



inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

2 PART TENDER FOR Supply, Installation, Testing and Commissioning of UPS 2x80KVA- 01 No. - 15 minutes, 2x40KVA- 01 No. - 15 minutes, 10 KVA- 04 Nos. - 15 minutes, and 2x40 KVA- 01 No. - 30 minutes.

**Tender Fee – Rs.500/-, EMD: Rs. 1,19,000/-
Cost of Tender: Approx. Rs. 59 Lakhs
Last date for Sale of Documents: 29/08/2018 till 16.00hrs
Last date for submission: 30/08/2018 till 14.00hrs
Due date for opening bids: 30/08/2018 at 14.30hrs**

GENERAL CONDITIONS

(Tender documents consist of 46 pages, Pg. 1 to Pg.45 – Technical Bid, Pg. 46- Price Bid)

Important Instructions: The bids shall be enclosed in an envelope and sealed duly marked "Tender for "Supply, Installation, Testing and Commissioning of UPS 2x80KVA- 01 No. - 15 minutes, 2x40KVA- 01 No. - 15 minutes, 10 KVA- 04 Nos. - 15 minutes, and 2x40 KVA- 01 No. - 30 minutes," Ref. No. INS/L-5437/2018-2019 (Y)"; and addressed and to be mailed to "The Purchase Officer". The bids are liable to be rejected if the sealed envelope is not addressed to "The Purchase Officer" with Tender Ref. No. and Item Description. Offers delivered in person shall be deposited in the Tender Box Labelled as "TENDER BOX FOR PURCHASE TENDER" kept in the Ground Floor, Reception at Administration Building. If the bids are sent through courier or mail, it should reach by submission Date and Time and inStem will not responsible for the delay.

Important instruction for the Tenderers: -

All tenders shall be made in ENGLISH only.

The details in regard to technical specification and other terms and conditions should be cogent and clear to the extent possible.

Sealed tenders are invited at Institute for Stem Cell Biology and Regenerative Medicine -inStem, National Centre for Biological Sciences, GKVK Post, Bellary Road, Bangalore – 560 065 under 2 cover system from reputed OEM (Original Equipment Manufacturer) or reputed Manufacturers / Authorised Dealers for Supply, Installation, Commissioning and Technical Support for the following: -

Supply, Installation, Testing and Commissioning of UPS 2x80KVA- 01 No. - 15 minutes, 2x40KVA- 01 No. - 15 minutes, 10 KVA- 04 Nos. - 15 minutes, and 2x40 KVA- 01 No. - 30 minutes.

The Technical and Financial / Price Bids shall be submitted simultaneously in two (2) cover (sealed) system. The proposals shall be evaluated in two stages: (1) Technical and (2) Price / Financial. Technical evaluation will be carried out and those Vendors who score minimum 80% and above in each category will qualify for Price Bid opening. Thereafter, Financial Proposal shall be evaluated. The Commercially LOWEST BIDDER shall be the first preferred Vendor for award of Order.

D) The EMD amount should be put in **first sealed cover – Cover I**, and superscribed as "**Techno-commercial Bid**" and should contain -

1. Acceptance of Technical specifications, **Annexure- A (page 9)** and terms and conditions. Tender document to be enclosed with Date, Signature and Seal in every Page.
2. Complete Technical details of the Instrument offered (Specifications, Technical Parameters, Advantages, etc.,)
3. Supplier profile & Schedule of Experience – **Annexure – B**
4. Supplier must describe in detail the technical support they will be able to provide in Bangalore. Only those companies will be considered who have engineers based in Bangalore who have been trained on the machines being quoted for, prior to the date of installation.
5. Suppliers must provide complete list of publications arising from use of their machines, in which the machines have been used for the applications listed. Enclose Data Sheet and Sample Analysis (if any)





Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

6. Details of Warranty Services.
7. Details of “After Sales Service” and “Factory Trained Engineers” available in Bangalore.
8. Xerox copies of the Purchase Orders for having supplied similar Instruments in India.
9. Schedule of deviation from specifications / conditions – **Annexure C.**
10. Any other information the bidder like to provide with Date, Signature and Seal
(Annexures should be duly signed and filled with date wherever necessary)
(Please attach additional sheet(s), wherever necessary)

II) The **second sealed cover** – **Cover II** superscribed '**Price Bid**' (page 46) should contain only rates **(please attach additional sheet(s), wherever necessary)** (should be duly signed with seal and filled with date wherever necessary)

THE ABOVE MENTIONED TWO COVERS SHALL BE SEALED ON THE OUTSIDE WITH WAX SEAL BEARING THE LOGO/NAME OF THE COMPANY SUBMITTING THE BID.

THESE TWO COVERS SHALL BE AGAIN PUT INTO A SINGLE WAX SEALED COVER superscribed “**Tender for Supply, Installation, Testing and Commissioning of UPS 2x80KVA- 01 No. - 15 minutes, 2x40KVA- 01 No. - 15 minutes, 10 KVA- 04 Nos. - 15 minutes, and 2x40 KVA- 01 No. - 30 minutes.**” and should reach INSTEM on or before 30/08/2018 before 14.00 hrs”. This should be addressed to the Purchase Officer, inStem, NCBS, GKVK Post, Bellary Road, Bangalore – 65.

The Techno – Commercial Bid will be opened on 30/08/2018 at 14.30 hrs.

On the date of tender opening (i.e. on 30/08/2018), only the Techno-Commercial Bids shall be opened in the presence of attending tenderers.

The Technical and Financial / Price Bids shall be submitted simultaneously in two (2) cover (sealed) system. The proposals shall be evaluated in two stages: (1) Technical and (2) Price / Financial. The Technical and Financial / Price Bids shall be submitted simultaneously in two (2) cover (sealed) system. The proposals shall be evaluated in two stages: (1) Technical and (2) Price / Financial. Technical evaluation will be carried out and those Vendors who score minimum 80% and above in each category will qualify for Price Bid opening. Thereafter, Financial Proposal shall be evaluated. The Commercially LOWEST BIDDER shall be the first preferred Vendor for award of Order.

Earnest Money Deposit shall be submitted along with the “Techno-Commercial Bid” in the form of a Demand Draft drawn in favour of “Institute for Stem Cell Biology and Regenerative Medicine, payable at Bangalore” and the DD should be from a Commercial Bank/ Foreign Bank (First class Bank). Alternatively, a Bank Guarantee from a Commercial Bank/ Foreign Bank (First class Bank) may be provided **(no other mode of payment will be accepted)**. The Bank Guarantee should be valid for 6 months from the date of opening. Bids not accompanied with Earnest Money Deposit shall be rejected. The EMD shall be refunded to the unsuccessful bidders once the order is released on the successful bidder.

The Techno-Commercial bids shall be evaluated subsequently and only the shortlisted firms Price Bid will be opened.

- 1.1 Quotations must be submitted giving complete details using enclosed tender papers.
- 1.2 **The rates quoted should remain valid for a period of 180 days from the date of Price Bid opening.**
- 1.3 Each page of the tender except the Price & Delivery part shall be on printed letterheads or forms and bear the signature, date, name and designation of the person signing the offer. If they are not on letterheads, a rubber stamp indicating full name, address and phone No., Telex No., Fax No. etc. of the firm shall be affixed at the end of each page. The price & delivery part shall be as Annexure B attached.





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

- 1.4 This tender document is not transferable. Only the party to whom the tender documents have been issued shall be entitled to quote.
- 1.5 Bids containing erasures or alterations are liable to be rejected unless countersigned by the Authorised signatory.
- 1.6 All rates and total amount should be written both in figures and in words and if there is any discrepancy between the two, the lowest amount only will be considered.
- 1.7 Tenders will be opened in the presence of attending tenderers on **30/08/2018 at 14.30 hours**. In the event the due date is declared as holiday, the tender will be opened on the following working day.
- 1.8 If the item offered is to be imported, arrangements for import will be made by the Institute. Import duty and customs clearance will be under purchaser's scope.
- 1.9 We reserve the right to place order for part/reduced quantity than what is specified in the tender and also reserve the right to split the order to more than one supplier.
- 1.10 Any deviation/substitution in regard to the technical specification must be indicated in Annexure C of this tender document. Otherwise it shall be binding on the bidder to supply the items as specified in this tender specification.
- 1.11 All bids are to be submitted before the due date and time. **The bids shall be enclosed in an envelope and sealed duly marked "Tender for Supply, Installation, Testing and Commissioning of UPS 2x80KVA- 01 No. - 15 minutes, 2x40KVA- 01 No. - 15 minutes, 10 KVA- 04 Nos. - 15 minutes, and 2x40 KVA- 01 No. - 30 minutes."; Ref. No. INS/L-5437/2018-2019 (Y)"; and mailed to the Purchase Officer.** Offers delivered in person shall be deposited in the Tender Box kept in the office.
Due date for opening the bids: 30/08/2018 (14.00 hours).
- 1.12 Please return the tender papers including Conditions of Tender as well as the Annexures with your signature, rubber stamp and date affixed on each page.
- 1.13 All bids in response to this invitation of tender should be submitted in a manner and method specified above. Tender which do not comply with the above conditions are liable to be rejected.
- 1.14 Late and delayed tenders will not be considered. Therefore, tenderers shall ensure that the tender reaches the Purchaser on or before the due date and time stipulated for receipt of bids.
TENDERS RECEIVED LATE OR AFTER THE DUE DATE WILL NOT BE CONSIDERED. INSTEM RESERVES THE RIGHT TO ACCEPT, REJECT ANY OR ALL TENDERS WITHOUT ASSIGNING ANY REASONS THERE OF.
- 1.15 Individuals signing the bid form and other supporting documents must specify the capacity in which they sign, like -
- Whether signing as a Sole Proprietor of the firm or his attorney.
 - Whether signing as a partner of the firm or his attorney
 - Whether signing for the firm as Agent.
 - Whether signing as Director of a Limited Company.



2. CATALOGUE/TECHNICAL LITERATURE

All necessary catalogue/drawing literature/data and details of item/s as are considered to be essential for full and correct evaluation of the bid shall invariably accompany the bid.

3. BID GUARANTEE / EARNEST MONEY DEPOSIT: -

Bid Guarantee amount details are as below: -

| Sl. No. | Item Description | BGA/EMD Amount |
|---------|---|-----------------|
| 1. | Supply, Installation, Testing and Commissioning of UPS 2x80KVA- 01 No. - 15 minutes, 2x40KVA- 01 No. - 15 minutes, 10 KVA- 04 Nos. - 15 minutes, and 2x40 KVA- 01 No. - 30 minutes. | INR 1,19,000.00 |

The EMD/BGA shall be submitted by a DD (for outstation firms) or Banker's cheque (in case of local firm) from a Commercial Bank/ Foreign Bank (First class Bank) along with the bid, drawn in favour of "Institute for Stem Cell Biology and Regenerative Medicine, Bangalore". Alternatively, the EMD amount may be submitted by way of Bank Guarantee from a Commercial Bank/ Foreign Bank (First class Bank) valid for 6 months (no other mode of payment will be accepted). The BGA amount will be forfeited if the successful bidder fails to accept the Letter of Intent/ Purchase order or withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender. The offers are liable to be rejected, at the discretion of the Centre, if they are not accompanied with BGA. No interest shall be payable by INSTEM for BGA amount. The BGA shall be refunded to the unsuccessful bidders once the order is released on the successful bidder.

