

Tender No: IPC/VBK/IISc/2026-27/001

**Domestic Tender Notification for the Procurement of Customized (1) Controller for an Ultra-Sensitive Electrochemical STM-based Break Junction (EC-STM BJ) set up and (2) Controller for EGaIn Large area junction set-up.
(Last date: 04 September 2026)**

Request for Quotation (RFQ) for the procurement of following custom-built charge and heat transport measurement controllers for the Single Molecule Science Laboratory, Department of Inorganic and Physical Chemistry (IPC), Indian Institute of Science, Bangalore.

1. Custom built Controller for an Ultra-Sensitive Electrochemical STM-based Break Junction (EC-STM BJ) set up
2. Custom built Controller for EGaIn Large area junction set-up

The bidder must submit their tender in two separate sealed and distinctly marked envelopes: one containing the technical bid without mentioning any costs, and the other containing the commercial bid. Both envelopes should reach us duly signed on or before **17:00 hours, 04 September 2026**. **The bidder must submit the bids for all the items mentioned. Partial bids will not be considered.**

The sealed envelopes containing the bids should mention "Quotation for Custom-made Charge and Heat Transport Measurement Controllers " on the cover. **The sealed bids should be addressed and submitted to:**

**The Chairman
Kind Attn: Prof. Veerabhadrarao Kaliginedi
Department of Inorganic and Physical Chemistry,
A104, Chemical Sciences building,
Indian Institute of Science, Bengaluru, India-560012**

Any questions or clarifications can be directed to:

Dr. Veerabhadrarao Kaliginedi
Associate Professor
Room No: AEG14
Department of Inorganic and Physical Chemistry
Indian Institute of Science
Bangalore, INDIA-560012.
Email: vkaliginedi@iisc.ac.in
Tel: +91-80 2293 3185.

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Section 1: Bid Schedule

1	Tender No:	IPC/VBK/IISc/2026-27/001
2	Tender date	13 August 2026
3	Instrument	1. Custom built Controller for an Ultra-Sensitive Electrochemical STM-based Break Junction (EC-STM BJ) set up 2. Custom built Controller for EGaIn Large area junction set-up
4	Tender type	Domestic Tender
5	Documents to be submitted	i) Technical bid (part A) ii) Commercial bid (part B)
6	Place of tender submission	The Office, Dept. of Inorganic and Physical Chemistry, A104, Chemical Sciences building, Indian Institute of Science, Bengaluru – 560 012, India.
7	Last date and time of tender submission	17:00 hours, 04 September 2026
8	For Further clarification	Dr. Veerabhadrarao Kaliginedi Associate Professor Room No: AEG14 Department of Inorganic and Physical Chemistry Indian Institute of Science Bangalore, INDIA-560012. Email: vkaliginedi@iisc.ac.in

Section 2 – Eligibility Criteria

1. The Bidder should belong to either Class-1 or Class-2 suppliers distinguished by their “local content” as defined by recent edits to GFR. They should mention clearly which class they belong to in the cover letter.
 - a) Class-1 supplier: Goods and services should have local content of equal to or more than 50%.
 - b) Class-2 supplier: Goods and services should have local content of equal to or more than 20 % and less than 50%.
2. The quotations should be on FOR-IISc Bangalore basis in INR only.
3. MSMEs can seek an exemption to some qualification criteria. IISc follows GFR2017 for such details.
4. Quote should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor.
5. Bidders offering imported products will fall under the category of non-local suppliers. They cannot claim themselves as Class-1 local suppliers/Class-2 local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training, and other sales service support like AMC/CMC, etc., as local value addition.
6. Purchase preference as defined by the recent edits to GFR (within the “margin of purchase preference”) will be given to the Class-1 supplier.
7. The order will be placed only on the bidder who participated in the bid. The Bidder's firm should have existence for a minimum of 5 years. (Enclosed Company Registration Certificate).
8. The Bidder should have qualified technical service personnel for the instrument(s) based in India.
9. The Bidder must not be blacklisted/banned/suspended or have a record of any service-related dispute with any organization in India or elsewhere. A declaration to this effect to be provided as per Annexure 3.
10. The bidder should sign and submit the declaration for Acceptance of Terms and Conditions as per Annexure 4.

