

**CSIR- Central Glass & Ceramic Research Institute  
KOLKATA (WEST BENGAL) INDIA  
CORRIGENDUM**

REFERENCE NO. :-P/I/NC/242/RC/AB/OT/20-21

DATE : 16/04/2021

NAME OF EQUIPMENT: SUPPLY, INSTALLATION & COMMISSIONING OF 200 KW UPS WITH ALL ACCESSORIES.

NOTE: The Bids must be submitted in the Central Public Procurement Portal (URL:<https://etenders.gov.in/eprocure/app>) only. Manual/Offline bids shall not be accepted under any circumstances. Bidders should quote in INR only.

CONSEQUENT TO THE PRE-BID MEETING HELD ON 06/04/2021, THE REVISED SPECIFICATION IS GIVEN BELOW:-

**SPECIFICATIONS:-**

**Technical Specification of Standalone 200 kW (Load side) True Sine-wave  
Online UPS system (Three Phase Input & Output)**

**Introduction and Utility Criteria:**

This UPS will be required to maintain uninterrupted power supply for smooth operation of Resistive and Inductive Heating Furnaces and Control Desks. So UPS should take necessary protection in all respect to cater variable power demand continuously for 24x7 hour. This will be installed in a well ventilated room though it should withstand local environmental factors, temperature, humidity, dust etc. round the year. It should be self air cooled and should not produced noise, vibration beyond BIS specification limit during operation. Operable switches and displays should be within the reach of the operators.

Sl. NO.	SPECIFICATIONS	Vendor's Compliance
1	<b>Topology: Level III</b> Should be DSP Controlled and built with IGBT based Inverter & Rectifier, K-13 rated copper wire wound Isolation Transformer on input side in the same cubicle and K-13 rated copper wire wound Isolation Transformer on output side externally	
2	<b>Input Power:</b> a) 400 (+ 8%) VAC 3-Phase+N, 50 Hz (+ 3%); b) Power factor (PF): Unity c) IGBT Based Inverter (for True Sine-wave) and Rectifier d) DSP Based Control e) Input Current at site: Within 400 Amp.	
3	<b>Output Power: 3 Phase, N, E</b> a) Active Power: 200 kW b) Must have Manual & Bi-directional Static Bypass Switch, Emergency stop etc. on control panel to support operation on <b>Normal, Bypass (Maintenance &amp; Static) and Battery mode</b> with a <b>Breaker</b> of app. Rating for Battery Bank c) Rated Voltage: 385-400-415 VAC, Selectable (max ± 1% regulation) d) Frequency: 50 Hz (Max 0.05% regulation) e) Total Harmonic Distortion (THD) should be as per IEEE Std. irrespective of Linear and Non-Linear Load f) Crest Factor: 3:1 g) Overall Efficiency at full load after transformation: ≥ 93% h) Overload capacity: 100%-125%-10 min and 150%-01 min (minimum)	
4	<b>DC Parameters:</b> a) Should be supported with Sealed Maintenance Free, VRLA, Fire Retardant Type, 12V Lead Acid Battery of reputed Brand like Exide/Quanta/Ener Rocket with 0% ripple current on battery when connected to the DC bus & charger b) Battery backup: <b>Minimum 10 min.</b> c) Battery breaker switch should be installed with or near battery rack d) Battery Bank capacity should be offered around <b>72000 VAH</b> . The Battery Rack should be made of insulated steel sections, duly painted having rigidity to bear working load. e) Vendor should specify the number of Battery and AH offered with a calculation sheet of estimation. Physical dimensions of the individual unit and total floor/wall (mounting) space Layout Drawing should be attached with the submitted offer.	

