**Volume - I**

**Tender Notification for**

# Supply of Numerical Relays & accessories for renovation of existing Control and Relay Panels in BRPL, New Delhi, India.

**NIT No.: CMC/BR/21-22/RB/MKD/955 dated 24.09.2021**

**Due Date for Submission of Bids : 15/10/2021 15:30 HRS**

**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**

# INDEX

## SECTION – I: REQUEST FOR QUOTATION

**1.00 Event Information**

BRPL invites invites Sealed tenders for Rate Contract for supply of materials for renovation of existing Control and Relay Panels. The bidder must qualify the technical requirements as specified in clause 2.0 stated below.The sealed envelopes shall be duly superscribed as — **"Bid For Supply of Numerical Relays & accessories for renovation of existing Control and Relay Panels in BRPL, New Delhi, India. as per Tender Notice CMC/BR/21-22/RB/MKD/955 Due date for submission on Dt 15.10.2021".**

| Sl. No. | Item Description | Specification | Requirement | Estimated Cost |
|---|---|---|---|---|
| | | | Total Qty. In LS | |
| **BRPL,DELHI** | | | | |
| 1 | **Supply of Numerical Relays & accessories for renovation of existing Control and Relay Panels in BRPL, New Delhi, India.** | SECTION V | 1 | **Rs 5.1 CR** |

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

**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/- (including GST)** per below.

Beneficiary Name : BSES Rajdhani Power Limited
Bank Name : Bank of Baroda
A/c No. : 10590200001560
IFSC Code : BARB0NEHRUP

The sale of tender documents will be issued from 30.09.2021 onwards on all working days upto 15.10.2021 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/21-22/RB/MKD/955 dated 24.09.2021".**This envelope should accompany the Bid Documents.

**1.03** Offers will be received **till 15:30 Hrs. on dt 15.10.2021** as indicated earlier and will be opened on **15.10.2021 at 15:45 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** BSES RAJDHANI POWER LTD 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) Rs. 5,10,000/-i.e.,**@ 1% (One percent) of the Tender value i.e **Rs 5,10,00,000/-** is not deposited in shape of Bank Draft/Pay Order/Banker's Cheque /BG drawn in favour of BSES Rajdhani Power Ltd, payable at Delhi as per below

| | | |
|---|---|---|
| Beneficiary Name | : | BSES Rajdhani Power Limited |
| Beneficiary Bank | : | State Bank of India, IFB, 1, Tolstoy Marg, Jawahar Vyapar Bhawan, New Delhi 110001 |
| Beneficiary A/c No. | : | 40214820999 |
| Beneficiary Bank IFSC | : | SBIN0009601 |

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). Sample is not submitted along with the offer. (Meaning of sample, is it relay?)
(v). Tender is received after due time due to any reason**.**

**1.05** BSES RAJDHANI POWER LTD 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 till the time of placing purchase orders/Work 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. The requisite Pre Qualification requirement for Tender /Bid document are as under:

1 .The participants should be original Equipment Manufacturer (OEM) or an Authorized Vendor/ channel partner firm in India (herein after referred as" Bidder "). The OEM should have its own service and spares setup and facility network in India.

OEMs can participate through their channel/ authorized partners. However, they should qualify the qualification criteria and the following:

a. The bidder should furnished authorization form from the manufactures of material/item.
b. The bidder as authorized agent, has supplied similar item in past in any other utility.
c. The bidder shall be authorized distributor/dealer since last 02 yr or more.

2. The bidder should have supplied Numerical Relays & other aux Relays to any industry in India during last three financial years immediately preceding the date of NIT along with the proof of supply orders value amounting not less than Rs. 2 Cr. The bidder shall submit relevant orders/ past supply details in support of their experience

3. The bidder should have average annual turnover of **Rs. 5 Crore** during last three financial years immediately preceding the date of this NIT.
4. Bidder must posses valid ISO 9001:2000 certification.
5. The bidder should declare that he has not been black listed by any utility/Distribution Company/Any department of State Government or Central Government in India. (Letter of undertaking in this regard is to be submitted)

**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. BSES RAJDHANI POWER LTD response to the questions raised by various bidders will be distributed to all participating bidders through an RFQ Update.

**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 10.10.2021 |
| 2 | Technical Offer | • EMD of requisite amount<br>• Non-refundable DD for Rs 1180/- in case tender documents downloaded from website<br>• It include clause by clause commentary, GTP, Type test report from CPRI/NABL accredited independent test LAB or Sameer, EMC Division, Chennai (Not more than 5 year old), BIS report, Quality assurance plan, Deviation from the technical specifications,List of Plant and machinery, Testing facilities available at works and drawings, catalogues, manual etc.<br>• Compliance of Qualification criterion (cl 2.0) and Documentary evidence in support of qualifying criterion as per format attached in Annexure V .<br>• Acceptance of delivery, commercial terms and conditions.<br>• Deviation from the General Conditions of the contract/commercial terms and condtions.<br>• Original Tender documents duly stamped and signed on each page as token of acceptance<br>• Unpriced items | 15.10.2021 15:30 Hrs |
| 3 | Commercial Officer | • Break up regarding basic price and taxes as per format enclosed vide Annexure III<br>• Delivery commitment | 15.10.2021 15:30 Hrs |
| 4 | Testing | • For relay supply the bidder has to get the offered models tested & verified for the required specifications before delivery. This testing report has to be jointly signed by representative of bidder & BRPL. | As per BSES Requirement |
| 5 | Performance gaurantee quality system report | • As per RFQ | Only for successful bidders. |
| 6 | Opening of technical bid | • As per RFQ | 15.10.2021 15:45 Hrs |

This is a two part bid process.Bidders are to submit the bids a) Technical Bid b) Financial Bid.
Both these parts should be furnished in separate sealed covers superscribing 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** Eligibility and 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.
b) Qualified bidders will be intimated after technical evaluation of all the bids is completed.
**Part –II Financial Bid**: This envelope will be opened after techno commercial evaluation and only of the qualified bidders. The date and time of same shall be intimated in due course to the qualified bidders.Prices strictly in the format enclosed in Annexure III indicating break up of basic prices, taxes, duties, freight etc.

**Part –III : E- Bidding and Reverse Auction through SAP-SRM Module**
Purchaser reserves the right to use the reverse auction through SAP-SRM tool as an integral part of the entire tendering process. All the bidders who are techno-commercial qualified on the basis of tender requirements shall participate in reverse auction.

Not withstanding anything stated above, the Purchaser reserves the right to assess bidders 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

4.01 Purchaser intends to award the business on a lowest bid basis, so suppliers are encouraged to submit the bid competitively. The decision to place purchase order/LOI 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.

4.02 **Splitting of Tendered Scope of works in two or more bidders:** BSES reserves the right to split the tender quantity among techno- commercially qualified bidders on account of delivery requirement in tender quantity under procurement.

.

4.03 In the event of your bid being selected by purchaser (and / or its affiliates) and you 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 NIT/RFQ.

4.04 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.

## 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 BSES RAJDHANI POWER LTD. This includes all bidding information submitted .All RFQ documents remain the property of BSES RAJDHANI POWER LTD and all suppliers are required to return these documents to BSES RAJDHANI POWER LTD 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. Umesh Gupta | Mr. Pankaj Goyal |
| **Address** | 33 KV, BRPL Grid Sub station, HUDCO Place, Andrews Ganj, New Delhi-49 | 1st Floor , D-Block, BSES Bhawan Nehru Place , New Delhi -111019 |
| **Email Id** | Umesh.gupta@relianceada.com | Pankaj.goyal@relianceada.com |

**Note : Those who are downloading tender notice from website. It is advisable to inform BRPL technical Deptt, so as they can be contacted in case of any amendment in tender**.

## SECTION – II

## INSTRUCTION TO BIDDERS (ITB)

# Supply of Numerical Relays & accessories for renovation of existing Control and Relay Panels in BRPL, New Delhi, India.

**A. GENERAL**

**1.0** 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 Renovation of Control & relay panels including replacemt of old relay On Turnkey basis as notified earlier in this bid Document.

**2.0** Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to site conditions, means of access to the site.

**3.0 SCOPE OF WORK**

The scope shall include Design, Manufacture, supply, Testing & Commisioning at works, conforming to the Technical Specifications enclosed along with Packing, Forwarding, Freight and Unloading and proper stacking at Purchaser's stores.Mainly it is supply as per specifications.

**3.0 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 anyway 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 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. **Further the Purchaser intent to get Sample CRP tested by any reputed independent lab like CPRI/ERDA/NABL (approved by BRPL) at the cost of bidder.**

B. **BIDDING DOCUMENTS**

5.0 **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) Acceptance form for Reverse Auction - Annexure –A
(b) Bid Form - Annexure –I
(c) Bid Format - Annexure -II
(d) Price Schedule - Annexure –III
(e) Commercial Terms & Conditions - Annexure -IV
(f) No Deviation Sheet - Annexure –V
(g) Qualification Criterion - Annexure –VI

5.02 The Bidder is expected to examine the Bidding Documents, including all Instructions, Forms,Term 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**

7.0 **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.

8.0 **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 indicating that the person signing the bid have the authority to sign the Bid and thus the Bid is binding upon the Bidder during the full period of its validity, in accordance with clause 12.0.

9.0 **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 **1%** of the total bid value (FOR Destination) i.e **Rs 5,10,000/-**. 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 Delhi.

Unsuccessful bidders‘ EMD will be discharged or returned as promptly as possible 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.

10.0 **BID PRICES**

10.01 Bidders shall quote for the entire Scope of supply of items with a break-up of prices for individual items as well as prices of supply as per price format attcahed .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 with taxes, duties & freight upto destination.

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**.

11.0 **BID CURRENCIES**

Prices shall be quoted **in Indian Rupees (RS) Only.**

12.0 **PERIOD OF VALIDITY OF BIDS**

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

12.02 Notwithstanding Clause 12.01 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.

13.0 **ALERNATIVE 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.

14.0 **FORMAT AND SIGNING OF BID**

14.01 The original Bid Form and accompanying documents (as specified in Clause 9.0),clearly marked "Original Bid", plus one duplicate copy must be received by the Purchaser at the date, time and place specified pursuant to Clauses 15.0 and 16.0. 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 duplicate 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.

15.04 The Bidder, along with the bid documents has to submit two samples along with detailed GTP, schemetic & wiring Drawings. The sample should clearly indicate (i) Name of the bidder (ii )TenderNo.,(iii) Group & Item Sr.N o.etc. Samples will be submitted on or before the due date of tender submission. The samples shall not be returned back to the bidder.

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 **at 15:30 Hrs on 15.10.2021.**

16.02 The Purchaser may,at its discretion,extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with Clause 9.0,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 by itself. **No Joint Venture is acceptable**. A Bidder who submits or participates in more than one Bid will cause all those Bids to be rejected.

18.0 **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.

19.0 **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

20.0 **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.

21.0 **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.

22.0 **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 theTotal 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**

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

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 & technical specifications of items offered as per requirement. 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.

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:

- ➢ Delivery Schedule
- ➢ Conformance to Qualifying Criteria
- ➢ 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.

Any adjustments in price, which result from the above procedures, 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‘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 toaward 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 tems 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 with in 7 days of issue of the letter of intent /Notification of Award by Purchaser. The date of LOI/LOA shall be treated as Start date of work.

### 29.0 PERFORMANCE BANK GAURANTEE

On receipt of Notification of Award/ Letter of Intent from the Purchaser, the successful Bidder shall furnish the Performance Bank Guarantee for an amount of 10 % (Ten percent) of the PO Value. The Performance Bond

shall be valid as per Commercial Terms & Conditions. Upon submission of the performance security, the EMD shall be released.

**30.0 COMPLETION PERIOD**

**A) SUPPLY:**

As per BRPL requirement

31.0 **CORRUPT OR FRADULENT PRACTICES**

31.01 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, orsoliciting 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 foraward 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.

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

## SECTION- III

## GENERAL CONDITIONS OF CONTRACT (GCC)

# Supply of Numerical Relays & accessories for renovation of existing Control and Relay Panels in BRPL, New Delhi, India.

**GENERAL TERMS AND CONDITION**

## 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 A) Definition Of Terms Supply

**2.01** "Purchaser" shall mean BSES RAJDHANI POWER LTD 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" and "ETC' 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 BSES RAJDHANI POWER LTD 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 supplyg, acceptance shall mean issue of necessary equipment / material takeover receipt after installation & commissioning and final acceptance.

**B.1. EXAMINATION OF SITE AND LOCAL CONDITIONS**:

The contractor is deemed to have visited the site of the work and ascertained therefore all site conditions and information pertaining to his work. The company shall not accept any claim whatsoever arising out of the difficult site/terrain/local conditions, if any.

**B.2. LANGUAGE AND MEASUREMENT:**

The CONTRACT issued to the contractor by the company and all correspondence and documents relating to the CONTRACT placed on the Contractor shall be written in English language.

Metric System shall be followed for all dimension, units etc.

## 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

### A) 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.

**A. RATES**:

The rates finalized for this order shall be firm for the entire duration of work carried out by the Contractor under the order and are not subject to any variation and escalation for any reason whatsoever.

The cost of insurance during loading/unloading of materials/ equipments during its storage and handling/erection at site for installation is included in the contractor's scope and value is included in the unit rates finalized.

The unit rates finalized are also inclusive of barricading and watch & ward during execution and no separate charges shall be paid for the same.

The cost of training of BRPL Official shall be included in the prices quoted by vendor.

**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 to proceed with the work past a hold point only after clearance by purchaser or a witness waiver letter from **BSES RAJDHANI POWER LTD.**

**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 with out 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 crates/boxes/drums/containers/cartons and otherwise in such a manner as shall be reasonably suitable for shipment by road or rail to BSES RAJDHANI POWER LTD 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, extreme outside dimensions (length, width & weight) of each container/box/drum/carton, Item SAP Code, PO No & date. One copy of the packing list shall be enclosed in each package delivered

**7.01 Prices basis for supply of materials.**

a) Bidder to quote their prices on Landed Cost Basis and separate price for each item.
FIRM prices for supply to BRPL Delhi/New Delhi stores inclusive of packing, forwarding, loading at manufacturer's premises, payment of Txes/GST, Freight, any other local charges. Octroi is presently not applicable in Delhi and however if applicable shall be reimbursed at actual**.**
b) The above supply prices shall also include unloading at BRPL Delhi/New Delhi stores/site.
c) Transit insurance will be arranged by Purchaser; however bidder to furnish required details in advance for arranging the same by Purchaser
d) Purchaser shall issue Form 'C' wherever applicable and accordingly bidder to consider applicable taxes in the quoted price.

**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).

**8.05** The company reserves the right to review/change the terms & conditions of the purchase order/work order prospectively w.e.f. the date of implementation of GST to give effect/take care the impact of GST, if required.

**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

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 issued by the inspection authority
v) Packing List.
vi) Test Reports
vii) Guarantee Certificate.

**11.0 Price Validity**

**11.01** All bids submitted shall remain valid, firm and subject to unconditional acceptance by BSES RAJDHANI POWER LTD 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 The bidder 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 as per Commercial Terms & Conditions.