11. Any bids that are deemed incomplete can be summarily rejected without further consideration.

Section 3 – Terms and Conditions

I. Submission of Tender:

1. All documentation submitted with the tender must be in English.
2. The tender should be submitted in two envelopes (two-bid system).
 - a) **Technical Bid (Part-A)** – Technical bid consisting of all technical details and checklist for conformance to technical specifications (Section 5). The technical bid should include a technical compliance table, as outlined in Section 4 of this document.
 - b) **Commercial Bid (Part-B)** – Indicating item-wise price for the items mentioned in the technical bid **as per the format of quotation provided in Annexure 5**, and other commercial terms and conditions.
3. The technical and price bids should be placed in separate sealed envelopes, superscripting the tender number and the due date on both. Both of these sealed covers are to be placed in a larger envelope, which should also be sealed and duly superscripted with the Tender No., Tender Description & Due Date.
4. The SEALED COVER superscripting tender number, tender description, and due date, and the contact address, contact phone, and email of the bidder should reach **The Office, Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore – 560 012**, India on or before the due date mentioned in the tender notice. Write **"Quotation for Custom-made Charge and Heat Transport Measurement Controllers – Department of Inorganic and Physical Chemistry"** clearly on top of the envelope. If the due date is a holiday, the tender will be accepted on the next working day. If the quotation cover is not sealed, it will be rejected.
5. All queries are to be addressed to the person identified in "Section 1 – Bid Schedule" of the tender notice.
6. GST/other taxes, levies etc., are to be indicated separately. The bidder must mention their GST Registration and PAN in the tender document (for Indian bidders only).
7. The Institute reserves the right to accept or reject any bid, to annul the bidding process, and reject all bids at any time before the award of the contract without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders.
8. Incomplete bids will be summarily rejected. The bidder must submit the bids for all the items mentioned. Partial bids will not be considered.

II. Cancellation of Tender:

Notwithstanding anything specified in this tender document, IISc Bangalore, in its sole discretion, unconditionally and without having to assign any reason, reserves the rights to:

- a) Accept OR reject the lowest tender, any other tender, or all the tenders.
- b) Accept any tender in full or in part.
- c) Reject the tender, offer not confirming to the tender terms.

III. Validity of the Offer:

The offer must be valid for at least 90 Days from the closing date of this tender.

D) Evaluation of Offer:

1. Bids deemed complete, as per the information provided in Section 2 of this document, will be considered for technical evaluation. Technical bids (Part A) from such eligible bidders will be opened and evaluated. Bidders not furnishing the documentary evidence required in Section 2 will not be considered.
2. Pre-qualification of the bidders shall not imply final acceptance of the Commercial Bid. The agency may be rejected at any point during technical evaluation or during commercial evaluation. The decision regarding acceptance and/or rejection of any offer in part or full shall be at the sole discretion of IISc Bangalore, and the decision in this regard shall be binding on the bidders.
3. The award of the contract will be subject to acceptance of the terms and conditions stated in this tender (Annexure 4).
4. Any offer which deviates from the vital conditions (as illustrated below) of the tender is liable to be rejected:
 - a) Non-submission of complete offers.
 - b) Receipt of bids after the due date and time and/or by email/fax (unless specified otherwise).
 - c) Receipt of bids in open conditions.
5. If any bidder is silent on any clauses mentioned in these tender documents, IISc Bangalore shall construe that the bidder had accepted the clauses as of the tender, and no further claim will be entertained.
6. No revision in the terms and conditions quoted in the offer will be entertained after the last date and time fixed for receipt of tenders.
7. The lowest bid will be calculated based on the total price of all items tendered for basic equipment, along with accessories selected for installation, operation, preprocessing, and post-processing. Any optional items, recommended spares, additional warranty, annual maintenance contract, and any such items will be considered only if they are being purchased as part of this tender.

E) Pre-requisites for Installation:

The bidder must provide the pre-requisite installation requirement of the equipment along with the technical bid.

F) Warranty:

1. The complete system is to be under a comprehensive warranty for a minimum period of 1 year.
2. During the warranty period, any complaint must be addressed within 2 working days after a service request is raised.
3. After such a service call, if the instrument is found to be defective, it must be replaced or rectified at the cost of the bidder within 30 days from the date of receipt of written communications from IISc, Bangalore.
4. If there is any delay in replacement or rectification, the warranty period should be correspondingly extended.

G) Annual Maintenance Contract:

1. The cost of an annual maintenance contract for at least 3 years after the warranty period is to be quoted.
2. The cost of annual maintenance must be locked in for the period of 3 years post the warranty period.
3. AMC must cover service breakdowns + at least one maintenance visit per year.
4. AMC cost (if ordered, after the completion of the warranty period) will be released on a yearly basis at the end of each year, subject to satisfactory services.
5. The quote must include pricing for both comprehensive and non-comprehensive AMC.
6. Expected consumables for the maintenance of this system and their price, preferably with a lock-in at least during the warranty period, must be provided as an optional item in the quotation.

