



Telephone: +91-40-20203009	Date: 06-06-2022
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PUBLIC TENDER

(TWO-PART TENDER) for the following works:

Supply, Installation, Testing, and Commissioning of 120 KVA modular(N+1) UPS with 15 mins backup and other related works for data center at TIFR, Survey No. 36/P, Gopanpally (Village), Serilingampally (Mandal), Ranga Reddy Dist., Hyderabad-500046.	
Tender No.	TIFR/PD/CA22-42/220351
Type of Tender	Two-Part Tender (Part-I: Technical Bid and Part- II: Price Bid)
Estimated Cost	Rs. 24,90,000/-
Cost of EMD	Rs.49,800/- (Demand Draft to be drawn in favor of "TIFR Center for Interdisciplinary Sciences "Payable at Hyderabad (To be enclosed with the Technical Bid Part -I)). However, contractors who have a valid MSME/NSIC certificate are exempted from the EMD.
Pre-bidding meeting & Time	13-06-2022 at 11:00 Hrs
Last Date for Submission of Tender	20-06-2022 Upto 13:00 Hrs
Date of Opening Bids(Only Part-I: Technical Bid)	20-06-2022 at 15:00 Hrs
Tender Fee	Rs. 500/- (Demand Draft to be drawn in favor of "TIFR Centre for Interdisciplinary Sciences "Payable at Hyderabad (To be enclosed with the Technical Bid Part -I)). However, contractors who have a valid MSME/NSIC certificate are exempted from the tender fee.

- In case the Part "I" and Part "II" bids are not sealed in separate envelopes the tender will be rejected.
- The technical bid should not contain any indication of the price.
- The Technical Bid received without payment of tender fees and EMD shall be summarily rejected.



- Contacts: Mr. Krishna, Tel: 040- 20203009 for any technical or commercial terms clarifications mentioned in the tender.

Sealed tenders are invited for the aforesaid works from contractors having similar work experience in reputed Research Institutions, Universities, Central Government/Public Sector Undertaking, Private Laboratories, Multinational Companies, etc. Interested contractors who are satisfying prequalification criteria stipulated by TIFR-Hyderabad shall only submit their bids. For further details and any clarification on the tender, you may please contact Head-Technical Services, Survey No.36/P, Gopanpally Village, Serilingampally Mandal, Ranga Reddy District, Hyderabad-500046.

The last date for submission of the tender is 20-06-2022 by 13:00 Hrs.

A handwritten signature in black ink, appearing to read 'Rajasekhar. R.', with a checkmark at the end.

(Rajasekhar. R)

Head-Technical Services



TENDER DOCUMENT

Supply, Installation, Testing, and Commissioning of 120 KVA modular(N+1) UPS with 15 mins backup and other related works for data center at TIFR, Survey No. 36/P, Gopanpally (Village), Serilingampally (Mandal), Ranga Reddy Dist., Hyderabad-500046.

NAME OF THE TENDERER:.....

Address:

.....

.....

.....

Last date of submission of the tender: On or before 20-06-2022 by 13:00 Hrs.



TECHNICAL BID

VOLUME-I

Supply, Installation, Testing, and Commissioning of 120 KVA modular(N+1) UPS with 15 mins backup and other related works for data center at TIFR, Survey No. 36/P, Gopanpally (Village), Serilingampally (Mandal), Ranga Reddy Dist., Hyderabad-500046.



Tender Notice	:	TIFR/PD/CA22-42/220351
Name of Work	:	Supply, Installation, Testing, and Commissioning of 120 KVA modular(N+1) UPS with 15 mins backup and other related works for data center at TIFR, Survey No. 36/P, Gopanpally (Village), Serilingampally (Mandal), Ranga Reddy Dist., Hyderabad-500046.
Location	:	Tata Institute of Fundamental Research Survey No. 36/P, Gopanpally village, Serilingampally Mandal, Ranga Reddy District, Hyderabad – 500046.
Estimated Cost	:	Rs.24,90,000/-
EMD	:	Rs.49,800/- (Demand Draft to be drawn in favor of “TIFR Center for Interdisciplinary Sciences ”Payable at Hyderabad (To be enclosed with the Technical Bid Part –I)). However, contractors who have a valid MSME/NSIC certificate are exempted from the EMD.
Delivery Period	:	45 Days (Completion Period)
Validity	:	Seventy Five (75) days after the opening of Part-I, Technical Bid



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SECTION-I

IMPORTANT INFORMATION

INTRODUCTION

The Tata Institute of Fundamental Research is a National Centre of the Government of India, under the umbrella of the Department of Atomic Energy, as well as a deemed University awarding degrees for master's and doctoral programs. Tata Institute of Fundamental Research Center for Interdisciplinary Sciences, Hyderabad invites bids for the following work:

Supply, Installation, Testing, and Commissioning of 120 KVA modular(N+1) UPS with 15 mins backup and other related works for data center at TIFR, Survey No. 36/P, Gopanpally (Village), Serilingampally (Mandal), Ranga Reddy Dist., Hyderabad-500046.

1. PARTICULARS

a)	Location	TIFR, Survey No. 36/P, Gopanpally (Village), Serilingampally (Mandal), Ranga Reddy Dist., Hyderabad-500046.
b)	Pre-Bid Meeting Date & Time	13-06-2022 at 11:00 Hrs
c)	Closing date & time of receipt of bids	20-06-2022 Upto 13:00 Hrs
d)	Date & time of opening of Sealed Cover-I containing Technical Bid	20-06-2022 at 15:00 Hrs
e)	Date of opening of Sealed cover-II containing Financial Bid of eligible bidders	To be intimated to eligible bidders within 7 days after opening of Technical Bids

2. GENERAL INSTRUCTIONS

- 2.1. TIFR shall award the contract for the project through the two Bid systems.
- 2.2. The Contractor is advised to visit and examine the site of work and its surroundings and obtain any information that may be necessary, in addition to those provided in this document. The Contractor shall be deemed to have fully acquainted himself about the site condition, whether he inspects it or not.
- 2.3. The Contractor should adhere to the building bye-laws applicable for the area.
- 2.4. All clarifications shall be sought before the date of the pre-bid meeting. The bidders may make suggestions which shall be considered during the Pre-Bid Meeting. No further clarifications shall be issued after the issue of noteworthy replies to the pre-bid queries.



- 2.5. The submission of the bid by the Contractor would imply that they have carefully read and agreed to the terms and conditions contained in this bid document.
- 2.6. The bid for the work shall remain open for acceptance for a period of 75 (Seventy Five) days from the date of submission of the bids, which period may be extended by mutual agreement and the Contractor shall not cancel or withdraw the offer during this period.
- 2.7. This bid document shall form a part of the contract agreement.

3. SUBMISSION OF BIDS

Bids shall be submitted to Head- Technical Services, **TIFR, Survey No. 36/P, Gopanpally (Village), Serilingampally (Mandal), Ranga Reddy Dist, Hyderabad-500046** in a sealed Master envelope superscribed "Bid for **Supply, Installation, Testing, and Commissioning of 120 KVA modular(N+1) UPS with 15 mins backup and other related works for data center at TIFR** with our enquiry no. and due date, containing two separate sealed covers clearly superscribed as "**Technical Bid**" and "**Financial Bid**" before the closing date and time of submission in the following manner:

- a) "**Technical Bid**": This will contain the Technical part, Eligibility Documents along with testimonials. Earnest Money Deposit (EMD).
- b) "**Financial Bid**": This will contain the complete bidding document with duly filled in Schedule of Financial Quote of Financial Bid & Tender Drawings.

The Bids without the signature of the authorized person of bidder and seal, without EMD with conditions or conditional rebates shall be summarily rejected.

4. EVALUATION OF BID

- 4.1. **EVALUATION OF TECHNICAL BID**: The bids received will first be first opened and will be examined for EMD, Eligibility Criteria, Conditions, etc. Conditional Tenders and Tenders without EMD shall be summarily rejected.
- 4.2. **EVALUATION OF FINANCIAL BID**: The Financial Bid should contain the complete bid document with duly filled in Schedule of Financial Quote of Financial Bid and signed Tender drawings. Financial Bids of Technically qualified Bidders will only be opened. Work will be awarded to the lowest bidder (L1) based on their quotes after making necessary arithmetical checks.

5. SCOPE & OBJECTIVE

The Objective of the tender is to **Supply, Installation, Testing, and Commissioning of 120 KVA modular(N+1) UPS with 15 mins backup and other related works for data center at TIFR, Survey No. 36/P, Gopanpally (Village), Serilingampally (Mandal), Ranga Reddy Dist., Hyderabad-500046** as per the specifications and Bill of quantities mentioned in the Financial Bid.



Period of Completion of Work: 45 days from the date of issue of work order

Defect Liability Period: For UPS-5 Years, Batteries - 2 years

6. PAYMENT SCHEDULE:

The contractor shall submit the bills for payments along with a detailed statement showing the actual works carried out under different heads of items in the format specified by the TIFR. The minimum value of the work for interim payment (Two Running Bills) shall be 35% of the work order value. All interim and final bills will be settled based on the joint measurements of each item of work and certified by TIFR Engineer. The bills for nonperishable materials on site may also be submitted and the payment by TIFR against the same shall be to the maximum extent of 60% of the value of these materials on production of sufficient documentary evidence ie. Original invoice, Inventory, etc. All interim bills will be paid within **15** days from the date of submission and Final Bill along with all relevant documents will be settled within **30** days from the date of submission with the certification of TIFR Engineer.



SECTION-II

ELIGIBILITY CRITERIA FOR TENDER QUALIFICATION

Supply, Installation, Testing, and Commissioning of 120 KVA modular(N+1) UPS with 15 mins backup and other related works for data center at TIFR, Survey No. 36/P, Gopanpally (Village), Serilingampally (Mandal), Ranga Reddy Dist., Hyderabad-500046.

• **Eligibility criteria:**

1. UPS OEMs or authorized channel partners only are eligible to submit the offer.
2. IT Returns for the last three consecutive financial years ended on March 31, 2022 audited by CA.
3. The Agencies/Contractors should have an average annual turnover of Rs.9.96 lakhs during three previous financial years ending March 31, 2022.
4. The Agencies/Contractors shall be in profit for the last three financial years and should have valid PAN from Income Tax Authority, GST registration No. etc., and any other registration applicable/mandatory for the contract.
5. Quoted UPS model shall meet all the technical specifications and compliance with the technical data sheet (quoted UPS model catalog to be attached)
6. The Agencies/Contractors should have executed similar installations for data centers or IT works or other facilities successfully at least
 - 6.1. One similar work costing Rs.19.92Lakhs or
 - 6.2. Two similar works costing Rs. 14.94 Lakhs or
 - 6.3. Three similar works costing Rs. 9.96Lakhs during the last 7 financial years ended on the end date of receiving tender for Research Institutes, Universities, Private Laboratories, R & D institutes, etc. in any Government /PSU/Private organizations of repute.

