB status & CB trouble cont. mult. circuit		Required		
21.9.27	Isolator , E/S and trafo trouble contact multiplication circuit		Required		
21.9.28	Annunciation circuit		Required		
21.9.29	TB Reference page		Required		
21.9.30	Synch Logic Diagram		Required		
21.9.31	QAP		Required		
21.10	Inspection Reports			Required	
21.11	As manufacturing Drawings			Required	
21.12	Operation and Maintenance Manual			Required	Required
21.13	Trouble shooting manual			Required	Required
21.14	As built Drawings				Required
21.15	Test Report				Required
21.16	Soft Copy				
21.16.1	In Pen drive	Required			

S. No	Head	Bid	Drawing Approval	Pre Dispatch	Pre Closure
21.16.2	Through Mail		Required	Required	Required

22.0 PACKING

22.1	Packing Protection	Against corrosion, dampness, heavy rains, breakage and vibration. During transportation/ transit and storage, panels may be subjected to outdoor conditions. Hence, packing of each panel shall be weatherproof.
22.2	Packing for accessories and spares	Robust wooden non returnable packing case with all the above protection & identification Label
22.3	Packing Identification Label to be provided on each packing case with the following details	
22.3.1	Individual serial number	
22.3.2	Purchaser's name	
22.3.3	PO number (along with SAP item code, if any) & date	
22.3.4	Equipment Tag no. (if any)	
22.3.5	Destination	
22.3.6	Project Details	
22.3.7	Manufacturer / Supplier's name	
22.3.8	Address of Manufacturer / Supplier / it's agent	
22.3.9	Description and Quantity	
22.3.10	Country of origin	
22.3.11	Month & year of Manufacturing	
22.3.12	Case measurements	
22.3.13	Gross and net weights in kilograms	
22.3.14	All necessary slinging and stacking instructions	

23.0 SHIPPING

23.1	**Shipping**	The bidder shall ascertain at an early date and definitely before the commencement of manufacture, any transport limitations such as weights, dimensions, road culverts, Overhead lines, free access etc. from the Manufacturing plant to the project site. Bidder shall furnish the confirmation that the proposed Packages can be safely transported, as normal or oversize packages, up to the site. Any modifications required in the infrastructure and cost thereof in this connection shall be brought to the notice of the Purchaser.
		The seller shall be responsible for all transit damage due to improper packing.

24.0 HANDLING AND STORAGE

24.1	Handling and Storage	Manufacturer instruction shall be followed. Detail handling & storage instruction sheet / manual needs to be furnished before commencement of supply.

25.0 ANNEXURE – A – TRANSFORMER MONITORING CUM AVR RELAY

25.1	**General features**	
25.1.1	Technology and Functionality	Microprocessor based with provision for multifunction control and monitoring.
25.1.2	Mounting	Rack Mounting

25.1.3	Architecture	Hardware and software architecture shall be modular and disconnectable to adapt the control unit to the required level of complexity as per the application.
25.1.4	Programming and configuration	AVR shall utilize a user friendly setting and operating multi-lingual software in windows environment with menus and icons for fast access to the data required.
25.1.5	User Machine Interface	UMI with an alphanumeric key pad and graphical LCD display with backlight indicating measurement values and operating messages. Capability to access and change all settings and parameters.
25.1.6	PC Interface port	Front port (preferably serial) for configuration using PC. Cost of licensed software and communication cord, required for programming of offered protection relays using PC, shall be mentioned separately in the bid.
25.1.7	SCADA Interface port	LC Type Dual fibre optic port for interfacing with SCADA on PRP protocol. Through this port relays shall be connected to Ethernet switches.
25.1.8	Communication protocol	Relays shall be compatible for interfacing with SCADA on both IEC61850 and IEC103 (Data Type-9) protocol. Communication protocol shall be selectable at site. Relay shall be capable of transmitting all parameters including measured values, DI, DO, AI, Events and fault records to SCADA.
25.1.9	Self diagnosis	Relay shall be able to detect internal failures and same shall be transmitted to SCADA as a soft signal. A watchdog relay with changeover contact shall provide information about the failure.
25.1.10	Cable Termination	Termination of cable shall be at rear side.
25.1.11	Time Synchronization	Relay shall be capable of being synchronized with the system clock through SCADA , PC and GPS.
25.1.12	Auxiliary supply	220VDC or 48VDC
25.2	**Inputs and Outputs**	
25.2.1	CT Input	1/5A selectable through programming
25.2.2	PT Input	110VAC
25.2.3	Binary Inputs	Sixteen programmable binary inputs should be provided
25.2.4	Analog Inputs (4-20mA)	One input to be provided
25.2.5	PT-100 direct input	One input to be provided
25.2.6	Direct Resistance Input	For tap position indication (18 steps)

25.2.7	Binary Outputs	Ten programmable binary outputs should be provided
25.3	**Control**	
25.3.1	Control Tasks	Ability to implement control functions through programmable logics
25.3.2	Voltage setting	Programmable Voltage set point
25.3.3	Voltage Regulation	Raise/Lower tap position to maintain the preset value of voltage.
25.3.4	Voltage Regulation modes	Automatic and Manual
25.3.5	Operation Modes	Local and Remote
25.3.6	Fan and Pump control	To be provided
25.3.7	Transformer Paralleling	Capability to parallel transformers whose AVRs are interconnected via a communication network.
25.4	**SCADA Interfacing**	
25.4.1	Configuration of DIs for routing alarm/trip signals to SCADA.	DI-1 – Buchholz trip DI-2 – OSR Trip DI-3 – PRV trip DI-4 – SPR trip DI-5 – OTI trip DI-6 – WTI trip DI-7 – Buchholz alarm DI-8 – Oil Level low larm (MOG alarm) DI-9 – WTI alarm DI-10 – OTI alarm DI-11 – Tap changer trouble/stuck/out of step DI-12 – Tap changer motor supply fail DI-13 – Tap changer in local control All signals from DI-1 to DI-10 are to be wired up from transformer trouble auxiliary relays.
25.4.2	Configuration of DOs for executing commands from SCADA through interface port/CRP	DO-1 – Tap raise DO-2 – Tap lower DO-3 – Fan group 1 control DO-4 – Fan group 2 control
25.4.3	Analog Inputs	All analog inputs shall be SCADA Compatible
25.5	**Measurement, Event Recording and Monitoring**	
25.5.1	Measured Quantities (optional)	Voltage, Current, Active Power, Reactive Power, Apparent Power, Power factor, frequency
25.5.2	Event Recording	Facility for recording parameters during various events such as tap change, change in binary input status etc.