H) Delivery, Installation, and Training:

1. The bidder shall provide the lead time for delivery, installation, and commissioning at IISc Bengaluru from the date of receipt of the purchase order. The system should be delivered, installed, and commissioned within 90 days from the date of receipt of the purchase order.
2. The supply of the items will be considered as effective only on satisfactory installation and inspection of the system, inspection of all the items and features/capabilities, and testing by IISc, Bengaluru. After successful commissioning and inspection, the date of taking over of entire system by the IISc, Bengaluru, shall be taken as the start of the warranty period. No partial shipment is allowed.
3. The bidder should also arrange for technical training of local facility technologists and users during installation, followed by four follow-up training sessions within the same year. Additionally, two training visits per year must be included during the warranty and AMC periods, if and when the AMC (as detailed in Section G) is purchased.

I) Purchase Order:

1. The order will be placed on the bidder whose bid is accepted by IISc based on the terms & conditions mentioned in the tender document.
2. The quantity of the items in the tender is only indicative. IISc, Bangalore reserves the right to increase /decrease the quantity of the items depending on the requirement.
3. If the quality of the product and service provided is not found satisfactory, IISc Bangalore reserves the right to cancel or amend the contract.

J) Payment Terms:

1. Payment terms must be clearly included in the commercial bid.
2. The AMC cost (if ordered) will be released on a yearly basis at the end of each year, starting from the end of the warranty period, subject to satisfactory service.
3. The price must be **FOR-IISc Bangalore basis in INR only**.
4. According to GFR, no advance payment can be made to domestic vendors unless a bank guarantee equal to the amount is provided

K) Statutory Variation:

Any statutory increase in the taxes and duties subsequent to bidder's offer, if it takes place within the original contractual delivery date, will be borne by IISc, Bangalore, subject to the claim being supported by documentary evidence. However, if any decrease takes place, the advantage will have to be passed onto IISc, Bangalore.

L) Disputes and Jurisdiction:

Any legal disputes pertaining to this tender or any breach of contract shall be settled in the court of competent jurisdiction located within the city of Bangalore, India.

M) General:

1. All amendments, time extension, clarifications etc., within the period of submission of the tender will be communicated electronically. No extension in the bid due date/time shall be considered on account of delay in receipt of any document(s) by mail.
2. The bidder may provide any additional information necessary to establish their capabilities to successfully complete the envisaged work. It is, however, advised not to furnish superfluous details.
3. Any information furnished by the bidder found to be incorrect, either immediately or at a later date, would render the bidder liable to be debarred from tendering/taking up of work in IISc, Bangalore.
4. Power requirement: Indian standard power supply, 220/240 Volts AC with frequency 50 Hz.
5. An operation and service manual in English (both electronic and hard copy) with complete circuit diagrams and PCB layouts for all equipment should be provided with the instrument.

6. Standard samples (if required) to be provided by the company for testing the instruments at the time of installation on-site to the quoted accuracy in the given technical specification for the demonstration of the performance of the equipment.
7. The vendor should have a track record of having previously supplied instruments with (identical or similar specification) to CFTIs, such as JNCASR, IITs, IISERs, and NITs, with specifications matching those mentioned in the current tender. Details of such systems should be provided. The vendor must provide the user list (with contact details, including email addresses and phone numbers) of at least 5 customers from Indian Institutes/Labs, including the contact person's name, address, phone number, fax number, and email IDs. The primary focus of these installed systems should have included reliable data in the form of pictorial graphs must be provided.
8. The committee reserves the right to reject the technical bid if the above condition is not satisfied.
9. The vendor should have qualified technical service personnel for the equipment based in India and should assure a response time of <48 hours.
10. Wherever requested data must be supplied along with technical compliance documents, technical bids without supporting data will be deemed technically non-compliant.
11. All guaranteed specifications may have to be demonstrated at the time of installation. The service engineers should bring any necessary standard samples for that purpose.

Section 4 - Technical Specifications

I. Custom built Controller for an Ultra-Sensitive Electrochemical STM-based Break Junction (EC-STM BJ) set up

Hardware and software capabilities: This controller will be used to measure the conductance through single molecule junction under ambient conditions in liquid environment (both electrochemical and non-electrochemical environment). The system must be able to control and synchronize with an external stepper motor (coarse movement) and piezo stack (fine movement) while performing current measurement. The ramping of the piezo stack should be controlled by the current data as the feedback, allowing changing the ramping direction or holding the single molecular junction for a few milliseconds.