The Agencies/Contractors should furnish copies of work orders and completion certificates from the clients in support of the above.

Note:

- ❖ Agencies/Contractors should have a full-fledged in-house project management team to undertake the jobs.
- ❖ The Agencies/Contractors shall **strictly furnish** aforesaid information in the formats/schedules given. **Non-adherence to the furnishing information in the given format/schedules given will lead to disqualification of tender.**
- ❖ Instructions to Agencies/Contractors for furnishing the information is given as under:
 - Each page of the application shall be signed by a person having the necessary authority to do so.



- If the space in the proforma is insufficient for furnishing full details, such information may be given in separate sheets.
- Applicants are required to furnish information against each item of the application. In case a certain item is not applicable, please write NA. The application containing incorrect and or inadequate information is liable to be rejected.



SCHEDULE – A
BASIC INFORMATION

1. Name of the firm :
2. a) Address :
- b) Telephone / Fax No. :
- c) Mobile No. Contact Person :
- d) PAN No. :
- e) GST Registration No. :
- f) Labour License Details :
- Branch Office if any in Hyderabad :
3. Type of Organization :
(Proprietorships / Partnership) Ltd. Co. /
Co-Operative) (Copy of relevant document
to be enclosed)
4. Date of Incorporation :
5. Nature of Business :
6. Experience as prime Agencies/
Contractors (in Yrs.) :
7. Name and address of Bankers :
8. Organization chart of the Company :
including names and positions of directors
/ key personnel

Signature of the Applicant (s)



SCHEDULE – B

Major UPS installation works (Copies of the completion certificate to be enclosed)

A. Similar work of costing Rs 19.92 lakhs or two similar works of costing Rs.14.94 lakhs or 3 similar works of costing Rs.9.96 Lakhs during last 7 financial years ended on the end date of receiving tender for Research Institutes, Universities, Private Laboratories, R & D institutes, etc

Sr. No	Name of the project & Address	Description of work in brief	Name of the Engineer	Name of the client also indicate whether Govt or semi Govt or Pvt body with full postal address	Contract Amount in Rs.	Year of commencement	Date of Completion		Whether work was left /uncompleted or the contract was terminated from either side? Give Details.	Any other relevant information
							Stipulated	Actual		
1.										
2.										

B. List of works in progress above Rs. 9.96 lakhs.

Sr No.	Name of the project & Address	Description of work in brief	Name of the Engineer with a full postal address.	Name of the Client. Also indicate whether Govt. or semi Govt. or Pvt. Body with full postal address	Contract Amount in (Rs.)	Date of Completion	Present stage of work with reasons if the work is getting delayed	Any other relevant information
1.								
2.								

Signature of the Applicant (s)



SCHEDULE – C

TECHNICAL PERSONNEL & SPECIAL EXPERIENCE

List of technical personnel in your establishment giving details about their technical qualification and experience

Sr No	Name	Age	Qualifications	Project Experience	Nature of works handled	Name of the project Handled	Date from which employed in your organization	Indicate special experience in UPS installation & Testing projects in which were employed
1								
2								

2. Indicate other points if any to show your technical and managerial competency to indicate any important point in your favour.

Signature of the Applicant (s)



SCHEDULE – D

FINANCIAL POSITION AND WORKING RESULTS

		2019-20	2020-21	2021-22
1	Annual turnover	:	Rs.	
2.	Net Profit	:	Rs.	
3.	Credit Facilities from the Bank	:	Rs.	
	a) Cash Credit	:	Rs.	
	b) Overdraft Limit	:	Rs.	
	c) Guarantee	:	Rs.	
	d) Others	:	Rs.	
4.	Certificate from the Bankers regarding financial soundness of the applicant	:	Enclosed (Yes / No)	
5.	Solvency Certificate from the Bankers	:	Enclosed (Yes / No)	

Signature of the Application (s)



SCHEDULE – E

MISCELLANEOUS INFORMATION

- 1 Whether it would be possible to process Bank :

 Guarantee for various advances
 during the execution of the work.

- 2 Details of Civil Suits / Litigations arised during :
 the execution of the contracts in the last 5
 years.

- 3 Latest Income Tax Clearance Certificate :

- 4 Name of the two senior officials of :
 Organizations preferably Govt./Semi Govt/
 Autonomous/ Public Sector Organization for
 whom you have executed important and
 major works, who may be directly
 contracted by TIFR to gather information
 about your ability, competence and capacity
 of your work/organization/etc.

- 5 Number of Supplementary sheets attached. :

Signature of the Applicant (s)



SECTION-III

NOTICE & INSTRUCTIONS

1. **Sealed item rate tenders** in the prescribed form are invited from Head-Technical Services, Tata Institute of Fundamental Research, Center for Interdisciplinary Services, Hyderabad, for the following:

Tender Notice No.	TIFR/PD/CA22-42/220351
Name of Work	Supply, Installation, Testing, and Commissioning of 120 KVA modular(N+1) UPS with 15 mins backup and other related works for data center at TIFR, Survey No. 36/P, Gopanpally (Village), Serilingampally (Mandal), Ranga Reddy Dist., Hyderabad-500046.
Estimated Cost	Rs.24,90,000/-
Time Limit	45 days (Completion Period)
Earnest Money Deposit	Rs.49,800/- (Demand Draft to be drawn in favor of "TIFR Centre for Interdisciplinary Sciences "Payable at Hyderabad (To be enclosed with the Technical Bid Part -I)). However, contractors who have a valid MSME/NSIC certificate are exempted from the EMD.
Tender Fee	Rs.500 (Rupees Five Hundred only)
Last Date & Time of Submission of Tender	20-06-2022 Upto 13:00 Hrs
Date & Time of Opening of Technical Bid	20-06-2022 at 15:00 Hrs

2. **Submission of Tender & Opening:**

Tenders shall be submitted in a sealed envelope super scribed with Tender enquiry No., Due Date and with the heading as **"Supply, Installation, Testing, and Commissioning of 120 KVA modular(N+1) UPS with 15 mins backup and other related works for data center at TIFR, Survey No. 36/P, Gopanpally (Village), Serilingampally (Mandal), Ranga Reddy Dist., Hyderabad-500046."** containing two separate sealed covers clearly super scribed as "TECHNICAL BID" and "FINANCIAL BID" on or before the closing date and time of submission in the following manner:

"TECHNICAL BID": This will contain the following:

- a) Proof of Tender Cost paid already



- b) Earnest Money Deposit as stipulated
- c) Schedules giving information on Eligibility Criteria with supporting documents specified for tender qualification.

“FINANCIAL BID”: Signed copy of the Financial Bid quoting amount in the stipulated format and signed copies of the tender drawings.

3. Earnest Money Deposit (EMD): EMD shall be submitted in the form of Demand Draft / Pay Order / Banker’s cheque issued by a Scheduled Bank, drawn in favor of **“TIFR Center for Interdisciplinary Sciences”**, (To be enclosed with the Technical Bid (Part-I))

Earnest Money Deposit (EMD): Every Bidder has to pay EMD of amount as specified elsewhere in this tender by Demand Draft in favor of **“TIFR Center for Interdisciplinary Sciences”** along with the offer or submit valid MSME certificate & declaration for exemption if any. Quotation received without EMD shall be rejected and no correspondence whatsoever will be entertained. For successful bidder the EMD will be adjusted against Performance Guarantee and will be refunded after completion of work /supply of material at site and for unsuccessful bidders EMD will be refunded after placing the order to successful bidder.

4. Performance guarantee/Security Deposit:

The tenderer, whose tender is accepted, will be required to furnish a performance guarantee/security deposit of 3% of the tendered amount within 7 (seven) working days from the date of intimation. This guarantee shall be in the form Demand Draft / Pay Order / Banker’s cheque / Deposit or Government Securities / Fixed Deposit Receipt (FDR) or Guarantee Bonds (BG) of any Scheduled Bank in accordance with the form as Annexure – II hereto. In case a fixed deposit receipt of any Bank is furnished by the contractor to TIFR as part of the performance guarantee and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to TIFR to make good the deficit.

The Performance Guarantee/Security Deposit shall be initially valid up to 60 months from date of commissioning. The performance guarantee shall be returned to the contractor, without any interest, after recording of the completion certificate for the work by the competent authority.

The Engineer-in-charge shall make a claim under the Performance guarantee for amounts to which TIFR entitled under the contract (notwithstanding and / or without prejudice to any other provisions in the contract agreement) in the event of:

- a) Failure to attend and rectify the problems in the guarantee period, in which event the Engineer- in-charge may claim the full amount of the Performance guarantee.



b) Failure by the contractor to pay TIFR, Hyderabad any amount due, either as agreed by the contractor or determined under any of the Clauses / Conditions of the agreement, within 30 days of the service of notice to this effect by Engineer-in-charge.

In the event of the contract being determined under provisions of any of the relevant clauses of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of TIFR, Hyderabad.

5. Acceptance of Tender: The competent authority, on behalf of TIFR, Hyderabad does not bind itself to accept the lowest or any other tender, and reserves to himself the authority to reject any or all the tenders received, without assignment of any reason. All tenders, in which any of the prescribed conditions is not fulfilled or any condition, including that of conditional rebates, is put forth by the tenderer, shall be summarily rejected.

The Competent Authority, on behalf of TIFR, Hyderabad reserves to itself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rates quoted. The officer inviting tenders shall have the right of rejecting all or any of the tenders and will not be bound to accept the lowest tender or any other tender.

6. Validity of Tender: The tender for the work shall remain open for acceptance for a period of 75 days from the last date of submission of tenders. If any tenderer withdraws his tender before the said period, or before issue of Letter of Intent, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the Department, then TIFR, Hyderabad shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money absolutely. Further the tenderer shall not be allowed to participate in the retendering process of the work.

7. Levy / Taxes payable by contractor:

i. GST or any other tax on materials and services in respect of this contract shall be payable by the contractor and TIFR shall not entertain any claim whatsoever in this respect.

ii. The contractor shall deposit royalty and obtain necessary permit as required for supply of the sand, aggregate, stone etc. from local authorities.

8. Deduction of Income Tax : As per Section 194-C of Income tax Act 1961, as amended by letter No. 275/9/72/9-TJ (Circular No. 86) dated 19.5.72 and No. 275/14/91-IT (B) (Circular No. 593) dated 5.2.91, received from Ministry of Finance, Department of Revenue, Central Board of Direct Taxes, New Delhi, the Income tax @ 2% and Surcharge thereon @12% (or any other amended rate by Ministry of Finance from time to time), of the gross value of the work done will be recovered from the bills. A certificate for the amount so recovered will be issued by the Department.



9. **Site visit by the tenderer before tendering:** Tenderers are advised to inspect and examine the site and its surroundings during working hours and satisfy themselves before submitting their tenders as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed.