Bank Draft/Pay Order/Banker's Cheque /BG drawn in favour of BSES Rajdhani Power Ltd, payable at Delhi.

| | | |
|---|---|---|
| Beneficiary Name | : | BSES Rajdhani Power Limited |
| Beneficiary Bank | : | State Bank of India, IFB, 1, Tolstoy Marg, Jawahar Vyapar Bhawan, New Delhi 110001 |
| Beneficiary A/c No. | : | 40214820999 |
| Beneficiary Bank IFSC | : | SBIN0009601 |

**13.0 Forfeiture**

Each Performance Bond established under Clause 12.0 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 relevant bank referred to above, together with a simple statement that supplier has failed to comply with any term or condition set forth in the Contract.

Each Performance BG 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 12.0) 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 as per Commercial Terms & Conditions. 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.**

BSES RAJDHANI POWER LTD shall give Supplier notice of any defective Commodity promptly after becoming aware thereof. BSES RAJDHANI POWER LTD may in its discretion elect to return defective Commodities to Supplier for replacement, free of charge to BSES RAJDHANI POWER LTD, or may reject such Commodities and purchase the same or similar Commodities from any third party. In the latter case BSES RAJDHANI POWER LTD 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. BSES RAJDHANI POWER LTD may set off such costs against any amounts payable by BSES RAJDHANI POWER LTD to Supplier. Supplier shall reimburse BSES RAJDHANI POWER LTD 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 BSES RAJDHANI POWER LTD

**21.0 Consequences of Default.**

(a) If an Event of Default shall occur and be continuing, BSES RAJDHANI POWER LTD may forthwith terminate the Contract by written notice.

(b) In the event of an Event of Default, BSES RAJDHANI POWER LTD 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 BSES RAJDHANI POWER LTD may incur as a result of Supplier's default.

**22.0 Liquidated Damages**

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 basic (ex-works) price for every week delay or part thereof for individual mile stone deliveries.

22.02 The total amount of penalty for delay under the contract will be subject to a maximum of ten percent (10%) of the basic (ex-works) price

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 STATUTORY VARIATION IN TAXES AND DUTIES**

The total order value shall be adjusted on account of any variations in statutory Levies imposed be 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.

The company reserves the right to review/change the terms & conditions of the Purchase Order/Work Order prospectively w.e.f. the date of implementation of GST to give effect/take care the impact of GST, if required.

**24.0 Force Majeure**

**24.01** 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 event 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.

**24.02** 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 :

(i) The following events and circumstances :

a) Effect of any natural element or other acts of God, including but not limited to storm, flood, earthquake, lightning, cyclone, landslides or other natural disasters.

b) Explosions or fires

(ii) War declared by the Government of India, provided that the ports at Mumbai are declared as a war zone.

(iii) Dangers of navigation, perils of the sea.

**24.03** Notice of Events of Force Majeure If a force majeure event prevents a party from performing any obligations under the Contract in part or in full, that party shall:

i) Immediately notify the other party in writing of the force majeure events within 7(seven) working days of the occurrence of the force majeure event

ii) Be entitled to suspend performance of the obligation under the Contract which is affected by force majeure event for the duration of the force majeure event.

iii) Use all reasonable efforts to resume full performance of the obligation as soon as practicable

iv) Keep the other party informed of all such efforts to resume full performance of the obligation on a regular basis.

v) Provide prompt notice of the resumption of full performance or obligation to the other party.

**24.04** 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.

**24.05** 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.

**24.06** 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.

**24.07** 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.

**24.08** 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.

**24.09** 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."

**25.0 Transfer And Sub-Letting**

**25.01** 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.

**26.0 Recoveries**

**26.01** When ever 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**

**26.02** 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.

**28.0 DOCUMENTATION:**

The Bidder's shall procure all equipment from BRPL approved sources as per attached specifications. The Bidder's shall submit 5 copies of Material/Type Test Certificates, O&M Manuals, and Approved & As-built drawings. The Bidder's shall ensure for the strict compliance to the specifications and Field Quality Procedures issued by BRPL Engineer in-charge.

**29. TEST CERTIFICATE & QUALITY ASSURANCE:**

The Contractor shall procure all equipment from genuine sources as approved by the Company and as per Company specifications. The Contractor shall submit all the test certificates and joint inspection reports related to major equipment wherever applicable. The contractor shall ensure for the strict compliance to the specifications and Field Quality Procedures issued by company / Engineer in-charge.

**30. SUB-CONTRACTING / SUBLETTING:**

CONTRACTOR shall not assign or transfer the whole or any part of this Purchase Order or any other benefits accruing there from nor shall it subcontract / sublet the whole or any part of the Works without the prior written consent of COMPANY.

In the event the contractor assigns this work order, contractor's assignees shall be bound by the terms and conditions of this work order and shall , if deemed necessary by COMPANY at the time of such assignment, undertake in writing to be so bound by this Work Order.

Notwithstanding the subletting / subcontracting of any portion of the works, contractor shall remain wholly responsible for the carrying out, completion and satisfactory execution of Works in all respects in accordance with this Work Order, specification, approved drawings and data sheets.

**31. RISK & COST:**

If the Contractor of fails to execute the work as per specification / as per the direction of Engineer's In-change within the scheduled period and even after the extended period, the contract shall got cancel and company reserves the right to get the work executed from any other source at the Risk & Cost of the Contractor. The Extra Expenditure so incurred shall be debited to the Contractor.

**32. ARBITRATION:**

To the best of their ability, the parties hereto shall endeavor to resolve amicably between themselves all disputes arising in connection with this LOA. If the same remain unresolved within thirty (30) days of the matter being raised by either party, either party may refer the dispute for settlement by arbitration. The arbitration to be undertaken by two arbitrators, one each to be appointed by either party. The arbitrators appointed by both the parties shall mutually nominate a person to act as presiding arbitrator before entering upon the reference in the event of a difference between the two arbitrators and the award of the said presiding arbitrator in such a contingency shall be conducted in accordance with this provisions of the Indian Arbitration & Conciliation Act, 1996 and the venue of such arbitration shall be in the city of New Delhi only.

**33. SECRECY CLAUSE:**

The technical information, drawing and other related documents forming part of work order and the information obtained during the course of investigation under this work order shall be the Company's executive property and shall not be used for any other purpose except for the execution of the work order. The technical information drawing, records and other document shall not be copied, transferred, or divulged and/ or disclosed to third party in full/part, not misused in any form whatsoever except to the extent for the execution of this Purchase order.

These technical information, drawing and other related documents shall be returned to the Company with all approved copies and duplicates including drawing/plans as are prepared by the Contractor during the executions of this work order, if any, immediately after they have been used for agreed purpose.
In the event of any breach of this provision, the contractor shall indemnify the Company against any loss, cost or damage or claim by any party in respect of such breach.

**34. TERMINATION**

"During the course of the execution, if at any time BSES observe and form an opinion that the work under the order is not being performed in accordance with the terms of this Agreement, BSES reserves its right to cancel this Agreement giving 15 days notice mentioning the reason for the termination of the agreement and BSES will recover all damages including losses occurred due to loss of time from Contractor.

## SECTION – IV:

| Summary - Bill of Quantity | | | | | | |
|---|---|---|---|---|---|---|
| **S No.** | **Material** | **Refer below mentioned sections in Annexure-2 for Technical Specification of material** | **LOT-1 Qty** *(Required by 1st week of Dec'21)* | **LOT-2 Qty** *(Required by 1st week of March'22)* | **UOM** | **Total Qty** |
| 1 | **Numerical Protection Relays/ IEDs** | Sec 1.2 | 17 | 19 | No.s | 36 |
| | | Sec 1.3 | 11 | 11 | No.s | 22 |
| | | Sec 1.4 | 10 | 51 | No.s | 61 |
| | | Sec 1.5 | 77 | 67 | No.s | 144 |
| | | Sec 1.6 | 10 | 10 | No.s | 20 |
| | | Sec 1.7 | 0 | 0 | No.s | 0 |
| | | Sec 1.8 | 2 | 0 | No.s | 2 |
| | | Sec 1.9 | 9 | 9 | No.s | 18 |
| | | Sec 1.10 | 8 | 7 | No.s | 15 |
| | **TMU** | Sec 1.11 | 5 | 5 | No.s | 10 |
| | | Sec 1.12 | 7 | 4 | No.s | 11 |
| | **OC EF Arc** | **Sec 1.13** | 4 | 5 | No.s | 9 |
| 2 | **Annunciator** | Sec 3.1 | 18 | 19 | No.s | 37 |
| | | Sec 3.2 | 14 | 12 | No.s | 26 |
| 3 | **Flexible Wires** | Sec 7.3 | 3770 | 5120 | Meter | 8890 |
| | | Sec 7.4 | 3432 | 4860 | Meter | 8292 |
| | | Sec 7.5 | 3432 | 4860 | Meter | 8292 |
| | | Sec 7.6 | 4360 | 5270 | Meter | 9630 |
| | | Sec 7.7 | 2350 | 950 | Meter | 3300 |
| | | Sec 7.8 | 4075 | 2040 | Meter | 6115 |
| | | Sec 7.9 | 4075 | 2040 | Meter | 6115 |
| | | Sec 7.10 | 4075 | 2040 | Meter | 6115 |
| | | Sec 7.11 | 4075 | 1640 | Meter | 5715 |
| | | Sec 7.12 | 3546 | 1030 | Meter | 4576 |
| | | Sec 7.13 | 38130 | 47965 | Meter | 86095 |
| 4 | **Ethernet Switch and accessories** | Sec 16.2.1 | 4 | 3 | No.s | 7 |
| | | Sec 16.2.2 | 0 | 0 | No.s | 0 |
| | | Sec 16.3 | 3 | 0 | No.s | 3 |
| 5 | **Control Cable** | Sec 17.1.1 | 160 | 0 | Meter | 160 |
| | | Sec 17.1.2 | 1600 | 600 | Meter | 2200 |
| | | Sec 17.1.3 | 5000 | 1000 | Meter | 6000 |
| | | Sec 17.1.4 | 2300 | 0 | Meter | 2300 |
| | | Sec 17.1.5 | 600 | 0 | Meter | 600 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 6 | **MFM** | Sec 22.1 | 55 | 81 | No.s | 136 |
| | | Sec 22.2 | 80 | 98 | No.s | 178 |
| 7 | **Protection Auxiliary Relays (Electromechanical/static)** | Sec 2.1 | 22 | 32 | No.s | 54 |
| | | Sec 2.2 | 16 | 14 | No.s | 30 |
| | | Sec 2.3 | 17 | 17 | No.s | 34 |
| | | Sec 2.4 | 31 | 16 | No.s | 47 |
| | | Sec 2.5 | 46 | 8 | No.s | 54 |
| | | Sec 2.6 | 30 | 60 | No.s | 90 |
| | | Sec 2.7 | 30 | 38 | No.s | 68 |
| | | Sec 2.8 | 26 | 31 | No.s | 57 |
| | | Sec 2.9 | 51 | 76 | No.s | 127 |
| | | Sec 2.10 | 90 | 49 | No.s | 139 |
| | | Sec 2.11 | 32 | 31 | No.s | 63 |
| | | Sec 2.12 | 18 | 10 | No.s | 28 |
| | | Sec 2.13 | 76 | 36 | No.s | 112 |