25.5.3	Monitoring	Capability to monitor important transformer parameters such as Oil temperature, Winding Temperature etc and give indication/alarm when the value of a particular parameter exceeds the preset value.

26.0 ANNEXURE- B – GUARANTEED TECHNICAL PARTICULARS

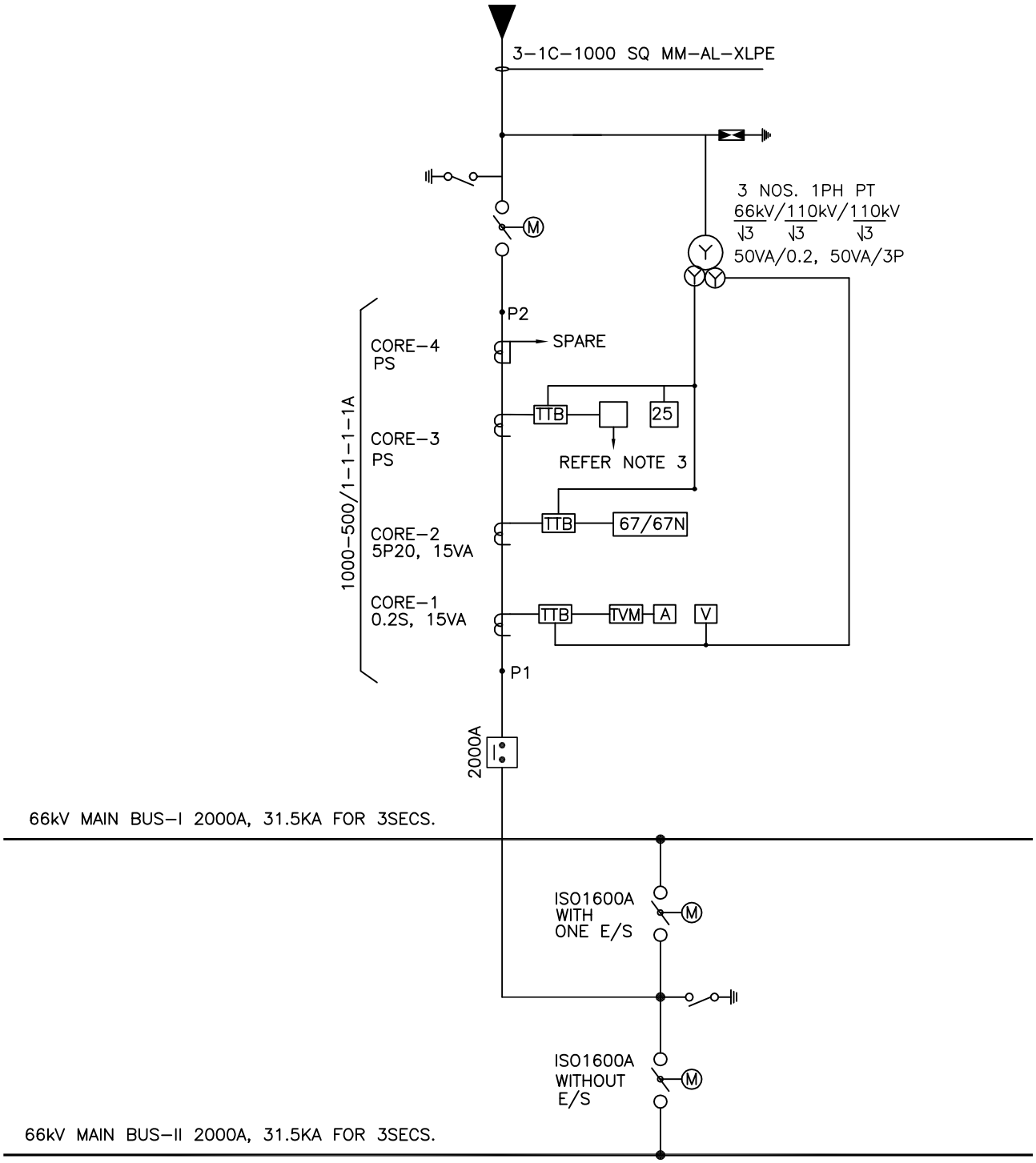
Vendor must submit clause wise compliance against specification at the time of drawing approval clearly highlighting the deviations from specification against each clause.

27.0 ANNEXURE- C – SPARES REQUIREMENT

S No.	Description	Unit Rate
27.1	Numerical relay of each type	1 nos.
27.2	Auxiliary relay of each type	1 nos.
27.3	Contact multiplication relays (Bistable type for CB, isolator and earth switch auxiliary contact multiplication)	6 nos.
27.4	Contactor of each rating	2 nos.
27.5	Voltmeter	1 nos.
27.6	Local/Remote Selector switch	1 nos.
27.7	TNC switch for CB	2 nos.
27.8	TNC switch for Isolators	3 nos.
27.9	Semaphore indicators	4 nos.
27.10	MCB of each rating	1 nos.