10. **Signing of Tender and receipts for payments:** In the event of the tender being submitted by a firm, it must be signed separately by each partner thereof or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power-of-attorney authorizing him to do so, such power of attorney to be produced with the tender, and it must disclose that the firm is duly registered under the Indian Partnership Act-1952. Receipts for payments made on account of work, when executed by a firm, must also be signed by all the partners, except where contractors are described in their tender as a firm, in which case the receipts must be signed in the name of the firm by one of the partners, or by some other person having due authority to give effectual receipts for the firm.

11. **Tenderer's responsibilities:** The tenderer shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a tenderer implies that they have read this notice & all other contract documents, and has made himself aware of the scope & specifications of the work to be done and local conditions and factors having a bearing on the execution of the work.

12. **Signing of contract:** The Notice Inviting Tender shall form a part of the contract document. The successful tenderer / contractor, on acceptance of his tender by the Accepting Authority, shall, within 15 days from the stipulated date of start of the work, sign the contract consisting of: the Notice Inviting Tender, all the documents including all conditions, specifications and drawings, if any, forms the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.

13. **Canvassing,** either directly or indirectly, in connection with the tenders is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection and may be barred from future participation in TIFR works.

Head-Technical Services
For and on behalf of TIFR, Hyderabad



SECTION-IV

GENERAL CONDITIONS OF CONTRACT

1. Definition of Terms:

1.1. In constructing these general conditions and the specifications the following works shall have the meanings herein assigned to them unless there is something in the subject or context inconsistent with such construction.

1.2. The 'Purchaser' shall mean Tata Institute of Fundamental Research- -Hyderabad, Tata Institute of Fundamental Research, 36/P, Gopanpally Village, Serilingampally Mandal, Ranga Reddy District, Hyderabad 500046 and shall include the Purchaser's heirs, successors and assigns.

1.3. The term 'Engineer In-Charge' and 'Engineer' shall mean Engineer In-Charge, TIFR-Hyderabad or some other person for the time being or from time to time duly appointed in writing by the Purchaser to act as Engineer In-Charge for the purpose of the Contract or in default of such appointment the Purchaser.

1.4. The term 'Contractor'/'Supplier'/'Bidder'/'Vender' shall mean the Bidder whose tender has been accepted by the Owner and shall include the Bidder's heirs, successors and assigns approved by the Purchaser:

1.5. The term 'Sub-Contractor' shall mean the firm or persons named in the contract for any art of the work or any person to whom any part of the work has been sublet with the consent in writing of the Engineer In-Charge and shall include his heirs, successors and assigns approved by the Purchaser.

1.6. The Term 'Inspector' shall mean any person appointed by or on behalf of the Purchaser to inspect supplies, stores or work under the contract or any person deputed by the Inspector for the purpose.

1.7. The term 'Particulars' shall mean, the following :

1.7.1. Specifications

1.7.2. Drawing (ANNEXURE-V)

1.7.3. Sealed Pattern denoting a pattern sealed and signed by the Inspector.

1.7.4. Proprietary make denoting the product of an individual firm.

1.7.5. Any other details governing the construction, manufacture and/or supply as existing for the contract.

1.8. The term 'Specification' shall mean the specifications annexed to or issued with these Conditions of Contract.

1.9. The term 'Site' shall mean the place or places at which the Equipment is to be delivered or work done by the Contractor; and shall include, where applicable, the lands and buildings upon or in which the works are to be executed and shall also include the place or places at which fabrication and other work is being carried out by the Contractor.

1.10. 'Electrical Equipment', 'Stores', 'Work' or 'Works' shall mean and include equipment and materials to be provided and work to be done by the Contractor under the Contract.

1.11. The 'Contract' shall mean acceptance of the work order placed on contractor/supplier under section (2) of these conditions and shall include these conditions of Contract, Specifications, Schedule, Drawing, Letter of Intent of the Purchaser and any subsequent amendments mutually agreed upon.



1.12. 'Tests on Completion' shall mean such tests which are prescribed by the specifications or have been mutually agreed to between the Contractor/Supplier and the Purchaser to be made before the equipment is taken over by the Purchaser.

1.13. 'Writing' shall include any manuscript, typewritten or printed statement under or over signature or seal as the case may be. Words importing 'person' shall include firms, companies, corporations and association of individuals whether incorporated or not.

1.14. Words importing singular shall also include plural and vice versa where context requires.

1.15. Bidders are advised to visit and inspect the work-site to make themselves fully conversant with the site conditions and nature of work. Any claim by them after the opening of bids on account of themselves being unaware of any site condition shall not be entertained.

2. Contract

Contractor/Supplier/Manufacturer should send their acceptance letter on receipt of 'Letter of Intent' or 'Work Order' or 'Purchase Order' within the stipulated period. On expiry of said period or exorbitant delay in commencing or executing the work, the Purchaser shall not be liable to any claim from the Contractor/ Supplier for work entrusted to and may revoke the contract.

3. Work at Site

3.1. Access to the works shall be allowed only to the Contractor/Supplier, Sub-Contractors or his duly appointed representatives. The Contractor/ Supplier shall not object to the execution of other works by other contractors or tradesmen and shall afford them every facility for execution of their several works simultaneously with his own.

3.2. Work at the Purchaser's premises shall be carried out at such time as the Purchaser may approve but the Purchaser shall give the Contractor/ Supplier all reasonable facilities for the same. The Contractor/Supplier shall provide sufficient fencing, notice boards etc. to guard the works and warn the public.

3.3. The Contractor shall obey Central, Local and State regulations and enactments pertaining to workmen and labour and the Engineer In-Charge shall have the right to enquire into and decide all complaints on such matters. The Contractor should comply with the Minimum Wages Act and should also ensure that safe practices are followed by his people at site.

4. Delays

The Contractor/Supplier shall not be entitled to any compensation for any loss suffered by him on account of delays in commencing or executing the work, whatever the cause for such delays may be, including delays in procuring Government controlled or other materials and delay in obtaining instructions and decisions from the Engineer In-Charge.

5. Taking Over

The equipment when erected at site shall be deemed to have been taken over by the Purchaser when the Engineer In-Charge will have certified in writing that the equipment has fulfilled the contract conditions.

6. Extension of Time

If the Contractor/Supplier is delayed in the progress of work by changes ordered in the work, or by any cause, which the Engineer In-Charge shall decide to justify the delay, then the time of completion shall be extended by a reasonable time. In this regard, Contractor shall maintain proper hindrance register and record all such events with due signature of E-I-C on occurrence of such instants for seeking extension of time. However, no such extension shall be allowed unless requested for extension is made in writing by the Contractor/Supplier to the Engineer In-Charge within 15 days from the date of occurrence of the delay.

7. Liquidated Damages

7.1. For all delays, which do not merit any extension of time, the Contractor/ Supplier shall attract 1% penalty per week for the first 4 weeks of delay and 2% penalty per week for the next 4 weeks of the total contract value. The amount of liquidated damages shall be recoverable from the payment due to the Contractor/Supplier up to maximum of 10% of value of contract.

7.2. The deduction of liquidated damages shall not, however, absolve the Contractor/Supplier of his responsibility and obligations under the contract to complete the work in its entirety and shall also be without prejudice to action by the Purchaser under clause:

‘Termination of Contract by the Purchaser’. After that the same shall be completed by the Purchaser at the Contractor’s/Supplier’s risk and cost.

8. Other Damages:

8.1. The Contractor/Supplier/Manufacturer shall be responsible for all injury to persons, animals or things and for all damage to the works, structure of, and decorative work in the property which may arise from operation or neglect of himself or any of his Subcontractor or of his or Sub-Contractor’s employees, whether such injury or damage may arise from carelessness, accident or any other cause whatever in any way connected with the carrying out of this contract. This clause shall be held to include any damage to buildings, whether immediately adjacent or otherwise, any damage to roads, streets, foot paths, as well as all damage caused to the works forming the subject of this contract by frost or other inclemency of weather. The Contractor/Supplier shall indemnify the Purchaser and hold him harmless in respect of all and any expenses on property as aforesaid and also in respect of any claim made in respect of injury or damage under any acts of Government or otherwise and also in respect of any award of compensation or damages consequent upon such claim. Contractor shall furnish necessary insurance documents (Contractor All Risk Policy) taken for the site before commencement of work.



8.2. The Contractor/Supplier/Manufacturer shall reinstate all damage of every sort mentioned in this clause, so as to deliver up the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of the Owner/third parties.

8.3. The Contractor/Supplier/Manufacturer shall indemnify the Purchaser against all claims which may be made against the Purchaser, by any member of the public or other party, in respect of anything which may arise in respect of the works or in consequence thereof and shall, at his own expense, effect and maintain, until the work has been 'Taken Over' under clause 5.

8.4. The Contractor/Supplier/Manufacturer shall also indemnify the Purchaser against all claims which may be made upon the Purchaser whether under the Workmen's Compensation Act or any other statute in force during the currency of this contract or at common law in respect of any employee of the Contractor/Supplier or of any of his sub-contractor and shall at his own expense effect and maintain until the work has been 'Taken Over', with an approved office. Contractor shall furnish a copy of the labour licence before commencement of work. If the aforesaid are not applicable contractor should furnish declaration to this effect and shall indemnify TIFR-Hyderabad, Hyderabad for violation of any such compliances.

8.5. The Purchaser, with the concurrence of the Engineer In-Charge, shall be at liberty and is hereby empowered to deduct the amount of any damages compensation costs, charges and expenses arising or accruing from or in respect of any such claims or damages from any sums due to or become due to the Contractor/Supplier.

9. Guarantee and Defects Liability Period:

9.1. The Contractor/Supplier/Manufacturer shall guarantee that all equipment shall be free from any defect due to the defective materials and bad workmanship and that the equipment shall operate satisfactorily and that the performance and efficiencies of the equipment shall be not less than the guaranteed values. The guarantee shall be valid for a period of **5 years** after the date of commissioning as certified by the Engineer In-Charge. Any parts found defective shall be replaced free of all costs by the Contractor/Supplier. The services of the Contractor's/Supplier's personnel if requisitioned during this period for such work shall be made available free of any cost to the Purchaser.

9.2. If the defects are not remedied within a reasonable time, the Purchaser may proceed to do so at the Contractor's/Supplier's risk and expense without prejudice to any other rights.

10. Terms of Payment

The contractor will be paid only 2 Running Account (RA) Bills and Final Bill considering the progress of works based on measurement of works completed. The contractor shall submit the bills for payments along with a detailed statement showing the actual works carried out under different heads of items in the format specified by TIFR-, Hyderabad. Minimum value of the work for interim payment shall be Rs.8,71,5000/-

BILL FORMAT

Tender Item No.	Description of Items (At least 2 lines)	Unit	Tender Quantity	Executed Quantity	Rate	% work done	Amount

NOTE: All quantities in the bill should be cumulative.