# Annexure-A

BILL OF QUANTITY

| Bill of quantity | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | South-II | South-I | | | | | | | | Common | West-I | West-II | South-II | | | |
| | | | | ES20MS4014 | | | ES20MS4019 | | | | | | | | | | | | |
| SN | Material | Refer below mentioned sections in Anx-2 for Tech Spec of material | ES21MS4003 | Tughlakabad- 33Kv CRP | Tughlakabad-11KV CRP | Tughlakabad – SCADA | M Road | Sarita Vihar | Alaknanda | EW21MS4003 | EW21MS4006 | LOT-1 Qtys | ES20MS4018 | EW21MS4004 | EW21MS4007 | ES21MS4004 | LOT-2 Qtys | UOM | Total Qty |
| 1 | Numerical Protection Relays / IEDs | Sec 1.2 | 0 | 4 | 0 | 0 | 4 | 1 | 0 | 4 | 4 | **17** | 0 | 14 | 5 | 0 | **19** | No | **36** |
| | | Sec 1.3 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 4 | 2 | **11** | 0 | 8 | 3 | 0 | **11** | No | **22** |
| | | Sec 1.4 | 0 | 0 | 3 | 0 | 0 | 0 | 3 | 4 | 0 | **10** | 46 | 2 | 3 | 0 | **51** | No | **61** |
| | | Sec 1.5 | 30 | 0 | 10 | 0 | 0 | 0 | 10 | 27 | 0 | **77** | 0 | 12 | 20 | 35 | **67** | No | **144** |
| | | Sec 1.6 | 4 | 0 | 1 | 0 | 0 | 0 | 2 | 3 | 0 | **10** | 0 | 2 | 3 | 5 | **10** | No | **20** |
| | | Sec 1.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | No | **0** |
| | | Sec 1.8 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **2** | 0 | 0 | 0 | 0 | **0** | No | **2** |
| | | Sec 1.9 | 4 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | **9** | 0 | 4 | 3 | 2 | **9** | No | **18** |
| | | Sec 1.10 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | **8** | 0 | 4 | 0 | 3 | **7** | No | **15** |
| | **TMU** | Sec 1.11 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | **5** | 0 | 4 | 1 | 0 | **5** | No | **10** |
| | | Sec 1.12 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | **7** | 0 | 4 | 0 | 0 | **4** | No | **11** |
| | **OC EF Arc** | **Sec 1.13** | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **4** | 0 | 0 | 0 | 5 | **5** | No | **9** |
| 2 | **Annunciator** | Sec 3.1 | 0 | 0 | 0 | 0 | 6 | 5 | 0 | 0 | 7 | **18** | 0 | 9 | 10 | 0 | **19** | No | **37** |
| | | Sec 3.2 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | **14** | 0 | 12 | 0 | 0 | **12** | No | **26** |
| 3 | **Flexible Wires** | Sec 7.3 | 200 | 500 | 150 | 0 | 420 | 350 | 150 | 1500 | 500 | **3770** | 1,800 | 2170 | 850 | 300 | **5120** | M | **8890** |
| | | Sec 7.4 | 200 | 500 | 150 | 0 | 420 | 350 | 150 | 1162 | 500 | **3432** | 1,800 | 1910 | 850 | 300 | **4860** | M | **8292** |
| | | Sec 7.5 | 200 | 500 | 150 | 0 | 420 | 350 | 150 | 1162 | 500 | **3432** | 1,800 | 1910 | 850 | 300 | **4860** | M | **8292** |
| | | Sec 7.6 | 200 | 620 | 225 | 0 | 540 | 450 | 225 | 1500 | 600 | **4360** | 1,800 | 2170 | 1,000 | 300 | **5270** | M | **9630** |
| | | Sec 7.7 | 0 | 450 | 300 | 0 | 425 | 375 | 300 | 0 | 500 | **2350** | 0 | 0 | 950 | 0 | **950** | M | **3300** |
| | | Sec 7.8 | 0 | 600 | 450 | 0 | 600 | 500 | 450 | 775 | 700 | **4075** | 0 | 1040 | 1,000 | 0 | **2040** | M | **6115** |
| | | Sec 7.9 | 0 | 600 | 450 | 0 | 600 | 500 | 450 | 775 | 700 | **4075** | 0 | 1040 | 1,000 | 0 | **2040** | M | **6115** |
| | | Sec 7.10 | 0 | 600 | 450 | 0 | 600 | 500 | 450 | 775 | 700 | **4075** | 0 | 1040 | 1,000 | 0 | **2040** | M | **6115** |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sec 7.11 | 0 | 600 | 450 | 0 | 600 | 500 | 450 | 775 | 700 | **4075** | 0 | 1040 | 600 | 0 | **1640** | M | **5715** |
| | | Sec 7.12 | 0 | 300 | 225 | 0 | 300 | 250 | 225 | 1896 | 350 | **3546** | 0 | 530 | 500 | 0 | **1030** | M | **4576** |
| | | Sec 7.13 | 3,500 | 3400 | 2250 | 100 | 3050 | 2540 | 2540 | 17250 | 3,500 | **38130** | 13,000 | 23465 | 7,000 | 4,500 | **47965** | M | **86095** |
| 4 | **Ethernet Switch and accessories** | Sec 16.2.1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | **4** | 0 | 0 | 3 | 0 | **3** | No | **7** |
| | | Sec 16.2.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | 0 | **0** | No | **0** |
| | | Sec 16.3 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | **3** | 0 | 0 | 0 | 0 | **0** | No | **3** |
| 5 | **Control Cable** | Sec 17.1.1 | 0 | 0 | 0 | 50 | 30 | 30 | 50 | 0 | 0 | **160** | 0 | 0 | 0 | 0 | **0** | M | **160** |
| | | Sec 17.1.2 | 400 | 1200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1600** | 0 | 0 | 0 | 600 | **600** | M | **2200** |
| | | Sec 17.1.3 | 0 | 700 | 0 | 0 | 0 | 300 | 0 | 0 | 4000 | **5000** | 0 | 0 | 1000 | 0 | **1000** | M | **6000** |
| | | Sec 17.1.4 | 0 | 1100 | 0 | 0 | 1200 | 0 | 0 | 0 | 0 | **2300** | 0 | 0 | 0 | 0 | **0** | M | **2300** |
| | | Sec 17.1.5 | 0 | 0 | 0 | 500 | 0 | 0 | 100 | 0 | 0 | **600** | 0 | 0 | 0 | 0 | **0** | M | **600** |
| 6 | **MFM** | Sec 22.1 | 36 | 0 | 0 | 0 | 7 | 5 | 0 | 0 | 7 | **55** | 28 | 26 | 10 | 17 | **81** | No | **136** |
| | | Sec 22.2 | 0 | 7 | 15 | 0 | 0 | 0 | 15 | 43 | 0 | **80** | 32 | 14 | 26 | 26 | **98** | No | **178** |
| 2 | **Protection Auxiliary Relays (Electromechanical/static)** | Sec 2.1 | | 0 | 0 | 0 | 8 | 8 | 0 | | 6 | **22** | | 16 | 16 | | **32** | No | **54** |
| | | Sec 2.2 | | 0 | 0 | 0 | 5 | 4 | 0 | | 7 | **16** | | | 9 | 5 | **14** | No | **30** |
| | | Sec 2.3 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | | | **17** | 17 | | | | **17** | No | **34** |
| | | Sec 2.4 | | 15 | 0 | 0 | 0 | 0 | 0 | 16 | | **31** | | 16 | | | **16** | No | **47** |
| | | Sec 2.5 | | 6 | 0 | 0 | 0 | 0 | 0 | 40 | | **46** | | | | 8 | **8** | No | **54** |
| | | Sec 2.6 | | 0 | 15 | 0 | 0 | 0 | 15 | | | **30** | 22 | 36 | 2 | | **60** | No | **90** |
| | | Sec 2.7 | | 0 | 0 | 0 | 10 | 6 | 0 | | 14 | **30** | | 18 | 20 | | **38** | No | **68** |
| | | Sec 2.8 | | 10 | 0 | 0 | 0 | 0 | 0 | 16 | | **26** | | 24 | | 7 | **31** | No | **57** |
| | | Sec 2.9 | 17 | 0 | 0 | 0 | 10 | 10 | 0 | | 14 | **51** | 17 | 33 | 19 | 7 | **76** | No | **127** |
| | | Sec 2.10 | | 12 | 15 | 0 | 0 | 0 | 15 | 48 | | **90** | 24 | 24 | 1 | | **49** | No | **139** |
| | | Sec 2.11 | | 6 | 0 | 0 | 6 | 5 | 0 | 8 | 7 | **32** | | 21 | 10 | | **31** | No | **63** |
| | | Sec 2.12 | | 0 | 0 | 0 | 6 | 5 | 0 | | 7 | **18** | | | 10 | | **10** | No | **28** |
| | | Sec 2.13 | | 6 | 15 | 0 | 0 | 0 | 15 | 40 | | **76** | | 36 | | | **36** | No | **112** |

## SECTION – V:

## TECHNICAL SPECIFICATION (TS)

# Supply of Numerical Relays & accessories for renovation of existing Control and Relay Panels in BRPL, New Delhi, India.

All equipment and material shall conform to the latest IS applicable standards (few stated below) for installation and operation in Grid Substations. Equipment complying with other internationally recognized standards will also be considered if it ensures performance equivalent or superior to Indian standards. One copy of such standard DESCRIPTION in English language shall be enclosed with the tender.
The equipment provided shall also comply with the latest revisions of Indian Electricity act and Indian Electricity rules and any other applicable statutory provisions, rules and regulations.

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

| | | |
|---|---|---|
| **1** | **Protection Relays** | |
| **1.1** | **Protection Relay—General Features**<br>**NOTE: Warranty of Overcurrent and Earthfault relays shall be at least 7years.**<br>**Warranty of for Distance and Differential relays, TMU shall be at least 7years.**<br>**Warranty for all the Relays/ IEDs to be provided by OEM** | |
| **1.1.1** | **Technology and Functionality** | **Numerical , microprocessor based with provision for multifunction protection, control, metering and monitoring, User machine Interface, communication interface, Self diagnosis functionalities, interoperability** |
| **1.1.2** | **Mounting** | **Flush Mounting, IP5X. In case of vents / Perforation on top of relay, necessary Wedge covers with side vents/perforation to be provided as supplementary to prevent ingress from top. and provide IP 54 protection minimum.** |
| **1.1.3** | **Architecture** | **Hardware and software architecture shall be modular and disconnect-able to adapt the protection and control unit to the required level of complexity as per the application. Relay should be Conformal coated, suitable for operation in harsh weather environment.**<br>**Relay should comply to standards: IEC60255, IS 8686, IS 3231, IS 3842**<br><br>**Relay should be Conformal coated and suitable for operation in harsh weather environment and temperature min. 65o C**<br><br>**Relay should be operable with CT secondary of both- 1A and 5A (nominal). Relay should have software based selection for Nominal CT Secondary current (i.e. 1A and 5A)**<br><br>**All Relay contacts should be heavy duty type ; capable of being used for switching the Circuit breaker (Close and Trip commands) and Master 86 (Trip and Reset) without any external interface.**<br><br>**All relay Digital Inputs should be Opto-isolated. Relay should have at-least 03 independent Digital inputs capable of being used for Trip circuit supervision.**<br><br>**All the Output contacts of Relay should have independent terminals.**<br><br>**The relay should not have any component that has been manufactured / assembled in a country that has been prohibited by Government of India** |
| **1.1.4** | **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. The relay should include configurable Logic diagram sheet.**<br><br>**Routine firmware upgrade of relay to be provided annually for atleast 10 years without any cost implication.**<br>**The relay should include configurable Logic diagram sheet.** |
| **1.1.5** | **SCADA Interface media/port** | **Two No.s of Ethernet Copper-RJ45(RSTP Compatible) rear port for interfacing with SCADA/ RTU on IEC61850 with Cybersecurity (with RSTP) protocol**<br><br>**Note: The rear of Ethernet Copper-RJ45 ports should support ring topology with RSTP.** |
| **1.1.6** | **Relay communication PC** | • **Front port (RJ45/USB) for configuration/data downloads using relay setting tool in PC locally.** |

| | | |
|---|---|---|
| | **Interface port** | • **Rear port(RJ45) for configuration/data downloads from remote location using Relay setting tool in PC (with Cybersecurity).**<br>• **Communication interface for data transfer to Relay setting tool and SCADA should be through same Copper port (RJ45) using appropriate protocols (as per IEC 61850).**<br><br>**Note1: Address of IP port for relay setting tool(through remote access) and IEC 61850 communication to SCADA/RTU should be provided to BRPL.**<br>**Note2: Licensed software for communication and communication chord (at least two for each type of relays being supplied for a Substation) shall be supplied as supplementary.**<br>**Note3: In case if Front Port is not USB/RJ45, necessary Media convertor to be provided as supplementary along with relay.**<br><br>**During communication to Relay setting tool, Relay should publish its data only when it is requested by software to prevent Data storming over LAN.** |
| **1.1.7** | **User Machine Interface** | **An alphanumeric key pad and 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.** |
| **1.1.8** | **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.**<br><br>**Relay should support User selectable choice of Protection function characteristics curve ( IDMT, Definite time and instantaneous, Programmable ) and should have at least 02 stages for each Protection function. All relays should have function for SOTF.**<br><br>**Pickup, Time setting value should be settable up to 2 decimal places, TMS setting should be settable upto three decimal places. (order of 0.025 or better)**<br><br>**DMT pickup Setting should be upto 20times or better**<br><br>**Current based Protection pickup : 5% of Nominal current or better**<br>**Minimum operation time for Backup protection: Minimum 50ms or better** |
| **1.1.9** | **Event and Fault records** | • **Relay shall have the facility of recording various parameters during event/fault with option to set the duration of record through settable pre fault and post fault time.**<br>• **Relay should generate Event on change in state of any relay function, module, Access, Control operations, Digital Inputs, Outputs, Communication failure, Password entry, Receiving and Executing Switching commands (CB, Disconnector control), Execution, trigger , blocking of Protection functions etc.**<br>• **Relay shall store records for last 1000 events(minimum), 5 fault records(minimum), 10 Disturbance records(minimum) . It should be possible to download these records locally to PC or to remote SCADA.**<br>• **It should be possible to trigger the Disturbance recorder using user defined Digital channels.**<br>• **It should be possible to trigger fault record from User defined signals.** |

| | | | |
|---|---|---|---|
| | | • Relay should record not less than 10 Waveform Records of not less than 1sec each which can be triggered through user selectable inputs such as Protection start, trip stage signals, BI, BO, Virtual/goose signals and other user defined signals. Waveform record should show user selectable inputs such as all protection start, trip stage signals, BI, BO, Virtual/goose signals, other user defined signals and analog measurement values along with labels. The waveform record should support standard Comtrade file explorer softwares. Waveform recorder configuration should be user friendly. For Differential Protection relay, Waveform recorder of relay should record all differential and Bias current along with standard Current and Voltage channel.<br>• All Virtual Signals(Input, Output), Commands should be user configurable as latched and un-latched.<br>• During Fault, if fault current / nature of fault changes relay should record and report(on IEC61850) maximum fault current values during the fault. | |
| 1.1.10 | General Features of Numerical Relays | Measurement of Event Recording, Disturbance Recording, Fault recording, Harmonic Distortion RMS Current, values & Frequency, Peak and Rolling Current Values, Max. and Average current values, phase and or Neutral Angles, Max. and average voltage, Power and Energy, Apparent Power and Apparent Power and Apparent Energy with Time Synchronization.<br><br>Should have feature of CT supervision and VT Supervision.<br><br>For Remote operation, relay should have feature to select control mode as SBO with enhanced security, Direct with enhanced security (As per user requirement)<br><br>Relay Communication-Healthy" signal should be available for communication to SCADA<br>Relay should have atleast 8 programmable Timer which should be configurable as Off delay / On delay as per user requirement. | |
| 1.1.11 | Note | All events, DRs, fault records shall be stored in Non-Volatile memory with date and time stamp.<br><br>BRPL PO number and Date must be mentioned on front facia of Relay | |
| 1.1.12 | Self diagnosis | Relay shall be able to detect internal failures. A watchdog relay with changeover contact shall provide information about the failure. Also, Relay should have LED indication indicating failure. | |
| 1.1.13 | Time synchronization | All relays shall be capable of being synchronized with the system clock using SCADA interface and GPS clock by SNTP Protocol. | |
| 1.1.14 | Operation Indications | 1) Separate LED Indications for<br>• Relay Power up(Green)<br>• Relay Trip Indication<br>• Relay faulty /Out –of –service Indication and a Watchdog contact<br>2) Apart from above, At least 6 No.s of user programmable LEDs (preferably Red)<br>Note: All the Leds should be resettable using push button on IED | |
| 1.1.15 | Test Facility | Inbuilt | |
| 1.1.16 | Make Acceptable | For Numerical Relays mentioned in sec 1.2, 1.3, | ABB, Alstom, Schneider, Siemens, GE, SEL |

| | | | |
|---|---|---|---|
| | | 1.4, 1.5, 1.6, 1.7,1.8, 1.9, 1.10 | |
| | | For Transformer monitoring Unit mentioned in sec 1.11,1.12 | ABB, Alstom, Schneider, Siemens, A-Eberle, GE, SEL |
| | | | |
| 1.2 | Protection Relay: Three phase Directional Over Current & Earth Fault Relay-Type-1 Typical Application: Backup Protection for Line and Buscoupler feeders (33kV and above) | | |
| 1.2.1 | Aux. Supply | 48-250V dc and 110-250V ac | |
| 1.2.2 | DIs and Dos | • At least 16 Digital Input (48-250Vdc; user configurable global input voltage)<br>• At least 8 Digital Output (5A dc inductive) + 1 Watchdog/Internal relay fail changeover contact | |
| 1.2.3 | Measurement Input | • 3I(1A and 5A)+ 1 Io(1A and 5A)<br>• 3 U (110V)+ 1U (110V for synchronization), | |
| 1.2.4 | Communication Protocol for SCADA Interface | IEC61850-RJ45 RSTP Compliant | |
| 1.2.5 | Protection Feature (50,51,50N,51N, 67, 67N, 25, 27,59,46BC and others) | 1.) Three phase Directional Over Current & Earth Fault Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics,<br>• User configurable Torque or base angle ;<br>• Selection range: 0 to 359° or ±90° in case of selection of Fwd/Rev direction<br>• Derived residual voltage measurement for Dir. E/F protection<br>• Minimum 2 No.s of independent stages for every protection function<br><br>2.) Three phase Non-Directional Over Current & Earth Fault Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>• Minimum 2 No.s of independent stages for every protection function<br><br>3.) Load Blinder for Over current Protection<br><br>4.) Auto recloser<br><br>5.) Synchronization fn<br><br>6.) Voltage Protection – Over and Under Voltage Protection<br><br>7.) Broken Conductor Protection | |
| 1.2.6 | Other Essential Feature | • VT Fuse fail monitoring module with blocking & indication feature,<br>• CT Supervision module<br>• CB Control, CB status monitoring module,<br>• Trip Circuit supervision(using one as well as two DI) module<br>• CBFP<br>• Digital Inputs and Outputs should be user configurable with the help of OEM software<br>• Relay should have user configurable logic sheet for interlocks/logics. | |
| 1.2.7 | Additional desired feature | • Disconnector Switch status monitoring.<br>• Fault locator | |
| 1.2.8 | Essential data on 61850 protocol | • Availability of measurements, fault current values of each phase, neut | |