4. AUTHORITY OF AGENTS

In case where a bid is submitted by an Indian Agent on behalf of his foreign principal, such bid should be supported with a letter of Authority from the principal that the Indian Agent has been authorised to submit the bid on behalf of the principal. The indigenous manufacturers shall submit their bids directly.

5. PRICE

The tender to be quoted in foreign currencies & any other currencies approved/traded by RBI-USD/Euro/JPY/GBP/SGD/CAD/INR. The price/s quoted shall be firm till the complete execution of the order. All details relating to price, price breakup, inland transportation, documentation, taxes and duties, levies, Road/AIR/Marine freight charges, delivery terms (ex-works/F.O.R/F.O.B/CIP) mode of payment, mode of Dispatch, Insurance, Agency Commission, if any, should be clearly stated. For indicating the price, the tenderers may choose any/all of the following:

- Ex-works (all other charges to be indicated separately).
- F.O.R. site (i.e. Freight, Packing & Forwarding, loading on to the transport, documentation etc. included.) Internal transportation, Freight, Insurance, etc. to be shown separately.
- F.O.B (cost of goods, Packing & Forwarding, Inland Transportation, Documentation, etc. till the item is loaded on to the cargo carrier). Freight & Insurance charges to be separately indicated.
- CIP (cost of goods, packing & forwarding, documentation, freight, insurance, etc. all included). However, freight & insurance charges to be indicated separately.

INSURANCE TO BE COVERED TILL inStem STORES.





6. The taxes (State, Central, Turnover tax, Works Contract Tax, etc.). Please specify which are applicable. The duties and other levies, freight, insurance shall be stated clearly and separately. Also please mention whether the same is included in the price/s quoted.
7. VALIDITY OF BIDS
The bids should be valid for a period of 180 days from the date of opening of the Price bids. Bids with shorter validity period are liable for rejection.
8. DELIVERY
The tenderer should clearly mention the time required for supplying the item. The period of delivery will be counted (a) from the date of receipt of the order in case of Indian supplier and (b) from the date of opening of letter of credit/receipt of order (in the case of sight draft/advance draft) for foreign suppliers. The delivery date is the date at which the equipment should be delivered at INSTEM.
9. PACKING
The item should be packed appropriately so that it can sustain transit hazards, multiple landing, warehousing, etc. during transit.
10. PLACE OF DELIVERY
In the case of items indigenously manufactured, ALL DELIVERIES shall be effected to the Institute for Stem Cell Biology and Regenerative Medicine, National Centre for Biological Sciences, GKVK, Bellary Road, Bangalore-560065, whereas the foreign suppliers shall effect delivery up to Bangalore Airport, India by AIR only unless otherwise specified.
11. GUARANTEE/WARRANTY
The item/s covered under this tender shall be subject to a guarantee for trouble free performance, workmanship, material etc., fulfilling the specifications mentioned in this tender for min. **24 months** from the date of commissioning. If any defect is found in the material, workmanship or performance during the guarantee period the same may either be repaired/replaced by the supplier as the case may be free of charge. The guarantee period for replacement of parts or repair work shall be same as above. A guarantee certificate to this effect should be forwarded to us with your invoice. For order placed on foreign suppliers, the supplier shall specifically confirm that their Indian representatives, if any, will provide with after sales service and will attend to any repairs or technical problems that may arise.
12. PERFORMANCE B/G
The successful bidder shall have to execute a performance B/G in accordance with the guarantee/warranty for 10% value of the order. This B/G has to be executed on an appropriate value of stamp paper in terms of a bank guarantee drawn on any Nationalized Bank or first class Foreign Bank and shall remain valid till the completion of the Defect Liability period/warranty period, with **6 months** claim period.
13. TAXES AND DUTIES
The Centre shall deduct all taxes and duties, as applicable, from time to time from the bills payable.





14. PAYMENT TERMS

As per our Centre, 90% of the payment shall be made through Sight Draft (documents through bank) and balance 10% payable after installation, trial run and subject to acceptance by the group head through SAI and all other relevant documents, with Performance Bank Guarantee. All claims shall cease as per the Limitation Act.

15. CLARIFICATIONS

After opening the bids, if it becomes necessary for the purchaser to seek clarifications from the bidders, the same will be sought from the bidders. In such an event, the bidders will furnish all technical information / clarifications to the purchaser to reach on or before the due date fixed for that purpose, indicating the Purchaser's tender reference. If the technical clarifications sought do not reach on or before the date fixed, the bids shall be summarily rejected without any further notice.

16. RISK CLAUSE

Notwithstanding the other terms therein, the Centre at its option will be entitled to terminate the contract and to avail from elsewhere; at the risk and cost of contractor; either the whole of the contract or any part which the contractor has failed to perform within the time stipulated or if the same performance is not available, the best and the nearest available substitute thereof. The contractor shall be liable for any loss which the Centre may sustain by reason of such risk contract in addition to penalty.

17. DISPUTE AND RESOLUTION

Any dispute or differences between the parties that cannot be settled by mutual discussion at appropriate levels shall be referred to the sole arbitration of the Director, INSTEM or his nominee and his decision in the matter shall be final and binding upon the parties to the dispute. The venue of arbitration proceedings shall be Bangalore. In respect of any matters pertaining to such arbitration, the courts of law in Bangalore will have exclusive jurisdiction.

18. OTHER TERMS

- a) If electrical/ AC/ technical works contract, appropriate license defining the required expertise from the approved Licensing authority.
- b) The Centre, will at its discretion ask for a solvency certificate from your bankers.

19. DEFINITION AND MEANINGS

In constructing these conditions, specifications, etc. in the tender document or the Annexures/Appendices the following words shall mean herein assigned definitions except where the subject context is otherwise stated.

| | |
|-------------------|--|
| PURCHASER : | Shall mean the Institute for Stem Cell Biology and Regenerative Medicine |
| BID/TENDER : | Shall mean the proposal/document that the BIDDER submits in the requested and specified form or otherwise along with Annexures, Appendices, etc. |
| BIDDER/TENDERER : | Shall mean the firm/party who quotes against an enquiry. |





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

- CONTRACTOR/SUPPLIER : Shall mean the party to whom a Work Order/Purchase Order is awarded to undertake all or a part of the work covered by this tender document as well as and amendment orders relating to this tender issued by the Purchaser and shall include his/their legal representative, assignee/s or successor/s.
- CONTRACT : Shall mean and include the articles of agreement, Declaration form, the general and special conditions, the Annexures, the Schedule of Quantities & rates and the specifications attached hereto and the drawings, if any.
- ORDER VALUE : Shall mean total value of the Purchase Order/Work order issued against this tender item including taxes, levies, etc.

20. TECHNICAL SPECIFICATIONS

See Annexure – 'A'

21. For imported items, final price after totaling the prices of the individual items has to be mentioned with estimated freight, insurance, agency commission charges, etc. The price shall be FOR CIF BANGALORE AIRPORT.
22. INSTEM reserves the right to split the quantities or reject one or more offers in full or part without any reasons. Therefore, INSTEM decision is final and binding.
23. The quantity mentioned in the tender may be decreased/increased while ordering. However, the price quoted should be firm irrespective of change in the quantity.

24. ACCEPTANCE OF TENDERS

INSTEM does not pledge itself to accept the lowest/ any tenders and reserves to itself the right to accept the whole or part of the tenders or a part of the quantity offered.

25. The firm may quote in Foreign Currency for direct import on CIF basis as well as in Rupees on FOR INSTEM basis for local supply. Please indicate insurance, freight and other charges separately for direct import.

26. Your Service Engineer should be fully trained to install the equipment and capable of maintaining the equipment during / after the warranty period.

27. LIQUIDATED DAMAGES:

The successful bidder will have to agree that in case the item is not supplied within the agreed delivery schedule and after a grace period of seven days, then Liquidated Damages (not in terms of penalty) will be imposed automatically and be deducted from their bill at the rate of 0.5% per week subject to a maximum of 10% of the order value.

Please enter unit price, Total Price and Grand Total in figures as well as words. Unit price and Total Price may be entered below each item.





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

28. Micro and Small Enterprises (MSEs):

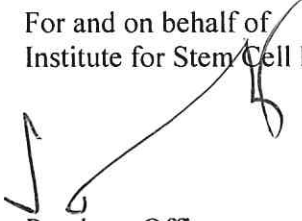
a. Micro and Small Enterprises (MSE) must, along with their offer, provide proof of their being registered as MSE (indicating the terminal validity date of their registration) for the item tendered, with any agency mentioned in the notification of the Ministry of Micro, Small and Medium Enterprises (Ministry of MSME)

b. The MSEs are exempted from payment of earnest money and tender fees subject to furnishing of relevant valid certificate for claiming exemption as per privilege rules of Government of India.

c. The bidder submits registration of Udyog Adhar Memorandum (UAM) by Ministry of Micro Small and Medium Enterprises (MSME) vendors on Central Public Procurement Portal (CPPP). The bidders who fail to submit UAM number shall not be able to avail the benefits available to MSEs as contained in Public Procurement Policy for MSEs Order 2012 issued by MSME.

Since INSTEM is a Public Funded Research Organisation, registered under Government of India Notification No.51/96 – Customs and 10/97 – for Central Excise is applicable for the items listed in the notification.

For and on behalf of
Institute for Stem Cell Biology and Regenerative Medicine



Purchase Officer

GKVK Post, Bellary Road, Bangalore 560 065, India
Phone +91-80-23666343 /344/345/346 . Telefax +91-80-23636662
purchase@ncbs.res.in . www.ncbs.res.in



**ANNEXURE-A-SPECIFICATIONS**

Supply, Installation, Testing and Commissioning of UPS 2x80KVA- 01 No. - 15 minutes, 2x40KVA- 01 No. - 15 minutes, 10 KVA- 04 Nos. - 15 minutes, and 2x40 KVA- 01 No. - 30 minutes.

TECHNICAL SPECIFICATIONS:

Supply, Installation, Testing & Commissioning of 01 No, 2x80 KVA- 15 minutes (hot sync.mode/parallel mode) True ON line conventional type UPS for Laboratory application in INSTEM-GKVK.