All measurements should be in the order of tender sequence and should be recorded in the measurement book. The Measurement should be strictly in the below mentioned format only.

MEASUREMENT FORMAT

Tender Item No.	Description of Item & Location against each Measurement taken	Nos.	Length	Breadth /width	Height	Qty.	Remarks

The works which have been certified for running bills will also be verified along with the final bill and any defects found need to be replaced / rectified by the contractor at his cost. Till the time, the site is handed over in full, it is the contractor's liability to safeguard the works done and completed at site. The Progress of work should not be affected in any way quoting the reason of non-availability of funds / materials / releasing of Running bill. The liability of the contractor is to complete all works in his scope in the scheduled time as per the terms of contract and will not relieve the contractors from his obligations once the Running bill is paid / kept pending.

Final Payment

Payments of Final bill shall be made after deduction of d /Performance guarantee as specified. The Security Deposit / Performance guarantee, shall be refunded on expiry of the Defects Liability Period after rectifying all defects to the satisfaction of the TIFR-Hyderabad/E.I.C. The acceptance of payment of the final bill by the Contractor would indicate that he would have no further claim in respect of the work executed.

11. Special conditions of Contract governing supplies of the Equipment of this Tender:

11.1. Scope:

- 11.1.1. This specification covers the supply of material as per the enclosed details and quantities and supervision of erection/installation, testing and commissioning of the material.
- 11.1.2. The Contractor/Manufacturer/Supplier shall quote for all the materials along with accessories as mentioned in the enquiry.
- 11.1.3. All the supply shall be in accordance with relevant I.S. Specifications and recognized standards.

11.2. Inspection & Testing of Material:

- 11.2.1. Contractor/Manufacturer/Supplier shall submit the lists of Type Tests and Routine Tests to be conducted on the material in the Technical Data Sheet.

11.2.2. Factory Test-

(a) The UPS unit shall be tested at factory before delivery to check all the technical parameters as mentioned in technical specifications by the TIFR' s Officer-in-charge or his representative. The boarding, loading and travel etc. of TIFR' s Officer-in-charge or his representative will be arranged and borne by the supplier.

Testing at Site:

(b) After completion of installation work in all respect, the tenderer shall make necessary arrangement for testing of individual UPS along with batteries on full load for the backup time specified for the individual UPS to check the adequacy of capacity of entire system, batteries before accepting the work. Load bank (Resistive) required for testing shall be arranged by the tenderer within quoted rates and nothing extra shall be paid.

(c) The installation will be accepted by TIFR only after complying with observations of inspection team (if any) for the work executed by the tenderer under the agreement

- 11.2.3. All the materials shall be tested at factory as per IS Specifications of material by Purchaser's Engineer In-Charge/Engineers before dispatch at the cost of Contractor/Manufacturer/Supplier.



- 11.2.4. Contractor/Manufacturer/Supplier shall inform the concerned Engineer In-Charge for inspection and testing in accordance and fix up a suitable date for the same.
- 11.3. **Test Certificates:**
Contractor/Manufacturer/Supplier shall submit the Test Certificates of all materials.
- 11.4. **Taxes & Duty:**
- 11.4.1. Contractor/Manufacturer/Supplier shall quote the basic price of material. Excise Duty, Custom Duty, Sales Tax, GST, Octroi, Delivery Charges, Transit Insurance and/or any other charges, if any, must be indicated separately.
- 11.4.2. TIFR being a research institute of Govt. of India, is eligible for Excise Duty Exemption on equipment supplies. Necessary exemption certificate will be provided by TIFR.
- 11.4.3. Transit Insurance: The Transit Insurance from the point of dispatch to the site of erection shall be in the scope of Supplier and the cost shall be indicated separately.
- 11.5. **Delivery of Material:**
- 11.5.1. The Contractor/Manufacturer/Supplier shall be held responsible for loading of all equipment and for the stores being sufficiently and properly packed for transport by rail, road, sea or air so as to ensure their being free from any loss or damage on arrival at destination. The packing and marking of packages shall be done by and at the expense of the Manufacturer/Supplier. Each package shall contain a packing note quoting the purchase order number and detail of the contents.
- 11.5.2. All the materials must be delivered at site i.e. Hyderabad - TIFR at 36/P, Gopanpally Village, Serilingampally Mandal, Ranga Reddy District, Hyderabad-500046. The unloading and positioning of all equipment at the designated locations specified by the Engineer In-Charge shall be in the scope of the Supplier. The Supplier shall arrange for handling equipment, labour for rigging, etc. as required.
- 11.5.3. Material must be delivered at site in all respects as mentioned in the Purchase Order.
- 11.6. **Guarantee:**
If during the period of guarantee any fault or defect arises, the material shall be replaced/repared immediately free of cost, as well as any replacement of accessories required shall be done free of cost.
- 11.7. **Mistake in Drawing:**

The Contractor/Supplier shall be responsible for and shall pay for any alterations in works due to any discrepancies, errors or omissions the drawings or other particulars supplied by him whether such drawings or particulars have been approved by the Purchaser or not.

11.8. Responsibility for Completeness:

Any fittings or accessories which may not be specifically mentioned in the specifications but which are usual or necessary are to be provided by the Contractor/Supplier without extra charge and the equipment must be complete in all details.

11.9. Extra/Deviation items & Variations in quantity

TIFR-Hyderabad has the right to omit/delete any of the items and also increase/decrease the quantities mentioned in the tender. No claim or any compensation in this regard will be accepted or paid to the contractor. However, if any new /additional items/deviated items are to be executed, the contractor is bound to execute such items with prior approval from TIFR-Hyderabad after furnishing the proper rate analysis for such extra/deviated items

11.10. Rejection of Defective Equipment:

- 11.10.1. If the equipment after the acceptance thereof is discovered to be defective, notwithstanding that such defects could have been discovered at the time of inspection or found to have failed to fulfill the requirements of the contract or developed defects after the erection within a period of 12 months from the date of erection, even if such erection is done by the Purchaser, he shall be entitled to give a notice on the Contractor/Supplier setting forth details of such defects or failure and the Contractor/Supplier shall, provided such notice is given within a period of 14 months from the date of such erection or acceptance, forthwith make the defective equipment good or alter the same to make it comply with the requirements of the contract at his own cost and further if in the opinion of the Purchaser, the defects are of such a nature that the defects cannot be made good or required without impairing the efficiency or workability of the equipment or if in the opinion of the Purchaser the Equipment cannot be repaired or altered to make it comply with the requirements of the Contract, the Contractor/Supplier shall, provided a notice given by the Purchaser in this behalf within a period of 14 months from the date of erection or acceptance thereof, remove and replace the same with the equipment conforming to the stipulated particulars, in all respects at the Contractor's/Supplier's own cost. Should he fail to do so within a reasonable time, the Purchaser may reject and replace, at the cost of the Contractor/Supplier, with equipment of the same particulars or if equipment

conforming to the stipulated particulars are not in the opinion of the Purchaser readily procurable, such opinion being final, then with the nearest substitutes.

11.10.2. In the event of such rejection the Purchaser shall be entitled to use the Equipment in a reasonable and proper manner for a time reasonably sufficient to enable him to obtain replacement equipment as herein before provided.

11.11. **Inspection and Final Tests:**

All tests necessary to ensure that the Equipment complies with the particulars and guarantee shall be carried out at such place or places as may be determined by the Inspector. Should, however, it be necessary for the final test as to performance or guarantee to be held over until the Equipment is erected at site they shall be carried out within one month of completion of erection.

11.12. **Intimation about Delivery:**

If the Purchaser shall have notified the Contractor/Supplier in writing that the former is not ready to take delivery, no equipment or materials shall be forwarded until an intimation in writing shall have been given to the Contractor/Supplier by the Purchaser that he is ready to take delivery.

11.13. **Delay in erection:**

Wherever erection of an equipment or machinery is the responsibility of the Contractor/Supplier as a term of the contract and in case the Contractor fails to carry out the erection as and when called upon as to do within the period specified by the Purchaser, the Purchaser shall have right to get the erection done through any source of his choice. In such an event, the Contractor/Supplier shall be liable to bear any additional expenditure that the Purchaser may incur towards erection. The Contractor/Supplier shall, however not be entitled to any gain due to such an action by the Purchaser.

11.14. **Definition of Equipment:**

The work 'Equipment' wherever, it appears in these 'Special Conditions of Contract' governing supplier of Equipment in this Tender shall mean all switchgears, panels, etc. or parts thereof or what the Contractor/Supplier agrees to supply under Contract as specified in the work order.

11.15. **Force Majeure:**

Normally Force Majeure shall cover only acts of God, fire, wars, strike, riots and civil commotion, floods, epidemic, quarantine related strikes, freight embargoes, etc. The contractor shall not be liable for any liquidated damages for delay or any failure to perform the contract arising out of Force Majeure conditions, provided that the contractor shall within ten days from the beginning of such delay notify the department in writing the cause

of delay along with convincing supporting evidence. The department once convinced and accepted the reason may extend the supply completion period by a suitable / reasonable margin.

11.16. Termination of Contract by the Purchaser:

- 11.16.1. If the Contractor/Supplier commits any 'Act of Insolvency' or shall be adjudged an Insolvent or shall have an order for compulsory winding up made against him or pass effective resolution for winding up voluntarily, or if the Contractor/Supplier shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the Contractor/ Supplier, or shall assign the Contract without the prior consent in writing of the Engineer In-Charge, or shall charge or encumber this Contract or any payments due or which may become due to the Contractor/Supplier there under, or if the Engineer In-Charge shall certify in writing to the Purchaser that the Contractor/Supplier –
- 11.16.1.1. has abandoned the Contract, or
 - 11.16.1.2. has failed to commence the works, or has without any lawful excuse these conditions suspended the progress of the works for seven days after receiving from the Engineer In-Charge written notice to proceed, or
 - 11.16.1.3. has failed to proceed with the work with such due diligence and failed to make such due progress as would enable the works to be completed in accordance with the approved programme of work,, or
 - 11.16.1.4. has failed to remove materials from the site or to pull down and replace work for seven days after receiving from the Engineer In-Charge written notice that the said materials or work were condemned and rejected by the Engineer In-Charge under these conditions, or
 - 11.16.1.5. has neglected or failed persistently to observe and perform all or any of the acts matters or things by this contract to be observed and performed by the Contractor for seven days after written notice shall have been given to the Contractor/ Supplier requiring the Contractor/Supplier to observe or perform the same, or
 - 11.16.1.6. has to the detriment of good workmanship or in defiance of the Engineer In-Charge's instructions to the contrary sub-let any part of the contract, then and in any of the above said causes, the Purchaser with the written consent of the Engineer In-Charge may, notwithstanding any previous waiver, after giving seven days' notice in writing under the provisions of this clause to the Contractor/Supplier, determine the contract but without prejudice to the powers of the Engineer In- Charge or the obligations and liabilities of the Contract, the whole of which shall continue to be in force as if the contract has not been so determined and as if the work subsequently executed has been executed by and on behalf of the Contractor/ Supplier.