| | | |
|---|---|---|
| | | • Operational status of protection stage,<br>• Status of DIs, Logical Inputs, Virtual Inputs, Logical outputs, Virtual outputs and control of DOs.<br>• CB control module with Provision of DPI, DCO.<br>• Single point command operations through Virtual signals<br>• CB & Disconnector switch status monitoring module<br>• Relay communication status<br>• GOOSE Communication |
| 1.2.9 | Note | • Order includes supply of resistor for Trip circuit supervision and configuration of relay as per BRPL requirement.<br>• Technical support to be provided protocol in all respect for at least two relays of this category for Integration of Relay to RTU on IEC 61850 protocol. |
| | | |
| 1.3 | Protection Relay: Three phase Directional Over Current & Earth Fault Relay- Type-2<br>Typical Application : Transformer Backup Protection | |
| 1.3.1 | Aux. Supply | 48-250V dc and 110-250V ac |
| 1.3.2 | DIs and Dos | • At least 16 Digital Input (48-250Vdc; user configurable global input voltage)<br>• At least 8 Digital Output (5A dc inductive) + 1 Watchdog/Internal relay fail changeover contact |
| 1.3.3 | Measurement Input | • 3I(1A and 5A)+ 2 Io(1A and 5A)<br>• 3 U (110V) + 1U0(110V) |
| 1.3.4 | Communication Protocol for SCADA Interface | • IEC61850-RJ45 RSTP Compliant |
| 1.3.5 | Protection Feature (50,51,50N,51N,67, 67N, 46BC, SBEF and others) | 1.) Three phase Directional Over Current & Earth Fault Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>• User configurable Torque or base angle ;<br>• Selection range: 0 to 359$^{o}$ or $\pm$90$^{o}$ in case of selection of Fwd/Rev direction<br>• Derived residual voltage measurement for Dir. E/F protection<br>• Minimum 2 No.s of independent stages for every protection function<br><br>2.) Three phase Non-Directional Over Current & Earth Fault Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>• Minimum 2 No.s of independent stages for every protection function<br><br>3.) Stand-by Earth fault Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>• Minimum 2 No.s of independent stages for every protection function<br><br>4.) Broken Conductor Protection |
| 1.3.6 | Other Essential Feature | • VT Fuse fail monitoring module with blocking & indication feature,<br>• CT Supervision module<br>• CB Control, CB status monitoring module,<br>• Trip Circuit supervision(using one as well as two DI) module<br>• CBFP |

| | | |
|---|---|---|
| | | • Digital Inputs and Outputs should be user configurable with the help of OEM software<br>• Relay should have user configurable logic sheet for interlocks/logics. |
| 1.3.7 | Additional desired feature | • Disconnector Switch status monitoring. |
| 1.3.8 | Essential data on 61850 protocol | • Availability of measurements, fault current values of each phase, neutral-1,2<br>• Operational status of protection stage,<br>• Status of DIs, Logical Inputs, Virtual Inputs, Logical outputs, Virtual outputs and control of DOs.<br>• CB control module with Provision of DPI, DCO.<br>• Single point command operations through Virtual signals<br>• CB & Disconnector switch status monitoring module<br>• Relay communication status<br>• GOOSE Communication |
| 1.3.9 | Note | • Order includes supply of resistor for Trip circuit supervision and configuration of relay as per BRPL requirement.<br>• Technical support to be provided protocol in all respect for at least two relays of this category for Integration of Relay to RTU on IEC 61850 protocol. |
| | | |
| 1.4 | Protection Relay: Three phase Directional Over Current & Earth Fault Relay- Type-3<br>Typical Application : 11KV Incomer and 11KV Buscoupler feeder | |
| 1.4.1 | Aux. Supply | 48-250V dc and 110-250V ac |
| 1.4.2 | DIs and Dos | • At least 16 Digital Input (48-250Vdc; user configurable global input voltage)<br>• At least 8 Digital Output (5A dc inductive) + 1 Watchdog/Internal relay fail changeover contact |
| 1.4.3 | Measurement Input | • 3I(1A and 5A)+ 1 Io(1A and 5A)<br>• 3 U (110V)+ 1U (110V for synchronization), |
| 1.4.4 | Communication Protocol for SCADA Interface | IEC61850-RJ45 RSTP Compliant |
| 1.4.5 | Protection Feature (50,51,50N,51N, 67, 67N, 25, 27,59 and others) | 1.) Three phase Directional Over Current & Earth Fault Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics,<br>• User configurable Torque or base angle ;<br>• Selection range: 0 to 359$^{o}$ or $\pm$90$^{o}$ in case of selection of Fwd/Rev direction<br>• Derived residual voltage measurement for Dir. E/F protection<br>• Minimum 2 No.s of independent stages for every protection function<br><br>2.) Three phase Non-Directional Over Current & Earth Fault Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>• Minimum 2 No.s of independent stages for every protection function<br><br>3.) Synchronization fn<br><br>4.) Voltage Protection – Over and Under Voltage Protection<br><br>5.) Broken Conductor Protection |

| | | |
|---|---|---|
| 1.4.6 | Other Essential Feature | • VT Fuse fail monitoring module with blocking & indication feature,<br>• CT Supervision module<br>• CB Control, CB status monitoring module,<br>• Trip Circuit supervision(using one as well as two DI) module<br>• CBFP<br>• Digital Inputs and Outputs should be user configurable with the help of OEM software<br>• Relay should have user configurable logic sheet for interlocks/logics.<br>• Relay should have minimum 20 Nos timer block with single connectivity and if timer block with multiple connectivity is offered then it should offer 20 connectivity. |
| 1.4.7 | Additional desired feature | • Disconnector Switch status monitoring.<br>• Fault locator |
| 1.4.8 | Essential data on 61850 protocol | • Availability of measurements, fault current values of each phase, neut<br>• Operational status of protection stage,<br>• Status of DIs, Logical Inputs, Virtual Inputs, Logical outputs, Virtual outputs and control of DOs.<br>• CB control module with Provision of DPI, DCO.<br>• Single point command operations through Virtual signals<br>• CB & Disconnector switch status monitoring module<br>• Relay communication status<br>• GOOSE Communication |
| 1.4.9 | Note | • Order includes supply of resistor for Trip circuit supervision and configuration of relay as per BRPL requirement.<br>• Technical support to be provided protocol in all respect for at least two relays of this category for Integration of Relay to RTU on IEC 61850 protocol. |
| | | |
| 1.5 | Protection Relay: Three phase Non Directional Over Current & Earth Fault Relay- Type-1<br>Typical Application: 11Kv Outgoin Feeder | |
| 1.5.1 | Aux. Supply | 48-250V dc and 110-250V ac |
| 1.5.2 | DIs and DOs | • At least 12 Digital Input (48-250Vdc; user configurable global input voltage)<br>• At least 8 Digital Output(5A dc inductive) + 1 Watchdog/Internal fail changeover contact |
| 1.5.3 | Measurement Input | • 3I(1A and 5A)+ 1 Io(1A and 5A) |
| 1.5.4 | Communication Protocol for SCADA Interface | • IEC61850-RJ45 RSTP Compliant |
| 1.5.5 | Protection Feature | 1.) Three phase Non-Directional Over Current & Earth Fault Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>• Minimum 3 No.s of independent stages for every protection function<br>2.) Auto Reclose<br>3.) Broken Conductor Protection |
| 1.5.6 | Other Essential Feature | • CT Supervision module<br>• CB Control, CB status monitoring module,<br>• Trip Circuit supervision(using one as well as two DI) module<br>• CBFP<br>• Digital Inputs and Outputs should be user configurable with the help of OEM software |

| | | |
|---|---|---|
| | | • Relay should have user configurable logic sheet for interlocks/logics. |
| 1.5.7 | Additional desired feature | • Disconnector Switch status monitoring. |
| 1.5.8 | Essential data on 61850 protocol | • Availability of measurements, fault current values of each phase, neut<br>• Operational status of protection stage,<br>• Status of DIs, Logical Inputs, Virtual Inputs, Logical outputs, Virtual outputs and control of DOs.<br>• CB control module with Provision of DPI, DCO.<br>• Single point command operations through Virtual signals<br>• CB & Disconnector switch status monitoring module<br>• Relay communication status<br>• GOOSE Communication |
| 1.5.9 | Note | • Order includes supply of resistor for Trip circuit supervision and configuration of relay as per BRPL requirement.<br>• Technical support to be provided protocol in all respect for at least two relays of this category for Integration of Relay to RTU on IEC 61850 protocol. |
| | | |
| | | |
| 1.6 | Protection Relay: Three phase Capacitor Bank Protection | |
| 1.6.1 | Aux. Supply | 48-250V dc and 110-250V ac |
| 1.6.2 | DIs and DOs | • At least 12 Digital Input (48-250Vdc; user configurable global input voltage)<br>• At least 8 Digital Output (5A dc inductive) + 1 Watchdog/Internal fail changeover contact |
| 1.6.3 | Measurement Input | • 3I(1A and 5A)+ 1 Io(1A and 5A) +1 I0(1A/5A) (Neutral CT of Twin star Cap Bank)<br>• 3 U (110V) |
| 1.6.4 | Communication Protocol for SCADA Interface | • IEC61850-RJ45 RSTP Compliant |
| 1.6.5 | Protection Feature | 1.) Three phase Non-Directional Over Current & Earth Fault Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>• Minimum 2 No.s of independent stages for every protection function<br>2.) Under and Over-Voltage Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>3.) Negative phase sequence protection, phase discontinuity protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>4. ) Neutral Displacement Protection for Twin-star Cap Bank (Sensitive Earth fault)<br>5.) Residual Over voltage Protection |
| 1.6.6 | Other Essential Feature | • On delay Close permissive Timer<br>• VT Fuse fail monitoring module with blocking & indication feature,<br>• CT Supervision module<br>• CB Control, CB status monitoring module,<br>• Trip Circuit supervision(using one as well as two DI) module<br>• CBFP<br>• Digital Inputs and Outputs should be user configurable with the |

| | | |
|---|---|---|
| | | help of OEM software<br>• Relay should have user configurable logic sheet for interlocks/logics. |
| 1.6.7 | Additional desired feature | • Disconnector Switch status monitoring. |
| 1.6.8 | Essential data on 61850 protocol | • Availability of measurements, fault current values of each phase, neut<br>• Operational status of protection stage,<br>• Status of DIs, Logical Inputs, Virtual Inputs, Logical outputs, Virtual outputs and control of DOs.<br>• CB control module with Provision of DPI, DCO.<br>• Single point command operations through Virtual signals<br>• CB & Disconnector switch status monitoring module<br>• Relay communication status<br>• GOOSE Communication |
| 1.6.9 | Note | • Order includes supply of resistor for Trip circuit supervision and configuration of relay as per BRPL requirement.<br>• Technical support to be provided protocol in all respect for at least two relays of this category for Integration of Relay to RTU on IEC 61850 protocol. |
| | | |
| | | |
| 1.7 | Protection Relay: Line Differential and Distance Protection Type-1 | |
| 1.7.1 | Aux. Supply | 110-250V dc and 110-250V ac |
| 1.7.2 | DIs and DOs | • At least 16 Digital Input (110-250Vdc; user configurable global input voltage)<br>• At least 12 Digital Output (5A dc inductive) + 1 Watchdog/Internal fail changeover contact |
| 1.7.3 | Measurement Input | • 3I(1A and 5A)+ 1 Io(1A and 5A)<br>• 3 U (110V) +1U (110V) Sync fn |
| 1.7.4 | Communication Protocol for SCADA Interface | • IEC61850-RJ45 RSTP Compliant |
| 1.7.5 | Protection Feature | 1.) Differential Protection<br>• Low impedance Biased Line Differential Protection of Two and Three End(T) Line feeder using Dual redundant FO Communication channel.<br>• Line charging current compensation<br>• FO port to be confirmed from bidder as per site requirement<br>2.) Line Distance Protection<br>• Quadrilateral characteristics for distance protection<br>• At least 3 Zones<br>• Minimum permissible line length setting: 2 Km<br>• Minimum permissible Resistance setting( equivalent primary values) :0.04 ohm/Km/phase<br>• Minimum permissible Reactance setting(equivalent primary values) :0.04 ohm/Km/phase<br>3.) Three phase Directional Over Current & Earth Fault Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>• Minimum 2 No.s of independent stages for every protection function<br>4.) Three phase Non-Directional Over Current & Earth Fault Protection |

| | | |
|---|---|---|
| | | • User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>• Minimum 2 No.s of independent stages for every protection function<br><br>5.) Synchronization<br><br>6.) Auto-Reclose<br><br>7.) Broken Conductor Protection |
| 1.7.6 | Other Essential Feature | • Fault locator<br>• VT Fuse fail monitoring module with blocking & indication feature<br>• CT Supervision module<br>• CB Control, CB status monitoring module,<br>• CBFP<br>• Digital Inputs and Outputs should be user configurable with the help of OEM software<br>• Relay should have user configurable logic sheet for interlocks/logics.<br>• Inter relay communication for Transfer of Binary and Analog signals |
| 1.7.7 | Additional desired feature | • Disconnector Switch status monitoring.<br>• Trip circuit supervision(TCS) |
| 1.7.8 | Essential data on 61850 protocol | • Availability of measurands, fault current values (Phase, Neut, Differential, Bias), fault distance values for each phase<br>• Operational status of protection stage,<br>• Status of DIs and control of DOs.<br>• CB control module with Provision of DPI, DCO.<br>• Single point command operations through Virtual signals<br>• CB & Disconnector switch status monitoring module<br>• Relay communication status<br>• GOOSE Communication |
| 1.7.9 | Note | • Order includes supply of resistor for Trip circuit supervision and configuration of relay as per BRPL requirement.<br>• Technical support to be provided protocol in all respect for at least two relays of this category for Integration of Relay to RTU on IEC 61850 protocol. |
| | | |
| 1.8 | Protection Relay: Line Differential and Distance Protection Type-2 | |
| 1.8.1 | Aux. Supply | 24-60V DC |
| 1.8.2 | DIs and DOs | • At least 16 Digital Input (24-60Vdc; user configurable global input voltage)<br>• At least 12 Digital Output (5A dc inductive) + 1 Watchdog/Internal fail changeover contact |
| 1.8.3 | Measurement Input | • 3I(1A and 5A)+ 1 Io(1A and 5A)<br>• 3 U (110V) +1U (110V) Sync fn |
| 1.8.4 | Communication Protocol for SCADA Interface | • IEC61850-RJ45 RSTP Compliant |
| 1.8.5 | Protection Feature | 1.) Differential Protection<br>• Low impedance Biased Line Differential Protection of Two and Three End(T) Line feeder using Dual redundant FO Communication channel.<br>• Line charging current compensation<br>• FO port to be confirmed from bidder as per site requirement<br>2.) Line Distance Protection |