28.0 ANNEXURE-D-SLDs

ANNEXURE–D1



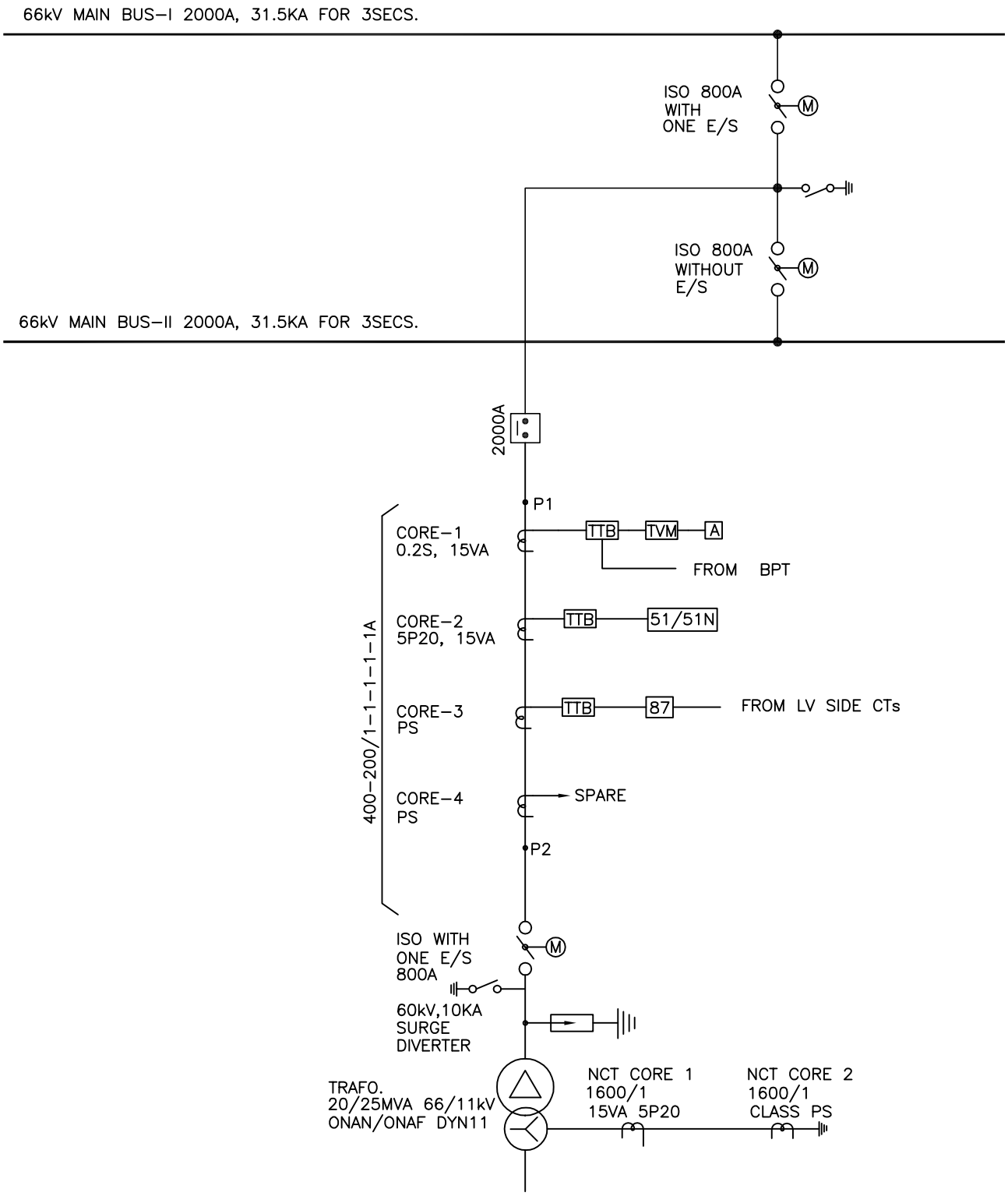
LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MOTORISED ISOLATOR WITH ONE E/S	TTB	TEST TERMINAL BLOCK
	MOTORISED ISOLATOR WITH DOUBLE E/S	51/51N	O/C & E/F RELAY
	SURGE DIVERTER	21	DISTANCE RELAY
	CURRENT TRANSFORMER	27/59	U/V & O/V RELAY
	POTENTIAL TRANSFORMER	67/67N	DIRECTTIONAL O/C & E/F RELAY
	CIRCUIT BREAKER	87	DIFFRENTIAL RELAY
V	VOLTMETER	46	NEUTRAL UNBALANCE RELAY
A	AMMETER	25	SYNC CHECK
TVM	TRIVECTOR METER		

NOTE; 1. REFER SPECIFICATION CLAUSE 11.0 FOR FUNCTIONAL DETAILS OF PROTECTION RELAYS.
2. TVM IS NOT IN SUPPLIER'S SCOPE.
3. LINE DIFFERENTIAL OR DISTANCE RELAY AS PER CLAUSE 11.2.1 OF SPECIFICATION

DRAWN	AH/AM	TITLE:– TYPICAL 66KV LINE SLD	BSES
CHECKED	SG/AS		
APPD.	GS/GN		SPEC No – BSES–TS–86–CRP–RO
DATE	03.06.22		
SCALE	NTS		DWG No.:– SLD–CRP–66KV–01