- 11.16.2. After the issue of such notice, the Contractor/Supplier shall not be at liberty to remove from site any equipment, tools and materials belonging to him which shall have been placed thereon for the purpose of the works and the Purchaser shall have lien upon such equipment, tools or materials to subsist from the date of such notice and until the notice shall have been complied with.
- 11.16.3. If the Contractor/Supplier shall fail to comply with the requirements of said notice for seven days after such notice has been given, the Purchaser shall have the power to enter upon and take possession of the works and site and all equipment, tools and materials thereon, and to engage any other person, firm or agency to complete the works, utilizing the equipment, tools and materials to the extent possible. The Purchaser shall not in any way be responsible for damage or loss of the tools, equipment and materials and the Contractor/Supplier shall not have any compensation therefore.
- 11.16.4. Upon completion of the works, the Engineer In-Charge shall certify the amount of expenditure properly incurred consequent on and incidental to the default of the Contractor/Supplier as aforesaid and such amount shall be deducted from the payments due to the Contractor/Supplier, including the Security Deposit. If the said amount exceeds the payment due to the Contractor/Supplier, the Purchaser shall be at liberty to dispose off any of the Contractor's/Supplier's materials, tools or equipment and apply the proceeds for the payments due from the Contractor/Supplier and recover the balance by process of law.
- 11.16.5. After the works have been completed after the amounts due to the Contractor/Supplier, the Engineer In- Charge shall give notice in writing to the Contractor/Supplier to remove the surplus equipment and material from site. If such equipment and materials are not removed within a period of 14 days after such notice, the Purchaser shall have the power to remove and sell the same holding the proceed less the cost of removal and sale, to the credit of the Contractor/Supplier. The Purchaser shall not be responsible for any loss sustained by the Contractor/Supplier from the sale of the equipment and material.
- 13. Contractor's Representative:**
- 13.1. The Contractor/Supplier shall employ at least one qualified representative (ie. Electrical supervisory License with minimum 3 years of experience of similar works as stipulated by TIFR- Hyderabad in the work order) whose name shall have previously been communicated in writing to the Engineer In-Charge and approved by him to supervise the erection. Any written order or instructions given to the representative shall be deemed to have been given to the Contractor/Supplier. The Engineer In-Charge shall be at liberty to object to any particular representative/or any persons employed by the Contractor/Supplier on the work and the Contractor/Supplier shall remove the person objected to, on the receipt of the Engineer In-Charge, in writing, a request requiring him to do so and shall



provide in his place another competent representative acceptable to the Engineer In-Charge.

- 13.2. The Contractor's/Supplier's representative shall be a qualified electrical/ mechanical engineer possessing adequate site experience in similar nature of works.

14. Completion Time:

Unless otherwise agreed in writing between the Purchaser and the Contractor/Supplier, the work contract shall be completed within the stipulated period mentioned elsewhere in this tender document from the date of Work/Purchase Order issued to Contractor/Supplier by the Purchaser.

15. Delivery of Material at Site:

The Contractor/Supplier/Manufacturer shall arrange for safe transit and delivery of material at site and unloading the material at site.

16. Validity of Tender:

The quotation should be valid for 75 days after the opening of the Part—I: Technical Bids.

17. Measurements:

All joint measurements of quantities shall be done by the Contractor at his own cost in the presence of the Engineer In-Charge or any authorized person deputed by him who will certify the routes, length and quantities etc. for the purpose of determination of the amount payable.

18. Spare Parts & Manuals:

Manufacturer/Contractor/Supplier should submit operation, maintenance and spare part list and manuals for all equipment.

19. Training:

Manufacturer/Contractor/Supplier should provide training for operation and maintenance-free of cost for equipment supplied.

20. Special Instruction for bidding process

This tender is a two part tender. The Part-I: Technical Bid and Part-II: Financial Bid. Bidders shall seal each bid separately with a clear label on the envelope about its content. Both the bids should be submitted in a single drop two cover method. Any pricing details must not appear in the Part-I: Technical Bid.

21. Drawings and Documentation:



As-built drawings as specified in these technical specifications shall be submitted by the Contractor.

22. Permissions and Approvals:

All statutory permissions and approvals from Electricity authority as may be required for commissioning of the entire system shall be carried out by the contractor. All necessary documentation for obtaining such permissions and approvals shall be done by the contractor. Purchaser shall assist in providing required declarations. Statutory fees shall be paid by the purchaser.

23. Guarantee:

The equipment shall be guaranteed against all design and manufacturing defects, poor workmanship etc. for a period of 5 years from the date of commissioning. Any defects discovered during this period shall be rectified by the vendor free of cost to the purchaser. However, quarterly preventive maintenance shall be done during the warranty period.

SECTION-V

TECHNICAL SPECIFICATIONS

General Technical Particulars

Supply, Installation, Testing and Commissioning of 1 x 120 kVA/kW Modular Type UPS with Hot-Swappable type Power Modules (N+1 Redundancy) with 15 mins Power back up at full load.

GENERAL

1.01 SUMMARY

This specification describes a three-phase continuous duty, online, double-conversion, solid-state uninterruptible power system, hereafter referred to as the UPS. The UPS shall operate in conjunction with the existing building electrical system to provide power conditioning, backup and distribution for critical electrical loads. The UPS system shall consist of, as required by the project, the UPS module, battery cabinet(s), maintenance bypass, and other features as described in this specification.

1.02 UPS SYSTEM DESCRIPTION

- **UPS System Components:** The UPS system shall consist of the following main components:
 1. One integrated system bypass module and one or more internal uninterruptible power modules. The Static Bypass and associated Control and Monitor Panel, and each UPS include a Rectifier, Inverter, and Battery Charger.
 2. Battery string(s) in matching Battery Cabinets/racks.
 3. Matching accessory cabinets for maintenance bypass(Optional).
 4. Non-matching wall mounted or floor standing maintenance bypass cabinets(Optional).

- **UPS Modes of Operation:** Each UPS shall operate as an online, fully automatic system in the following modes:
 1. **Normal:** Utilizing commercial AC power, the critical load shall be continuously supplied by the Inverter. The Inverter shall power the load while regulating both voltage and frequency. The Rectifier shall derive power from the commercial AC source and shall supply DC power to the Inverter. Simultaneously, the Battery Charger shall charge the battery.
 2. **Battery:** Upon failure of the commercial AC power, the critical load shall continue to be supplied by the Inverter, which shall obtain power from the batteries without any operator intervention. There shall be no interruption to the critical load upon failure or restoration of the commercial AC source.

3. Recharge: Upon restoration of the AC source, the Charger shall recharge the batteries and simultaneously the Rectifier shall provide power to the Inverter. This shall be an automatic function and shall cause no interruption to the critical load.

4. Bypass: If the UPS must be taken out of the Normal mode for overload, load fault, or internal failures, the static bypass switch shall automatically transfer the critical load to the commercial AC power. Return from Bypass mode to Normal mode of operation shall be automatic. No-break transfer to and from Bypass mode shall be capable of being initiated manually from the front panel.

1.03 REFERENCES

- CSA C22.2 No 107.1– Commercial and Industrial Power Supplies. Product safety requirements.
- NEMA PE-1 – (National Electrical Manufacturers Association) – Uninterruptible Power Systems standard.
- IEC 62040-1-1 (International Electro technical Commission) – Uninterruptible power systems (UPS) – Part 1-1: General and safety requirements for UPS used in operator access areas.
- IEC 62040-1-2 (International Electro technical Commission) – Uninterruptible power systems (UPS) – Part 1-2: General and safety requirements for UPS used in restricted access locations.
- IEC 62040-3 (International Electro technical Commission) – Uninterruptible power systems (UPS) – Part 3: Method of specifying the performance and test requirements.
- IEEE 587 (ANSI C62.41) Category A & B (International Electrical and Electronics Engineers) – Recommended practices on surge voltages in low voltage power circuits.
- CISPR 22: FCC Rules and Regulations 47, Part 15, Class A (Federal Communications Commission) – Radio Frequency Devices (prior to Feb 16, 2006).
- MIL-HDBK-217E (Military Handbook) – Reliability prediction of electronics equipment

1.04 SUBMITTALS

A. The UPS shall be supplied with sufficient documentation, including the following manuals:

1. Installation and Operation Manual: One copy of the installation and operation manual shall be furnished. It shall possess sufficient detail and clarity to enable the owner's technicians or representatives to install and operate the UPS equipment and accessories. The manual shall include the following major items:

- a) UPS description
- b) UPS site planning and unpacking

- c) UPS installation
- d) Optional accessory installation
- e) UPS theory of operation
- f) Operating procedures
- g) System events
- h) UPS maintenance
- i) Performance and technical specifications
- j) Wiring requirements and recommendations
- k) Physical features and requirements
- l) Cabinet dimensions

1.05 ENVIRONMENTAL REQUIREMENTS

A. The UPS shall withstand any combination of the following external environmental conditions without operational degradation.

1. Operating Temperature: 0 degrees C to + 40 degrees C (32 degrees F to 104 degrees F) without de-rating (excluding batteries).
2. Storage Temperature: - 25 degrees C to + 60 degrees C (-13 degrees F to 140 degrees F). Prolonged storage above + 40 degrees C (104 degrees F) will cause rapid battery self-discharge.
3. Relative Humidity (operating and storage): 95% maximum non-condensing.
4. Elevation: Operational: 1000 meters maximum without de-rating.

1.06 SAFETY

A. The UPS shall be certified by a recognized NRTL (National Recognized Test Laboratory) in accordance with IEC 62040-3 and as Per CE Certification criteria

B. The UPS shall be certified by a Recognized Test Laboratory in accordance with IEC 62040-3

2 - PRODUCTS

2.01 UPS STANDARD FEATURES

The UPS shall consist of the following standard components and features:

A. One or more UPS's, each consisting of:

1. Rectifier/Charger: Each rectifier/charger shall convert incoming AC power to regulated DC output for supplying the inverter and for charging the battery. The rectifier/charger shall be a high-frequency PWM design, using Insulated Gate Bi-polar Transistors (IGBTs). The modular design of the UPS shall permit safe and fast removal and replacement of the rectifier/charger

module. Mean time to repair (MTTR) for the module shall be no more than 30 minutes in order to return UPS to normal mode. The rectifier/charger module shall also provide the following:

- a) The rectifier shall be capable of drawing power from the utility with a power factor of 0.99 under nominal conditions.
- b) The rectifier shall feature protection circuitry that prevents the IGBTs from sourcing current in excess of their published ratings.