| | | |
|---|---|---|
| | | • Quadrilateral characteristics for distance protection<br>• At least 3 Zones<br>• Minimum permissible line length setting: 2 Km<br>• Minimum permissible Resistance setting( equivalent primary values) :0.04 ohm/Km/phase<br>• Minimum permissible Reactance setting(equivalent primary values) :0.04 ohm/Km/phase<br><br>3.) Three phase Directional Over Current & Earth Fault Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>• Minimum 2 No.s of independent stages for every protection function<br><br>4.) Three phase Non-Directional Over Current & Earth Fault Protection<br>• User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics<br>• Minimum 2 No.s of independent stages for every protection function<br><br>5.) Synchronization<br><br>6.) Auto-Reclose<br><br>7.) Broken Conductor Protection |
| 1.8.6 | Other Essential Feature | • Fault locator<br>• VT Fuse fail monitoring module with blocking & indication feature<br>• CT Supervision module<br>• CB Control, CB status monitoring module,<br>• CBFP<br>• Digital Inputs and Outputs should be user configurable with the help of OEM software<br>• Relay should have user configurable logic sheet for interlocks/logics.<br>• Inter relay communication for Transfer of Binary and Analog signals |
| 1.8.7 | Additional desired feature | • Disconnector Switch status monitoring.<br>• Trip circuit supervision(TCS) |
| 1.8.8 | Essential data on 61850 protocol | • Availability of measurands, fault current values (Phase, Neut, Differential, Bias), fault distance values for each phase<br>• Operational status of protection stage,<br>• Status of DIs and control of DOs.<br>• CB control module with Provision of DPI, DCO.<br>• Single point command operations through Virtual signals<br>• CB & Disconnector switch status monitoring module<br>• Relay communication status<br>• GOOSE Communication |
| 1.8.9 | Note | • Order includes supply of resistor for Trip circuit supervision and configuration of relay as per BRPL requirement.<br>• Technical support to be provided protocol in all respect for at least two relays of this category for Integration of Relay to RTU on IEC 61850 protocol. |
| | | |
| | | |
| 1.9 | Protection Relay: Transformer Differential Protection Type-1 | |

| | | |
|---|---|---|
| 1.9.1 | Aux. Supply | 110-250V dc and 110-250V ac |
| 1.9.2 | DIs and DOs | • At least 12 Digital Input (110-250Vdc; user configurable global input voltage)<br>• At least 12 Digital Output (5A dc inductive) + 1 Watchdog/Internal fail changeover contact |
| 1.9.3 | Measurement Input | • 6I(1A and 5A)+ 2 Io(1A and 5A) |
| 1.9.4 | Communication Protocol for SCADA Interface | • IEC61850-RJ45 RSTP Compliant |
| 1.9.5 | Protection Feature | 1.) Three phase Two winding, auto transformer stabilized Differential protection with software based ratio and vector group correction without any external ICT<br>2.) User configurable Low and High Impedance REF Protection for LV and HV winding<br>3.) Backup O/C and Earth fault Protection. |
| 1.9.6 | Other Essential Feature | • CT supervision module<br>• CBFP<br>• Digital Inputs and Outputs should be user configurable with the help of OEM software<br>• Relay should have user configurable logic sheet for interlocks/logics.<br>• Nth harmonic restraint<br>• CT Saturation detection<br>• Cross blocking |
| 1.9.7 | Additional desired feature | • Disconnector Switch status monitoring.<br>• Trip circuit supervision(TCS)<br>• CB Control, CB status monitoring module, |
| 1.9.8 | Essential data on 61850 protocol | • Availability of measurands, fault current values of HV & LV, REF, differential, Bias currents at instance of fault.<br>• Operational status of protection stage,<br>• Status of DIs, Logical Inputs, Virtual Inputs, Logical outputs, Virtual outputs and control of DOs.<br>• CB control module with Provision of DPI, DCO.<br>• Single point command operations through Virtual signals<br>• CB & Disconnector switch status monitoring module<br>• Relay communication status<br>• GOOSE Communication |
| 1.9.9 | Note | • Order includes supply of resistor for Trip circuit supervision and configuration of relay as per BRPL requirement.<br>• Technical support to be provided protocol in all respect for at least two relays of this category for Integration of Relay to RTU on IEC 61850 protocol. |
| 1.10 | Protection Relay: Transformer Differential Protection Type-2 | |
| 1.10.1 | Aux. Supply | 24-60V dc |
| 1.10.2 | DIs and DOs | • At least 12 Digital Input (24-60Vdc; user configurable global input voltage)<br>• At least 12 Digital Output (5A dc inductive) + 1 Watchdog/Internal fail changeover contact |
| 1.10.3 | Measurement Input | • 6I(1A and 5A)+ 2 Io(1A and 5A) |
| 1.10.4 | Communication Protocol for SCADA Interface | • IEC61850-RJ45 RSTP Compliant |
| 1.10.5 | Protection Feature | 1.) Three phase Two winding, auto transformer stabilized Differential protection with software based ratio and vector group correction without external ICT |

| | | |
|---|---|---|
| | | 2.) User configurable Low and High Impedance REF Protection for LV and HV winding<br>3.) Backup O/C and Earth fault Protection. |
| 1.10.6 | Other Essential Feature | • CT supervision module<br>• CBFP<br>• Digital Inputs and Outputs should be user configurable with the help of OEM software<br>• Relay should have user configurable logic sheet for interlocks/logics.<br>• Nth harmonic restraint<br>• CT Saturation detection<br>• Cross blocking |
| 1.10.7 | Additional desired feature | • Disconnector Switch status monitoring.<br>• Trip circuit supervision(TCS)<br>• CB Control, CB status monitoring module, |
| 1.10.8 | Essential data on 61850 protocol | • Availability of measurands, fault current values of HV & LV, REF, differential, Bias currents at instance of fault.<br>• Operational status of protection stage,<br>• Status of DIs, Logical Inputs, Virtual Inputs, Logical outputs, Virtual outputs and control of DOs.<br>• CB control module with Provision of DPI, DCO.<br>• Single point command operations through Virtual signals<br>• CB & Disconnector switch status monitoring module<br>• Relay communication status<br>• GOOSE Communication |
| 1.10.9 | Note | • Order includes supply of resistor for Trip circuit supervision and configuration of relay as per BRPL requirement.<br>• Technical support to be provided protocol in all respect for at least two relays of this category for Integration of Relay to RTU on IEC 61850 protocol. |
| | | |
| 1.11 | Protection Relay: Transformer Monitoring Unit with AVR Type-1 | |
| 1.11.1 | Aux. Supply | 110-250V dc and 110-250V ac |
| 1.11.2 | DIs and DOs | • At least 18 Digital Input (110-250Vdc; user configurable global input voltage)<br>• At least 8 Digital Output (5A dc inductive) + 1 Watchdog/Internal fail changeover contact |
| 1.11.3 | Measurement Input | • At least 3U(110V ac)<br>• At least 1I (1A and 5A)<br>• 3 Analogue channels[3 with 4-20mA input for Transformer OTI, WTI, TPI measurement] |
| 1.11.4 | Communication Protocol for SCADA Interface | • IEC61850-RJ45 |
| 1.11.5 | Essential Feature | • On load tap changer control as per IEC and IS Standards for OLTC Control for Stand-alone as well as Parallel Operation of Power Transformer<br>▪ Unit should have internal blocking for U/V stage<br>▪ Unit should be able to block operation with user defined logic (programmed within unit)<br>• Digital Inputs and Outputs should be user configurable with the help of OEM software<br>• Unit should have user configurable logic sheet for interlocks/logics.<br>• Unit should have data logging feature for voltage profile, no. of operations for at least last 31 days |

| | | |
|---|---|---|
| 1.11.6 | Essential data on 61850 protocol | • Availability of measurands,<br>• Operational status and control of AVR stage(tap raise/lower command, Blocking, Auto, Manual selection),<br>• Status of DIs, Logical Inputs, Virtual Inputs, Logical outputs, Virtual outputs and control of Dos, Analog inputs (TPI, OTI, WTI, I,V). |
| 1.11.7 | Note | • Order includes configuration of IED as per BRPL requirement.<br>• Technical support to be provided protocol in all respect for at least two relays of this category for Integration of Relay to RTU on IEC 61850 protocol. |
| | | |
| 1.12 | Protection Relay: Transformer Monitoring Unit with AVR Type-2 | |
| 1.12.1 | Aux. Supply | 24-60v |
| 1.12.2 | DIs and DOs | • At least 18 Digital Input (24-60Vdc; user configurable global input voltage)<br>• At least 8 Digital Output (5A dc inductive) + 1 Watchdog/Internal fail changeover contact |
| 1.12.3 | Measurement Input | • At least 3U(110V ac)<br>• At least 1I (1A and 5A)<br>• 3 Analogue channels[3 with 4-20mA input for Transformer OTI, WTI, TPI measurement] |
| 1.12.4 | Communication Protocol for SCADA Interface | • IEC61850-RJ45 RSTP Compliant |
| 1.12.5 | Essential Feature | • On load tap changer control as per IEC and IS Standards for OLTC Control for Stand-alone as well as Parallel Operation of Power Transformer<br>▪ Unit should have internal blocking for U/V stage<br>▪ Unit should be able to block operation with user defined logic (programmed within unit)<br>• Digital Inputs and Outputs should be user configurable with the help of OEM software<br>• Unit should have user configurable logic sheet for interlocks/logics.<br>• Unit should have data logging feature for voltage profile, no. of operations for at least last 31 days |
| 1.12.6 | Essential data on 61850 protocol | • Availability of measurands,<br>• Operational status and control of AVR stage(tap raise/lower command, Blocking, Auto, Manual selection),<br>• Status of DIs, Logical Inputs, Virtual Inputs, Logical outputs, Virtual outputs and control of Dos, (TPI, OTI, WTI, I,V). |
| 1.12.7 | Note | • Order includes configuration of IED as per BRPL requirement.<br>• Technical support to be provided protocol in all respect for at least two relays of this category for Integration of Relay to RTU on IEC 61850 protocol. |
| | | |
| 1.13 | Protection Relay: Three phase Directional Over Current & Earth Fault Relay- Type-4<br>Typical Application : 11KV Incomer and 11KV Buscoupler feeder | |
| 1.13.1 | Aux. Supply | 48-250V dc and 110-250V ac |
| 1.13.2 | DIs and Dos | • At least 16 Digital Input (48-250Vdc; user configurable global input voltage)<br>• At least 8 Digital Output (5A dc inductive) + 1 Watchdog/Internal relay fail changeover contact |
| 1.13.3 | Measurement Input | • 3I(1A and 5A)+ 1 Io(1A and 5A)<br>• 3 U (110V)+ 1U (110V for synchronization), |
| 1.13.4 | Communication | IEC61850-RJ45 RSTP Compliant |

| | | |
|---|---|---|
| | **Protocol for SCADA Interface** | |
| **1.13.5** | **Protection Feature (50,51,50N,51N, 67, 67N, 25, 27,59, Internal Arc* and others)** | **1.) Three phase Directional Over Current & Earth Fault Protection**<br>• **User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics,**<br>• **User configurable Torque or base angle ;**<br>  • **Selection range: 0 to 359° or ±90° in case of selection of Fwd/Rev direction**<br>• **Derived residual voltage measurement for Dir. E/F protection**<br>• **Minimum 2 No.s of independent stages for every protection function**<br><br>**2.) Three phase Non-Directional Over Current & Earth Fault Protection**<br>• **User configurable IDMT, Definite time and instantaneous, Programmable curve characteristics**<br>• **Minimum 2 No.s of independent stages for every protection function**<br><br>**3.) Synchronization fn**<br><br>**4.) Voltage Protection – Over and Under Voltage Protection**<br><br>**5.) Broken Conductor Protection**<br><br>**6.) Internal Arc protection shall be provided for Relays specifically asked for. Bidder to submit detailed write up covering features provided . Bidder to submit documentary evidence of schemes in successful operation as on date.** |
| | | **All accessories for Arc detection in Cable chamber, busbar chamber and breaker chamber shall be provided with each relay** |
| **1.13.6** | **Other Essential Feature** | • **VT Fuse fail monitoring module with blocking & indication feature,**<br>• **CT Supervision module**<br>• **CB Control, CB status monitoring module,**<br>• **Trip Circuit supervision(using one as well as two DI) module**<br>• **CBFP**<br>• **Digital Inputs and Outputs should be user configurable with the help of OEM software**<br>• **Relay should have user configurable logic sheet for interlocks/logics.**<br>• **Relay should have minimum 20 Nos timer block with single connectivity and if timer block with multiple connectivity is offered then it should offer 20 connectivity.** |
| **1.13.7** | **Additional desired feature** | • **Disconnector Switch status monitoring.**<br>• **Fault locator** |
| **1.13.8** | **Essential data on 61850 protocol** | • **Availability of measurements, fault current values of each phase, neut**<br>• **Operational status of protection stage,**<br>• **Status of DIs, Logical Inputs, Virtual Inputs, Logical outputs, Virtual outputs and control of DOs.**<br>• **CB control module with Provision of DPI, DCO.**<br>• **Single point command operations through Virtual signals**<br>• **CB & Disconnector switch status monitoring module**<br>• **Relay communication status**<br>• **GOOSE Communication** |

| | | |
|---|---|---|
| 1.13.9 | Note | • Order includes supply of resistor for Trip circuit supervision and configuration of relay as per BRPL requirement.<br>• Technical support to be provided protocol in all respect for at least two relays of this category for Integration of Relay to RTU on IEC 61850 protocol. |
| | | |

| | | |
|---|---|---|
| 3 | Annunciator | |
| 3.1 | Type -1 | Static type along with alarm. Annunciations shall be repetitive type and shall be capable of registering the fleeting signal. Facia test facility should also be provided |
| 3.1.1 | Mounting | Flush mounted |
| 3.1.2 | Facia | Facia Minimum 24 Nos. Facia along with appropriate labels on each facia.in each panel |
| 3.1.3 | Auxiliary Supply Voltage | 220V dc ±10% and 240Vac (Redundant) |
| 3.1.4 | Input Contact Rating | 23 Inputs suitable for 240V dc and 1 Input suitable for 240V ac(For DC Fail Signal) |
| 3.1.5 | Push Buttons | Push buttons for test, accept and reset to be provided |
| 3.1.6 | Sequence of Operation | Sequence of operation of the annunciation shall be as follows: |

| S No | Alarm Condition | Fault Contact | Visual Annunciation | Audible Annunciation |
|---|---|---|---|---|
| 1. | Normal | Open | Off | Off |
| 2. | Abnormal | Close | Flashing | On |
| 3. | Accept | Close | Steady on | Off |
| 4. | Return to normal | Open | Steady On | Off |
| 5. | Reset | Open | Off | Off |
| 6. | Reset before return to normal | Close | Flashing | On |

| | | |
|---|---|---|
| 3.1.13 | NOTE | Order includes marking of appropriate label as per BSES Requirement |
| 3.1.8 | Communication | Should be communicable on MODBUS protocol |
| 3.1.9 | Make Acceptable | ALAN, MINILEC, AVANA |
| | | |
| 3.2 | Type -2 | Static type along with alarm. Annunciations shall be repetitive type and shall be capable of registering the fleeting signal. Facia test facility should also be provided |
| 3.2.1 | Mounting | Flush mounted |
| 3.2.2 | Facia | Facia Minimum 24 Nos. Facia along with appropriate labels on each facia.in each panel |
| 3.2.3 | Auxiliary Supply Voltage | 48V dc ±10% and 240Vac (Redundant) |
| 3.2.4 | Input Contact Rating | 23 Inputs suitable for 240V dc and 1 Input suitable for 240V ac(For DC Fail Signal) |
| 3.2.5 | Push Buttons | Push buttons for test, accept and reset to be provided |
| 3.2.6 | Sequence of | Sequence of operation of the annunciation shall be as follows: |