The system should be able to measure large sets of data (few thousands of curves) for the following types of experiments:

1. Current-distance spectroscopy (100 uA to 1pA with sampling rate >20 kHz) under electrochemical and nonelectrochemical conditions.
2. Current-Voltage spectroscopy during the break junction experiments (At least 10 I-V curves per one stretching cycle (i.e., one current-distance trace), with a high data sampling rate > 20 kHz and must be able to measure large sets of data.
3. Piezo movement modulation based single molecule conductance measurements (should be able to control the piezo movement within a few angstrom precision). It will allow mechanical modulation of the molecule while holding.
4. Measurement of dI/dV and d^2I/dV^2 of single molecular junction during piezo halt.
5. 3ω measurements for understanding the heat transport across the single molecular junction.
6. Impedance spectroscopy of a single molecular junction for deconvoluting the dynamic charge transport properties.
7. Noise analysis spectroscopy with frequency range of 100 Hz to 1 MHz and conductance range $1G_0$ to $10^{-6} G_0$.
8. Thermopower measurements at the single molecular level by directly measuring the voltage generated across the junction under a temperature difference.
9. Electrochemical gating experiment in three and four electrode configurations.
10. All above experimental modes should be as per user specifications and should allow further modifications (both hardware and software).

Bi-Potentiostat module for electrochemical STM-based Break junction measurements:

- Bi-Potentiostatic mode, i.e. control of the voltage difference between two working electrodes with respect to a reference electrode.
- Multiple feedback speed settings (>4)

Required measurable Dynamic current range:

- Current Ranges from 100uA to 1pA (should be able to measure whole current range during the current distance spectroscopy measurement)
- Sampling rate >100 kHz
- ADC Resolution: 20 bits
- At least 2 current measurement channels.

Required controllable variables:

- Both voltage and current should be controllable
- The control signal should be superposition of different perturbation sources.
- At least one source should have be dynamically updated using waveforms
- At least one source should be sinusoidal

3ω measurement module

- Controllable input current signals with definite amplitude and frequency and the detection of third harmonics of output voltage response.

Module capabilities: This controller-detector will be used measure the non-linear conductance through molecules and materials.

- The measurement should be conducted in current controlling mode
- Current-voltage spectroscopy (1mA to 1pA perturbation signal and range up to 5kHz).
- The perturbation waveform signal should be generated at a rate >20 kHz

Required measurable Dynamic voltage range:

- Sampling rate >100 kHz
- ADC Resolution: 20 bit
- Voltage signal detection of different harmonics of the perturbation signal frequency
- Analog high pass filtering of detected signal to remove the perturbation signal frequency.
- Voltage signal amplification of 1x to 1000x.
- Both current and voltage analogue signals should be recorded

AC voltage and Current sourcing and measurement unit:

- The amplitude and frequency of AC signal (voltage or current) should be controllable.
- Superimposing multiple AC frequency signal should be possible for dI/dV and d^2I/dV^2 measurements, impedance spectroscopy, and noise analysis (1 MHz to 10 mHz frequency range).

Stepper motor and Piezo Stack Controlling capability:

- Controllable voltage with an output range of more than 0-10V
- The control signal should be a superposition of different perturbation sources
- A source dynamically updated using waveforms (>100kHz sampling rate)
- A true analogue ramping from 1mV/s to 100V/s (i.e. not digitized steps)

- External triggering sources for the analogue ramp
- For switching the piezo ramping direction based on the measured current from either channel
- For pausing the piezo ramping based on the measured current from either channel

Accessories: All necessary accessories like low noise cables with suitable connectors (as per user specification), calibration accessories should be provided.

Analysis software: Analysis software should be able to analyse big data sets of single molecule conductance measurements (current-distance curves, current-voltage curves, dI/dV and d^2I/dV^2 measurement data, impedance spectroscopy, 3ω measurement and noise analysis). Analysis software should have options to build conductance histograms (1D and 2D conductance histograms), correlation analysis, IETS spectra, Bode plot and Nyquist plot for impedance analysis, PSD spectrum for noise analysis, and other advanced statistical methods to analyse the ensemble molecular junction conductance data. It should allow further programming modification.

Possibility for the further modifications and customization: System (both hardware and software) should be modular and should provide possibility for the additions and modifications for the future single molecule experiments.

II. Custom built Controller for EGaIn Large area junction set-up

Controller capabilities hardware and software: This controller will be used to measure the charge and heat transport through ensemble molecule junction under ambient conditions where the top electrode is eutectic gallium indium (EGaIn) liquid metal. The device must be able to control and synchronize with the movement of EGaIn top electrode while performing the current time measurement. It should be able to measure large sets of data (a few thousand curves) for the following experiments:

1. Current-Voltage spectroscopy of ensemble molecular junction (1mA to 1pA with high data sampling rate > 20 kHz and must be able to measure large sets of data).
2. Currents and Voltages should be sampled at a 20-bit digital resolution.
3. Fine piezo movement modulation for movement of EGaIn top electrode to make a stable molecular junction contact.

