

**INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE**  
**2A & 2B , Raja S.C. Mullick Road, Jadavpur, Kolkata-700032**

**NIT No. : IACS/SAIS/KDMR/2019-20/111**

**Date: 18/02/2020**

Sealed tender in two bids system (technical bid and price bid) is invited from bonafide, resourceful and eligible manufacturer/exclusive distributor/vendors for **Low-current Cryogenic Probe Station Part-I (Technical Bid)** of the tender should contain technical specifications in detail as well as commercial terms and conditions. Part-II (Price Bid) should clearly indicate group-wise price, if needed, as mentioned in the technical bid. The Technical Bid and Price Bid are to be submitted in separately sealed envelopes, distinctly marked accordingly and both to be put inside another envelope, that should be sealed and superscribed with tender notice no. and due date. The bidders may submit bids duly signed in their own letterheads.

Completed tender bids should reach the office of the **Registrar, Indian Association for the Cultivation of Science (IACS), 2A & 2B Raja S. C. Mullick Road, Jadavpur, Kolkata-700032** on or before the scheduled date and time specified below:

|                                                                        |                                                                                                                                                                                                                  |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tender Notice No.                                                      | <b>NIT No. IACS/SAIS/KDMR/2019-20/111, Date: 18-02-20</b>                                                                                                                                                        |
| Last date and time of submitting tender                                | March 10, 2020 upto 3.00 PM                                                                                                                                                                                      |
| Pre-bid meeting(date, time & place) to discuss technical specification | February 28, 2020 at 12.00 noon at Room No. 303 Centenary Building, IACS                                                                                                                                         |
| Date and time of opening tender (Technical Bids)                       | March 10, 2020 at 3.30 PM                                                                                                                                                                                        |
| Place of opening tender                                                | Room No.303, Centenary Building, IACS                                                                                                                                                                            |
| Date and time of opening of Price Bid                                  | The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected. |
| Contact                                                                | Email:<br>Tel.+91 33 2473 4971 [Ext. 2153]                                                                                                                                                                       |

The technical bids will be opened first to judge/evaluate the technical specifications of the said instrument and thereafter the price bids of only technically qualified bidders will be opened.

**Technical Bid Evaluation:** The Technical Bids will be evaluated in the presence of the representatives of intending bidders who will be able to clarify technical aspects of their bids, if any, required by the Technical Evaluation Team.

**Opening of price-bid:** The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.

Please note that IACS will not provide any accommodation or reimburse any expenses to any of the bidders for attending opening of technical bid.

Quotations received incomplete or beyond the stipulated time will be summarily rejected.

Bidders should submit their past experience for supplying and successful installation of similar units to other research Institutes/Universities/other organizations in India and abroad. Please provide documentary proofs of such successful installation and supportive documents that the instruments are running successfully.

## **1. TECHNICAL BID**

The technical bid should contain technical specifications and should be kept in a separate sealed envelope duly superscribed as 'TECHNICAL BID' on the outer cover of the envelope as already detailed above. **It should be clearly mentioned on the envelope as "Technical Specification for Low-current Cryogenic Probe Station".**

### **Technical Specification for Low-current Cryogenic Probe Station :-**

The probe station must be capable of making a wide range of standard electrical characterization, with four probes for electrical and optical characterization of materials and thin films with top optical access option. The optical access should allow the integration of illumination system with optical fiber. The probe station should be compatible with sample holders for I-V, C-V and impedance measurements.

#### **Probe station**

1. Probe station main chamber should be constructed of high quality stainless steel, allowing the possibility to carry out measurements in vacuum as well as in an inert atmosphere.
2. Six ports, four-arm configuration for four-point probing with TRIAX and optical sample holders should be provided.
3. The system should be configured for sensitive low current measurement less than 1fA and high impedance DC measurements.
4. High precision micro manipulated stages for accurate probe tip placement(allowing a travel of at least 2-inch, 1 inch, 0.4 inch along x, y and z axes, respectively, and translational scale up to 10  $\mu$ m in x axis and 5  $\mu$ m in y and z axes each)
5. The station should include thermal radiation shields, stainless steel welded bellow and feed through ports such as probe arm and base, tips and cables should be included. Suitable probes must be included.
6. The probe-station should allow measurement on a maximum sample size of 2-inch diameter.
7. Sample top side optical access with appropriate windows and shutters of at least 1-inch diameter, such that light can be coupled in from top port, without breaking vacuum or altering the experimental condition.
8. **Integration:** The necessary connections/wire to integrate the probe station with Keithley 2834B two channel source-measure electrical measurement system.

#### **Cryogenic Operation**

1. Cryogenic operation with either liquid N<sub>2</sub> or liquid He should be possible.
2. Flow cryostat (Sample + radiation shield) must be provided.
3. The transfer line for use with liq. N<sub>2</sub> or He should be supplied with suitable adapters.

#### **Electrical and Optical Probes**

1. Four ultra-miniature cryogenic coaxial probe cables with SMA plug at probe end to 3-lug triaxial feed through should be supplied.
2. The probes should be configured for sensitive low current measurement ~1fA
3. Suitable probes with at least two of them having CVT (continuously variable temperature) must be provided.

**Temperature Controller system**

1. The accurate temperature control over the full temperature range ( $\pm 100$  mK) should be provided.
2. Suitable programmable PID temperature controller should be provided.
3. Sample stage with sensor.
4. Radiation shield sensor.
5. Probe arm: DT-670C-SD or equivalent silicon diode (one probe arm)/no active control should be provided.