<table>
<tr><td></td><td>Operation</td><td>
<table>
<tr><th>S No</th><th>Alarm Condition</th><th>Fault Contact</th><th>Visual Annunciation</th><th>Audible Annunciation</th></tr>
<tr><td>1.</td><td>Normal</td><td>Open</td><td>Off</td><td>Off</td></tr>
<tr><td>2.</td><td>Abnormal</td><td>Close</td><td>Flashing</td><td>On</td></tr>
<tr><td>3.</td><td>Accept</td><td>Close</td><td>Steady on</td><td>Off</td></tr>
<tr><td>4.</td><td>Return to normal</td><td>Open</td><td>Steady On</td><td>Off</td></tr>
<tr><td>5.</td><td>Reset</td><td>Open</td><td>Off</td><td>Off</td></tr>
<tr><td>6.</td><td>Reset before return to normal</td><td>Close</td><td>Flashing</td><td>On</td></tr>
</table>
</td></tr>
<tr><td>3.2.13</td><td>NOTE</td><td>Order includes marking of appropriate label as per BSES Requirement</td></tr>
<tr><td>3.2.10</td><td>Communication</td><td>Should be communicable on MODBUS protocol</td></tr>
<tr><td>3.2.9</td><td>Make Acceptable</td><td>ALAN, MINILEC, AVANA</td></tr>
</table>

| 7 | Flexible Wires | |
|---|---|---|
| 7.1 | General Description | Internal wiring 1100V grade, single core, stranded copper conductor wires With PVC insulation , FRLS |
| 7.2 | Make Acceptable for material mention b/w 7.3-7.13 | KEI, Polycab, Finolex |
| 7.3 | Type-1 | Colour-RED; WIRE,ELEC,FLEX;1.1KV;CU;PVC;2.5mm$^2$ |
| 7.4 | Type-2 | Colour-YELLOW; WIRE,ELEC,FLEX;1.1KV;CU;PVC;2.5mm$^2$ |
| 7.5 | Type-3 | Colour-BLUE; WIRE,ELEC,FLEX;1.1KV;CU;PVC;2.5mm$^2$ |
| 7.6 | Type-4 | Colour-BLACK; WIRE,ELEC,FLEX;1.1KV;CU;PVC;2.5mm$^2$ |
| 7.7 | Type-5 | Colour-GREY; WIRE,ELEC,FLEX;1.1KV;CU;PVC;2.5mm$^2$ |
| 7.8 | Type-6 | Colour-RED; WIRE,ELEC,FLEX;1.1KV;CU;PVC; 4mm$^2$ |
| 7.9 | Type-13 | Colour-YELLOW; WIRE,ELEC,FLEX;1.1KV;CU;PVC; 4mm$^2$ |
| 7.10 | Type-8 | Colour-BLUE; WIRE,ELEC,FLEX;1.1KV;CU;PVC; 4mm$^2$ |
| 7.11 | Type-9 | Colour-BLACK; WIRE,ELEC,FLEX;1.1KV;CU;PVC; 4mm$^2$ |
| 7.12 | Type-10 | Colour-GREEN; WIRE,ELEC,FLEX;1.1KV;CU;PVC; 4mm$^2$ |
| 7.13 | Type-11 | Colour-GREY; WIRE,ELEC,FLEX;1.1KV;CU;PVC;1.5mm$^2$ |

| 16 | Ethernet Switch | |
|---|---|---|
| 16.1.1 | General Description | SPECS provided later. |
| 16.1.2 | Make Acceptable | |
| 16.2.1 | Type-1 | 24 Port Switch with wall mount cabinet |
| 16.2.2 | Type-2 | xx Port Switch with wall mount cabinet |
| 16.3 | Rack for ETH Panel | Reck DESCRIPTIONs for ETH Panel |

| 17 | Control Cable | |
|---|---|---|
| 17.1 | General Description | Multi-core, multi strained copper cable, ARMOURED FRLS 1.1KV HRPVC; Armoured |
| 17.1.1 | Type-1 | 02 core, 2.5sqmm |
| 17.1.2 | Type-2 | 06 core, 2.5sqmm |
| 17.1.3 | Type-3 | 10 core, 2.5sqmm |
| 17.1.4 | Type-4 | 12 core, 2.5sqmm |
| 17.1.5 | Type-5 | 16 core, 1.5sqmm |

| 22 | MFM | |
|---|---|---|
| 22.1 | General Description | Given Later |
| 22.1.1 | Acceptable Make: | |
| 22.2 | General Description | |
| 22.2.2 | Acceptable Make: | |

| 2 | Auxiliary Relays | |
|---|---|---|
| 2.1 | Type -1 | Static or electromechanical for Transformer Tank protection application |
| 2.1.1 | Coil rating | 220VDC; Range: (70% to 120%) |
| 2.1.2 | No. of coils | 3 coils(elements) |
| 2.1.3 | Output Contacts | Atleast 3 No. of medium duty output contact per coil(element), suitable for tripping of Circuit breaker. |

| | | |
|---|---|---|
| 2.1.4 | Reset Characteristic | Hand reset contacts |
| 2.1.5 | Operation Indicators | Hand reset operation indicators or LEDs with pushbutton/flag for resetting |
| 2.1.6 | Make Acceptable | ABB, Alstom, Schneider, Siemens, ER, GE, AVANA |
| | | |
| 2.2 | Type-2 | Lockout relay Type-1 |
| 2.2.1 | Coil rating | 220VDC ; Range: (70% to 120%) |
| 2.2.2 | Output Contacts | At least 8NO +2NC with current carrying capacity not less than 5A at rated voltage, ), suitable for tripping of Circuit breaker. |
| 2.2.3 | Reset Characteristic | Electrical reset, Hand reset contacts |
| 2.2.4 | Operation Indicators | Electrical and Hand reset flag |
| 2.2.5 | Make Acceptable | ABB, Alstom, Schneider, Siemens, ER, GE, AVANA |
| | | |
| 2.3 | Type-3 | Lockout relay Type-2 |
| 2.3.1 | Coil rating | 220VDC ; Range: (70% to 120%) |
| 2.3.2 | Output Contacts | At least 5NO +2NC with current carrying capacity not less than 5A at rated voltage , ), suitable for tripping of Circuit breaker. |
| 2.3.3 | Reset Characteristic | Electrical reset contacts |
| 2.3.4 | Operation Indicators | Electrical and Hand reset flag |
| 2.3.5 | Make Acceptable | ABB, Alstom, Schneider, Siemens, ER, GE, AVANA |
| | | |
| 2.4 | Type -4 | Static or electromechanical for Transformer Tank protection application Type-2 |
| 2.4.1 | Coil rating | 48VDC; Range: (70% to 120%) |
| 2.4.2 | No. of coils | 3 coils(elements) |
| 2.4.3 | Output Contacts | Atleast 3 No. of medium duty output contact per coil(element), suitable for tripping of Circuit breaker. |
| 2.4.4 | Reset Characteristic | Hand reset contacts |
| 2.4.5 | Operation Indicators | Hand reset operation indicators or LEDs with pushbutton/flag for resetting |
| 2.4.6 | Make Acceptable | ABB, Alstom, Schneider, Siemens, ER, GE, AVANA |
| | | |
| 2.5 | Type-5 | Lockout relay Type-3 |
| 2.5.1 | Coil rating | 48VDC ; Range: (70% to 120%) |
| 2.5.2 | Output Contacts | At least 8NO +2NC with current carrying capacity not less than 5A at rated voltage, ), suitable for tripping of Circuit breaker. |
| 2.5.3 | Reset Characteristic | Electrical reset, Hand reset contacts |
| 2.5.4 | Operation Indicators | Electrical and Hand reset flag |
| 2.5.5 | Make Acceptable | ABB, Alstom, Schneider, Siemens, ER, GE, AVANA |
| | | |
| 2.6 | Type-6 | Lockout relay Type-4 |
| 2.6.1 | Coil rating | 48VDC ; Range: (70% to 120%) |
| 2.6.2 | Output Contacts | At least 5NO +2NC with current carrying capacity not less than 5A at rated voltage , ), suitable for tripping of Circuit breaker. |

| | | |
|---|---|---|
| 2.6.3 | Reset Characteristic | Electrical reset contacts |
| 2.6.4 | Operation Indicators | Electrical and Hand reset flag |
| 2.6.5 | Make Acceptable | ABB, Alstom, Schneider, Siemens, ER, GE, AVANA |
| | | |
| 2.7 | Type -7 | PT Selection Relay Type-1 |
| 2.7.1 | Coil rating | 220VDC; Range: (70% to 120%) |
| 2.7.3 | Output Contacts | 8 NO + 2 NC |
| 2.7.4 | Reset Characteristic | Self reset contacts |
| 2.7.5 | Operation Indicators | Self reset operation indicators or LEDs |
| 2.7.6 | Make Acceptable | ABB, Alstom, Schneider, Siemens, ER, GE, AVANA |
| | | |
| 2.8 | Type -8 | PT Selection Relay Type-2 |
| 2.8.1 | Coil rating | 48VDC; Range: (70% to 120%) |
| 2.8.3 | Output Contacts | 8 NO + 2 NC |
| 2.8.4 | Reset Characteristic | Self reset contacts |
| 2.8.5 | Operation Indicators | Self reset operation indicators or LEDs |
| 2.8.6 | Make Acceptable | ABB, Alstom, Schneider, Siemens, ER, GE, AVANA |
| | | |
| 2.9 | Type -9 | Trip Circuit supervision relay Type-1 |
| 2.9.1 | Coil rating | 220VDC; Range: (70% to 120%)<br>Suitable for Pre and Post supervision of Trip circuit+ coil without any external resistance |
| 2.9.3 | Output Contacts | Atleast 3 NO + 1 NC |
| 2.9.4 | Reset Characteristic | Self reset contacts |
| 2.9.5 | Operation Indicators | Self reset operation indicators or LEDs |
| 2.9.6 | Make Acceptable | ABB, Alstom, Schneider, Siemens, ER, GE, AVANA |
| | | |
| 2.10 | Type -10 | Trip Circuit supervision relay Type-2 |
| 2.10.1 | Coil rating | 48VDC; Range: (70% to 120%)<br>Suitable for Pre and Post supervision of Trip circuit+ coil without any external resistance |
| 2.10.3 | Output Contacts | Atleast 3 No + 1 NC |
| 2.10.4 | Reset Characteristic | Self reset contacts |
| 2.10.5 | Operation Indicators | Self reset operation indicators or LEDs |
| 2.10.6 | Make Acceptable | ABB, Alstom, Schneider, Siemens, ER, GE, AVANA |
| | | |
| 2.11 | Type -11 | AC SUPERVISION RELAY |
| 2.11.1 | Coil rating | 240VDC; Range: (70% to 120%) |
| 2.11.3 | Output Contacts | 1 NO + 3 NC |
| 2.11.4 | Reset Characteristic | Self reset contacts |

| | | |
|---|---|---|
| **2.11.5** | **Operation Indicators** | **Handreset operation indicators** |
| **2.11.6** | **Make Acceptable** | **ABB, Alstom, Schneider, Siemens, ER, GE, AVANA** |
| | | |
| **2.12** | **Type -12** | **DC Supervision Relay Type-1** |
| **2.12.1** | **Coil rating** | **220VDC; Range: (70% to 120%)** |
| **2.12.3** | **Output Contacts** | **2 NO + 2 NC** |
| **2.12.4** | **Reset Characteristic** | **Self reset contacts** |
| **2.12.5** | **Operation Indicators** | **Hand eset operation indicator** |
| **2.12.6** | **Make Acceptable** | **ABB, Alstom, Schneider, Siemens, ER, GE, AVANA** |
| | | |
| **2.13** | **Type -13** | **DC Supervision Relay Type-2** |
| **2.13.1** | **Coil rating** | **48VDC; Range: (130% to 120%)** |
| **2.13.3** | **Output Contacts** | **2 NO + 2 NC** |
| **2.13.4** | **Reset Characteristic** | **Self reset contacts** |
| **2.13.5** | **Operation Indicators** | **Hand eset operation indicator** |
| **2.13.6** | **Make Acceptable** | **ABB, Alstom, Schneider, Siemens, ER, GE, AVANA** |

## Specification for Ethernet /Fiber Switch

- Ø The Ethernet/Fiber optic switches shall be a managed switch with Layer-2 Functions.
- Ø Shall have KEEMA certifications for IEC-61850 Compliances.
- Ø Switch design should with stand for power substation automation applications that operate in extremely harsh environments (High and medium voltage S/Stn environments) and it also withstands vibration, electrical surges, fast transients, electrostatic discharge, and extreme temperatures and humidity. Industrial managed Fast Ethernet Switch shall be supplied according to IEEE 802.3.
- Ø Switch features and configuration should be easy to user interface and it must directly integrate with any other IEC-61850 devices.
- Ø The FO switch shall support Multimode fiber and single mode fiber in 100Mbps ports on an SFP (simple form factor pluggable), for ease of functionality and maintenance.100Mbps ports for sub station level communications & 2 or 4 Gigabit Port for uplink communications.
- Ø 100Mbps ports for substation level communications & 2 or 4 Gigabit Port for uplink communications.
- Ø Hot Standby/Dual PSU & Redundancy in power source - Possibility to increase the switch availability by having a second power source in case the first one fails.
- Ø Link Failure contact alarm - Failure contact alarm shall be achieved by hardware contact that is activated when a link problem occurs.
- Ø Logs and alarms with Time Stamp - Statistics about link status alarms are to be stored with the accurate timestamp duly tracing all events.
- Ø Security features - The FO switches shall support different user levels with different passwords, including the facility to work with different VLANs, following the 802.1Q standard, port security based on MAC addresses, possibility to disable unused ports, authentication protocols shall be provided. The FO switches shall have advanced security features to be implemented to avoid unauthorized access to the system Such as RADIUS/TACACS & VPN gateway support with IP Sec & SSH.