4. Current-time spectroscopy (1mA to 1pA) for monitoring the formation of a static ensemble molecular junction with EGaIn top electrode.
5. dI/dV and d^2I/dV^2 measurement of static ensemble molecular junction.
6. 3w measurements for understanding heat transport across the molecular junction.
7. Impedance spectroscopy of ensemble molecular junction for deconvoluting dynamic charge transport properties.
8. Noise analysis spectroscopy with frequency range of 100 Hz to 1 MHz.
9. Gating experiment in three terminal transistor configurations in ensemble molecular junction.
10. All above experimental modes should be as per user specifications and should allow further modifications (both hardware and software)

Bi-Potentiostat module for ensemble molecular junction measurement:

- Bi-Potentiostatic mode, i.e. control of the voltage difference between two working electrodes.
- Multiple feedback speed settings (>4)

Required measurable Dynamic current range:

- Current Ranges from 1mA to 1pA (should be able to measure the whole current range during the current - time / current - voltage spectroscopy measurement)
- Sampling rate >100 kHz
- ADC Resolution: 20 bit
- At least 2 current measurement channels.

Required controllable variables:

- Both voltage and current should be controllable
- The control signal should be a superposition of different perturbation sources.
- At least one source should have be dynamically updated using waveforms
- At least one source should be sinusoidal

Stepper motor and Piezo Stack Controlling capability:

- Controllable voltage with an output range of more than 0-10V

3 ω measurement module

- Controllable input current signals with definite amplitude and frequency, and the detection of third harmonics of the output voltage response.

Module Capabilities: This controller-detector will be used measure the non-linear conductance through molecules and materials.

1. The measurement should be conducted in the current controlling mode
2. Current-voltage spectroscopy (1mA to 1pA perturbation signal and range up to 5kHz.)
3. The perturbation waveform signal should be generated at a rate >20 kHz

Required measurable Dynamic voltage range:

- Sampling rate >100 kHz
- ADC Resolution: 20 bit
- Voltage signal detection of different harmonics of the perturbation signal frequency
- Analogue high-pass filtering of the detected signal to remove the perturbation signal frequency.
- Voltage signal amplification of 1x to 1000x.
- Both current and voltage analogue signals should be recorded

AC voltage and Current sourcing and measurement unit:

- The amplitude and frequency of the AC signal (voltage or current) should be controllable.
- Superimposing multiple AC frequency signals on DC bias should be possible for dI/dV and d^2I/dV^2 measurements, impedance spectroscopy, 3 ω measurement and noise analysis (1 MHz to 10 mHz frequency range).

Accessories: All necessary accessories, like low noise cables with suitable connectors (as per user specification), calibration accessories should be provided.

Analysis software: Analysis software should be able to analyse large data sets of static ensemble molecular junction measurements (current-time curves, current-voltage curves, dI/dV and d^2I/dV^2 measurements, impedance spectroscopy, 3 ω measurement and noise analysis). Analysis software should have options to build current-voltage histograms, IETS spectra, Bode plot and Nyquist plot for impedance analysis, PSD spectrum for noise analysis, and other advanced statistical methods to

analyse the ensemble molecular junction conductance data. It should allow further programming modification.

Possibility for the further modifications and customization: System (both hardware and software) should be modular and should provide possibility for the additions and modifications for the future charge transport measurements.

Compliance certificate (Columns 3-5 are to be filled in and submitted for verifying technical compliance.)

I. Custom built Controller for an Ultra-Sensitive Electrochemical STM-based Break Junction (EC-STM BJ) set up				
S.No	Technical specification	Yes	No	Extent of deviation and reason for deviation
1	Current-distance spectroscopy (100 uA to 1pA with sampling rate >20 kHz and must be able to measure large sets of data > 10000 curves) under electrochemical and non-electrochemical conditions.			
2	Currents and Voltages should be sampled at a 20-bit digital resolution.			
3	Current-Voltage spectroscopy during the break junction experiments (At least 10 I-V curves per one stretching cycle (i.e., one current-distance trace), with a high data sampling rate > 20 kHz and must be able to measure large sets of data.			
4	Piezo movement modulation based single molecule conductance measurements (should be able to control the piezo movement within a few angstrom precision). It will allow mechanical modulation of the molecule while holding.			
5	Stepper motor and Piezo Stack Controlling capability: • Controllable voltage with an output range of more than 0-10V • The control signal should be a superposition of different perturbation sources • A source dynamically updated using waveforms (>100kHz sampling rate) • A true analogue ramping from 1mV/s to 100V/s (i.e. not digitized steps) • External triggering sources for the analogue ramp			