ANNEXURE–D2



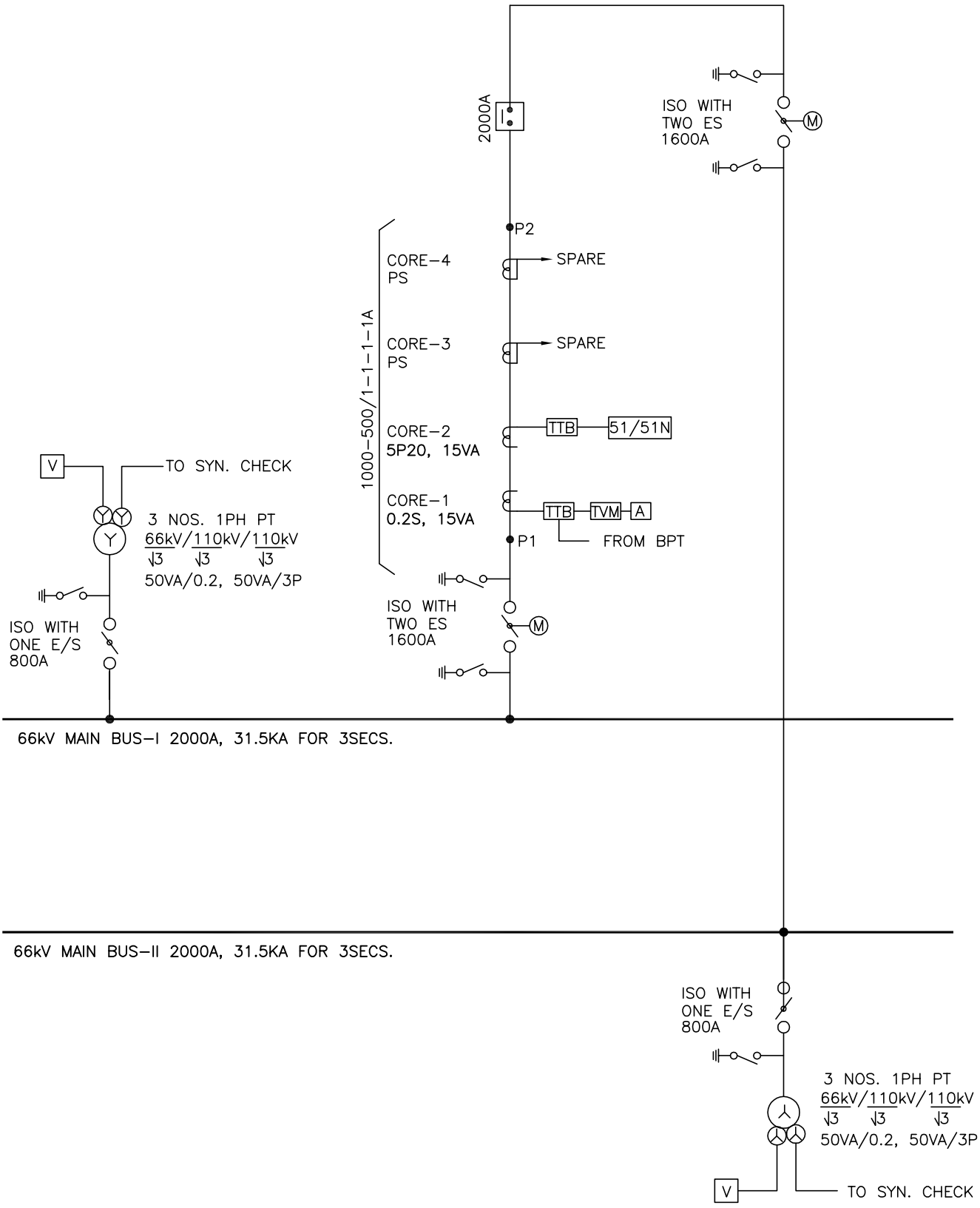
LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MOTORISED ISOLATOR WITH ONE E/S	TTB	TEST TERMINAL BLOCK
	MOTORISED ISOLATOR WITH DOUBLE E/S	51/51N	O/C & E/F RELAY
	SURGE DIVERTER	21	DISTANCE RELAY
	CURRENT TRANSFORMER	27/59	U/V & O/V RELAY
	POTENTIAL TRANSFORMER	67/67N	DIRECTIONAL O/C & E/F RELAY
	CIRCUIT BREAKER	87	DIFFRENTIAL RELAY
V	VOLTMETER	46	NEUTRAL UNBALANCE RELAY
A	AMMETER	25	SYNC CHECK
TVM	TRIVECTOR METER		

NOTE; 1. REFER SPECIFICATION CLAUSE 11.0 FOR FUNCTIONAL DETAILS OF PROTECTION RELAYS.
2. TVM IS NOT IN SUPPLIER'S SCOPE.

DRAWN	AH/AM	TITLE:– TYPICAL 66/11KV TRANSFORMER FEEDER SLD	BSES
CHECKED	SG/AS		
APPD.	GS/GN		SPEC No – BSES–TS–86–CRP–RO
DATE	03.06.22		DWG No.:– SLD–CRP–66KV–02
SCALE	NTS		

ANNEXURE–D3



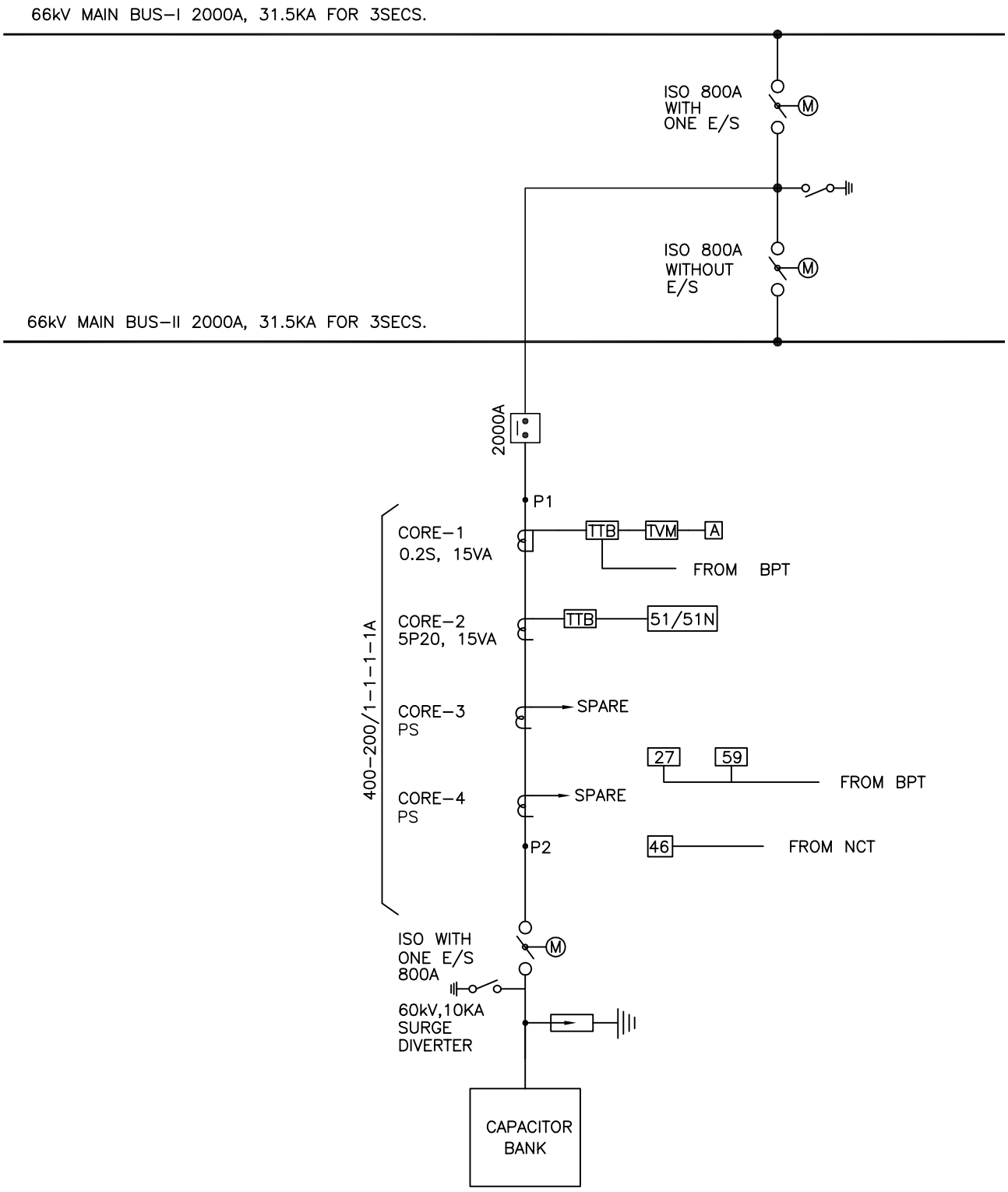
LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MOTORISED ISOLATOR WITH ONE E/S	TTB	TEST TERMINAL BLOCK
	MOTORISED ISOLATOR WITH DOUBLE E/S	51/51N	O/C & E/F RELAY
	SURGE DIVERTER	21	DISTANCE RELAY
	CURRENT TRANSFORMER	27/59	U/V & O/V RELAY
	POTENTIAL TRANSFORMER	67/67N	DIRECTTIONAL O/C & E/F RELAY
	CIRCUIT BREAKER	87	DIFFRENTIAL RELAY
V	VOLTMETER	46	NEUTRAL UNBALANCE RELAY
A	AMMETER	25	SYNC CHECK
TVM	TRIVECTOR METER		