- Ø High Speed Implementation of RSTP protocol - The FO switches shall support STP and RSTP protocols, and shall facilitate for recovery and the fault recovery times shall be within 5 -10msec per switch, always fulfilling the RST protocol.
- Ø Time Synchronization to RTU/Server and Connected IED/BCU - The FO switch shall have an internal clock and shall be synchronized from a network SNTP/NTP server, so all time stamped events shall be with a reliable time reference.
- Ø Local USB port for emergency boot is Mandatory.
- Ø Network based distributed security by having a firewall on each port of the switch for all the standard Industrial protocol like IEC-61850 should be available.
- Ø The FO switch shall have the facility of Port mirroring and the user shall configure one port to replicate traffic flows of different ports, so the system administrator can monitor the incoming, outgoing, or all kinds of traffic that is going through the ports under study.
- Ø ITU-T G.8032 support for Ethernet Ring redundancy, ensuring fast failure detection is preferred.
- Ø They FO switches shall sustain the stringent levels in temperature range and electromagnetic immunity defined in the 61850-3, but also the advanced functional requirements defined for operation with other IEC-61850 devices. The Switch should be certified on IEC-61850, functional & Environmental specifications by KEMA.
- Ø Approved Makes – SIEMENS - RUGGEDCOM & HIRSCHMANN
  - o Switches shall be supplied with 24 Ports RJ45/ETH ports + 4 FO (Multi Mode)
  - o Auxiliary Supply of switches - universal Voltage. However, it will be reviewed during tendering process and selected based on site conditions.
  - o Switches shall support Goose Communications as per IEC standard.

## Specification for Multi Function Meters

- Ø IP Standard - IP54 (Protected from dust particles & Water)
- Ø Measuring Method - True RMS
- Ø Input Voltage - 110 V L-L
- Ø Input Current - 5A or 1A
- Ø Input Frequency - 45…65 Hz
- Ø Auxiliary Supply – Universal (40 to 300 Volts AC/DC)
- Ø Communication with RTU : MODBUS RS 485 RTU
- Ø Accuracy Class - 0.2
- Ø Display Type - LED
- Ø Option for User Selectable 3PH 3W/4W
- Ø Option for ON site CT Primary/Secondary (1 or 5A)Programmable
- Ø On Site PT Primary Programmable
- Ø Shall have Phase Reversal Indication
- Ø Shall be Password Protection
- Ø MFM Parameters & Particulars for remote communications on Modbus : System Voltage, System Current, Phase Voltage (L1-N, L2-N, L3-N),Line Voltage (L1-L2, L2-L3, L1-L3),Line Current (IL1 , IL2, IL3),Frequency, Neutral Current, Power Factor, Active Power (kW),Re-Active Power (kVAr),Active Energy, kWH, All THD Values, Maximum Demand,THD mean current & THD mean Voltage,Phase Angles.
- Ø Approved Makes –
  - o RISH MASTER 3440 with Universal Auxiliary Supply
  - o CONZERV – EM 6400NG with Universal Auxiliary Supply

BSES

# SPECIFICATION

# OF

# FRLS CONTROL CABLE

## Specification no: SP-EWLP-01-R3

| Prepared By | | Reviewed By | | Approved By | | Rev. No. | Date |
|---|---|---|---|---|---|---|---|
| Name | Sign. | Name | Sign. | Name | Sign. | | |
| HK | | MB | | KA | | 02 | 27.01.14 |
| RP | | AT | 16.03.18 | VP | 16/03/18 | 03 | 13.03.18 |

INDEX

RECORD OF REVISION

## RECORD OF REVISION

| Sr. No. | Revision No. | Item/Cl. No. | Nature of Change | Approved By |
|---|---|---|---|---|
| 1 | R3 | 2.1.7 | FRLS Properties | VP |

**General Specification**

1.0.0 Codes & Standards: The cables shall be designed, manufactured and tested in accordance with the following Indian & IEC standards.

**National Standards**

| **Indian Standards** | |
|---|---|
| IS- 1554 Part-1 | PVC insulated Cables |
| IS- 5831 : 1984 | PVC insulation & sheath of electric cables. |
| IS- 10810 : 1984 | Methods of test for cables. |
| IS- 8130 : 1984 | Conductors for insulated electric cables and flexible cords. |
| IS- 3975 : 1999 | Mild steel wires, formed wires and tapes for armouring of cables. |

**International Standards**

| | |
|---|---|
| IEC 60228 Ed.3.0 b | Conductors of insulated cables. |
| IEC 60332-3-21 Ed.1.0 b | Tests on electric cables under fire conditions. Part 3-21. Tests on bunched wires or cables. |
| IEC 60502-1 Ed. 2.1 b | Power cables with extruded insulation and their accessories for rated voltage from 1kV upto 30kV –Part 1: cables for rated voltages of 1kV and 3kV |
| IEC 60811 | Common test methods for insulating and sheathing materials of electric cables. |
| IEC 60885 Ed.1.0 b | Electric test methods for electric cables. |
| IEC 60227 | PVC insulated cables of rated voltages up to and including 450/750 V. |
| IEC 60028 Ed. 2.0 b | International Standard of Resistance for Copper |
| ASTMD 2843 | Standard Test Method for density of Smoke from the burning or decomposition of cables |
| ASTM 2863 | Standard Test Method for measuring of minimum oxygen concentration |
| IEC 60754-1 | Test on gases evolved during combustion of materials fro cables. Part 1 – Determination of the Halogen Acid gas Content |

| | | |
|---|---|---|
| 2.0.0 | Cable construction Features | Size & dimensions of each item mentioned under this clause shall be followed as detailed out in GTP, refer Annexure B |
| | | |
| 2.1.1 | Conductor | |
| | | |
| | Stranded, plain copper, circular | Shall be made from high conductivity copper rods |
| | | |
| 2.1.2 | Insulation | Extruded PVC Insulation Type A as per IS 5831 |
| | | |
| 2.1.3 | Core Identification | Each core shall have different color of insulation. |
| | | |
| 2.1.4 | Inner Sheath | Extruded inner Sheath of Black PVC type ST-2 as per IS 5831 |
| | | |
| 2.1.5 | Armour | a) As per Cl 13.2 of IS 1554 Part-1: Galvanized steel round wire armour.<br>b) Minimum area of coverage of armouring shall be 90 %. |
| | | |
| 2.1.6 | Outer Sheath | a) Extruded outer sheath of PVC type ST-2 as per IS 5831 having FRLS properties |
| | | b) Color : Black |
| | | c) The Outer Sheath shall be embossed with: |
| | | ➢ The voltage designation |
| | | ➢ Type of construction / cable code (for e.g. AYWY) |
| | | ➢ Manufacturers Name or Trade mark |
| | | ➢ Number of Cores and nominal cross sectional area of conductors |
| | | ➢ The drum progressive length of cable at every meter. (By Printing) |
| | | ➢ Name of buyer i.e. BSES |
| | | ➢ Month & Year of Manufacturing |
| | | ➢ P.O. No. and P.O. Date |
| | | |
| 2.1.7 | FRLS Properties | a) Oxygen Index : Not less than 29% as per ASTM 2863 |
| | | b) Temperature Index : 250 Deg C at Oxygen Index 21 (when tested as per ASTM D 2863) |

| | | |
|---|---|---|
| | | c) Max Acid Gas Generation – Not more than 20% as per IEC -60754-1 |
| | | d) Light Transmission - Minimum 40% when tested as per ASTMD 2843 (Smoke Density rating shall be max 60%) |
| | | e) Flammability Test – As per IEC 60332-III, Cat – B, IEC 60332- I, IS- 10810 – Part 53, IS:10810 – Part 61 & 62 (Category A) |
| 2.1.8 | Sealing of Cable end | Both ends of the cable shall be sealed with PVC Cap. |
| | | |
| 3.0.0 | Testing & Inspection | Tests shall be carried out in accordance with IEC / IS standards. |
| | | |
| | | a) Routine Test: As per IS 1554 part -1 |
| | | |
| | | b) Type Test |
| | | • Cables must be of type tested quality. Type test reports shall be submitted for the type, size & rating of cable offered along with bid. |
| | | • If the manufacturer's lab is accredited by govt. /authorised body then it shall be acceptable for type testing. |
| | | • Type test on one cable drum of each rating and type, from first lot, shall be conducted at Govt. approved / internationally accredited labs. |
| | | |
| | | c) Acceptance test : Shall be conducted as per IS 1554 Part-1 for each lot of cable |
| | | |
| | | d) Inspection |
| | | • The Buyer reserves the right to witness all tests specified on completed cables |
| | | • The Buyer reserves the right to inspect cables at the Sellers works at any time prior to dispatch, to prove compliance with the specifications. |
| | | • In-process and final inspection call intimation shall be given in advance to purchaser. |
| | | e) Test certificates: Three sets of complete test certificates (routine & acceptance tests) need to be submitted along with the delivery of |

| | | |
|---|---|---|
| | | cables. |
| | | |
| 4.0.0 | Drawing, Data & Manuals | |
| | | |
| 4.0.1 | To be submitted along with bid | The seller has to submit: |
| | | • Cross section drawing of cable |
| | | • Completely filled GTP |
| | | • Type test certificates |
| | | • Complete cable catalogue and Manual along with the bid. |
| | | |
| 4.0.2 | After award of contract | Within 15 days, the seller has to submit four sets of above-mentioned drawings for buyer's approval. |
| | | |
| 4.0.3 | Final As Built | 6 sets hardcopy + One Soft copy of all documents including type test certificates |
| | | |
| 5.0.0 | Drum Length & tolerance | 500+ - 5% Mtr. |
| 5.0.1 | Overall tolerance in cable Length | - 2 % |
| 5.0.2 | Short length of cables | • Minimum acceptable short length shall be above 100 Mtrs. Manufacturer shall be required to take prior approval from engineering for any short length supply. |
| | | • Manufacturer shall not be allowed to put two cable pieces of different short lengths in same cable drum. |
| | | • Only 1% of the total ordered quantity. |
| 6.0.0 | Packing, Shipping, Handling & Storage | |
| | a) Drum Identification Labels | |
| | | • Drum identification number |
| | | • Cable voltage grade |
| | | • Cable code (e.g. YWY) |
| | | • Number of cores and cross sectional area |
| | | • Cable quantity (Meters) |
| | | • Purchase order number and SAP item code |
| | | • Total weight of cable and drum number |
| | | • Manufacturer's & Buyer's name |
| | | • Month & Year of Manufacturing |

| | | |
|---|---|---|
| | | • Direction of rotation of drum |
| | | • Cable length initial reading & end reading shall be marked on drum. Cable starting end shall be taken out from winding to read this drum reading with proper sealing to protect against external damage. |
| | b) Shipping information | The seller shall give complete shipping information concerning the weight, size of each package. |
| | c) Transit damage | The seller shall be held responsible for all transit damage due to improper packing. |
| | d) Type of Drum | Wooden drums with anti termite treatment. (The drums shall be with M.S. spindle plate with nut-bolts) |
| | | |
| 7.0.0 | Quality Assurance | |
| 7.0.1 | Vendor quality plan | To be submitted for purchaser approval |
| 7.0.2 | Inspection points | To be mutually identified & agreed in quality plan |
| | | |
| 8.0.0 | Progress reporting | |
| 8.0.1 | Outline Document | To be submitted for purchaser approval for outline of production, inspection, testing, inspection, packing, dispatch, documentation programme |
| 8.0.2 | Detailed Progress report | To be submitted to Purchaser once a month containing<br>• Progress on material procurement<br>• Progress on fabrication (As applicable)<br>• Progress on assembly (As applicable)<br>• Progress on internal stage inspection<br>• Reason for any delay in total programme<br>• Details of test failures if any in manufacturing stages<br>• Progress on final box up constraints / Forward path |
| 9.0.0 | Deviation | • Deviations from this specification are only acceptable where the Seller has listed in his quotation the requirements he cannot, or does not, wish to comply with and the Buyer has accepted, in writing, the deviations before the order is placed. |
| | | • In the absence of a list of deviations, it will be assumed by the Buyer that the Seller complies fully with this specification. |

**Annexure – A**

**Scope & Project Specific Details**

**1.0.0 Scope**

| | | |
|---|---|---|
| 1.0.0 | Scope | Design, manufacture, testing & supply of Control cables |
| 2.0.0 | Delivery Schedule | To be filled up as per purchase requisition. |

**2.0.0 Document Submission**

Submission of drawings, calculations, catalogues, manuals, test reports shall be as follows

| | Along with offer | For Approval after award of contract | Final after approval | Remarks |
|---|---|---|---|---|
| Drawings | 2 copies (Typical drgs) | 2 copies | 2 copies + 1 soft copy in CD | See Clause 5.0.0 for details of required drawings |
| Calculations | 2 copies (Typical) | 2 copies | | |
| Catalogues | 1 copy | | | |
| Type Test Report | 2 copies | | | Type test and sample routine test reports |

**Annexure- B**

**GUARANTEED TECHNICAL PARTICULARS**

**(Standard Cable sizes are 2C X 2.5, 4C X 2.5, 6C X 2.5, 8C X 2.5, 10C X 2.5,12C X 2.5 Sqmm)**

**For each size separate GTP need to be furnished**

| Sr. | Description | Buyer's requirement | Seller's Data |
|---|---|---|---|
| | | | |
| | Purchase Req. No. | .... | |
| | Guarantee Period: 5 Years | 60/66 Months | |
| | | | |
| 1.0 | Make | .... | |
| 2.0 | Type ( AS PER IS 1554 part -1 ) | YWY | |
| | | | |
| 3.0 | Voltage Grade (KV) | 1.1 | |
| | | | |
| 4.0 | Maximum Conductor temperature | | |
| A | Continuous (° C) | 70°C | |
| B | Short time (° C) | 160°C | |
| | | | |
| 5.0 | Conductor | | |
| | | | |
| A | Size (mm2) | 2.5 / 4 sq mm | |
| B | No. of wires in each conductor Nos. | As per Manufacturer standard | |
| C | Dia. of wires in each conductor before compaction (mm) | As per Manufacturer standard | |
| D | Shape of Conductor | As per Cl.2.1.1 of specification | |
| E | Diameter over conductor mm | .... | |
| F | Maximum Conductor resistance at 20 ° C (Ohm/Km) | As per Table 2 of IS 8130 | |
| | | | |
| 6.0 | Insulation | As per Table 1 of IS:5831 – 1984 | |
| A | Nominal thickness (mm) | As per Cl.2.1.2 of specification & Table 2 of IS 1554( Part-1) | |
| B | Minimum thickness (mm) | | |
| C | Core Identification | Color of all the cores | |

| | | | |
|---|---|---|---|
| | | shall be different | |
| D | Diameter over Insulation (mm) Approx. | .... | |
| | | | |
| 7.0 | Inner Sheath | As per Table 2 of IS:5831 – 1984 | |
| | | | |
| A | Minimum thickness (mm) | As per Table 4 of IS 1554( Part-1) | |
| B | Approx. dia. Over sheath (mm)- Apprx. | .... | |
| | | | |
| 8.0 | Galvanized Steel Armour | As per Cl 2.1.5 of specification | |
| | | | |
| A | Number of armour wire | As per Manufacturer Std. | |
| B | Nominal Dia of Round Wire | As per Table 5 of IS 1554( Part-1) | |
| C | Dia. over Armour – Approx. | .... | |
| D | Lay Ratio | .... | |
| E | Confirm minimum 90% coverage (submit calculation) | | |
| | | | |
| 9.0 | Outer Sheath (FRLS) | As per Table 2 of IS:5831 – 1984 | |
| A | Thickness (Minimum) | As per Table 7 of IS 1554( Part-1) | |
| B | Color | Black | |
| | | | |
| 10.0 | Approx. overall dia. (mm) | .... | |
| | | | |
| 11.0 | Drum Length & tolerance | As per Spec.Cl. 6.0.0 | |
| | | | |
| 12.0 | End Cap | Required | |
| 13.0 | Drums provide with MS Spindle plate & Nut bolts arrangement | Required | |
| | | | |
| 14.0 | Net Weight of cable ( Kg/Km. ) – Approx. | .... | |
| | | | |
| 15.0 | Continuous current rating for | | |

| | | | |
|---|---|---|---|
| | standard I.S. condition laid Direct | | |
| | a) In ground 30° C Amps | .... | |
| | b) In duct 30° C Amps | .... | |
| | c) In Air 40° C Amps | .... | |
| | | | |
| 16.0 | Short circuit current for 1 sec of conductor. (KAmp) | .... | |
| | | | |
| 17.0 | Electrical Parameters at Maximum Operating temperature: | | |
| A | Resistance ( Ohm/Km ) (AC Resistance) | .... | |
| B | Reactance at 50 C/s ( Ohm/Km ) | .... | |
| C | Impedance ( Ohm/Km ) | .... | |
| D | Capacitance (Micro farad / KM) | .... | |
| | | | |
| 18.0 | Recommended minimum bending radius | .... x O/D | |
| 19.0 | FRLS Properties | | |
| | i) Oxygen Index | | |
| | ii) Temperature Index | | |
| | iii) Max Acid Gas Generation | | |
| | iv) Light Transmission / Smoke Density | | |

BSES
RAJDHANI POWER LIMITED

**Volume - II**

**FORMATS**

**Tender Notification for**

# Supply of Numerical Relays & accessories for renovation of existing Control and Relay Panels in BRPL, New Delhi, India.