**Microscope and Display monitor system**

The microscope/monoscope system must have following features:

1. At least 50 x zoom optics with a high sensitivity colour CCD camera with ring and coaxial light.
2. Smallest visualized feature should be  $\leq 3 \mu\text{m}$  is required.

**Accessories**

1. Toolkit: include tools for standard operations should be provided.
2. Spare kit; include kit for common consumable item should be provided
3. Electrical Requirement: single-phase voltage 220/240 VAC, 50Hz
4. Approval: all instruments should be CE marked
5. Warranty: Standard warranty of one or more years must be provided

**Additional Requirements:**

- The probe station must be manufactured and integrated by the single vendor
- The probe station should be a tabletop with small footprint
- Post sale service from the single vendor
- The vendor should have successfully installed the low current cryogenic probe station in India and abroad as well
- There should be at least five probe station units of the vendor already installed in other labs in India and at least 20 units installed all over the world, maintaining a good track of functioning
- The probe station system should be modular and upgradable

**Warranty:** Minimum 1 year while 3 years extendable warranty is preferred.

Servicing facility within India is a must while service engineer stationed at Kolkata will be preferred.

A list of other places where the instrument has been installed should also be provided.

A compliance table (see below) must be prepared and submitted along with the technical bid.

| Sr. No | Tender specification | Your offered instrument specification | Extent of compliance |
|--------|----------------------|---------------------------------------|----------------------|
|        |                      |                                       |                      |
|        |                      |                                       |                      |
|        |                      |                                       |                      |

Tender will not be accepted if the technical compliance chart is NOT provided following the above format.

## **2. PRICE BID**

The financial bid indicating (item-wise) price for the item(s) mentioned in the technical bid should be kept in a separate sealed envelope duly super scribed as 'PRICE BID' on the outer cover of the envelop as already detailed above. Price bids of only technically qualified bidders will be opened and they will be intimated the date and time of the opening of price bid at their e-mail ids. Rest of the bidders will stand rejected.

**PRICE:** Price to be quoted on CIF or CIP Kolkata and also FOB or Ex-work basis.

## **3. BID SECURITY:**

An Account payee Demand Draft of any of the Commercial Banks for Rs. 55,000 (Rupees fifty-five thousand only) drawn in favour of "Indian Association for the Cultivation of Science (State Bank of India, Jadavpur University Branch, A/C No. 11079699211, IFSC: SBIN000093, MICR Code: 700002048)" is to be furnished by the bidders alongwith Technical Bid, except Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organisation or the concerned Ministry or Department.

Alternatively, the bidder shall have the option to furnish EMD in the form of Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the Commercial Banks. The Bid-Security should have at least 90 (ninety) days validity period beyond the final bid validity period.

In case of non-award of the work the Bid Security money would be returned to the unsuccessful Bidders.

## **4. PERFORMANCE SECURITY:**

An Account Payee Demand Draft on any commercial bank of India or Bank Guarantee (BG) of any Commercial Bank preferably located at Kolkata of 10% of the order value in the name of "Indian Association for the Cultivation of Science" is to be furnished by the successful bidder as Performance security. Performance security money should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. Bid security money or EMD will be refunded to successful bidder on receipt of the Performance security money.

## **5. TERMS OF PAYMENT :**

Payment will be made through irrevocable Letter of Credit in two instalments. 90% of the money will be released on submission of shipping of documents. Remaining 10% will be released after successful installation of the instrument.

## **6. GENERAL INSTRUCTIONS :**

1. Validity of tender: Tender submitted should remain valid for at least six months from the date of opening the tender. Validity beyond six months from the date of opening of the tender shall be lapsed by mutual consent.
2. The tender should accompany a compliance chart.
3. Incomplete and conditional tenders as well as tenders received after the due date will be summarily rejected without assigning any reasons thereof.
4. At any time prior to the bid due date, IACS may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder during pre-bid meeting, modify the

bidding documents. The amendment(s) will be notified on the institute website. Prospective bidders are advised to occasionally visit the website ([www.iacs.res.in/tender](http://www.iacs.res.in/tender)) for any amendment.

5. Installation/Demonstration/Application training at site: Installation & user training at IACS, free of cost by the supplier.

6. Service facility: In India, preferably Kolkata, supplier should mention their details of service setup and man powers who are responsible for after sales support. Response time should be within 24 hrs.

7. The model number, make and a printed literature of the product should be submitted positively.

8. Proposed delivery schedule should be mentioned clearly.

9. Manufacturers / exclusive distributors / vendors should have history of supplying this type of instruments to this or other scientific organizations. Availability of a list in this regard would be preferred.

10. Authorized dealership certificate should be provided in case of principal manufacturing company is not quoting directly.

11. Guarantee certificate, users manuals etc. are to be handed over to the user after successful commissioning of the system.

12. In the event of date being declared a closed holiday for purchaser's office, the due date for submission of bids and opening of the technical bids will be the following working day at the appointed time.

13. In case of any dispute, the decision of IACS authority shall be final and binding on the bidders.

14. In case of any litigation the matter will be dealt within the jurisdiction of the High Court of Calcutta only

15. For any clarification regarding technical specifications, information etc., please send your queries to Dr. KDM Rao ([trckdmr@iacs.res.in](mailto:trckdmr@iacs.res.in)).

16. The authority of IACS reserves the right to reject any or all of the tenders received without assigning any reason thereof.

**Acting Registrar**