	• For switching the piezo ramping direction based on the measured current from either channel • For pausing the piezo ramping based on the measured current from either channel			
6	Measurement of dI/dV and d^2I/dV^2 of single molecular junction during piezo halt.			
7	AC voltage and Current sourcing and measurement unit: • The amplitude and frequency of AC signal (voltage or current) should be controllable. • Superimposing multiple AC frequency signal on DC bias should be possible for dI/dV and d^2I/dV^2 measurements, impedance spectroscopy, and noise analysis (1 MHz to 10 mHz frequency range).			
8	3ω measurements for understanding the heat transport across the single molecular junction. Module capabilities: Controllable input current signals with definite amplitude and frequency and the detection of third harmonics of output voltage response. Module capabilities: This controller-detector will be used measure the non-linear conductance through molecules and materials. • The measurement should be conducted in current controlling mode • Current-voltage spectroscopy (1mA to 1pA perturbation signal and range up to 5kHz).			

	- The perturbation waveform signal should be generated at a rate >20 kHz Required measurable Dynamic voltage range: - Sampling rate >100 kHz - ADC Resolution: 20 bit - Voltage signal detection of different harmonics of the perturbation signal frequency - Analog high pass filtering of detected signal to remove the perturbation signal frequency. - Voltage signal amplification of 1x to 1000x. - Both current and voltage analogue signals should be recorded			
9	Impedance spectroscopy of a single molecular junction for deconvoluting the dynamic charge transport properties.			
10	Noise analysis spectroscopy with frequency range of 100 Hz to 1 MHz and conductance range $1G_0$ to $10^{-6} G_0$.			
11	Thermopower measurements at the single molecular level by directly measuring the voltage generated across the junction under a temperature difference			
12	Electrochemical gating experiment in three electrode configurations.			
13	Bi-Potentiostat module for electrochemical STM-based Break junction measurements: Bi-Potentiostatic mode, i.e. control of the voltage difference between two working electrodes with respect to a reference electrode.			

	Multiple feedback speed settings (>4)			
14	Required measurable Dynamic current range: - Current Ranges from 100uA to 1pA (should be able to measure whole current range during the current distance spectroscopy measurement) - Sampling rate >100 kHz - ADC Resolution: 20 bits - At least 2 current measurement channels.			
15	Required controllable variables: - Both voltage and current should be controllable - The control signal should be superposition of different perturbation sources. - At least one source should have be dynamically updated using waveforms - At least one source should be sinusoidal			
16	All above experimental modes should be as per user specifications and should allow further modifications (both hardware and software).			
17	Accessories: All necessary accessories like low noise cables with suitable connectors (as per user specification), calibration accessories should be provided.			
18	Analysis software should be able to analyse big data sets of single molecule conductance measurements (current-distance curves, current-voltage curves,			

	dI/dV and d^2I/dV^2 measurement data, impedance spectroscopy, 3ω measurement and noise analysis). Analysis software should have options to build conductance histograms (1D and 2D conductance histograms), correlation analysis, IETS spectra, Bode plot and Nyquist plot for impedance analysis, PSD spectrum for noise analysis, and other advanced statistical methods to analyse the ensemble molecular junction conductance data. It should allow further programming modification.			
19	Possibility for the further modifications and customization: System (both hardware and software) should be modular and should provide possibility for the additions and modifications for the future single molecule experiments.			

II. Custom built Controller for EGaIn Large area junction set-up				
S.No	Technical specification	Yes	No	Extent of deviation and reason for deviation
1	Current-Voltage spectroscopy of ensemble molecular junction (1mA to 1pA with high data sampling rate > 20 kHz, and must be able to measure large sets of data).			
2	Currents and Voltages should be sampled at a 20-bit digital resolution.			
3	Fine piezo movement modulation for movement of EGaIn top electrode to make a stable molecular junction contact. (should be able to control the piezo movement within a few angstrom precision).			
4	Current-time spectroscopy (1mA to 1pA) for monitoring the formation of a static ensemble molecular junction with EGaIn top electrode.			
5	dI/dV and d^2I/dV^2 measurement of a static ensemble molecular junction.			
6	Impedance spectroscopy of an ensemble molecular junction for deconvoluting dynamic charge transport properties (1 Hz to 1 MHz).			
7	Noise analysis spectroscopy with a frequency range of 100 Hz to 1 MHz.			
8	Gating experiment in three terminal transistor configurations in ensemble molecular junction.			