2. Inverter: Each inverter shall feature an IGBT pulse-width-modulation (PWM) design with high speed switching. The inverter shall also have the following features:

- a) The inverter shall be capable of providing the specified quality output power while operating from any DC source voltage (rectifier or battery) within the specified DC operating range.
- b) The modular design of the UPS shall permit safe and fast removal and replacement of the inverter module. Mean time to repair (MTTR) for the module shall be no more than 30 minutes in order to return UPS to normal mode.
- c) The inverter shall feature protection circuitry that prevents the IGBTs from sourcing current in excess of their published ratings.

B. Static Bypass: The bypass shall serve as an alternative source of power for the critical load when an abnormal condition prevents operation in normal mode. The bypass shall consist of a fully rated, continuous duty, naturally commutated static switch for high-speed transfers. The bypass shall feature the following transfer and operational characteristics.

1. Transfers to bypass shall be automatically initiated for the following conditions:

- a) Output overload period expired.
- b) Critical bus voltage out of limits.
- c) Internal over temperature period expired.
- d) Total battery discharge.
- e) UPS failure.

2. Uninterrupted automatic re-transfer shall take place whenever the inverter is capable of assuming the critical load.

3. Uninterrupted automatic re-transfers shall be inhibited for the following conditions:

- a) When transfer to bypass is activated manually or remotely.
- b) In the event of multiple transfers/re-transfer operations the control circuitry shall limit "cycling" to three (3) operations in any ten-minute period. The fourth transfer shall lock the critical load on the bypass source.
- c) UPS failure.

4. Uninterrupted manual transfers shall be initiated from the control panel. Uninterrupted manual transfers to bypass and from bypass shall be possible with the inverter logic. During manual transfers to bypass mode, the inverter must verify proper bypass operations before transferring the critical load to the bypass.

5. All transfers to bypass shall be inhibited for the following conditions:

- a) Bypass voltage out of limits (+/- 10% of nominal)
- b) Bypass frequency out of limits (+/- 3 Hz, adjustable, factory set)
- c) Bypass out of synchronization
- d) Bypass phase rotation / installation error

6. Static transfer time: No break, complete in less than 2ms.

7. The bypass shall be manually energized using the control panel or remotely through a building alarm input.

C. Monitoring and control components: The following components shall provide monitor and control capability:

1. Control panel with status indicators.
2. Alarm and metering display.
3. Building alarm monitoring.
4. Communication ports.

D. Battery management system: The UPS shall contain a battery management system which has the following features:

1. The battery management system shall provide battery time remaining while operating in normal mode and battery mode. Battery time available information shall be displayed real-time, even under changing load conditions. Upon commissioning, battery runtime information shall be available.

2. The battery management system shall automatically test the battery string(s) to ensure that the battery is capable of providing greater than 80% of its rated capacity. Testing the batteries shall not jeopardize the operation of the critical load. Upon detection of the battery string(s) not capable of providing 80%, the UPS system will alarm that the battery needs attention/replacement. The battery test shall be able to detect the following:

- Open battery string

- Shorted battery string
- Battery capacity (runtime) less than 80% of “new” battery capacity

3. The UPS shall communicate battery test and monitoring data to the UPS manufacturer’s remote monitoring site. Battery life remaining, capacity, and number of on-battery events shall be provided in a monthly report.

4. An optional temperature sensor shall be available to monitor the ambient temperature internal to the battery cabinet. If the ambient temperature increases, the UPS system charger shall automatically reduce the charging voltage to a level recommended by the battery manufacturer. If the ambient temperature is decreased the UPS shall automatically increase the battery charge voltage to that recommended by the battery manufacturer.

E. Wiring Terminals: The UPS module shall contain mechanical compression terminals (adequately sized to accommodate wiring) for securing user wiring to the following locations:

1. Rectifier/charger input connections (3/4-wire plus ground)
2. Bypass input connections (3-wire plus ground for 3-wire plus ground output configuration (400Vac), or 4-wire plus ground for 4-wire plus ground output configuration)
3. DC link connections for battery cabinets (positive and negative).
4. AC output connections (3 or 4 wires plus ground).

F. UPS System Configuration Features

1. Paralleling Technology: In order for two systems/modules in parallel to equally share the critical load, their output waveforms must be closely matched with respect to both frequency and phase angle for all three phases. No inter-module signals or connections are required for balanced module load sharing. This True wireless parallel capability and the elimination of a system level single point of failure, resulting in higher system level reliability. All UPS system and the other UPS’s shall operate in a peer-to-peer manner to provide automatic load sharing, synchronization, and selective tripping capabilities. “Master-slave” configurations are not acceptable.

2. Economy Mode: The UPS shall continuously monitor the voltage and frequency of the bypass source. When the source parameters are within acceptable limits, the UPS will utilize a minimal/optimal combination of its internal subsystems to ensure acceptable power is always delivered to the critical load, at a system efficiency of 99% or greater, over the range of 10% to



100% load. The ECO Mode shall be enabled by the user, and shall be adjustable. It shall incorporate a “High Alert Mode” to automatically (without user intervention) provide maximum power conditioning any time bypass source variation levels exceed preset, adjustable limits. When ECO Mode is utilized, the UPS must attenuate ANSI C62.41-type line transients to within IEC and ITIC limits. The Energy Saver System shall be able to distinguish between upstream (utility) faults and downstream (load) faults, and react appropriately to protect and support the critical load, without interruption.

3. Easy Load Test Feature: The UPS system will be capable of utilizing the Easy Capacity Test (ECT) function, including internally adjustable load testing at the customer site, without the need for a load bank. Testing could be carried out during the annual maintenance shutdown to test the UPS system or recovery after UPS servicing without incurring the cost of renting the load bank, electrical works and engineering manhour, as well as, time saving. This testing is not intended to be performed while the UPS is servicing the highly critical load.

4. Battery Management System: Battery Management system is a management system that helps to enhance the battery lifespan by charging the battery bank to full and physically disengage the charger to leave the battery bank in the “rest” state, for a predetermined period of time, but under monitoring by the advanced circuitry and programme of the UPS.

5. UPS Configurations for Capacity and Redundancy: UPS shall be constructed such that multiple internal UPM’s can be combined for redundancy or capacity. Internal UPM’s shall be capable of being paralleled to increase system power levels or to provide redundant power. Up to 4 internal UPM’s shall be capable of parallel operation, either for capacity or redundancy. The UPS shall have intelligence to automatically recognize the need for capacity and/or redundancy. The UPS shall utilize autonomous internal UPM’s that do not rely on any control interconnections for synchronized operation. The internal UPM’s shall operate in a peer-to-peer manner to provide automatic load sharing, synchronization, and selective tripping capabilities. “Master-slave” configurations are not acceptable

6. The UPS shall utilize a communications network to provide system information and status, such as operating mode and meter data. This network shall provide individual internal UPM information as well as total UPS information, and shall be available from the UPS front panel display. The loss of this system information network shall not cause the UPS to transfer to bypass or drop the critical load.

7. UPS's with more than one internal UPM shall be inherently redundant when the load is less than 50% of the UPS rated capacity. Under load conditions less than 50% of rated UPS capacity, at least one internal UPM shall be redundant.

2.02 UPS SYSTEM OPTIONS AND ACCESSORIES

The UPS system shall consist of the following options and accessories as required:

A. Field upgrades: Manufacturer shall offer the ability to upgrade the capacity or redundancy of the UPS system in the field. Manufacturer shall offer integrated UPM's that can be added in the field, to increase the capacity or redundancy of the UPS. UPS design shall allow at least one integrated UPM to be added in the field.

B. SNMP Network Adapter and UPS Power Monitoring Software: SNMP adapters shall provide a communications interface between the UPS module and SNMP-compatible network management systems. This capability shall allow the unit to be monitored remotely over an Ethernet network using a standard web browser.

1. UPS Power Monitoring Software: This system shall continuously monitor critical power elements associated with the UPS, using the communications port on each module and a customer furnished PC. The system shall automatically alarm if any problems arise and notify local or remote personnel of the alarm condition via email, page, or text message.

Rectifier/charger input:

1. Nominal three-phase input voltage: 400 VAC: 3/4-wire plus ground input
2. Operating input voltage range: + 10%, - 15% of average nominal input voltage without battery discharge.
3. For 50Hz systems, operating input frequency range shall be 45 to 55Hz.
4. Input power factor 0.99 lagging.
5. Normal input current limit: The UPS shall have the following programmable input current limit settings while operating in normal mode:
 - a) Rectifier/charger input current limit shall be adjustable from 100 to 115% of full-load input current.
 - b) Battery input current limit shall be adjustable from 10% to 15% of the UPS full load input current regardless of the actual load on the UPS.
6. On generator input current limit: The UPS shall have the following programmable input current limit settings while operating in normal mode on generator:

- a) Rectifier/charger input current limit shall be adjustable from 100% to 115% of full-load input current.
 - b) Battery recharge input current limit shall be adjustable from 10% to 15% of the UPS full load input current regardless of the actual load on the UPS.
7. Input current total harmonic distortion (THD) shall be less than 3.0% without the need for any harmonic filter.
8. Power walk-in: Ramp-up to full utility load adjustable from 3 seconds to 60 seconds.

Bypass input:

- 1. Synchronizing bypass voltage range shall be +/- 10% of average nominal input voltage.
- 2. Synchronizing bypass frequency range is centered on the nominal frequency.
- 3. Bypass and rectifier inputs can be supplied from out of phase sources if required.
- 4. Input surge withstand capability: The UPS shall be in compliance with IEEE 587 (ANSI C62.41), category A & B (6kV).

Rectifier/charger output:

- 1. The UPS will automatically disconnect the battery system in case of full battery discharge followed by prolonged utility AC voltage failure. The time window before battery disconnection occurs shall be programmable for both time and voltage.
- 2. Steady state voltage regulation shall be +/- 0.5%.
- 3. Voltage ripple shall be less than 0.5% (peak-to-peak).
- 4. Capacity: The rectifier/charger shall support a fully loaded inverter and recharge the battery to 90% of its full capacity within 10 times the discharge when input current limit is set at maximum.
- 5. Low line operation: The rectifier/charger shall be capable of sharing the DC load with the battery when the input voltage falls below the specified operation input voltage range, the on battery indicator shall enunciate operation in this mode.
- 6. DC sensing: Redundant DC voltage sensing methods shall be incorporated for providing battery over-voltage protection.

UPS output in normal mode

- 1. 400V, 3-phase, 3-wire or 4 wire plus ground. Output wiring configuration is based upon input wiring configuration for systems without internal transformers.
- 2. Steady-state voltage regulation (in inverter) shall be within +/- 1% average from nominal output voltage.
- 3. Transient voltage response shall be < +/- 5% from nominal voltage for 100% load step, full load re-transfers and full load drop on battery.