1. General specifications

- 1 UPS Type : DSP control based ON-LINE Double Conversion Technology
- 2 Capacity : 80 KVA/72 kW
- 3 Preferable Make : Socomec/ Emerson-Vertiv/ Riello /APC/ Eaton
- 4 Battery Backup : 15 min at full load on each UPS
- 5 Supply : 3-Phase Input, 3-Phase Output
- 6 Operation Mode Normal (online): Emergency, Recharge, bypass, Maintenance bypass.
- 7 Rectifier / Inverter : IGBT with PFC control technology only
- 8 Transformer : **Inbuilt** - Isolation transformer only on Input side
- 9 Total Efficiency AC/AC at 100% load: $\geq 93\%$ (Online mode)
10. Parallel configuration : ≥ 4 units
11. Noise level at full load : ≤ 66 dBA at 1 mtr from the unit

2. INPUT

- 1 Voltage configuration : Three-phase, 3-wire
- 2 Rated Voltage : 400V,
- 3 Voltage tolerance : 320V to 480 V
- 4 Nominal Frequency : 50 Hz
- 5 Max/Min frequency : 50 Hz +/- 10%
- 6 Phase : Three Phase
- 7 Current Limit : 125% of nominal AC input current
- 8 Surge Protection : As per IEC standard
- 9 THDi : $\leq 3\%$ at full load
 $\leq 5\%$ from 30% to 75% of the full rated load
- 10 Power factor : ≥ 0.98

3. OUTPUT

- 1 Voltage Configuration : Three-phase, 4-wire plus ground (3P+N+E)
- 2 Voltage : 400V/415 V
- 3 Voltage regulation : a) $\pm 1\%$ three-phase RMS average for a balanced three-phase load for the combined variation effects of input voltage, connected load, battery voltage, ambient temperature, and load power factor.
b) $\pm 5\%$ three-phase RMS average for a 100% unbalanced load for the combined variation effects of input voltage, connected load, battery voltage, ambient temperature, and load power factor.
- 4 Voltage Distortion : $\leq 2\%$ total harmonic distortion (THD) for linear loads.
and $\leq 3\%$ THD for 100% nonlinear loads.
- 5 Crest factor : 3:1
- 6 Frequency : 50 Hz and Pure sine wave
- 7 Frequency regulation : 50 Hz +/- 1%
- 8 Output power factor : ≥ 0.9





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

- | | | |
|----|---------------------------|---|
| 9 | Overload Capacity | : 125% for ten minutes (without bypass source). : 150% for one minute (without bypass source). |
| 10 | Wave form | : Pure Sinusoidal |
| 11 | Output Voltage adjustment | : $\pm 5\%$ (Software Controlled adjustment) |

4. Batteries: -

- | | | |
|----|---------------------------|---|
| 1 | Preferable Make and model | : Rocket and ESC |
| 2 | Type | : SMF Batteries (maintenance free)-VRLA type |
| 3 | Rated battery life | : min 5 years |
| 4. | Battery backup | : 15 mints with full load on each UPS For battery calculation, ECV should be considered as 1.75V at 20hrs rating. |
| 5. | Battery stand | : Suitable batteries stand MS fabricated with powder Coated. |
| 6. | Battery link and cabling | : suitable battery link and interconnecting copper cable from UPS to battery shall be supplied by vendor along with insulation mat. The approx. distance between UPS and battery stand will be 10mtr. |

The accumulator bank must have an expected service life of five years with a capacity of 15 minutes at 100 % load. **Detailed Battery backup calculation sheet and manufacturer charging/discharging characteristic chart shall be attached along with the technical bid also Battery type should be specified in the document.**

5. On-Line Battery Test

The UPS shall be provided with Auto On-Line Battery Test feature. The test shall ensure the capability of the battery to supply power to the inverter while the load is supplied power in the normal mode/On-line mode.

6. Battery Charger: -

The battery charger shall recharge the battery to 90% of its fully charged condition preferably within six to eight (6-8) hours and at the same time supplying full load current to the system. The charger should have the Temperature Compensated Charging. The battery charger output voltage shall be automatically adjusted in proportion to the ambient temperature of the battery to avoid over-charging. The system must include one or more battery chargers:

- with IGBT technology;
- separate from the rectifier;
- with charging voltage independent from the DC bus voltage;
- dedicated and independent for each accumulator bank;

The battery charger must be able to operate with the following types of accumulator:

- Lead acid, hermetically sealed
- Lead acid, vented & SMF VRLA

Depending on the temperature, the battery charger shall be able to select the most suitable recharge method automatically, without operator intervention, alternating float mode in combination with "intermittent" charge in such a way as to limit the effects of corrosion (plate sulphation) and significantly prolong battery life. The maintenance charge voltage must be automatically regulated in relation to the





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

temperature of the battery compartment. The battery compartment must be equipped with a temperature sensor for this purpose.

The following parameters must be adjustable and configurable:

- maximum recharge current limit;
- constant float mode current and voltage;
- switching threshold from fast recharge mode to maintenance mode.

The battery charge regulation and control circuit shall also provide the following functions:

- Continuous monitoring of the battery circuit (battery interrupted) with visual alerts on the local user interface;
- Monitoring of battery efficiency, via partial discharge at settable intervals; the check consists in continuously monitoring the discharge current and comparing it with the ideal discharge curve;
- Continuous monitoring of the battery charger's output voltage to ensure it remains within the limits required to optimize battery life. Recharging voltage anomaly alerts followed by deactivation of the charger;
- Residual battery capacity display.

7. Paralleling Kit

Equipment shall be equipped with paralleling kits by this way, 2x80kVA are in parallel mode and also it shall be compatible for ≥ 4 units.

8. Inbuilt - Isolation Transformer

The UPS shall have suitable rating **inbuilt** isolation transformer with copper winding on Input side and test reports (Efficiency and losses) of the isolation transformer shall be enclosed along with the technical bid. The cooling of Isolation transformer shall be by forced cooling with inbuilt cooling fans. Supplier shall specify the Isolation transformer make and other specification along with technical bid for evaluation purpose.

9. Operating Ambient Temperature: -

UPS Module : (0°C to 40°C).
Battery: 30°C \pm 5°C.

10. Cooling

Cooling of the UPS shall be by forced air and there should be redundant fans.

11. Grounding

The AC output neutral shall be electrically isolated from the UPS chassis. The UPS chassis shall have an equipment ground terminal. Provisions for local bonding shall be provided.

12. Wiring

Installation and required accessories like cables, lugs etc will be in the scope of supplier and Wiring practices, materials and coding shall be in accordance with the requirements of the National Electrical Code (NFPA 70). All bolted connections of bus bars, lugs, and cables shall





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

be in accordance with requirements of the National Electrical Code and other applicable standards.

Conformity to standards

The system must conform to the following standards: Necessary certificate from IEC shall be submitted wherever required; **CE certification of the UPS is must.**

- Safety: EN62040-1.
- EMC emissions: EN62040-2.
- EMC immunity: EN62040-2 class C2 and C3.

Certification:

Necessary Type test/third party certificate from CPRI/govt. authorized certificate agency should be enclosed along with technical bids. Third party certificate is essential for 80kVA UPS (same model proposed by vendor).

13. Monitoring and Control

The UPS shall be provided with a DSP based unit status display and controls section designed for convenient and reliable user operation. All of the operator controls and monitors shall be located on the front of the UPS cabinet. The monitoring functions such as metering, status and alarms shall be displayed on the graphical LCD display. Additional features of the monitoring system shall include:

Menu-driven display with pushbutton navigation
Real time clock (time and date)
Alarm history with time and date stamp
Battery backed-up memory
System should be BMS compactable for monitoring.

- System should be equipped with inbuilt TCP/IP enabled SNMP card for remote monitoring and control. It should generate alert for events. The SNMP card should be programmable to send email, SMS's over a GSM modem to report particularly important alerts and events.

14. Display & Metering:

- Input AC voltage line-to-line/ line-to-neutral for each phase
- Input AC current for each phase
- Input frequency
- Battery voltage and DC bus voltage
- Battery charge/discharge current
- Output AC voltage line-to-line and line-to-neutral for each phase
- Output AC current for each phase
- Output frequency
- I/P & O/P Apparent power for each phase
- I/P & O/P Active power for each phase
- I/P & O/P kWh meter
- Battery time left during battery operation
- The total operating time of the UPS





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

15. Alarm Messages

The interface must be able to display at least the following status or event information and UPS monitoring should be web based and user friendly.

- Input power out of tolerance
- Battery charger problem
- Battery test failed
- Low battery warning
- Low battery shutdown
- DC bus overvoltage
- Bypass frequency out of range
- Load transferred to bypass
- Excessive retransfers attempted
- Static switch failure
- UPS output not synchronized to bypass power
- Output under voltage
- Output overvoltage
- Output over current
- System output overloaded
- Load transferred to bypass due to overload
- Overload shutdown
- Control error
- Critical power supply failure
- Load transferred due to internal protection
- External shutdown (remote EPO activated)
- Fan failure
- Over temperature shutdown
- UPS is on battery operation
- UPS is on bypass operation
- Battery mode with mains supply / no mains supply
- battery low charge warning
- battery on fast charge
- abnormal battery recharge voltage
- minimum battery voltage
- battery fault
- battery charge circuit broken
- battery charger system fault
- overload alert
- ventilation fault alert
- out of range temperature/humidity alert
- standby power supply out of tolerance

A predictive/statistical algorithm and interpretation of logged data (number, duration and type of events) regarding:





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

- out of tolerance Input voltages
- overloads
- battery mode operation
- switching to standby power supply
- over- temperature

The UPS must predict potential criticalities for the UPS itself, due to ambient conditions, in advance and alert the maintenance service / monitoring system.

16. Diagnostics

The system shall be equipped with a microprocessor able to run full machine diagnostics to determine:

- Self-compensation of components to ensure stable settings over time;
- Acquisition of the main diagnostic and monitoring information by computer (local or remote);
- First installation procedure wizard;
- Full test procedure at full load on UPS, with no further external loads (auto-charge mode)
 - rectifier;
 - inverter;
 - bypass;
 - power bus;
 - cables, contactors and fuses;

The Manufacturer must also supply 24h remote monitoring and maintenance.

17. Uninterrupted Transfer / Retransfer

The transfer control logic shall automatically turn on the static transfer switch, transferring the critical AC load to the bypass source, after the transfer logic senses any of the following conditions:

- Inverter overload capacity exceeded
- Critical AC load overvoltage or under voltage
- Battery protection period expired
- Out of tolerance inverter input DC voltage
- Over temperature
- Inverter fault

Retransfer of the critical AC load from the bypass source to the inverter output shall be automatically initiated unless inhibited by manual control.





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

18. Maintenance bypass

The manual bypass switch will be provided internally and must ensure that equipment downstream of the UPS is supplied directly by the UPS upstream power source when rectifier, inverter and static switches are open. Switching to the manual bypass and back will be possible without load supply interruption (Make Before Break).