NOTE; 1. REFER SPECIFICATION CLAUSE 11.0 FOR FUNCTIONAL DETAILS OF PROTECTION RELAYS.
2. TVM IS NOT IN SUPPLIER'S SCOPE.

DRAWN	AH/AM	TITLE:– TYPICAL 66KV BUSCOUPLER SLD	BSES
CHECKED	SG/AS		
APPD.	GS/GN		SPEC No – BSES–TS–86–CRP–RO
DATE	03.06.22		DWG No.:– SLD–CRP–66KV–03
SCALE	NTS		

ANNEXURE–D4



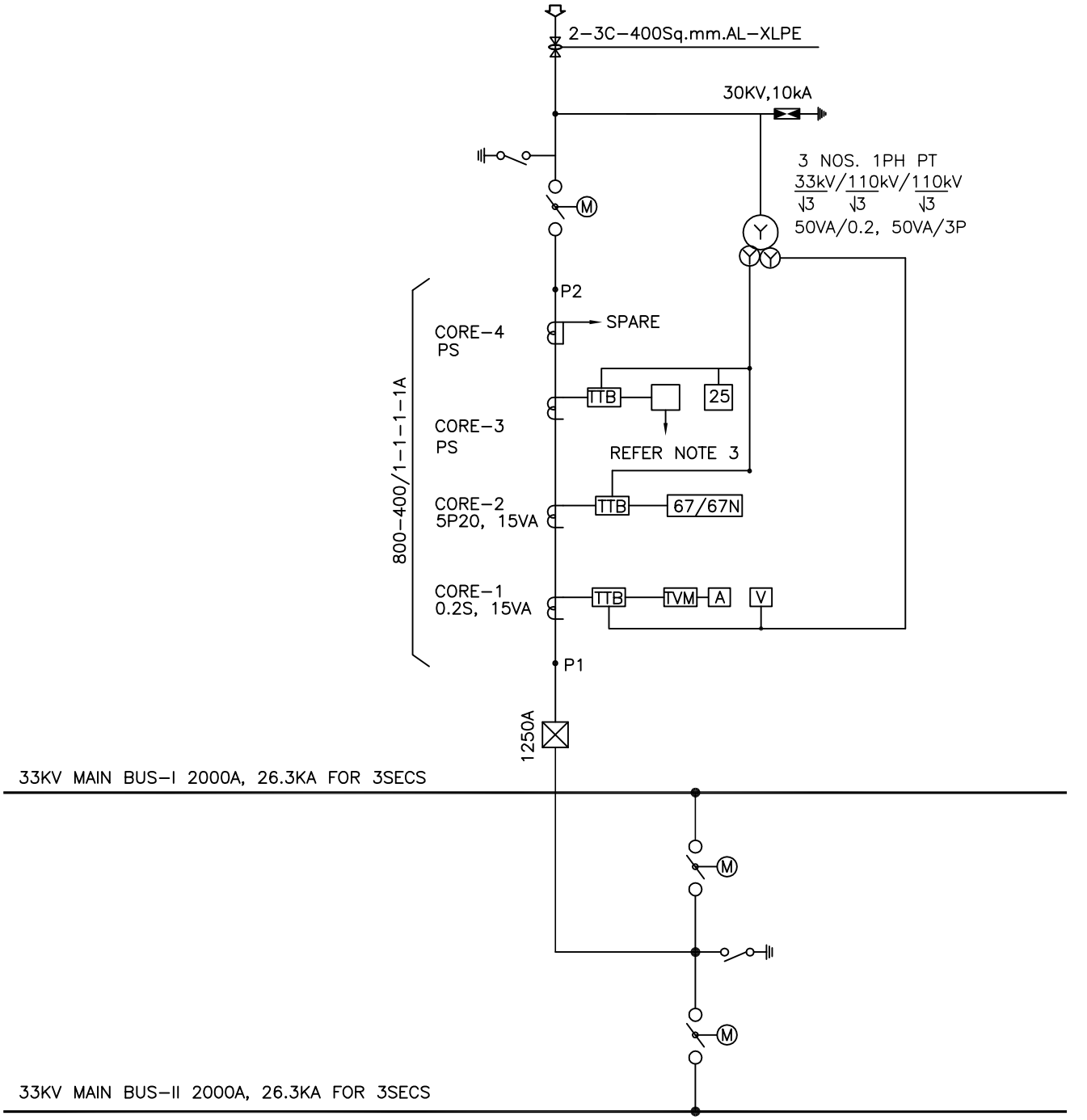
LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MOTORISED ISOLATOR WITH ONE E/S	TTB	TEST TERMINAL BLOCK
	MOTORISED ISOLATOR WITH DOUBLE E/S	51/51N	O/C & E/F RELAY
	SURGE DIVERTER	21	DISTANCE RELAY
	CURRENT TRANSFORMER	27/59	U/V & O/V RELAY
	POTENTIAL TRANSFORMER	67/67N	DIRECTTIONAL O/C & E/F RELAY
	CIRCUIT BREAKER	87	DIFFRENTIAL RELAY
V	VOLTMETER	46	NEUTRAL UNBALANCE RELAY
A	AMMETER	25	SYNC CHECK
TVM	TRIVECTOR METER		