4. Transient voltage recovery shall be 25ms to within +/- 1% of steady state.
5. Linear load harmonic distortion capability: Output voltage THD of less than 2% for 100% linear load.
6. Non-linear load harmonic distortion capability: Output voltage THD of less than 5% for 100% non-linear load when tested using the non-linear load described in IEC 62040-3 connected line to neutral.
7. Manual output voltage adjustment shall be +/- 3% from nominal.
8. Line synchronization range shall be +/- 3Hz, adjustable to +/- 5Hz.
9. Frequency regulation shall be +/- 0.01Hz free running.
10. Frequency slew rate shall be 1 Hz/second maximum (adjustable).
11. Phase angle control:
 - a) Balanced linear load shall be +/- 2 degree from nominal 120 degrees
 - b) Unbalanced linear loads shall be less than +/- 5 degrees from average phase voltage for 100% load unbalance.
12. Phase voltage control:
 - a) Balanced linear loads shall be +/- 1% from average phase voltage
 - b) Unbalanced linear loads shall be less than +/- 5% for 100% load unbalanced
13. Overload current capability (with nominal line and fully charged battery): The unit shall maintain voltage regulation for up to 110% of resistive/inductive load for 10 minutes, up to 125% for 30 seconds, and up to 150% for 10 seconds.
14. Fault clearing current capability: 150% phase-to-phase for 10 cycles; 300% phase-to neutral for up to 10 cycles
15. Static transfer time: No break, completed in less than 4ms.
16. Common mode noise attenuation: a) -65dB up to 20kHz, -40db up to 100kHz b) > 100dB with isolation transformer
17. Acoustical noise: Noise generated by the UPS under normal operation shall not exceed 65dbA at one meter from any operator surface, measured at 25 degrees C (77 degrees F) and full load.
18. EMI Suppression: The UPS shall meet IEC 62040-2, EN50091 Class A restricted limits
19. Electrostatic discharge (ESD): The UPS shall meet IEC 801-2 specifications. The UPS shall withstand a 25 kV pulse without damage and with no disturbance or adverse effect to the critical load.
20. Efficiency: The UPS efficiency shall be more than 96.3%. If UPS requires input filters for controlling input THD, the manufacturer shall state the efficiency of UPS with input filters connected.

2.03 MECHANICAL DESIGN

- A. Ventilation: The UPS shall be designed for forced-air cooling. Air inlets shall be on the front of the unit. Air outlets shall be on the top. Eighteen inches of clearance over the UPS outlets shall be required for proper air circulation.
- B. No back or side clearance or access shall be required for the system. The back and side enclosure covers shall be capable of being located directly adjacent to a wall.
- C. Cable entry: Standard cable entry for the UPS cabinet shall be through either the enclosure bottom or top. A dedicated wireway shall be provided within the UPS cabinet for routing user input and output wiring.
- D. Front access: All serviceable subassemblies shall be modular and capable of being replaced from the front of the UPS (front access only required). Side or rear access for installation, service, repair or maintenance of the UPS system shall not be required.
- E. Service area requirements: The system shall require no more than forty-two (42) inches of front service access room and shall not require side or rear access for service or installation.

2.04 CONTROLS AND INDICATORS

- A. Microprocessor-controlled circuitry: The UPS controls shall have the following design and operating characteristics:
 - 1. Fully automatic operation of the UPS shall be provided through the use of microprocessor-controlled Digital Signal Processing. DSP shall eliminate variances from component tolerance or drift, and provide consistent operational responses.
 - 2. All operating and protection parameters shall be firmware controlled, thus eliminating a need for manual adjustments. The logic shall include system test capability to facilitate maintenance and troubleshooting. Printed circuit board replacement shall be possible without requiring calibration.
 - 3. Start-up and transfers shall be automatic functions.

- B. Digital Front Panel Display: The UPS control panel shall be a digital front panel display that features an 8x40 (8 lines, each with 40 characters) Touchscreen display. The Touchscreen display shall display UPS status, metering, battery status, alarm/event queue, active alarms and UPS configurations. The front panel display shall show a system mimic diagram with an outlined power path, current operating mode and event logs.

- C. Control Panel Indicators: The UPS control panel shall provide the following monitoring functions with indicator LED's:
 - 1. NORMAL: This shall indicate that the commercial AC utility or generator source is supplying power to the rectifier and the inverter is supporting the critical load. A text message shall indicate if the bypass line is not within tolerance.

2. **BYPASS:** This shall indicate that the UPS has transferred the load to the bypass circuit.
3. **BATTERY:** This shall indicate that the commercial AC utility or generator source has failed and the battery is supplying power to the inverter, which is supporting the load. A text message shall indicate if the battery charge is low or if the battery is installed but disconnected.
4. **ALARM:** This shall indicate that the UPS detects an alarm condition, outlined in detail in the operator's manual.

D. Control Panel Controls: The UPS control panel shall provide the following functions from front panel push buttons:

1. **EVENTS:** Displays the list of Active System Events and a historical log of system events. Historical logs shall include a detailed time stamped list of the latest 128 events.
2. **METERS:** Displays performance meters for the system or critical load. When selected, the front display shall show individual screens of input parameters, output parameters or bypass parameters including; voltage, current and frequency. In addition, the battery display shall show the runtime remaining.
3. **CONTROLS:** Displays a System Controls screen. Allows selection of operating mode, normal, bypass, charger on/off and Power Module on/off.
4. **SETUP:** Allows display contrast, date and time information serial communication port configuration and display of firmware revision numbers.
5. **RETURN:** Confirms selection or returns to previous screen.

E. Interface panel: The UPS shall be equipped with an interface panel, located behind a protective cover, which provides the following signals and communication features in a Class 2 environment:

1. **Alarm contact:** A dry contact for annunciating a summary alarm shall be provided for customer use. This contact shall be Form "C" capable of supplying both N/O and N/C contacts. Contact ratings shall be 5A max at a voltage not to exceed 28VDC or 277VAC.
2. **RS232 (EIA / TIA-232) communications interface:** Circuitry shall be provided for one RS232 (EIA / TIA-232) communication port for connection to automated service department diagnostic tools. This port may be used with simple ("dumb") terminals to gain remote access to all unit operation information.
3. **Building alarms:** Two inputs shall be provided for monitoring the status of external dry contacts. Building alarms shall be set up through the UPS configuration mode function on the RS232 (EIA / TIA-232) port.
4. **External EPO contacts:** Shall be provided to connect an external remote emergency power off switch to shutdown the UPS and de-energize the critical load.

5. Battery control contacts: Contacts shall be provided to connect the battery shunt trip and auxiliary signals from a battery breaker or battery disconnect switch.
6. External bypass indicator connection: A connection point shall be provided to acknowledge that an external maintenance bypass has been closed around the UPS, placing the critical load on utility power.
7. The system shall have options to add minimum of four (4) additional building alarms, 384 logged events.

2.04 COMMUNICATIONS

A. Communications Bay: The UPS shall be equipped with field configurable communications bays that will accommodate four (4) communication devices.

B. Remote Monitoring:

1. Optional WEB/SNMP communication capabilities will be available for all systems.
2. The UPS shall be able to be monitored remotely via communications devices. UPS manufacturer shall provide optional communications devices capable of communicating via various industry standard protocols such as RS232 and ModBus. Monitoring of UPS status may also be performed through isolated dry contact Form C relays.
3. Remote monitoring of the UPS shall also be possible through status indicators elsewhere in the same facility through a device that replicates these indicators. The UPS communication capability should be able to integrate into any industry standard Building Management System (BMS) and/or Network Management System (NMS). The UPS must also be able to be monitored via any standard Internet browser (i.e. Internet Explorer and Netscape). All optional hardware interfaces shall be "Hot-swappable" (UPS maintains power to critical applications while changing interfaces).

C. Shutdown:

1. There shall be a mechanism that provides graceful, orderly, unattended, sequential shutdown of one or multiple computers powered by one UPS. This shutdown shall be performed via in-network or out-of-network means. The order of shutdown shall be user-defined, allowing the maximization of runtime on battery for more critical systems.
2. Shutdown of AS/400 computers shall be possible through open-collector relay contacts or isolated, dry contact, Form-C relays.
3. The UPS shall also be capable of interfacing with an operating system's built-in shutdown routine, e.g. Windows NT. This shall be done through a cable connection to the optional serial port on the UPS.

D. Notification:

1. There shall be a mechanism to send alerts to key personnel via email or SNMP traps. An alarm notification may also be sent by a network message.
2. Dial-out to a computer for alarm notification may be performed. The user may respond by dialing-in to retrieve alarm history and a summary of current meter status.
3. Management: A remote battery test may be performed via an Ethernet network. The UPS shall be tested through invoking a single command.

2.08 UPS PROTECTION

- A. Rectifier/Charger and Bypass protection shall be provided through fusing.
- B. Battery protection shall be provided by thermal-magnetic molded-case circuit breakers in each battery cabinet (if standard battery pack is provided) or external protective device for an external battery.
- C. Electronic current limiting circuitry and fuses in the Inverter circuit shall provide output protection.
- D. To comply with agency safety requirements, the UPS shall not rely upon any disconnect devices outside of the UPS to isolate the battery cabinet from the UPS.



SECTION-VI

ANNEXURES

ANNEXURE-I

FORM OF PERFORMANCE GUARANTEE (BY BANK GUARANTEE)

1. In consideration of the TIFR-Hyderabad, Hyderabad having agreed under the terms and conditions of Letter of Intent / Agreement No..... dated..... made between and..... (Here in after..... called " the Contractor{s}") for the work (Here in after called "the said Letter of Intent / Agreement") having agreed to production of a irrevocable bank Guarantee for Rs..... (Rupees only), as a security / guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement, we(Indicate the name of the Bank) (hereinafter referred to as "the Bank") Here by undertake to pay to TIFR an amount not exceeding Rs..... (Rs only) on demand by TIFR.
2. We..... (indicate the name of Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from TIFR stating that the amount claimed is required to meet the recoveries due or likely to be due from the said Contractor(s). Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs..... (Rupees..... only).
3. We, the said bank, further undertake to pay to TIFR any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) in any suit or proceeding pending before any Court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the Contractor(s) shall have no claim against us for making such payment.
4. We (indicate the name of Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of TIFR under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till Engineer-in-charge on behalf of the TIFR certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee.
5. We (indicate the name of Bank) further agree with TIFR that TIFR shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by TIFR against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act of omission on the part of TIFR or any indulgence by TIFR to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).
7. We..... (indicate the name of Bank) lastly undertake not to revoke this guarantee except with the previous consent of TIFR in writing.
8. This guarantee shall be valid up to, unless extended on demand. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs..... (Rupees only) and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

Signed and sealed

Dated the day of..... for..... (indicate the name of Bank)

*(Note: The Letter of Intent shall form part of the Agreement)



ANNEXURE II

UNDERTAKING BY THE TENDERER

I / We have read and examined the Tender document including terms & conditions, specifications, Schedule of quantities, drawings and designs, general rules & directions, General Conditions of Contract, Special Conditions of Contract and all relevant other documents, publications and rules referred to in the Conditions of Contract and all other contents in the tender documents for the work.