19. Replacement Parts Stocking

Parts shall be available through an extensive network to ensure around-the-clock parts availability throughout the country. Recommended spare parts shall be fully stocked by local field service personnel (in Bangalore office) with back-up available from national parts center and the manufacturing location. The national parts center Customer Support Parts Coordinators shall be on-call 24 hours/day, 7 days/week, and 365 days/year for immediate parts availability. Tenderers may also produce Bangalore service center address along with strength support in the form of escalation chart. The UPS systems are going to feed the power to very critical equipment's, and it is the responsibility of local service team to attend any emergency situation immediately during warranty period as well as post warranty period. Hence, service center at Bangalore is very much essential.

20. Battery Circuit Breaker

A suitable battery circuit breaker (DC breaker) shall be provided to isolate the battery from the UPS. This breaker shall be in a separate wall mounted NEMA-1 enclosure. The battery breaker provides a manual disconnecting means, short circuit protection, and over current protection for the battery system. When opened, there shall be no battery voltage in the UPS enclosure. The UPS shall be automatically disconnected from the battery when the battery reaches the minimum discharge voltage level. **During any abnormalities (over charging)/accident, UPS should be able to trip the battery breaker automatically. So necessary arrangement needs to be done.**

21. Other Protections

- Battery protection period expired Input Over/ under voltage, Output over/ under voltage, Output short circuit, Inverter overload, Rectifier overload, Inverter Overvoltage/under voltage, over temp, surge protection.
- It must have Generator Compatibility.
- Must have complete protection for EMI / RF as per the IEC standard.
- Units have built in surge, spike and line noise protection.
- It should have Intelligent Battery Management system
- UPS should be compact and with small footprints.
- UPS sound level should be within the limit as per the standard.

22. Warranty/Guaranty:

The equipment's (complete system including battery banks) supplied shall be guaranteed against all types of defects for a period of **Two years (2 years)** from the date of handing over of the equipment to InStem after successful completion of acceptance testing. Any defects in the system/subassemblies found within the guarantee period shall be rectified/replaced by the supplier free of cost. During this period, servicing at bimonthly interval or earlier, as prescribed by the manufacturer and as mutually agreed to, shall be carried out free of cost. It also includes battery health checks of the all the battery banks. Supplier shall also indicate the service facility they can offer at the place of installation and the telephone number and address of their service center. During the warranty period, breakdown call response time should be within 4 hrs in all working hours and 24hrs during after office hours and weekends.





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

Note: During warranty period, vendor should arrange for “On line battery impedance test” for the complete system once in every Six months’ period.

The track record of the firm in implementing and maintaining similar UPS systems, the nearest local(Bangalore) service establishment and the promptness in attending to service/breakdown calls shall also form basis of tender evaluation.

23. Rating test

8 hrs full load endurance test shall be carried out at factory premises and followed by 110% load for 1 hr period. Test to ascertain the rated and transient capacities and overall efficiency of the system will be carried out at factory and with the battery backup of 15(Fifteen) minutes with full load at the factory. Satisfactory performance at this stage meeting the prescribed limits will only be construed as acceptance of the UPS. The quoted UPS which falls short of our prescribed minimum overall efficiency will not be accepted.

The full load endurance test needs to be conducted at INSTEM-GKVK, the vendor should arrange all load banks with necessary cable arrangement along with metering (Digital oscilloscope/power analyzer-to find out transients and I/P & O/P wave forms). The cost for energy consumption during the endurance test shall be deducted in the final bill after due certification from the Engr-in-charge.

- Voltage and frequency regulation
- THDv and THDi
- TVD & TVR from 20% to 100% rated full load & 100% to no load
- Unbalance load test and Noise level measurement

24. Scope of Installation

- Minimum ground clearance for ups should be 200mm and for battery should be 150mm, hence suitable powder coated MS base frame shall be supply along with ups.
- The proposed 2x80KVA UPS systems will be installed at 3rdst floor of INSTEM lab building, it is vendor responsible to shift the UPS at above mentioned location. However, service lift facility is available at the building.

Note:

The Contractors shall submit all technical supporting document details/third party certificates of the system along with the tender and also should attach the Battery backup calculations and battery discharge characteristics catalog along with the technical bid for evaluation purpose.

The Tenderers shall give the names and full postal addresses of their clients (data center) from Bangalore to whom similar equipment’s have been supplied by them.

The tenderers shall attach latest two purchase order copy/performance certificates (similar equipments i.e 80kVAUPS) from the existing clients (data center) from Bangalore.

24. Vendors are required to fill the following sheet and submit along with technical bids.

| Sr.no | Description | To be filled by vendor | Remark if any |
|-------|---|------------------------|---------------|
| 1. | UPS make | | |
| 2. | Capacity/Rating | | |
| 3. | Output voltage & Frequency | | |
| 4. | Regulation: a. O/P voltage regulation b. O/P frequency regulation | | |
| 5. | Input power factor | | |
| 6. | Output power factor | | |





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

| | | | |
|-----|--|--|--|
| 7. | No. of phases- Input / Output | | |
| 8. | Overall efficiency-online mode AC-AC | | |
| 9. | Input THDi | | |
| 10. | Voltage THD | | |
| 11. | Battery backup – 15 mints per UPS. a. No. of batteries b. AH rating of battery | | |
| 12. | Over loading capacity | | |
| 13. | Isolation transformer a. Make b. Winding - Copper | | |
| 14. | Warranty for entire system | | |
| 15. | Parallel configuration | | |





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Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

Supply, Installation, Testing & Commissioning of 01 No, 2x40 KVA- 15 minutes (hot sync.mode/parallel mode) True ON line conventional type UPS for Animal house application in inStem - GKVK.

1. General specifications

- 1 UPS Type : DSP control based ON-LINE Double Conversion Technology
- 2 Capacity : 40 KVA/36 kW
- 3 Preferable Make : Socomec/ Emerson-Vertiv/ Riello /APC/ Eaton
- 4 Battery Backup : **15 min** at full load on each UPS
- 5 Supply : 3-Phase Input, 3-Phase Output
- 6 Operation Mode Normal (online): Emergency, Recharge, bypass, Maintenance bypass.
- 7 Rectifier / Inverter : IGBT with PFC control technology only
- 8 Transformer : **Inbuilt** - Isolation transformer only on Input side
- 9 Total Efficiency AC/AC at 100% load: $\geq 93\%$ (Online mode)
10. Parallel configuration: ≥ 4 units
11. Noise level at full load : ≤ 66 dBA at 1 mtr from the unit

2. INPUT

- 1 Voltage configuration : Three-phase, 3-wire
- 2 Rated Voltage : 400V,
- 3 Voltage tolerance : 320V to 480 V
- 4 Nominal Frequency : 50 Hz
- 5 Max/Min frequency : 50 Hz +/- 10%
- 6 Phase : Three Phase
- 7 Current Limit : 125% of nominal AC input current
- 8 Surge Protection : As per IEC standard
- 9 THDi : $\leq 3\%$ at full load
 $\leq 5\%$ from 30% to 75% of the full rated load
- 10 Power factor : ≥ 0.98

3. OUTPUT

- 1 Voltage Configuration : Three-phase, 4-wire plus ground (3P+N+E)
- 2 Voltage : 400V/415 V
- 3 Voltage regulation : a) $\pm 1\%$ three-phase RMS average for a balanced three- phase load for the combined variation effects of input voltage, connected load, battery voltage, ambient temperature, and load power factor.
b) $\pm 5\%$ three-phase RMS average for a 100% unbalanced load for the combined variation effects of input voltage, connected load, battery voltage, ambient temperature, and load power factor.
- 4 Voltage Distortion : $\leq 2\%$ total harmonic distortion (THD) for linear loads.
and $\leq 3\%$ THD for 100% nonlinear loads.
- 5 Crest factor : 3:1
- 6 Frequency : 50 Hz and Pure sine wave
- 7 Frequency regulation : 50 Hz +/- 1%
- 8 Output power factor : ≥ 0.9
- 9 Overload Capacity : 125% for ten minutes (without bypass source).
: 150% for one minute (without bypass source).
- 10 Wave form : Pure Sinusoidal
- 11 Output Voltage adjustment : $\pm 5\%$ (Software Controlled adjustment)





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

4. Batteries: -

- 1 Preferable Make and model : Rocket and ESC
- 2 Type : SMF Batteries (maintenance free)-VRLA type
- 3 Rated battery life : min 5 years
4. Battery backup : **15** minutes with full load on each UPS
For battery calculation, ECV should be considered as 1.75V at 20hrs rating.
5. Battery stand : Suitable batteries stand - MS fabricated with powder Coating.
6. Battery link and cabling : suitable battery link and interconnecting copper cable from UPS to battery shall be supplied by vendor along with insulation mat. The approx. distance between UPS and battery stand will be 10 mtr.

The accumulator bank must have an expected service life of five years with a capacity of 15 minutes at 100 % load. Detailed Battery backup calculation sheet and manufacturer charging/discharging characteristic chart shall be attached along with the technical bid also Battery type should be specified in the document.

5. On-Line Battery Test

The UPS shall be provided with Auto On-Line Battery Test feature. The test shall ensure the capability of the battery to supply power to the inverter while the load is supplied power in the normal mode/On-line mode.

6. Battery Charger: -

The battery charger shall recharge the battery to 90% of its fully charged condition preferably within six to eight (6-8) hours and at the same time supplying full load current to the system. The charger should have the Temperature Compensated Charging. The battery charger output voltage shall be automatically adjusted in proportion to the ambient temperature of the battery to avoid over-charging. The system must include one or more battery chargers:

- with IGBT technology;
- separate from the rectifier;
- with charging voltage independent from the DC bus voltage;
- dedicated and independent for each accumulator bank;

The battery charger must be able to operate with the following types of accumulator:

- Lead acid, hermetically sealed
- Lead acid, vented & SMF VRLA

Depending on the temperature, the battery charger shall be able to select the most suitable recharge method automatically, without operator intervention, alternating float mode in combination with "intermittent" charge in such a way as to limit the effects of corrosion (plate sulphation) and significantly prolong battery life. The maintenance charge voltage must be automatically regulated in relation to the temperature of the battery compartment. The battery compartment must be equipped with a temperature sensor for this purpose.

The following parameters must be adjustable and configurable:





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Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

- Maximum recharge current limit;
- Constant float mode current and voltage;
- Switching threshold from fast recharge mode to maintenance mode.

The battery charge regulation and control circuit shall also provide the following functions:

- Continuous monitoring of the battery circuit (battery interrupted) with visual alerts on the local user interface;
- Monitoring of battery efficiency, via partial discharge at settable intervals; the check consists in continuously monitoring the discharge current and comparing it with the ideal discharge curve;
- Continuous monitoring of the battery charger's output voltage to ensure it remains within the limits required to optimize battery life. Recharging voltage anomaly alerts followed by deactivation of the charger;
- Residual battery capacity display.