NOTE; 1. REFER SPECIFICATION CLAUSE 11.0 FOR FUNCTIONAL DETAILSOF PROTECTION RELAYS.
2. TVM IS NOT IN SUPPLIER'S SCOPE.

DRAWN	AH/AM	TITLE:–	BSES
CHECKED	SG/AS	TYPICAL 66KV CAPACITOR BANK FEEDER SLD	SPEC No – BSES–TS–86–CRP–RO
APPD.	GS/GN		
DATE	03.06.22		DWG No.:–SLD–CRP–66KV–04
SCALE	NTS		

ANNEXURE–D5



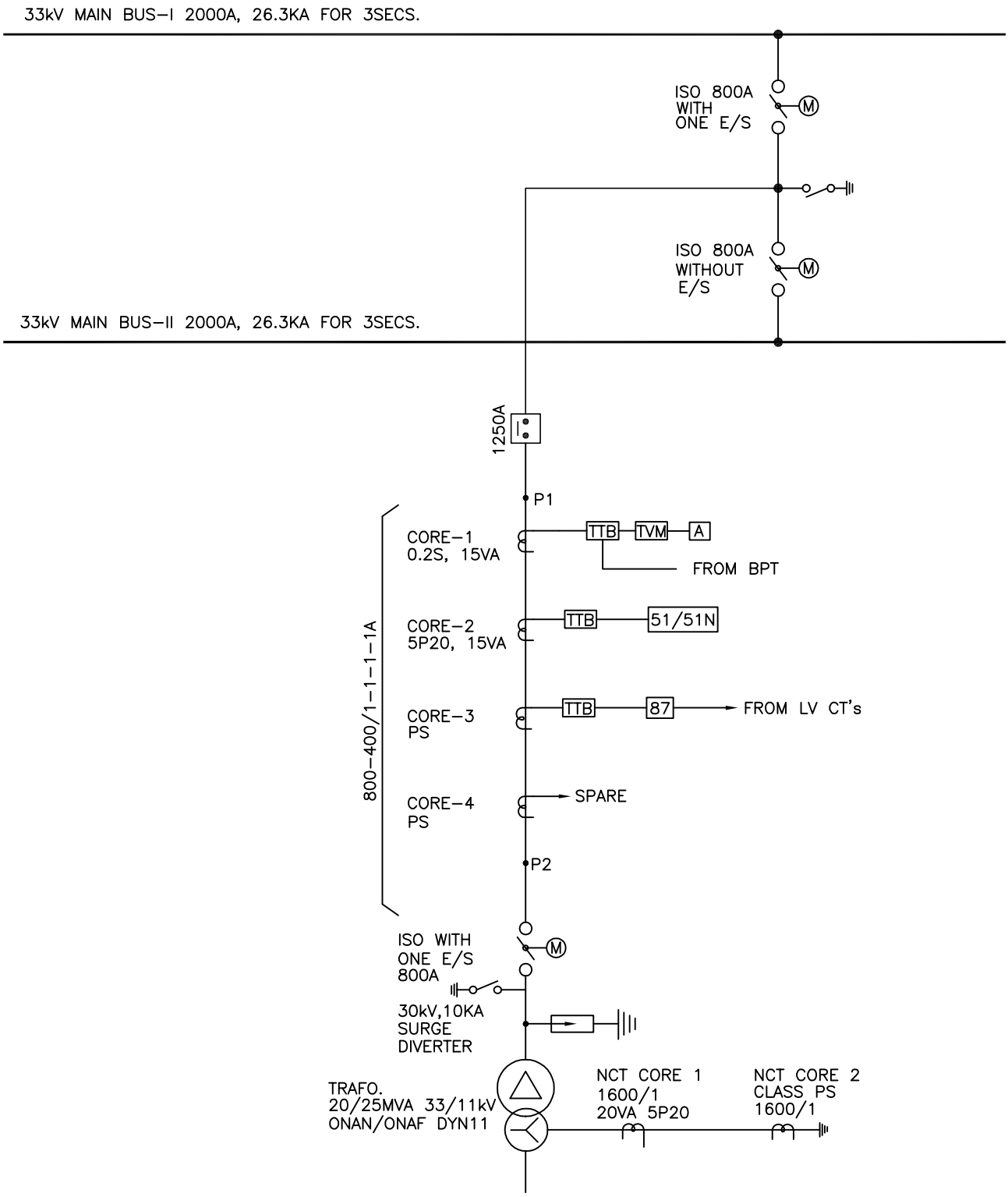
LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MOTORISED ISOLATOR WITH ONE E/S	TTB	TEST TERMINAL BLOCK
	MOTORISED ISOLATOR WITH DOUBLE E/S	51/51N	O/C & E/F RELAY
	SURGE DIVERTER	21	DISTANCE RELAY
	CURRENT TRANSFORMER	27/59	U/V & O/V RELAY
	POTENTIAL TRANSFORMER	67/67N	DIRECTIONAL O/C & E/F RELAY
	CIRCUIT BREAKER	87	DIFFRENTIAL RELAY
V	VOLTMETER	46	NEUTRAL UNBALANCE RELAY
A	AMMETER	25	SYNC CHECK
TVM	TRIVECTOR METER		

NOTE; 1. REFER SPECIFICATION CLAUSE 11.0 FOR FUNCTIONAL DETAILS OF PROTECTION RELAYS.
2. TVM IS NOT IN SUPPLIER'S SCOPE.
3. LINE DIFFERENTIAL OR DISTANCE RELAY AS PER CLAUSE 11.2.1 OF SPECIFICATION.