9	Bi-Potentiostat module for ensemble molecular junction measurement: • Bi-Potentiostatic mode, i.e. control of the voltage difference between two working electrodes. • Multiple feedback speed settings (>4)			
10	Required measurable Dynamic current range: • Current Ranges from 1mA to 1pA (should be able to measure the whole current range during the current - time / current - voltage spectroscopy measurement) • Sampling rate >100 kHz • ADC Resolution: 20 bit • At least 2 current measurement channels.			
11	Required controllable variables: • Both voltage and current should be controllable • The control signal should be a superposition of different perturbation sources. • At least one source should have be dynamically updated using waveforms • At least one source should be sinusoidal			
12	Stepper motor Controlling capability: • Using measurement as feedback, controller should control the stepper motor position • Controllable voltage with an output range of more than 0-10V			

13	3ω measurement module: 3ω measurements for understanding heat transport across the molecular junction. - Controllable input current signals with definite amplitude and frequency, and the detection of third harmonics of the output voltage response. Module Capabilities: This controller-detector will be used measure the non-linear conductance through molecules and materials. - The measurement should be conducted in the current controlling mode - Current-voltage spectroscopy (1mA to 1pA perturbation signal and range up to 5kHz.) - The perturbation waveform signal should be generated at a rate >20 kHz Required measurable Dynamic voltage range: - Sampling rate >100 kHz - ADC Resolution: 20 bit - Voltage signal detection of different harmonics of the perturbation signal frequency - Analogue high-pass filtering of the detected signal to remove the perturbation signal frequency. - Voltage signal amplification of 1x to 1000x.			

	Both current and voltage analogue signals should be recorded			
14	AC voltage and Current sourcing and measurement unit: - The amplitude and frequency of AC signal (voltage or current) should be controllable. - Superimposing multiple AC frequency signal on DC bias should be possible for dI/dV and d^2I/dV^2 measurements, impedance spectroscopy, and noise analysis (1 MHz to 10 MHz frequency range).			
15	All above experimental modes should be as per user specifications and should allow further modifications (both hardware and software)			
16	Accessories: All necessary accessories, like low noise cables with suitable connectors (as per user specification), calibration accessories should be provided.			
17	Analysis software: Analysis software should be able to analyse large data sets of static ensemble molecular junction measurements (current-time curves, current-voltage curves, dI/dV and d^2I/dV^2 measurements, impedance spectroscopy, 3ω measurement and noise analysis). Analysis software should have options to build current-voltage histograms, IETS spectra, Bode plot and Nyquist plot for impedance analysis, PSD spectrum for noise analysis, and other advanced statistical			

	methods to analyse the ensemble molecular junction conductance data. It should allow further programming modification.			
18	Possibility for the further modifications and customization: System (both hardware and software) should be modular and should provide possibility for the additions and modifications for the future charge transport measurements.			

Section 5- Technical Bid

The technical bid should furnish all requirements of the tender, and details on fulfillment of the technical specifications mentioned in Section 4, along with all annexures in this section, and be submitted to:

The Chairman

Kind Attn: Prof. Veerabhadrarao Kaliginedi

Department of Inorganic and Physical Chemistry,

A104, Chemical Sciences building,

Indian Institute of Science, Bengaluru, India -560012

Annexure 1:

Details of the Bidder:

The bidder must provide the following mandatory information & attach supporting documents wherever mentioned:

Sl. No.	Type	Details
1.	Name of the Bidder	
2.	Nature of Bidder (Attach attested copy of Certificate of Incorporation/ Partnership Deed)	
3.	Registration No/ Trade License (attach attested copy)	
4.	Registered Office Address	
5.	Address for communication	
6.	Contact person- Name and Designation	
7.	Telephone No	
8.	Email ID	
9.	Website	
10.	PAN No. (attach copy)	
11.	GST No. (attach copy)	

Signature of the Bidder

Name:

Date:

Designation, Seal

Annexure 2:

Declaration Regarding Experience

To,
The Chairman
Kind Atten: Prof. Veerabhadrarao Kaliginedi
Department of Inorganic and Physical Chemistry,
A104, Chemical Sciences building,
Indian Institute of Science, Bengaluru, India -560012

Ref: Tender No: IPC/VBK/IISc/2026-27/001

Dated: 13-08-2026

Sub: Supply and Installation of custom-built charge and heat transport measurement controllers

Sir,

I have carefully gone through the Terms & Conditions contained in Section 3 of the above referred tender. I hereby declare that my company/firm has years of experience in supplying and installing custom-built charge and heat transport measurement controllers (1.Custom built Controller for an Ultra-Sensitive Electrochemical STM-based Break Junction (EC-STM BJ) set up and 2.Custom built Controller for EGaIn Large area junction set-up).