7. Paralleling Kit

Equipment shall be equipped with paralleling kits by this way - 2x40kVA are in parallel mode and also it shall be compatible for paralleling ≥ 4 units.

8. Inbuilt - Isolation Transformer

The UPS shall have suitable rating **inbuilt** isolation transformer with copper winding on Input side and test reports (Efficiency and losses) of the isolation transformer shall be enclosed along with the technical bid. The cooling of Isolation transformer shall be by forced cooling with inbuilt cooling fans. Supplier shall specify the Isolation transformer make and other specification along with technical bid for evaluation purpose.

9. Operating Ambient Temperature: -

UPS Module : (0°C to 40°C).
Battery: 30°C \pm 5°C.

10. Cooling

Cooling of the UPS shall be by forced air and there should be redundant fans.

11. Grounding

The AC output neutral shall be electrically isolated from the UPS chassis. The UPS chassis shall have an equipment ground terminal. Provisions for local bonding shall be provided.

12. Wiring

Installation and required accessories like cables, lugs etc will be in the scope of supplier and Wiring practices, materials and coding shall be in accordance with the requirements of the National Electrical Code (NFPA 70). All bolted connections of bus bars, lugs, and cables shall be in accordance with requirements of the National Electrical Code and other applicable standards.





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

Conformity to standards

The system must conform to the following standards: Necessary certificate from IEC shall be submitted wherever required; **CE certification of the UPS is must.**

- Safety: EN62040-1.
- EMC emissions: EN62040-2.
- EMC immunity: EN62040-2 class C2 and C3.

Certification:

Necessary Type test/third party certificate from CPRI/govt. authorized certification agency should be enclosed along with technical bids. Third party certificate is essential for 40kVA UPS (same model proposed by the vendor).

13. Monitoring and Control

The UPS shall be provided with a DSP based unit status display and controls section designed for convenient and reliable user operation. All of the operator controls and monitors shall be located on the front of the UPS cabinet. The monitoring functions such as metering, status and alarms shall be displayed on the graphical LCD display. Additional features of the monitoring system shall include:

- Menu-driven display with pushbutton navigation
- Real time clock (time and date)
- Alarm history with time and date stamp
- Battery backed-up memory
- System should be BMS compactable for monitoring.

- System should be equipped with inbuilt TCP/IP enabled SNMP card for remote monitoring and control. It should generate alert for events. The SNMP card should be programmable to send email, SMS's over a GSM modem to report particularly important alerts and events.

14. Display & Metering:

- Input AC voltage line-to-line/ line-to-neutral for each phase
- Input AC current for each phase
- Input frequency
- Battery voltage and DC bus voltage
- Battery charge/discharge current
- Output AC voltage line-to-line and line-to-neutral for each phase
- Output AC current for each phase
- Output frequency
- I/P & O/P Apparent power for each phase
- I/P & O/P Active power for each phase
- I/P & O/P kWh meter
- Battery time left during battery operation
- The total operating time of the UPS





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

15. Alarm Messages

The interface must be able to display at least the following status or event information and UPS monitoring should be web based and user friendly.

- Input power out of tolerance
- Battery charger problem
- Battery test failed
- Low battery warning
- Low battery shutdown
- DC bus overvoltage
- Bypass frequency out of range
- Load transferred to bypass
- Excessive retransfers attempted
- Static switch failure
- UPS output not synchronized to bypass power
- Output under voltage
- Output overvoltage
- Output over current
- System output overloaded
- Load transferred to bypass due to overload
- Overload shutdown
- Control error
- Critical power supply failure
- Load transferred due to internal protection
- External shutdown (remote EPO activated)
- Fan failure
- Over temperature shutdown
- UPS is on battery operation
- UPS is on bypass operation
- Battery mode with mains supply / no mains supply
- battery low charge warning
- battery on fast charge
- abnormal battery recharge voltage
- minimum battery voltage
- battery fault
- battery charge circuit broken
- battery charger system fault
- overload alert
- ventilation fault alert
- out of range temperature/humidity alert
- standby power supply out of tolerance

A predictive/statistical algorithm and interpretation of logged data (number, duration and type of events) regarding:





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

- out of tolerance Input voltages
- overloads
- battery mode operation
- switching to standby power supply
- over- temperature

The UPS must predict potential criticalities for the UPS itself, due to ambient conditions, in advance and alert the maintenance service / monitoring system.

16. Diagnostics

The system will be equipped with a microprocessor able to run full machine diagnostics to determine:

- Self-compensation of components to ensure stable settings over time;
- Acquisition of the main diagnostic and monitoring information by computer (local or remote);
- First installation procedure wizard;
- Full test procedure at full load on UPS, with no further external loads (auto-charge mode)
 - rectifier;
 - inverter;
 - bypass;
 - power bus;
 - cables, contactors and fuses;

The Manufacturer must also supply 24h remote monitoring and maintenance.

17. Uninterrupted Transfer / Retransfer

The transfer control logic shall automatically turn on the static transfer switch, transferring the critical AC load to the bypass source, after the transfer logic senses any of the following conditions:

- Inverter overload capacity exceeded
- Critical AC load overvoltage or under voltage
- Battery protection period expired
- Out of tolerance inverter input DC voltage
- Over temperature
- Inverter fault

Retransfer of the critical AC load from the bypass source to the inverter output shall be automatically initiated unless inhibited by manual control.

18. Maintenance bypass

The manual bypass switch will be provided internally and must ensure that equipment downstream of the UPS is supplied directly by the UPS upstream power source when rectifier, inverter and static switches are open. Switching to the manual bypass and back will be possible without load supply interruption (Make Before Break).





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

19. Replacement Parts Stocking

Parts shall be available through an extensive network to ensure around-the-clock parts availability throughout the country. Recommended spare parts shall be fully stocked by local field service personnel (in Bangalore office) with back-up available from national parts center and the manufacturing location. The national parts center Customer Support Parts Coordinators shall be on-call 24 hours/day, 7 days/week, and 365 days/year for immediate parts availability. Tenderers may also produce Bangalore service center address along with strength support in the form of escalation chart. The UPS systems are going to feed the power to very critical equipments, and it is the responsibility of local service team to attend any emergency situation immediately during warranty period as well as post warranty period. Hence, service center at Bangalore is very much essential.

20. Battery Circuit Breaker

A suitable battery circuit breaker (DC breaker) shall be provided to isolate the battery from the UPS. This breaker shall be in a separate wall mounted NEMA-1 enclosure. The battery breaker provides a manual disconnecting means, short circuit protection, and over current protection for the battery system. When opened, there shall be no battery voltage in the UPS enclosure. The UPS shall be automatically disconnected from the battery when the battery reaches the minimum discharge voltage level. **During any abnormalities (over charging)/accident, UPS should be able to trip the battery breaker automatically. So necessary arrangement needs to be done.**

21. Other Protections

- Battery protection period expired, Input Over/ under voltage, and Output over / under voltage, Output short circuit, Inverter overload, Rectifier overload, Inverter Overvoltage/under voltage, over temp, surge protection.
- It must have Generator Compatibility.
- Must have complete protection for EMI / RF as per the IEC standard.
- Units to have built in surge, spike and line noise protection.
- It should have Intelligent Battery Management system
- UPS should be compact and with small footprints.
- UPS sound level should be within the limit as per the standard.

22. Warranty/Guaranty:

The equipments (complete system including battery banks) supplied shall be guaranteed against all types of defects for a period of **Two years (2 years)** from the date of handing over of the equipment to InStem after successful completion of acceptance testing. Any defects in the system/subassemblies found within the guarantee period shall be rectified/replaced by the supplier free of cost. During this period, servicing at bimonthly interval or earlier, as prescribed by the manufacturer and as mutually agreed to, shall be carried out free of cost. It also includes battery health checks of the all the battery banks. Supplier shall also indicate the service facility they can offer at the place of installation and the telephone number and address of their service center. During the warranty period, breakdown call response time should be within 4 hrs in all working hours and 24hrs during after office hours and weekends.

Note: During warranty period, vendor should arrange for “On line battery impedance test” for the complete system once in every Six months’ period.

The track record of the firm in implementing and maintaining similar UPS systems, the nearest local(Bangalore) service establishment and the promptness in attending to service/breakdown calls shall also form basis of tender evaluation.

23. Rating test

8 hrs full load endurance test shall be carried out at factory premises and followed by 110% load for 1 hr period. Test to ascertain the rated and transient capacities and overall efficiency of the system will be carried out at factory and with the battery backup of 15(Fifteen) minutes with full load at the factory. Satisfactory performance at this stage meeting the prescribed limits will only be construed as acceptance





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

of the UPS. The quoted UPS which falls short of our prescribed minimum overall efficiency will not be accepted.

The full load endurance test needs to be conducted at INSTEM-GKVK, the vendor should arrange all load banks with necessary cable arrangement along with metering (Digital oscilloscope/power analyzer- to find out transients and I/P & O/P wave forms). The cost for energy consumption during the endurance test shall be deducted in the final bill after due certification from the Engr-in-charge.

- Voltage and frequency regulation
- THDv and THDi
- TVD & TVR from 20% to 100% rated full load & 100% to no load
- Unbalance load test and Noise level measurement

24. Scope of Installation

- Minimum ground clearance for ups should be 200mm and for battery should be 150mm, hence suitable powder coated MS base frame shall be supplied along with UPS.
- The proposed 2x40KVA UPS systems will be installed at Animal house area of Basement floor of INSTEM lab building; it is vendor's responsibility to shift the UPS at above mentioned location. However, service lift facility is available at the building.

Note:

The Contractors shall submit all technical supporting documents/ details/third party certificates of the system along with the tender and also should attach the Battery backup calculations and battery discharge characteristics catalog along with the technical bid for evaluation purpose.

The Tenderers shall give the names and full postal addresses of their clients (data center) from Bangalore to whom similar equipments have been supplied by them.

The tenderers shall attach latest two purchase order copy/performance certificates (similar equipments i.e 40kVAUPS) from the existing clients (data center) from Bangalore.

24. Vendors are required to fill the following sheet and submit along with technical bids.

| Sr.no | Description | To be filled by vendor | Remark if any |
|-------|---|------------------------|---------------|
| 1. | UPS make | | |
| 2. | Capacity/Rating | | |
| 3. | Output voltage & Frequency | | |
| 4. | Regulation: c. O/P voltage regulation d. O/P frequency regulation | | |
| 5. | Input power factor | | |
| 6. | Output power factor | | |
| 7. | No. of phases- Input / Output | | |
| 8. | Overall efficiency-online mode AC-AC | | |
| 9. | Input THDi | | |
| 10. | Voltage THD | | |





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

| | | | |
|-----|--|--|--|
| 11. | Battery backup – 15 mints per UPS. c. No. of batteries d. AH rating of battery | | |
| 12. | Over loading capacity | | |
| 13. | Inbuilt - Isolation transformer c. Make d. Winding - Copper | | |
| 14. | Warranty for entire system | | |
| 15. | Parallel configuration | | |





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Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

Supply, Installation, Testing & Commissioning of 04 Nos, of 10 KVA- 15 minutes (Independent operation) True ON line conventional type UPS for Electronic Microscopes application in INSTEM-GKVK.