DRAWN	AH/AM	TITLE:– TYPICAL SLD FOR 33KV INCOMER/OUTGOING	BSES
CHECKED	SG/AS		
APPD.	GS/GN		SPEC No – BSES–TS–86–CRP–RO
DATE	03.06.22		DWG No.:–SLD–CRP–33KV–01
SCALE	NTS		

ANNEXURE–D6



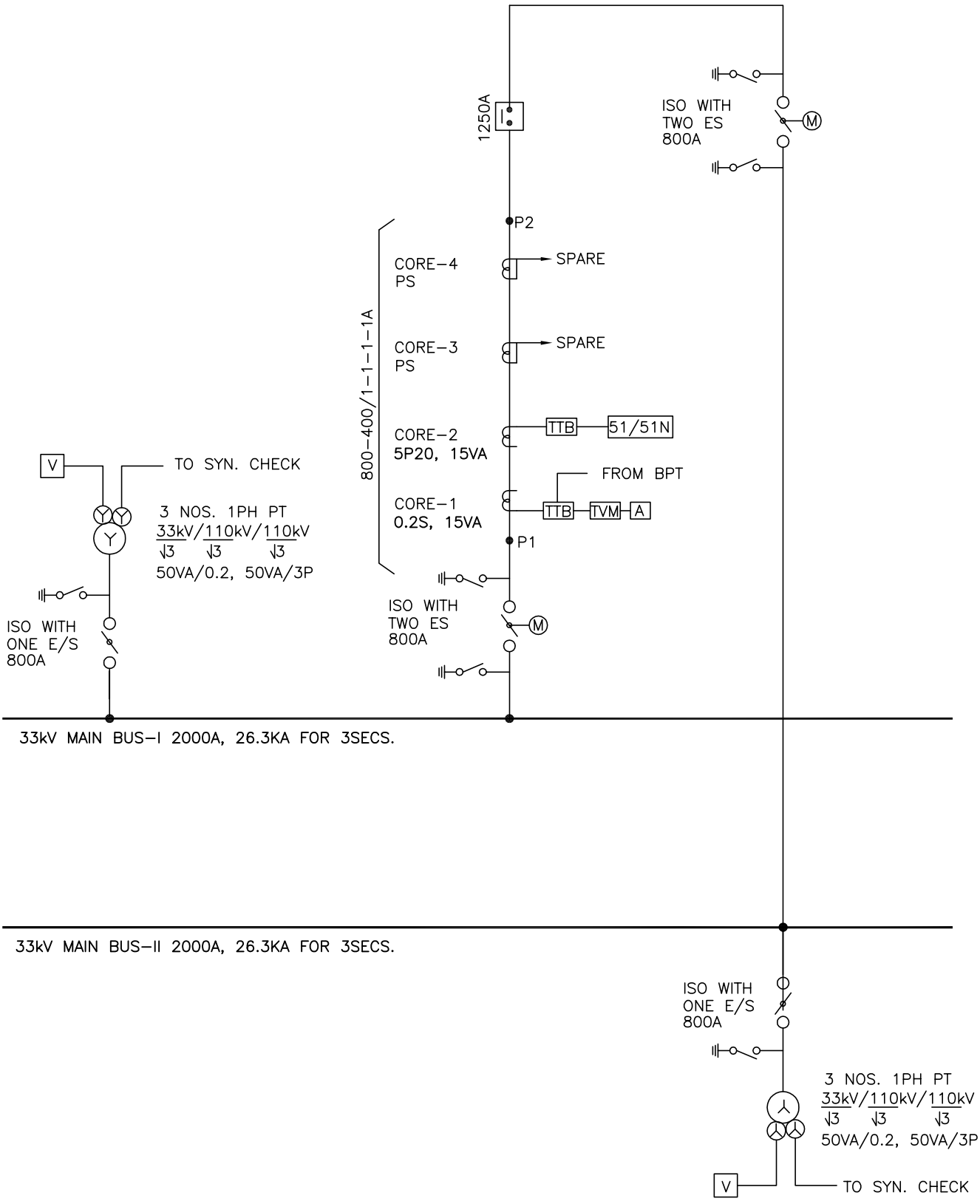
LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MOTORISED ISOLATOR WITH ONE E/S	TTB	TEST TERMINAL BLOCK
	MOTORISED ISOLATOR WITH DOUBLE E/S	51/51N	O/C & E/F RELAY
	SURGE DIVERTER	21	DISTANCE RELAY
	CURRENT TRANSFORMER	27/59	U/V & O/V RELAY
	POTENTIAL TRANSFORMER	67/67N	DIRECTIONAL O/C & E/F RELAY
	CIRCUIT BREAKER	87	DIFFRENTIAL RELAY
V	VOLTMETER	46	NEUTRAL UNBALANCE RELAY
A	AMMETER	25	SYNC CHECK
TVM	TRIVECTOR METER		

NOTE; 1. REFER SPECIFICATION CLAUSE 11.0 FOR FUNCTIONAL DETAILS OF PROTECTION RELAYS.
2. TVM IS NOT IN SUPPLIER'S SCOPE.