(Signature of the Bidder)

Printed Name Designation, Seal

Date:

Annexure 3:

Declaration of track record

To,
The Chairman
Kind Atten: Prof. Veerabhadrarao Kaliginedi
Department of Inorganic and Physical Chemistry,
A104, Chemical Sciences building,
Indian Institute of Science, Bengaluru, India -560012

Ref: Tender No: IPC/VBK/IISc/2026-27/001

Dated: 13-08-2026

Sub: Supply and Installation of custom-built charge and heat transport measurement controllers.

Sir,

I have carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company / firm is not currently debarred / blacklisted by any Government / Semi-Government organizations / institutions in India or abroad. I further certify that I am competent officer in my company / firm to make this declaration.

OR

I declare the following:

Sl. No.	Country in which the company is debarred/ blacklisted / having pending case	Blacklisted / debarred by Government / Semi Government Organizations or Institutions / having pending case	Reason	Time Period

(Note: In case the company / firm was blacklisted previously, please provide the details regarding period for which the company / firm was blacklisted and the reason/s for the same).

(Signature of the Bidder)

Printed Name Designation, Seal

Date:

Annexure 4:

Declaration of acceptance of terms and conditions

To,
The Chairman
Kind Atten: Prof. Veerabhadrarao Kaliginedi
Department of Inorganic and Physical Chemistry,
A104, Chemical Sciences building,
Indian Institute of Science, Bengaluru, India -560012

Ref: Tender No: IPC/VBK/IISc/2026-27/001

Dated: 13-08-2026

Sub: Supply and Installation of custom-built charge and heat transport measurement controllers.

I have carefully gone through the Terms & Conditions contained in the above referred tender document. I declare that all the provisions of this tender document are acceptable to my company. I further certify that I am an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully
(Signature of the
Bidder)

Printed Name Designation, Seal

Date:

Annexure 5

Details of items quoted:

- a. Company Name
- b. Product Name
- c. Part / Catalogue number
- d. Product description / main features
- e. Detailed technical specifications
- f. Remarks

Instructions to bidders:

- 1. Bidder should provide technical specifications of the quoted product/s in detail.
- 2. Bidder should attach product brochures along with technical bid.
- 3. Bidders should clearly indicate compliance or non-compliance of the technical specifications provided in the tender document.

List of any additional items, such as Spares and Hardware/PCBs, likely to go obsolete after the next 3 Years

Section 6 – Commercial Bid

Details of Commercial Bid

The commercial bid should be furnished with all requirements of the tender, along with supporting documents, as mentioned below:

Sl. No	Description	Cat. Number	Quantity	Unit Price	Sub Total
1.	Essential items noted in the technical specification				
1.a	(details of essential items)				
1.b	...				
2.	Optional items noted in the technical specification				
2.a	...				
3.	Accessories for Operation and Installation				
4.	All consumables, spares, and software to be supplied locally				
5.	Warranty (1 years)				
6.	AMC 3 years beyond warranty				
8.	Cost of Insurance and Airfreight				

Any additional items such as spares and hardware/PCBs likely to become obsolete after the next 3 years

Sl. No	Description	Cat. Number	Quantity	Unit Price	Sub Total
1.	Essential items noted in the technical specification				

The commercial bid should be furnished with all requirements of the tender with supporting documents as mentioned.

Addressed to

The Chairman

Kind Atten: Prof. Veerabhadrarao Kaliginedi

Department of Inorganic and Physical Chemistry,

A104, Chemical Sciences building,

Indian Institute of Science, Bengaluru, India -560012

Section 7 – Checklist

(This should be enclosed with a technical bid- Part A)

The following items must be checked before the Bid is submitted:

I. Sealed Envelope "A": Technical Bid

1. Section 5- Technical Bid (each page signed by the authorized signatory and sealed) with the below annexures:

- a. Annexure 1: Bidders details
- b. Annexure 2: Declaration regarding experience
- c. Annexure 3: Declaration regarding clean track record
- d. Annexure 4: Declaration for acceptance of terms and conditions
- e. Annexure 5: Details of items quoted

2. Copy of this tender document duly signed by the authorized signatory on every page and sealed.

II. Sealed Envelope "B": Commercial Bid

Section 6: Commercial Bid

Your quotation must be submitted in two envelopes: **Technical Bid (Envelope A)** and **Commercial Bid (Envelope B)**, superscribing on both the envelopes with, Tender description, Tender No. and due date and both of these in sealed covers and put in a bigger cover which should also be sealed and duly superscribed with Tender No., Tender description & Due Date.