BSES
RAJDHANI POWER LIMITED

## Annexure -A

## ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT

*(To be signed & stamped by the bidder along-with bid)*

BSES Rajdhani Power Ltd (BRPL) intends to use reverse auction through SAP-SRM tool as an integral part of entire tendering process. All bidders who are techno-commercially qualified on the basis of tender requirements shall participate in the reverse auction.

The following terms and conditions are deemed as accepted by the bidder on participation in the bid:-

1. In case of bidding through Internet medium, bidders are advised to ensure availability of all associated infrastructure as required to participate in the reverse auction event. Inability to bid due to telephone glitch, internet response issues, software & hardware hangs/failures, power failures or any other reason shall not be the responsibility of BRPL.

2. In case bidder fails to participate in the reverse auction event due to any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid submitted by them as a part of tender shall be considered as bidder's Final No Regret offer. Any off-line price bids received from a bidder in lieu of non-participation in the reverse auction event shall be rejected by BRPL.

3. The bidder is advised to understand the auto bid process t safeguard themselves against any possibility of non-participation in the reverse auction event.

4. The bidder shall be prepared with competitive price quotes during the day of reverse auction event.

5. The prices quoted by bidder in reverse auction event shall be on FOR Landed cost BRPL Store/site basis inclusive of all relevant taxes, duties, levies, transportation charges etc.

6. The prices submitted by the bidder during reverse auction event shall be binding on the bidder.

7. The bidder agrees to non-disclosure of trade information regarding bid details e.g. purchase, identity, bid process/technology, bid documentation etc.

8. BRPL will make every effort to make the bid process transparent. However award decision of BRPL will be final and binding on the bidder.

9. The prices submitted during reverse auction event shall be binding on the bidder.

10. No request for Time extension of the reverse auction event shall be considered by BRPL.

## Annexure -I

### BID FORM

**Supply of Numerical Relays & accessories for renovation of existing Control and Relay Panels in BRPL, New Delhi, India.**

To

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

Sir,

1 We understand that BSES RAJDHANI POWER LTD is desirous of Renovation "Control & relay panel including replacement of old relays for MCIE & Paschim Vihar Grid 'on turnkey basis in it's licensed distribution network area in Delhi.

2 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.

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

4 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.

5 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.

6 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.

7 Unless and until Letter of Intent isissued, this Bid, together with your written acceptance there of, shall constitute a binding contract between us.

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

9 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) .....

BSES
RAJDHANI POWER LIMITED

## Annexure -II

### FORMAT FOR BID SECURITY 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 it's Corporate Office at BSES Bhawan Nehru Place, New Delhi -110019 ,(herein after called —the Purchaser")in the sum of Rs._____ 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:

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

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

(a) fails or refuses to execute the Contract Form ,if required; or
(b) 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 condition s.

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

BSES
RAJDHANI POWER LIMITED

## Annexure –III

## PRICE FORMAT

| Price Format | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SN | Material | Refer below mentioned sections in Annex-2 for Tech Spec of material | LOT-1 Qty | LOT-2 Qty | UOM | Total Qty | EX-WORKS RATE | FREIGHT | GST | UNIT LANDED | TOTAL LANDED COST |
| 1 | Numerical Protection Relays/ IEDs | Sec 1.2 | 17 | 19 | No.s | 36 | | | | | |
| | | Sec 1.3 | 11 | 11 | No.s | 22 | | | | | |
| | | Sec 1.4 | 10 | 51 | No.s | 61 | | | | | |
| | | Sec 1.5 | 77 | 67 | No.s | 144 | | | | | |
| | | Sec 1.6 | 10 | 10 | No.s | 20 | | | | | |
| | | Sec 1.7 | 0 | 0 | No.s | 0 | | | | | |
| | | Sec 1.8 | 2 | 0 | No.s | 2 | | | | | |
| | | Sec 1.9 | 9 | 9 | No.s | 18 | | | | | |
| | | Sec 1.10 | 8 | 7 | No.s | 15 | | | | | |
| | TMU | Sec 1.11 | 5 | 5 | No.s | 10 | | | | | |
| | | Sec 1.12 | 7 | 4 | No.s | 11 | | | | | |
| | OC EF Arc | **Sec 1.13** | 4 | 5 | No.s | 9 | | | | | |
| 2 | Annunciator | Sec 3.1 | 18 | 19 | No.s | 37 | | | | | |
| | | Sec 3.2 | 14 | 12 | No.s | 26 | | | | | |
| 3 | Flexible Wires | Sec 7.3 | 3770 | 5120 | Meter | 8890 | | | | | |
| | | Sec 7.4 | 3432 | 4860 | Meter | 8292 | | | | | |
| | | Sec 7.5 | 3432 | 4860 | Meter | 8292 | | | | | |
| | | Sec 7.6 | 4360 | 5270 | Meter | 9630 | | | | | |
| | | Sec 7.7 | 2350 | 950 | Meter | 3300 | | | | | |
| | | Sec 7.8 | 4075 | 2040 | Meter | 6115 | | | | | |
| | | Sec 7.9 | 4075 | 2040 | Meter | 6115 | | | | | |
| | | Sec 7.10 | 4075 | 2040 | Meter | 6115 | | | | | |
| | | Sec 7.11 | 4075 | 1640 | Meter | 5715 | | | | | |
| | | Sec 7.12 | 3546 | 1030 | Meter | 4576 | | | | | |
| | | Sec 7.13 | 38130 | 47965 | Meter | 86095 | | | | | |
| 4 | Ethernet Switch and accessories | Sec 16.2.1 | 4 | 3 | No.s | 7 | | | | | |
| | | Sec 16.2.2 | 0 | 0 | No.s | 0 | | | | | |
| | | Sec 16.3 | 3 | 0 | No.s | 3 | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | **Control Cable** | Sec 17.1.1 | 160 | 0 | Meter | 160 | | | | | |
| | | Sec 17.1.2 | 1600 | 600 | Meter | 2200 | | | | | |
| | | Sec 17.1.3 | 5000 | 1000 | Meter | 6000 | | | | | |
| | | Sec 17.1.4 | 2300 | 0 | Meter | 2300 | | | | | |
| | | Sec 17.1.5 | 600 | 0 | Meter | 600 | | | | | |
| 6 | **MFM** | Sec 22.1 | 55 | 81 | No.s | 136 | | | | | |
| | | Sec 22.2 | 80 | 98 | No.s | 178 | | | | | |
| 2 | **Protection Auxiliary Relays (Electromechanical/static)** | Sec 2.1 | 22 | 32 | No.s | 54 | | | | | |
| | | Sec 2.2 | 16 | 14 | No.s | 30 | | | | | |
| | | Sec 2.3 | 17 | 17 | No.s | 34 | | | | | |
| | | Sec 2.4 | 31 | 16 | No.s | 47 | | | | | |
| | | Sec 2.5 | 46 | 8 | No.s | 54 | | | | | |
| | | Sec 2.6 | 30 | 60 | No.s | 90 | | | | | |
| | | Sec 2.7 | 30 | 38 | No.s | 68 | | | | | |
| | | Sec 2.8 | 26 | 31 | No.s | 57 | | | | | |
| | | Sec 2.9 | 51 | 76 | No.s | 127 | | | | | |
| | | Sec 2.10 | 90 | 49 | No.s | 139 | | | | | |
| | | Sec 2.11 | 32 | 31 | No.s | 63 | | | | | |
| | | Sec 2.12 | 18 | 10 | No.s | 28 | | | | | |
| | | Sec 2.13 | 76 | 36 | No.s | 112 | | | | | |
| | | | | | | | | | | **Grand Total** | |

**Lot#1: Required by 1st week of Dec'21, Lot#2: Required by 1st week of March'22**

NAME OF BIDDER

Note
:1 Prices shall be Firm
2 The prices received without break up of exworks, Freight, E.D. CST/VAT 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.
Bidders are requested to attach the covering letter head alongwith the price bid indicating reference no and date.

BSES
RAJDHANI POWER LIMITED

**Annexure - IV**

# COMMERCIAL TERMS AND CONDITIONS

| S/NO | ITEM DESCRIPTION | AS PER BRPL | CONFIRMATION OF BIDDER |
|---|---|---|---|
| 1 | Validity of prices | 120 days from the date of offer | |
| 2 | Price basis | a) Firm, FOR Delhi store basis. Prices shall be inclusive of all taxes & duties, freight upto Delhi stores.<br>b) Unloading at stores shall be in vendor's scope<br>c) Transit insurance in BRPL scope for Indian portion only | |
| 3 | Payment terms | 100% payment within **45 days**<br>after receipt of material at stores | |
| 4 | Completion time | As per BRPL requirement | |
| 5 | Defect Liability period | 1) Numerical Protection Relays/ IEDs, Protection Auxiliary Relays (Electromechanical/static), TMU & OC EF Arc:<br>84/90 months after commissioning/ from the last date of supply,whichever is earlier.<br>2) Annunciator, Flexible Wires, Control Cable:<br>12/18 months after commissioning/ from the last date of supply,whichever is earlier.<br>3) Ethernet Switch and accessories: 60/66 months after commissioning/ from the last date of supply,whichever is earlier.<br>4) MFM: 24/30 months after commissioning/ from the last date of supply,whichever is earlier. | |
| 6 | Liquidated damages | 1% per week of delay of undelivered units or part thereof<br>subject to maximum of 10% of total PO value of undelivered units | |

| | | | |
|---|---|---|---|
| 7 | Performance Bank Guarantee | 1) 10% of total PO value valid for 84 months after commissioning or 90 months from the last date of dispatch, whichever is earlier plus 3 months towards claim period for Numerical Protection Relays/ IEDs, Protection Auxiliary Relays (Electromechanical/static), TMU & OC EF Arc.<br><br>2) 10% of total PO value valid for 12 months after commissioning or 18 months from the last date of dispatch, whichever is earlier plus 3 months towards claim period for Annunciator, Flexible Wires, Control Cable.<br><br>3) 10% of total PO value valid for 60 months after commissioning or 66 months from the last date of dispatch, whichever is earlier plus 3 months towards claim period for Ethernet Switch and accessories.<br><br>4) 10% of total PO value valid for 24 months after commissioning or 30 months from the last date of dispatch, whichever is earlier plus 3 months towards claim period for MFM. | |

## ANNEXURE V

NIT NO & DATE : CMC/BR/21-22/RB/MKD/955

### NO DEVIATION SHEET

| SL NO | SL NO OF TECHNICAL SPECIFICATION | DEVIATIONS,IF ANY |
|---|---|---|
| | | |

**SIGNATURE & SEAL OF BIDDER**

**NAME OF BIDDER**

BSES
RAJDHANI POWER LIMITED

## Annexure – VI

| S.No | Qualification Criteria | Declaration by bidder with qualifying the fulfillment | Documentary Evidence attached page no. details |
|---|---|---|---|
| 1 | The participants should be original Equipment Manufacturer (OEM) or an Authorized Vendor/ channel partner firm in India (herein after referred as" Bidder "). The OEM should have its own service and spares setup and facility network in India.<br><br>OEMs can participate through their channel/ authorized partners. However, they should qualify the qualification criteria and the following:<br>a. The bidder should furnish authorization form from the manufactures of material/item.<br>b. The bidder as authorized agent, has supplied similar item in past in any other utility.<br>c. The bidder shall be authorized distributor/dealer since last 02 yr or more. | | |
| 2 | The bidder should have supplied Numerical Relays & other aux Relays to any industry in India during last three financial years immediately preceding the date of NIT along with the proof of supply orders value amounting not less than **Rs. 2 Cr.** The bidder shall submit relevant orders/ past supply details in support of their experience | | |
| 3 | The bidder should have average annual turnover of **Rs. 5 Crore** during last three financial years immediately preceding the date of this NIT. | | |
| 4 | Bidder must posses valid ISO 9001:2000 certification. | | |
| 5 | The bidder should declare that he has not been black listed by any utility/Distribution Company/Any department of State Government or Central Government in India. (Letter of undertaking in this regard is to be submitted) | | |

***The manufacturer should send the compliance of above mentioned parameters in technical offer and has to give an undertaking about No Objection to verify his manufacturing facility as a part of tender process.***

BSES
RAJDHANI POWER LIMITED

**SECTION VI**

**VENDOR CODE OF CONDUCT**

# ANNEXURE -I

**CHECK LIST**

| Sl No | Description | Compliance |
|---|---|---|
| 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 | DOCUMENTS IN SUPPORT OF QUALIFICATION CRITERIA | YES/NO |
| 6 | TECHNICAL BID | YES/NO |
| 7 | ACCEPTANCE TO COMMERCIAL TERMS AND CONDITIONS | YES/NO |
| 8 | FINANCIAL BID (IN SEALED ENVELOPE) | YES/NO |
| 9 | EMD IN PRESCRIBED FORMAT | YES/NO |
| 10 | DEMAND DRAFT OF RS 1000/- DRAWN IN FAVOUR OF BSES RAJDHANI POWER LTD | YES/NO |
| 11 | POWER OF ATTORNEY/AUTHORISATION LETTER FOR SIGNING THE BID | YES/NO |
| 12 | FINANCIAL DATA IN TABULAR FORMAT | YES/NO |
| 13 | LIST OF CURRENT COMMITMENTS/ WORK IN PROGRESS | YES/NO |
| 14 | BANK SOLVENCY CERTIFICATE | YES/NO |
| 15 | NO LITIGATION CERTIFICATE | YES/NO |