1. General specifications

- 1 UPS Type : DSP control based ON-LINE Double Conversion Technology
- 2 Capacity : 10 KVA/9 kW
- 3 Preferable Make : Socomec/ Emerson-Vertiv/ Riello /APC/ Eaton
- 4 Battery Backup : **15 min** at full load on each UPS
- 5 Supply : 3-Phase Input, 3-Phase Output
- 6 Operation Mode Normal (online): Emergency, Recharge, bypass, Maintenance bypass.
- 7 Rectifier / Inverter : IGBT with PFC control technology only
- 8 Transformer : **Inbuilt**-Isolation transformer only on Input side
- 9 Total Efficiency AC/AC at 100% load: $\geq 93\%$ (Online mode)
10. Parallel configuration: Nil
11. Noise level at full load : ≤ 66 dBA at 1 mtr from the unit

2. INPUT

- 1 Voltage configuration : Three-phase, 3-wire
- 2 Rated Voltage : 400V,
- 3 Voltage tolerance : 320V to 480 V
- 4 Nominal Frequency : 50 Hz
- 5 Max/Min frequency : 50 Hz +/- 10%
- 6 Phase : Three Phase
- 7 Current Limit : 125% of nominal AC input current
- 8 Surge Protection : As per IEC standard
- 9 THDi : $\leq 3\%$ at full load
 $\leq 5\%$ from 30% to 75% of the full rated load
- 10 Power factor : ≥ 0.98

3. OUTPUT

- 1 Voltage Configuration : Three-phase, 4-wire plus ground (3P+N+E)
- 2 Voltage : 400V/415 V
- 3 Voltage regulation : a) $\pm 1\%$ three-phase RMS average for a balanced three-phase load for the combined variation effects of input voltage, connected load, battery voltage, ambient temperature, and load power factor.
b) $\pm 5\%$ three-phase RMS average for a 100% unbalanced load for the combined variation effects of input voltage, connected load, battery voltage, ambient temperature, and load power factor.
- 4 Voltage Distortion : $\leq 2\%$ total harmonic distortion (THD) for linear loads.
and $\leq 3\%$ THD for 100% nonlinear loads.
- 5 Crest factor : 3:1
- 6 Frequency : 50 Hz and Pure sine wave
- 7 Frequency regulation : 50 Hz +/- 1%
- 8 Output power factor : ≥ 0.9
- 9 Overload Capacity : 125% for ten minutes (without bypass source).
: 150% for one minute (without bypass source).
- 10 Wave form : Pure Sinusoidal
- 11 Output Voltage adjustment : $\pm 5\%$ (Software Controlled adjustment)





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

4. Batteries: -

1. Preferable Make and model : Rocket Make
2. Type : SMF Batteries (maintenance free)-VRLA type
3. Rated battery life : min 5 years
4. Battery backup : **15 mints** with full load on each UPS
For battery calculation, ECV should be considered as 1.75V at 20hrs rating.
5. Battery stand : Suitable batteries stand MS fabricated with powder Coated.
6. Battery link and cabling : suitable battery link and interconnecting copper cable from UPS to battery shall be supplied by vendor along with insulation mat. The approx. distance between UPS and battery stand will be 10mtr.

The accumulator bank must have an expected service life of five years with a capacity of 15 minutes at 100 % load. **Detailed Battery backup calculation sheet and manufacturer charging/discharging characteristic chart shall be attached along with the technical bid also Battery type should be specified in the document.**

5. Vendors are required to fill the following sheet and submit along with technical bids.

| Sr.no | Description | To be filled by vendor | Remark if any |
|-------|--|------------------------|---------------|
| 1. | UPS make | | |
| 2. | Capacity/Rating | | |
| 3. | Output voltage & Frequency | | |
| 4. | Regulation: e. O/P voltage regulation f. O/P frequency regulation | | |
| 5. | Input power factor | | |
| 6. | Output power factor | | |
| 7. | No. of phases- Input / Output | | |
| 8. | Overall efficiency-online mode AC-AC | | |
| 9. | Input THDi | | |
| 10. | Voltage THD | | |
| 11. | Battery backup – 15 mints per UPS. e. No. of batteries f. AH rating of battery | | |
| 12. | Over loading capacity | | |





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

| | | | |
|-----|---|--|--|
| 13. | Inbuilt - Isolation transformer e. Make f. Winding - Copper | | |
| 14. | Warranty for entire system | | |
| 15. | Parallel configuration | | |





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Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

Supply, Installation, Testing & Commissioning of 01 No, 2x40 KVA- 30 minutes (hot sync.mode/parallel mode) True ON line conventional type UPS for Cluster (Data center) application in inStem - GKVK.

1. General specifications

- 1 UPS Type : DSP control based ON-LINE Double Conversion Technology
- 2 Capacity : 40 KVA/36 kW
- 3 Preferable Make : Socomec/ Emerson-Vertiv/ Riello /APC/ Eaton
- 4 Battery Backup : **30 min** at full load on each UPS
- 5 Supply : 3-Phase Input, 3-Phase Output
- 6 Operation Mode Normal (online): Emergency, Recharge, bypass, Maintenance bypass.
- 7 Rectifier / Inverter : IGBT with PFC control technology only
- 8 Transformer : **Inbuilt** - Isolation transformer only on Input side
- 9 Total Efficiency AC/AC at 100% load: $\geq 93\%$ (Online mode)
10. Parallel configuration: ≥ 4 units
11. Noise level at full load : ≤ 66 dBA at 1 mtr from the unit

2. INPUT

- 1 Voltage configuration : Three-phase, 3-wire
- 2 Rated Voltage : 400V,
- 3 Voltage tolerance : 320V to 480 V
- 4 Nominal Frequency : 50 Hz
- 5 Max/Min frequency : 50 Hz +/- 10%
- 6 Phase : Three Phase
- 7 Current Limit : 125% of nominal AC input current
- 8 Surge Protection : As per IEC standard
- 9 THDi : $\leq 3\%$ at full load
 $\leq 5\%$ from 30% to 75% of the full rated load
- 10 Power factor : ≥ 0.98

3. OUTPUT

- 1 Voltage Configuration : Three-phase, 4-wire plus ground (3P+N+E)
- 2 Voltage : 400V/415 V
- 3 Voltage regulation : a) $\pm 1\%$ three-phase RMS average for a balanced three-phase load for the combined variation effects of input voltage, connected load, battery voltage, ambient temperature, and load power factor.
b) $\pm 5\%$ three-phase RMS average for a 100% unbalanced load for the combined variation effects of input voltage, connected load, battery voltage, ambient temperature, and load power factor.
- 4 Voltage Distortion : $\leq 2\%$ total harmonic distortion (THD) for linear loads.
and $\leq 3\%$ THD for 100% nonlinear loads.
- 5 Crest factor : 3:1
- 6 Frequency : 50 Hz and Pure sine wave
- 7 Frequency regulation : 50 Hz +/- 1%
- 8 Output power factor : ≥ 0.9
- 9 Overload Capacity : 125% for ten minutes (without bypass source).
: 150% for one minute (without bypass source).
- 10 Wave form : Pure Sinusoidal
- 11 Output Voltage adjustment : $\pm 5\%$ (Software Controlled adjustment)





4. Batteries: -

- 1 Preferable Make and model : Rocket and ESC
- 2 Type : SMF Batteries (maintenance free)-VRLA type
- 3 Rated battery life : min 5 years
4. Battery backup : **30** minutes with full load on each UPS
For battery calculation, ECV should be considered as 1.75V at 20hrs rating.
5. Battery stand : Suitable batteries stand - MS fabricated with powder Coating.
6. Battery link and cabling : suitable battery link and interconnecting copper cable from UPS to battery shall be supplied by vendor along with insulation mat. The approx. distance between UPS and battery stand will be 10 mtr.

The accumulator bank must have an expected service life of five years with a capacity of 30 minutes at 100 % load. Detailed Battery backup calculation sheet and manufacturer charging/discharging characteristic chart shall be attached along with the technical bid also Battery type should be specified in the document.

5. On-Line Battery Test

The UPS shall be provided with Auto On-Line Battery Test feature. The test shall ensure the capability of the battery to supply power to the inverter while the load is supplied power in the normal mode/On-line mode.

6. Battery Charger: -

The battery charger shall recharge the battery to 90% of its fully charged condition preferably within six to eight (6-8) hours and at the same time supplying full load current to the system. The charger should have the Temperature Compensated Charging. The battery charger output voltage shall be automatically adjusted in proportion to the ambient temperature of the battery to avoid over-charging. The system must include one or more battery chargers:

- with IGBT technology;
- separate from the rectifier;
- with charging voltage independent from the DC bus voltage;
- dedicated and independent for each accumulator bank;

The battery charger must be able to operate with the following types of accumulator:

- Lead acid, hermetically sealed
- Lead acid, vented & SMF VRLA

Depending on the temperature, the battery charger shall be able to select the most suitable recharge method automatically, without operator intervention, alternating float mode in combination with “intermittent” charge in such a way as to limit the effects of corrosion (plate sulphation) and significantly prolong battery life. The maintenance charge voltage must be automatically regulated in relation to the temperature of the battery compartment. The battery compartment must be equipped with a temperature sensor for this purpose.





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

The following parameters must be adjustable and configurable:

- Maximum recharge current limit;
- Constant float mode current and voltage;
- Switching threshold from fast recharge mode to maintenance mode.

The battery charge regulation and control circuit shall also provide the following functions:

- Continuous monitoring of the battery circuit (battery interrupted) with visual alerts on the local user interface;
- Monitoring of battery efficiency, via partial discharge at settable intervals; the check consists in continuously monitoring the discharge current and comparing it with the ideal discharge curve;
- Continuous monitoring of the battery charger's output voltage to ensure it remains within the limits required to optimize battery life. Recharging voltage anomaly alerts followed by deactivation of the charger;
- Residual battery capacity display.

7. Paralleling Kit

Equipment shall be equipped with paralleling kits by this way - 2x40kVA are in parallel mode and also it shall be compatible for paralleling ≥ 4 units.

8. Inbuilt - Isolation Transformer

The UPS shall have suitable rating **inbuilt** isolation transformer with copper winding on Input side and test reports (Efficiency and losses) of the isolation transformer shall be enclosed along with the technical bid. The cooling of Isolation transformer shall be by forced cooling with inbuilt cooling fans. Supplier shall specify the Isolation transformer make and other specification along with technical bid for evaluation purpose.