I / We, hereby tender for execution of the work specified for the TIFR-Hyderabad, Hyderabad within the time specified and in accordance in all respects with the specifications, designs, drawings and instructions in writing.

We agree to keep the tender open for seventy five (75) days from the last date of its submission and not to make any modifications in its terms and conditions. A sum of Rs.....has been deposited in cash / receipt treasury challan / deposit at call receipt of scheduled bank / fixed deposit receipt of scheduled bank / demand draft of a scheduled bank / Bank Guarantee issued by a Scheduled Bank as earnest money. If I/we, fail to furnish the prescribed performance guarantee within the prescribed period, I/we agree that the said TIFR-Hyderabad, Hyderabad or its authorized officer shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/we fail to commence work as specified, I/we agree that the TIFR-Hyderabad, Hyderabad shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise, the said earnest money shall be retained by TIFR- Hyderabad, Hyderabad towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein.

Further, I / We agree that in case of forfeiture of earnest money or both Earnest Money & Performance Guarantee as aforesaid, I / We shall be debarred for participation in the re-tendering process of the work.

I / We hereby declare that I / We shall treat the tender documents, drawings, and other records connected with the work as secret / confidential documents and shall not communicate information derived there-from to any person other than a person to whom I / We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

Seal & Signature of Contractor Postal Address

Dated

Witness

Address Occupation



ANNEXURE-III

CERTIFICATE OF LOCAL CONTENT

***We [name of manufacturer] hereby confirm in respect of the quoted item(s) that local Content is equal to or more than 50% and come under 'Class-I Local Supplier' Category. As being 'Class-I Local Supplier', we are eligible for Purchase Preference under 'Make in India' Policy vide GoI Order No.P-45021/2/2017-PP (B.E.-II) dated 15.06.2017 (subsequently revised vide orders dated 28.05.2018, 29.05.2019 and 04.06.2020)**

OR

***We [name of manufacturer] hereby confirm in respect of quoted items(s) that Local Content is more than 20% but less than 50% and come under 'Class-II Local Supplier' Category.**

The details of the location (s) at which the local value addition made is/are under:

- 1.**
- 2.**

Date:

Seal & Signature of the Bidder

NOTE:

Self-certification that the item offered meets the minimum local content (as above) giving details of the location(s) at which the local value addition is made in case the bidder wishes to avail the benefits under the make in India policy, if applicable.

In cases of procurement for a value in excess of Rs.10 crores, the local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content to avail the benefits under the make in India policy, if applicable.

ANNEXURE-IV

Technical Data Sheet of 120KVA hot-swappable modular UPS (N+1 Redundancy) with 2 string of battery banks for 15 mins backup.				
S.No	Description	Specifications	Compliance Statement	
1	Topology	Ture ON-Line, Double Conversion, Hot-Swappable Modular UPS (N+1 redundancy)		
	Make			
	Model			
2	Modular System			
	Frame Size	150 KVA/KW		
	Populated	120 or 125 KVA/KW (N+1 Redundancy)		
	Each Module Rating	20KVA or 25KVA or 30KVA		
	Hot-Swappable Facility	Module should be ON-Line Hot-Swappable without transferring the loads to By-Pass arrangement		
	Maintenance Bypass	Should be Inbuilt arrangement		
	Controller	Each Module shall have individual controller		
	Quoted UPS Model	Please mention (need to submit the catalog)		
	3	INPUT		
		Rectifier	3-phase, IGBT Based system	
Input Voltage Range (Ph-Ph)		400 V AC, $\pm 15\%$		
Input Frequency Range		50 Hz, $\pm 10\%$		
Input Current Harmonics (THDi)		< 3 % at rated load (without using additional Filters)		
Input Power Factor		> 0.99 from 50% to 100% of nominal load		
4	OUTPUT			
	Inverter	3 Level IGBT Technology		



	Nominal Voltage	415 3Ph+N+PE	
	Output Voltage Variation (Static)	+/- 1%	
	Frequency	Synchronized with input frequency or + 1% free run	
	Output Power kVA/KW	120 KVA/KW	
	Output Power Factor of UPS	Unity	
	Over load capacity	125% of rated load for 10 min 150% for 60 Sec with no bypass intervention	
	Total Harmonic Distortion (Voltage)	Less than 0.5% for linear load Less than 1% for non-linear load	
	Current Crest Factor	3:1 accordingly with IEC EN62040-3	
	Wave form	Pure sine Wave	
5	Bypass		
	Inbuilt Automatic Static Bypass	Required as built-in	
	Maintenance/Manual Bypass facility	Required as built-in	
	Switches Required	UPS should have Switches for Input, Output and Bypass	
6	EFFICIENCY		
	Overall Efficiency	96% or More	
7	Display	User friendly 10 inch Touch Screen Display required	
	Measurements	The following Parameters shall be measured from the Display	
	Input		
	Current:	RMS value, Peak value, Peak Factor	
	Voltage:	Ph-N RMS value, Ph-Ph RMS value, Bypass Line Voltage	
	Power:	Nominal (VA), Active (W), Power factor, Frequency	



	Output		
	Current:	RMS value, Peak value, Peak Factor	
	Voltage:	Ph-N RMS value, Ph-Ph RMS value, Bypass Line Voltage	
	Power:	Nominal (VA), Active (W), Power factor, Frequency	
	Batteries	Battery Voltage, Charging Current, Discharging Current, Residual Capacity, Battery Operation time	
	DATA LOG	Number of bypass interventions, Thermal protection interventions with date and time, Overloads, Number of Battery commutations, Number of total discharges, Overall time of Battery operation and mains operation	
8	BATTERY	2 Battery banks (one redundancy) connected to UPS shall be designed to provide at least 15 minutes back-up at full load. The UPS module should be automatically disconnected when the battery reaches the set minimum discharge voltage level or when signaled by other control functions. The tenderer shall provide detailed calculation sheets in support of the battery selection.	
	Backup required	15 min Backup for 120 kVA full load	
	Battery Bank Capacity in VAH	Plz specify	
	No of Batteries strings & batteries	2 string (1 redundancy) & No.s	
	Batteries Make & Model	Amaron Quanta / Amararaja	
	Battery Housing	Suitable Rack for batteries as per site condition	
	Cold Start Push Button	UPS must be able to be start up without the input mains, just using batteries	
9	Communication interface		



	Simple Network Management Protocol (SNMP)	Required for Remote management / monitoring of the UPS/Email alert provision	
10	Environmental		
	Operating Temperature	0 - 40 Deg C	
	Humidity	20 - 95% (non-condensing)	
	Ingress Protection Code / rating	IP-20	
11	Approved UPS Makes	APC / Eaton / Vertiv / Delta	
12	Certifications & Standards		
	Safety	EN 62040-1	
	EMC/EMI	EN 62040-2	
	Performance	IEC 62040-3	
	UPS Dimension (l x b x h) in mm	Please fill the details of the offered product	
	Battery Dimension (l x b x h) in mm	Please fill the details of the offered product	
	Weight of UPS in Kg	Please fill the details of the offered product	
	UPS Manufacturer's own Service center	Should be available locally	
13	Warranty for UPS & Batteries	5 years warranty for the UPS and 2 years warranty for the battery from the date of installation	
14	Factory Pre Dispatch Test	Mandatory. All arrangements are to be arranged by the supplier for TIFR officials.	



SECTION-VII

FINANCIAL BID

INVITATION OF BIDS FOR

Supply, Installation, Testing, and Commissioning of 120 KVA modular(N+1) UPS with 15 mins backup and other related works for data center at TIFR, Survey No. 36/P, Gopanpally (Village), Serilingampally (Mandal), Ranga Reddy Dist., Hyderabad-500046.

PART II

FINANCIAL BID



SCHEDULE OF QUANTITIES

S.No.	Item Description	Qty	Unit	Rate	Amount
1	Supplying of online IGBT based double conversion transformer free (IGBT based Rectifier and IGBT based Inverter), modular construction three phase input, 415 Volts $\pm 15\%$, 50 ± 3 Hz, and three phase output 415 Volt $\pm 1\%$, 50 Hz, sinusoidal waveform , 120 KVA UPS, with one additional module (N+1) as redundancy module, efficiency > 96% at 25% to 100% of load, automatic UPS bypass arrangement on overload or UPS failure, capable to handle overload of 125% for 10 minutes, 150% for 1 minute, with network and modbus card to monitor the operation of UPS, IP 20 or more rated cabinet, suitable ventilation arrangement, , suitable capacity battery circuit breaker, AC/DC power and control cables, other accessories set as per Technical Specifications. Note: 1. UPS shall be compatible for 2 string battery banks 2. The UPS quoted should be compatible with Lithium Ion batteries. 3. The UPS should be N+1 modular, incase of failure of one module, the remaining modules should catering the load. 4. UPS shall be latest batch not older than 6 months from the date of manufacturing 5. Warranty : 5 years 6. Make: Vertiv/ APC/ Eaton/ Delta	1	No.		
2	Installation, testing and commissioning of Sr No. 1 UPS	1	Job		
3	Supply, installation , testing and commissioning of 2 strings of (one redundancy) battery banks (suitable nos. VRLA battery to provide 15 minutes backup at full load for 120 KVA UPS) with battery racks made up of metal channels to place above batteries, cables, fusebox and required switchgear to operate battery banks in parallel in complete. Note: 1. Battery sizing shall be based on Unity Power Factor and cut off voltage 10.5 V) 2. Suitable links and required accessories to be provided 3. Batteries shall be in full charged condition and latest batch not older than 6 months from the date of manufacturing 4. Batteries make: Quanta/Amaron/ Amarraja 5. Warranty : As per manufacturer warranty	2	Set		
		Sub total (A)			
		GST@5% (B = A X 0.05)			
		Total Amount (C = A+B)			
	Amount in words Rs...../-				



Note:	
1.	Rates are all-inclusive of profit, Transport, Loading & Unloading, Taxes, Etc.
2.	TIFR, Hyderabad has the right to delete any of the above items from the scope of work or may increase/reduce quantities as per its requirement during the execution of work. No claim or compensation for such deletion/increase/decrease will be accepted/paid to the contractor. Payment will be made as per actual quantities executed at tender rates
3.	If vendor feels any line item is missing for successful completion of the entire scope, vendor should highlight the same before submitting the offer. It will be responsibility of vendor to complete entire scope successfully. No NT items will be entertained subsequently.
4.	For any above item quantity exceeding more than 10% of projected qty, the contractor shall take prior approval from TIFR Engineer in writing.
5.	For any deviating items, the contractor shall take prior approval from TIFR Engineer In charge of proper rate analysis.