DRAWN	AH/AM	TITLE:– TYPICAL 33/11KV TRANSFORMER FEEDER SLD	BSES
CHECKED	SG/AS		
APPD.	GS/GN		SPEC No – BSES–TS–86–CRP–RO
DATE	03.06.22		DWG No.:–SLD–CRP–33KV–02
SCALE	NTS		

ANNEXURE–D7



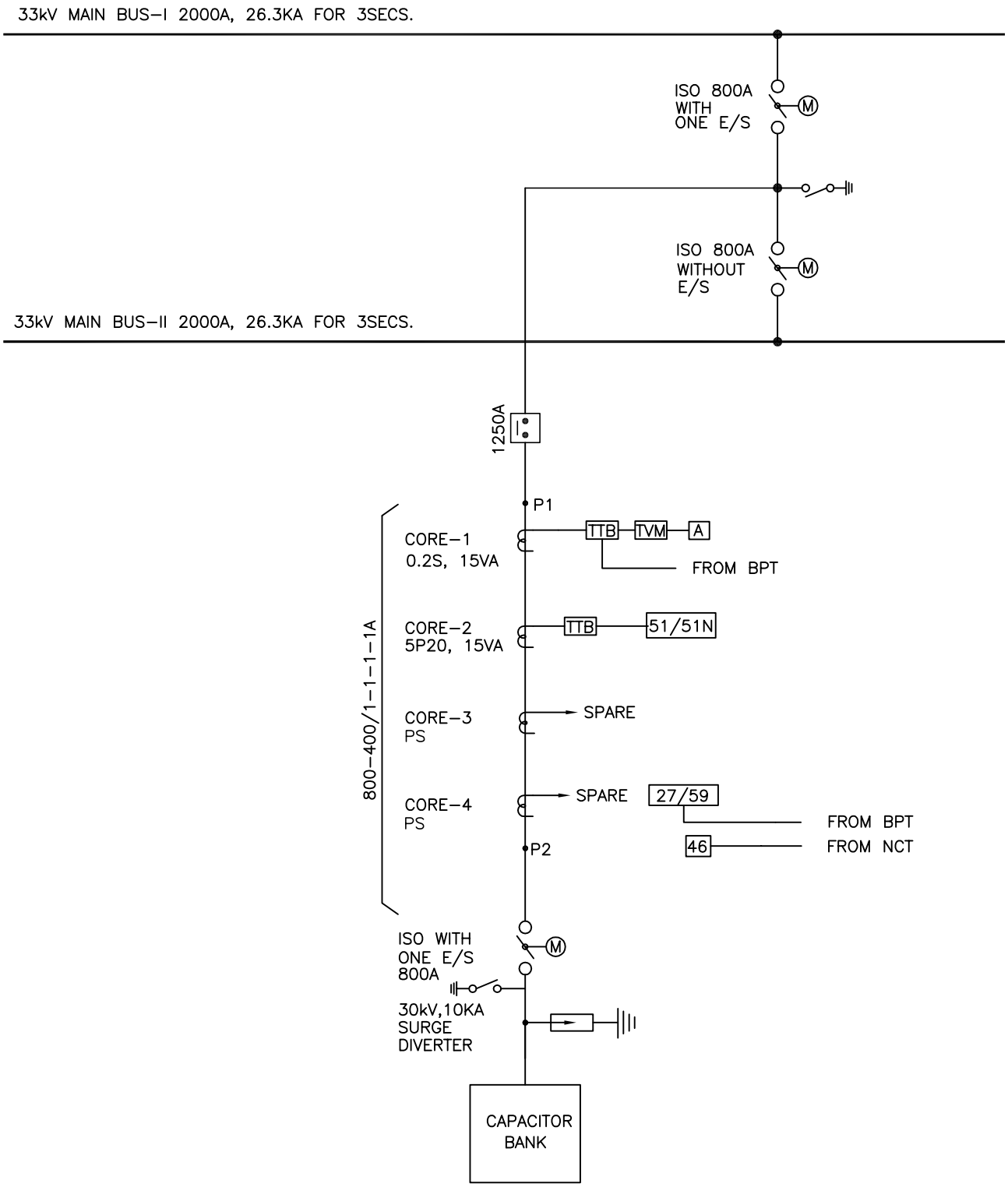
LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MOTORISED ISOLATOR WITH ONE E/S	TTB	TEST TERMINAL BLOCK
	MOTORISED ISOLATOR WITH DOUBLE E/S	51/51N	O/C & E/F RELAY
	SURGE DIVERTER	21	DISTANCE RELAY
	CURRENT TRANSFORMER	27/59	U/V & O/V RELAY
	POTENTIAL TRANSFORMER	67/67N	DIRECTIONAL O/C & E/F RELAY
	CIRCUIT BREAKER	87	DIFFRENTIAL RELAY
V	VOLTMETER	46	NEUTRAL UNBALANCE RELAY
A	AMMETER	25	SYNC CHECK
TVM	TRIVECTOR METER		

NOTE; 1. REFER SPECIFICATION CLAUSE 11.0 FOR FUNCTIONAL DETAILS OF PROTECTION RELAYS.
2. TVM IS NOT IN SUPPLIER'S SCOPE.

DRAWN	AH/AM	TITLE:– TYPICAL 33KV BUSCOUPLER SLD	BSES
CHECKED	SG/AS		
APPD.	GS/GN		SPEC No – BSES–TS–86–CRP–R0
DATE	03.06.22		DWG No.:– SLD–CRP–33KV–03
SCALE	NTS		

ANNEXURE–D8



LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	MOTORISED ISOLATOR WITH ONE E/S	TTB	TEST TERMINAL BLOCK
	MOTORISED ISOLATOR WITH DOUBLE E/S	51/51N	O/C & E/F RELAY
	SURGE DIVERTER	21	DISTANCE RELAY
	CURRENT TRANSFORMER	27/59	U/V & O/V RELAY
	POTENTIAL TRANSFORMER	67/67N	DIRECTTIONAL O/C & E/F RELAY
	CIRCUIT BREAKER	87	DIFFRENTIAL RELAY
V	VOLTMETER	46	NEUTRAL UNBALANCE RELAY
A	AMMETER	25	SYNC CHECK
TVM	TRIVECTOR METER		

NOTE; 1. REFER SPECIFICATION CLAUSE 11.0 FOR FUNCTIONAL DETAILS OF PROTECTION RELAYS.
2. TVM IS NOT IN SUPPLIER'S SCOPE.

DRAWN	AH/AM	TITLE:– TYPICAL 33/11KV CAPACITOR BANK FEEDER SLD	BSES
CHECKED	SG/AS		
APPD.	GS/GN		SPEC No – BSES–TS–86–CRP–R0
DATE	03.06.22		DWG No.:–SLD–CRP–33KV–04
SCALE	NTS		