5	<p><b>Protection:</b></p> <ul style="list-style-type: none"> <li>a) AC input under/over voltage with Single phase preventer on input side, short circuit, over current, DC over voltage, Low battery, battery overcharge, over temperature for inverter, Fan failure etc.</li> <li>b) The back feed protection device should be available inside the UPS to prevent any current that could cause an electric shock from back feeding to the incoming power supply connection / input feeder.</li> <li>c) HRC fuses in the control circuit/other areas</li> <li>d) Should have inbuilt <b>Surge Protection Device (SPD)</b>, UL/CE Certified at input side to remove transient Surge, Voltage Spikes etc.</li> <li>e) The system should have <b>IP20</b> protection for both UPS &amp; Battery Bank</li> </ul>	
6	<p><b>Alarm Indications:</b> Mains failure, Inverter Load On Bypass failure / unsynchronized, Bypass ON, DC over Voltage, over Load, over Temperature, Output Voltage Error, Battery On Load, Low Battery</p> <p><b>Annunciations:</b> Alarm annunciation shall be provided using LED/LCD display for depiction of fault conditions in the UPS system along with audible alarm. The system shall have 'accept', 'reset' and 'test' facility over separate push buttons. The annunciation system should cover not only limited to the faults described earlier but should include the following or more if required. The feedback may also be taken in the SCADA software installed in the Control Room of the Plant.</p> <ul style="list-style-type: none"> <li>i. Over load / voltage error</li> <li>ii. DC over voltage</li> <li>iii. Emergency shutdown</li> <li>iv. Rectifier fault (low/over voltage/current)</li> <li>v. Inverter fault (low/over voltage/current)</li> <li>vi. Battery low condition</li> <li>vii. Mains input or UPS output voltage error/failure</li> <li>viii. Cooling fan failure, each of wherever provided</li> <li>ix. Failure signals of fuses</li> <li>x. Static by-pass ready/fault</li> <li>xi. Static by-pass inhibited</li> <li>xii. Ups fail</li> <li>xiii. Short Circuit</li> <li>xiv. Battery Charging etc.</li> </ul>	
7	<p><b>Environmental Conditions:</b></p> <ul style="list-style-type: none"> <li>a) Operating temperature for UPS: 8°- 40°C without de-rating considering Ambient in Kolkata</li> <li>b) Humidity: 20 – 95% (non-condensing)</li> <li>c) Ventilation: Forced Air</li> <li>d) Noise level should not go beyond latest BIS specification limit within and up to 1 meter. <b>Vendor should specify their Noise level limit</b></li> </ul>	
8	<p><b>Additional Features:</b></p> <ul style="list-style-type: none"> <li>a) The total system (Charger &amp; Inverter section) should be controlled by microprocessor based system</li> <li>b) Built in advance Battery Management System with battery auto self test facility from front panel</li> <li>c) Should be capable to withstand 100% unbalance load</li> <li>d) Easily visible LCD display &amp; mimics for important running parameters like, I/O Voltage-current, O/P Voltage-current-frequency, power &amp; power factor, battery voltage, current-load %, UPS status etc. with Event history alarms recording (700-900) against type of Fault</li> <li>e) Should be immune to Input Phase Reversal</li> </ul>	

8	<p>(...continues) <b>Additional Features:</b></p> <p>f) Communication interface. SNMP / MODBUS / RS485 for SCADA &amp; PC  g) Interfacing compatibility between FB mains &amp; Generator  h) Input &amp; output EMI Filters inside the UPS  i) Vendor has to provide connecting Copper power cables, 4 cores x 150 Sq. mm with copper lugs, glanding &amp; termination of requisite rate from input power point, AC Mains of CGCRI to UPS up to 7-8 mtr. and UPS to battery bank, inter coil connectors (FRLS/FRNC type)</p>
9	<p>Vendor has to mention Make and Country of Origin of below listed Major or Minor Components of Offered Model also mention for Components not listed here:</p> <ul style="list-style-type: none"> <li>i. AC Capacitor :</li> <li>ii. DC Capacitor :</li> <li>iii. Cooling Fan :</li> <li>iv. Bypass Fuse :</li> <li>v. Battery Fuse :</li> <li>vi. DC Fuse :</li> <li>vii. IGBT :</li> <li>viii. Input MCCB :</li> <li>ix. Output MCCB :</li> <li>x. Choke :</li> <li>xi. Input-output Isolation :</li> <li>xii. Static Snubbers Card :</li> <li>xiii. System Control Card :</li> <li>xiv. SMPS For Control Card :</li> <li>xv. Charger PSFB Card :</li> <li>xvi. SMPS Gate Driver Card :</li> <li>xvii. Static SAW Driver Card :</li> <li>xviii. Mimic Card :</li> <li>xix. User I/F Card :</li> <li>xx. LCD/LED/Touch Display :</li> </ul>
10	<p><b>Warranty:</b>  Comprehensive Warranty of 02 years for both UPS and Batteries from the date of Commissioning and handover. All items / components should be covered under warranty, without any exclusion</p>
11	<p><b>Declaration of Service regarding UPS Spares availability:</b>  Manufacture's declaration is essential about Minimum 07 years Spares availability (after 05 years of warranty period) in their stock or in local market as and when it will be required</p>
12	<p>Vendor has to ensure compliance with the following, EMC &amp; RoHS Standards for UPS Safety: (Copy of Certificats of the offered Model must be attached with the Bid documents)</p> <p>a) The system should be classified as VFI-SS-III as per IEC 62040 such that UPS output is independent of supply mains voltage and frequency variations</p>