9. Operating Ambient Temperature: -

UPS Module : (0°C to 40°C).
Battery: 30°C \pm 5°C.

10. Cooling

Cooling of the UPS shall be by forced air and there should be redundant fans.

11. Grounding

The AC output neutral shall be electrically isolated from the UPS chassis. The UPS chassis shall have an equipment ground terminal. Provisions for local bonding shall be provided.

12. Wiring

Installation and required accessories like cables, lugs etc will be in the scope of supplier and Wiring practices, materials and coding shall be in accordance with the requirements of the National Electrical Code (NFPA 70). All bolted connections of bus bars, lugs, and cables shall be in accordance with requirements of the National Electrical Code and other applicable standards.





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

Conformity to standards

The system must conform to the following standards: Necessary certificate from IEC shall be submitted wherever required; **CE certification of the UPS is must.**

- Safety: EN62040-1.
- EMC emissions: EN62040-2.
- EMC immunity: EN62040-2 class C2 and C3.

Certification:

Necessary Type test/third party certificate from CPRI/govt. authorized certification agency should be enclosed along with technical bids. Third party certificate is essential for 40kVA UPS (same model proposed by the vendor).

13. Monitoring and Control

The UPS shall be provided with a DSP based unit status display and controls section designed for convenient and reliable user operation. All of the operator controls and monitors shall be located on the front of the UPS cabinet. The monitoring functions such as metering, status and alarms shall be displayed on the graphical LCD display. Additional features of the monitoring system shall include:

- Menu-driven display with pushbutton navigation
- Real time clock (time and date)
- Alarm history with time and date stamp
- Battery backed-up memory
- System should be BMS compactable for monitoring.

- System should be equipped with inbuilt TCP/IP enabled SNMP card for remote monitoring and control. It should generate alert for events. The SNMP card should be programmable to send email, SMS's over a GSM modem to report particularly important alerts and events.

14. Display & Metering:

- Input AC voltage line-to-line/ line-to-neutral for each phase
- Input AC current for each phase
- Input frequency
- Battery voltage and DC bus voltage
- Battery charge/discharge current
- Output AC voltage line-to-line and line-to-neutral for each phase
- Output AC current for each phase
- Output frequency
- I/P & O/P Apparent power for each phase
- I/P & O/P Active power for each phase
- I/P & O/P kWh meter
- Battery time left during battery operation
- The total operating time of the UPS





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

15. Alarm Messages

The interface must be able to display at least the following status or event information and UPS monitoring should be web based and user friendly.

- Input power out of tolerance
- Battery charger problem
- Battery test failed
- Low battery warning
- Low battery shutdown
- DC bus overvoltage
- Bypass frequency out of range
- Load transferred to bypass
- Excessive retransfers attempted
- Static switch failure
- UPS output not synchronized to bypass power
- Output under voltage
- Output overvoltage
- Output over current
- System output overloaded
- Load transferred to bypass due to overload
- Overload shutdown
- Control error
- Critical power supply failure
- Load transferred due to internal protection
- External shutdown (remote EPO activated)
- Fan failure
- Over temperature shutdown
- UPS is on battery operation
- UPS is on bypass operation
- Battery mode with mains supply / no mains supply
- battery low charge warning
- battery on fast charge
- abnormal battery recharge voltage
- minimum battery voltage
- battery fault
- battery charge circuit broken
- battery charger system fault
- overload alert
- ventilation fault alert
- out of range temperature/humidity alert
- standby power supply out of tolerance

A predictive/statistical algorithm and interpretation of logged data (number, duration and type of events) regarding:





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

- out of tolerance Input voltages
- overloads
- battery mode operation
- switching to standby power supply
- over- temperature

The UPS must predict potential criticalities for the UPS itself, due to ambient conditions, in advance and alert the maintenance service / monitoring system.

16. Diagnostics

The system will be equipped with a microprocessor able to run full machine diagnostics to determine:

- Self-compensation of components to ensure stable settings over time;
- Acquisition of the main diagnostic and monitoring information by computer (local or remote);
- First installation procedure wizard;
- Full test procedure at full load on UPS, with no further external loads (auto-charge mode)
 - rectifier;
 - inverter;
 - bypass;
 - power bus;
 - cables, contactors and fuses;

The Manufacturer must also supply 24h remote monitoring and maintenance.

17. Uninterrupted Transfer / Retransfer

The transfer control logic shall automatically turn on the static transfer switch, transferring the critical AC load to the bypass source, after the transfer logic senses any of the following conditions:

- Inverter overload capacity exceeded
- Critical AC load overvoltage or under voltage
- Battery protection period expired
- Out of tolerance inverter input DC voltage
- Over temperature
- Inverter fault

Retransfer of the critical AC load from the bypass source to the inverter output shall be automatically initiated unless inhibited by manual control.

18. Maintenance bypass

The manual bypass switch will be provided internally and must ensure that equipment downstream of the UPS is supplied directly by the UPS upstream power source when rectifier, inverter and static switches are open. Switching to the manual bypass and back will be possible without load supply interruption (Make Before Break).





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

19. Replacement Parts Stocking

Parts shall be available through an extensive network to ensure around-the-clock parts availability throughout the country. Recommended spare parts shall be fully stocked by local field service personnel (in Bangalore office) with back-up available from national parts center and the manufacturing location. The national parts center Customer Support Parts Coordinators shall be on-call 24 hours/day, 7 days/week, and 365 days/year for immediate parts availability. Tenderers may also produce Bangalore service center address along with strength support in the form of escalation chart. The UPS systems are going to feed the power to very critical equipments, and it is the responsibility of local service team to attend any emergency situation immediately during warranty period as well as post warranty period. Hence, service center at Bangalore is very much essential.

20. Battery Circuit Breaker

A suitable battery circuit breaker (DC breaker) shall be provided to isolate the battery from the UPS. This breaker shall be in a separate wall mounted NEMA-1 enclosure. The battery breaker provides a manual disconnecting means, short circuit protection, and over current protection for the battery system. When opened, there shall be no battery voltage in the UPS enclosure. The UPS shall be automatically disconnected from the battery when the battery reaches the minimum discharge voltage level. **During any abnormalities (over charging)/accident, UPS should be able to trip the battery breaker automatically. So necessary arrangement needs to be done.**

21. Other Protections

- Battery protection period expired, Input Over/ under voltage, and Output over / under voltage, Output short circuit, Inverter overload, Rectifier overload, Inverter Overvoltage/under voltage, over temp, surge protection.
- It must have Generator Compatibility.
- Must have complete protection for EMI / RF as per the IEC standard.
- Units to have built in surge, spike and line noise protection.
- It should have Intelligent Battery Management system
- UPS should be compact and with small footprints.
- UPS sound level should be within the limit as per the standard.

22. Warranty/Guaranty:

The equipments (complete system including battery banks) supplied shall be guaranteed against all types of defects for a period of **Two years (2 years)** from the date of handing over of the equipment to InStem after successful completion of acceptance testing. Any defects in the system/subassemblies found within the guarantee period shall be rectified/replaced by the supplier free of cost. During this period, servicing at bimonthly interval or earlier, as prescribed by the manufacturer and as mutually agreed to, shall be carried out free of cost. It also includes battery health checks of the all the battery banks. Supplier shall also indicate the service facility they can offer at the place of installation and the telephone number and address of their service center. During the warranty period, breakdown call response time should be within 4 hrs in all working hours and 24hrs during after office hours and weekends.

Note: During warranty period, vendor should arrange for “On line battery impedance test” for the complete system once in every Six months’ period.

The track record of the firm in implementing and maintaining similar UPS systems, the nearest local(Bangalore) service establishment and the promptness in attending to service/breakdown calls shall also form basis of tender evaluation.

23. Rating test

8 hrs full load endurance test shall be carried out at factory premises and followed by 110% load for 1 hr period. Test to ascertain the rated and transient capacities and overall efficiency of the system will be carried out at factory and with the battery backup of 30(Thirty) minutes with full load at the factory.





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

Satisfactory performance at this stage meeting the prescribed limits will only be construed as acceptance of the UPS. The quoted UPS which falls short of our prescribed minimum overall efficiency will not be accepted.

The full load endurance test needs to be conducted at INSTEM-GKVK, the vendor should arrange all load banks with necessary cable arrangement along with metering (Digital oscilloscope/power analyzer- to find out transients and I/P & O/P wave forms). The cost for energy consumption during the endurance test shall be deducted in the final bill after due certification from the Engr-in-charge.

- Voltage and frequency regulation
- THDv and THDi
- TVD & TVR from 20% to 100% rated full load & 100% to no load
- Unbalance load test and Noise level measurement

24. Scope of Installation

- Minimum ground clearance for ups should be 200mm and for battery should be 150mm, hence suitable powder coated MS base frame shall be supplied along with UPS.
- The proposed 2x40KVA UPS systems will be installed at Cluster at Basement floor of INSTEM lab building; it is vendor's responsibility to shift the UPS at above mentioned location. However, service lift facility is available at the building.

Note:

The Contractors shall submit all technical supporting documents/ details/third party certificates of the system along with the tender and also should attach the Battery backup calculations and battery discharge characteristics catalog along with the technical bid for evaluation purpose.

The Tenderers shall give the names and full postal addresses of their clients (data center) from Bangalore to whom similar equipments have been supplied by them.

The tenderers shall attach latest two purchase order copy/performance certificates (similar equipments i.e 40kVAUPS) from the existing clients (data center) from Bangalore.

24. Vendors are required to fill the following sheet and submit along with technical bids.

| Sr.no | Description | To be filled by vendor | Remark if any |
|-------|---|------------------------|---------------|
| 1. | UPS make | | |
| 2. | Capacity/Rating | | |
| 3. | Output voltage & Frequency | | |
| 4. | Regulation: g. O/P voltage regulation h. O/P frequency regulation | | |
| 5. | Input power factor | | |
| 6. | Output power factor | | |
| 7. | No. of phases- Input / Output | | |
| 8. | Overall efficiency-online mode AC-AC | | |
| 9. | Input THDi | | |
| 10. | Voltage THD | | |





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

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|-----|--|--|--|
| 11. | Battery backup - 30 mints per UPS. g. No. of batteries h. AH rating of battery | | |
| 12. | Over loading capacity | | |
| 13. | Inbuilt - Isolation transformer g. Make h. Winding - Copper | | |
| 14. | Warranty for entire system | | |
| 15. | Parallel configuration | | |





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

INFORMATION TO TENDERERS

The Tender shall be evaluated under 2 (Two) Bid System

- I Technical Bid
- II Financial Bid

TECHNICAL SPECIFICATIONS & EVALUATION CRITERIA WITH MARKS FOR 2 PART TENDER FOR Supply, Installation, Testing and Commissioning of UPS 2x80KVA- 01 No. - 15 minutes, 2x40KVA- 01 No. - 15 minutes, 10 KVA- 04 Nos. - 15 minutes, and 2x40 KVA- 01 No. - 30 minutes.

