

**ANNEXURE - I****TECHNICAL SPECIFICATIONS****DESCRIPTION OF WORK:**

Modification, trouble shooting and commissioning of Hitachi make Uninterrupted Motive Power Supply (UMPS) system as per the scope of work given below. The UMPS system comprising of 15 HP & 10 HP capacity VFD modules one number each, 608 V DC battery charger with control unit and 540 V (45 Nos of 12V 26 Ah batteries) battery bank.

**SCOPE OF WORK:****1.0 Modifications to be carried out in the UMPS system.**

- 1.01. When UMPS is running on battery, drive should not trip after 10 minutes and it should trip only after DC voltage comes down to below 459V DC. Presently the drive is tripping after 10 minutes of mains input power failure.
- 1.02. In battery mode, after the battery DC voltage has come below 459V DC and drive got tripped, 'BATTERY CUT OFF' indicator is not glowing. Circuit modification is to be carried out.
- 1.03. Cooling fans are to be connected to drive input SFU in such a way that cooling fan has to be turned on when drive input SFU is turned on.
  - Panel E02 Cooling Fan should be connect to 10HP Drive Input SFU
  - Panel E03 Cooling Fan should be connected to 15HP Drive Input SFU
  - Panel E04 Cooling Fan should be connected to Charger ON selector Switch
- 1.04. When UMPS is in idle condition, and battery bank is getting charged, drive modules should not get power. An MCB with an indicator has to be provided on the panel door such that when MCB is off, drive will not get power from battery bank even when input mains are turned OFF.
- 1.05. Input SFU knobs are damaged and to be replaced for Input Mains and Drive SFU for 15HP drive, i.e., in Panel E01 & E03 (01SFU4 & 01SFU1).
- 1.06. Whenever charger is turned on, 'CHARGER ON' indicator presently not glowing. To be rectified.
- 1.07. When Mains Input supply is turned off, 'LOAD ON MAINS' indicator on panel E01 is presently not getting off. To be rectified.
- 1.08. The gap between the panels is to be filled properly.
- 1.09. Door handles are to be fixed on the panel doors for easy opening of the panel doors.
- 1.10. UMPS Panel Operational Procedure should be provided.
- 1.11. Revised circuit diagrams & drawings after modification of connections should be provided.
- 1.12 Configuration of VFD modules and Commissioning of the UMPS system.
- 1.13 Continuous trial run for 2 hrs at full load, trouble shooting and resolving of drive tripping and related issues.

**2.0 General Requirements**

- 2.01 For fulfilling the prequalification criteria the Vendor should have commissioned at least two numbers of similar systems of Hitachi make in the past two years from date of the offer. Details of such supply shall be indicated in the Technical bid..
- 2.02 Vendor should take sole responsibility of commissioning of Hitachi make UMPS system as envisaged in scope of work.

- 2.03 The vendor shall visit the BHEL R&D site for assessing the scope of work & technical clarifications required if any before submitting the offer, without which the offer will not be considered for technical evaluation.
- 2.04 Any items required for completion of modification and commissioning work as per the defined scope should be in the vendor's scope.
- 2.05 All tools and tackles required for carrying out the modification work are in the scope of the supplier.
- 2.06 Vendors may please note that the modification work of the existing UMPS system is to be carried out at BHEL R&D only.
- 2.07 Vendor should furnish TECHNICAL COMPLIANCE STATEMENT in the enclosed format as per ANNEXURE-II along with Technical bid FOR EACH OF THE ITEMS OFFERD SEPERATLY. The Vendor should not say Complied, should explicitly specify the specification of each parameters. The deviations if any with reference to BHEL specifications may clearly be indicated. BHEL reserves the right to disqualify the tender if the statement as per ANNEXURE-II is not submitted and relevant information is not indicated in the compliance statement.
- 2.08 Vendor must submit complete information against clause No. 2.01 & 2.07. The offer meeting this clause would only be processed. BHEL reserve the option to disqualify the tender in case of non-conformity of the above conditions 2.01 & 2.03.
- 2.09 The Un-priced price bid shall be enclosed to the Technical bid.

### **3.0 Deliverables**

- 3.1 Modification of UMPS system and demonstration of successful running of the UMPS system.
- 3.2 Vendor shall provide modified Circuit design drawings.
- 3.3 Vendor shall provide 3 sets of O&M manuals for the modified UMPS panel.
- 3.4 Vendor shall provide modified Circuit design drawings.
- 3.3 Vendor shall provide UMPS Operational Procedure manual.
- 3.3 Commissioning & Performance test report.



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