Supply, Installation, Testing & Commissioning of 01 No, 2x80 KVA- 15 minutes (hot sync.mode/parallel mode) True ON line conventional type UPS for Laboratory application in INSTEM-GKVK.

| Sr. no | Evaluation Criteria with marks | Max marks | Evaluation |
|--------|---|-----------|---|
| 1 | General specifications: (i) UPS type: DSP control based On-Line double conversion technology (ii)UPS Capacity: 80kVA/72kW (iii)Total Efficiency AC/AC at 100% load(online mode) :≥93% (iv) Output power factor : ≥0.9 (iv) Parallel configuration : ≥4 units (v) Rectifier/Inverter : IGBT with PFC control (vi) Inbuilt Isolation transformer :copper wound, Make: OEM | 20 | All the parameters are very critical for our application, so each parameters will be considered for evaluation purpose. |
| 2 | UPS Input configuration as per technical specification indicated in Sr.no.2 | 20 | |
| 3 | UPS Output configuration as per technical specification indicated in Sr.no.3 | 20 | |
| 4 | Battery banks and its accessories: (i) Battery make & type: Rocket, SMF VRLA type (ii) Battery backup : 15 mints For battery calculation, ECV should be consider as a 1.75V at 20hrs rating. (iii)Online battery test: as per specification (iv) Battery charger: as per specification (v) Batter stand: as per specification (vi) insulation mat and battery cable | 10 | |
| 5 | Necessary Type test/third party certificate from CPRI/govt. authorized certificate agency. | 10 | |
| 6 | Local service center and team strength. (Please provide the list of clients in Bangalore for 80kVA Online UPS (same proposed | 10 | |





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

| | | | |
|--|---|---|--|
| | model) and provide latest two performance certificates from the clients for 80kVA UPS. | | |
| 7 | Warranty/Guaranty: 2 years for the complete system including battery banks from the date of commissioning and handed over the system to department. Please mention in writing. | 4 | |
| 8 | Rating test (rating test will be conducted as per technical specification). Please mention in writing | 3 | |
| 9 | Acceptance of all conditions as per our technical specification. Please mention in writing. | 3 | |
| Evaluation will be carried out and those Vendors who score minimum 75% in each category and overall will qualify for Price Bid opening. Thereafter, Financial proposal shall be evaluated. The Commercially LOWEST BIDDER shall be the first preferred Vendor for award of Order. | | | |

Supply, Installation, Testing & Commissioning of 01 No, 2x40 KVA- 15 minutes (hot sync.mode/parallel mode) True ON line conventional type UPS for Animal house application in inStem - GKVK.

| Sr. no | Evaluation Criteria with marks | Max marks | Evaluation |
|--------|---|-----------|---|
| 1 | General specifications: (i) UPS type: DSP control based On-Line double conversion technology (ii)UPS Capacity: 40kVA/36kW (iii)Total Efficiency AC/AC at 100% load(online mode) :≥93% (iv) Output power factor : ≥0.9 (iv) Parallel configuration : ≥4 units (v) Rectifier/Inverter : IGBT with PFC control (vi) Inbuilt Isolation transformer :copper wound, Make: OEM | 20 | All the parameters are very critical for our application, so each parameters will be considered for evaluation purpose. |
| 2 | UPS Input configuration as per technical specification indicated in Sr.no.2 | 20 | |
| 3 | UPS Output configuration as per technical specification indicated in Sr.no.3 | 20 | |
| 4 | Battery banks and its accessories: (i) Battery make & type: Rocket, SMF VRLA type (ii) Battery backup : 15 mints For battery calculation, ECV should be consider as a 1.75V at 20hrs rating. (iii)Online battery test: as per specification (iv) Battery charger: as per specification (v) Batter stand: as per specification (vi) insulation mat and battery cable | 10 | |





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

| | | | |
|--|---|----|--|
| 5 | Necessary Type test/third party certificate from CPRI/govt. authorized certification agency. | 10 | |
| 6 | Local service center and team strength. (Please provide the list of clients in Bangalore for 40kVA Online UPS (same proposed model) and provide latest two performance certificates from the clients for 40kVA UPS. | 10 | |
| 7 | Warranty/Guaranty: 2 years for the complete system including battery banks from the date of commissioning and handed over the system to department. Please mention in writing. | 4 | |
| 8 | Rating test (rating test will be conducted as per technical specification). Please mention in writing | 3 | |
| 9 | Acceptance of all conditions as per our technical specification. Please mention in writing. | 3 | |
| Evaluation will be carried out and those Vendors who score minimum 75% in each category and overall will qualify for Price Bid opening. Thereafter, Financial proposal shall be evaluated. The Commercially LOWEST BIDDER shall be the first preferred Vendor for award of Order. | | | |

Supply, Installation, Testing & Commissioning of 04 Nos, of 10 KVA-15 minutes (Independent operation) True ON line conventional type UPS for Electronic Microscopes application in INSTEM-GKVK.

| Sr. no | Evaluation Criteria with marks | Max marks | Evaluation |
|--------|---|-----------|---|
| 1 | General specifications: (i) UPS type: DSP control based On-Line double conversion technology (ii) UPS Capacity: 10kVA/9kW (iii) Total Efficiency AC/AC at 100% load(online mode) : ≥93% (iv) Output power factor : ≥0.9 (iv) Parallel configuration : Nil (v) Rectifier/Inverter : IGBT with PFC control (vi) Isolation transformer : copper wound Make: OEM | 20 | All the parameters are very critical for our application, so each parameters will be considered for evaluation purpose. |
| 2 | UPS Input configuration as per technical specification indicated in Sr.no.2 | 20 | |
| 3 | UPS Output configuration as per technical specification indicated in Sr.no.3 | 20 | |
| 4 | Battery banks and its accessories: (i) Battery make & type: Rocket, SMF VRLA type (ii) Battery backup : 15 mints For battery calculation, ECV should be consider as a 1.75V at 20hrs rating. | 10 | |





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

| | | | |
|--|---|----|--|
| | (iii) Online battery test: as per specification (iv) Battery charger: as per specification (v) Battery stand: as per specification (vi) insulation mat and battery cable | | |
| 5 | Necessary Type test/third party certificate from CPRI/govt. authorized certification agency. | 10 | |
| 6 | Local service center and team strength. (Please provide the list of clients in Bangalore for 10kVA Online UPS (same proposed model) and provide latest two performance certificates from the clients for 10kVA UPS. | 10 | |
| 7 | Warranty/Guaranty: 2 years for the complete system including battery banks from the date of commissioning and handed over the system to department. Please mention in writing. | 4 | |
| 8 | Rating test (rating test will be conducted as per technical specification). Please mention in writing | 3 | |
| 9 | Acceptance of all conditions as per our technical specification. Please mention in writing. | 3 | |
| Evaluation will be carried out and those Vendors who score minimum 75% in each category and overall will qualify for Price Bid opening. Thereafter, Financial proposal shall be evaluated. The Commercially LOWEST BIDDER shall be the first preferred Vendor for award of Order. | | | |

Supply, Installation, Testing & Commissioning of 01 No, 2x40 KVA-30 minutes (hot sync.mode/parallel mode) True ON line conventional type UPS for Cluster (Data center) application in inStem - GKVK.

| Sr. no | Evaluation Criteria with marks | Max marks | Evaluation |
|--------|---|-----------|---|
| 1 | General specifications: (i) UPS type: DSP control based On-Line double conversion technology (ii) UPS Capacity: 40kVA/36kW (iii) Total Efficiency AC/AC at 100% load(online mode) : ≥93% (iv) Output power factor : ≥0.9 (iv) Parallel configuration : ≥4 units (v) Rectifier/Inverter : IGBT with PFC control (vi) Inbuilt Isolation transformer : copper wound, Make: OEM | 20 | All the parameters are very critical for our application, so each parameters will be considered for evaluation purpose. |
| 2 | UPS Input configuration as per technical specification indicated in Sr.no.2 | 20 | |
| 3 | UPS Output configuration as per technical specification indicated in Sr.no.3 | 20 | |
| 4 | Battery banks and its accessories: | 10 | |





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

| | | | |
|--|---|----|--|
| | (i) Battery make & type: Rocket-ESC, SMF VRLA type (ii) Battery backup : 30 mints For battery calculation, ECV should be consider as a 1.75V at 20hrs rating. (iii) Online battery test: as per specification (iv) Battery charger: as per specification (v) Batter stand: as per specification (vi) insulation mat and battery cable | | |
| 5 | Necessary Type test/third party certificate from CPRI/govt. authorized certification agency. | 10 | |
| 6 | Local service center and team strength. (Please provide the list of clients in Bangalore for 40kVA Online UPS (same proposed model) and provide latest two performance certificates from the clients for 40kVA UPS. | 10 | |
| 7 | Warranty/Guaranty: 2 years for the complete system including battery banks from the date of commissioning and handed over the system to department. Please mention in writing. | 4 | |
| 8 | Rating test (rating test will be conducted as per technical specification). Please mention in writing | 3 | |
| 9 | Acceptance of all conditions as per our technical specification. Please mention in writing. | 3 | |
| Evaluation will be carried out and those Vendors who score minimum 75% in each category and overall will qualify for Price Bid opening. Thereafter, Financial proposal shall be evaluated. The Commercially LOWEST BIDDER shall be the first preferred Vendor for award of Order. | | | |





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

ANNEXURE - C

SCHEDULE OF DEVIATION FROM SPECIFICATIONS/CONDITIONS

All deviations from the specifications/conditions shall be filled in by the bidder in this schedule.

| |
|--|
| |
|--|

The bidder hereby certifies that the above mentioned are the only deviations from Technical Specification of this tender. [State NIL if no deviation is envisaged].

| | |
|---------------------|--|
| Signature | |
| Name | |
| Designation | |
| Name of the company | |
| Date | |
| Seal of the company | |





inStem

Ref: INS/L-5437/2018-2019 (Y)

Tender Notice No.001/2018-2019

COVER – II PRICE BID

Supply, Installation, Testing and Commissioning of UPS 2x80KVA- 01 No. - 15 minutes, 2x40KVA- 01 No. - 15 minutes, 10 KVA- 04 Nos. - 15 minutes, and 2x40 KVA- 01 No. - 30 minutes.

| Sl. No. | Item Description | Qty | Unit Price | Total Price |
|---------|------------------|-----|------------|-------------|
| | | | | |

Please enter Unit Price, Total Price and Grand Total in figures as well as words. Unit price and Total Price may be entered below each item.

