NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA – 769 008, ODISHA

Advertised Tender Enquiry

Department: Physics and Astronomy

Tender notification no: - NITR/PW/PH/2019/90   **Date: 06/02/2019**

Important Dates

To,
CPP Portal
(e-procurement)

Event	Date	Time
Pre-bid Conference	NA	NA
Last Date of submission of bid	**06/03/2019**	**11:00 AM**
Date of opening of technical bid	**07/03/2019**	**11:00 AM**

Dear Sir,

We intend to purchase the commodities specified below and invite quotations in accordance with the terms and conditions detailed in the bid document. If you are interested, kindly send your offer with prices and complete terms within the time mentioned above.

For any clarification:

> **ATTENTION:**
> Principal Investigator**: Prof. Prakash Nath Vishwakarma**
> Department of Physics and Astronomy
> NATIONAL INSTITUTE OF TECHNOLOGY
> ROURKELA – 769 008, ORISSA

Yours sincerely,

_____
Name: Prof. Prakash Nath Vishwakarma
Associate Professor

Encl:

    (1)   **Schedule of requirement, specifications, dates etc.**

    (2)   **Bid document containing detail terms and conditions.**

1. Schedule of requirements

Item No	DESCRIPTION	Quantity
1	**Research grade lock-in amplifier**	1 Unit

2. Specifications and allied Technical Details

* Attach User list along with the quotation

3. Format of Quotation (tick appropriate box)

√ It is a two part bid with separate technical and price bids

4. The bid should be submitted through https://eprocure.gov.in/eprocure/app

5. Quotations should be valid for a period of **90 days** from the closing date of the bid.

6. Some important dates:

i. Pre-bid Conference	Date: NA	Time: NA
ii. Last date for submission of Bid:	Date: **06/03/2019**	Time: **11: 00 AM**
iii. Date of opening of Technical bid:	Date**: 07/03/2019**	Time: **11:00 AM**

7. Warranty of minimum **01** years must be provided.

8. **GST:** GST should be charge according to applicable rates.

9. Bid Security and Tender Cost: Bid Security in shape of Bank Guarantee/DD (Demand Draft) for **INR 10,000/-** (Rupees Ten Thousand Only) and Tender Cost (Non- refundable) in the form of DD for **INR 500/-** (Rupees Five Hundred Only) in favor of **Director, NIT Rourkela** Payable at Rourkela from any Scheduled Commercial Bank except Co-operative and Gramin bank. And Bank Guarantee/DD for the Bid-Security should remain valid for a period of **45 days** beyond the bid validity period from the date of opening of bids. Bid security of unsuccessful bidders should be return to them at the earliest and latest on or before the **30th days** after the award of the contract. **EMD (Earnest Money deposit)** and **Tender Cost** should reach physically through speed post/ register post/courier, containing in an envelope & superscripted with subject, tender reference number addressing to **Registrar, NIT Rourkela- 769008, Odisha**; Attention: HOD(PH) on or before **07/03/2018 at 11:00 AM**

10. Performance Security: Not applicable

11. Please go through the enclosed "bid document" carefully for other bidding instructions.

12. Please send your quotations through https://eprocure.gov.in/eprocure/app

13. For technical details, you may contact

Prof. Prakash Nath Vishwakarma
Associate Professor
Department of Physics and Astronomy,
National Institute of Technology,
Rourkela - 769 008
Phone: 0661 - 2462507
Fax: +91 - 661 - 2462501
E-mail: prakashn@nitrkl.ac.in ; pnviisc@gmail.com

NB: ***Please furnish your Dealership Certificate (must) and Proprietary Nature Certificate (If applicable)***

BID DOCUMENT

1.   Instructions to the bidders

1.1   Bids are invited on behalf of the Director, National Institute of Technology (NIT), Rourkela – 769 008, Orissa, from the intending bidders for supply of the goods/stores/ equipment for the Institute as detailed in the enquiry letter.

1.2   The bidders should quote their offer/rates in **BOQ** in clear terms without ambiguity.

1.3   In case of any discrepancy between the rates in figures and that in words, the rate in words will be accepted as correct.

1.4   The last date for receipt of the bid is marked in the enquiry.

1.5   The bids should be uploaded in https://eprocure.gov.in/eprocure/app Please follow the guidelines of the site.

1.6   If a prospective bidder requires any clarification in regard to the bidding documents, he may make a request the concerned officer or faculty member at least 15 days before the deadline for receipt of bids.

1.7   Bids received after the deadline of receipt indicated in para 1.4 above, shall not be taken in to consideration.

1.8   Each bidder shall submit only one bid. A bidder, who submits more than one bid, shall be disqualified and considered non-responsive.

1.9   (In respect of high value plant, machinery etc. of a complex and technical nature). The bids may be submitted in two parts, viz., technical bid and financial bid.

1.10   The bidder has to sign in full at all pages of the scanned part of the bidding document. No over-writing in those pages is acceptable.

1.11   If any bidder does not fulfill technical specification, his/her eligibility will be cancelled even if his/her price got L1 status.

2.   Conditions of the bid

2.1   The rates quoted should preferably be net, inclusive of packing, forwarding, freight, Insurance and all other incidental charges excluding taxes. In case these charges are quoted extra in addition to the quoted rates, the amount thereof or Ad Valorem rate must be specified. Packing, forwarding, freight, entry tax etc., when quotes separately are reimbursable at actual. If external agencies are employed, their receipts must be enclosed with the invoice.

2.2   Duties and Taxes are to be quoted separately. Ad Valorem rates thereof should be clearly indicated with reference to the relevant Acts and Rules.

It may be noted that the Institute is availing custom duty exemption in terms of notification no 51/96- Customs dt. 23.07.1996, Notification no. - 47/2017- Integrated Tax (Rate) dt. 14.11.2017 and Notification No- 45/2017- Central tax (Rate) dt. 14.11.2017[vid Registration No.: TU/V/RG-CDE (227)/2016, dated: 13.11.2018]

2.3   The goods are required to be delivered at the indenting Department of NIT, Rourkela, and must be reached within **90 days** from the date of placement of the supply of order under the risk and arrangement of the bidder and offers with delivery beyond the above period shall be treated as unresponsive. In case the delivery time is higher, the same must be mentioned clearly in the quotation.

2.4   The bid should remain valid for a period of **90 days** from the date of opening. In case your offer has a different validity period that should be clearly mentioned in the quotation.

2.5   Conditional discount, if any, offered by the bidder shall not be considered at the time of evaluation.

2.6   The goods offered should strictly conform to the specification and technical details mentioned in **Annexure-I.**

2.7   The Institute may like to conduct pre-dispatch inspection of goods, where applicable.

2.8   Period of guarantee/warranty, where applicable, should be specified in the bid.

2.9   If the successful bidder, on receipt of the supply order, fails to execute the order within the stipulated period, in full or part, it will be open to the Director, NIT, Rourkela to recover liquidated damage from the firm at the rate of 1 percent of the value of undelivered goods per month or part thereof, subject to a maximum of 5 percent of the value of undelivered goods. Alternatively, it will also be opened to the Director, to arrange procurement of the required goods from any other source at the risk and expenses of the bidder.

2.10   The successful bidder may be required to execute a contract, where applicable.

2.11   The bidder has to furnish up to date GST and Income Tax Clearance Certificate along with the bid.

2.12   Payment (100 percent) will be made by Account Payee Cheque /Bank Draft, within 30 days from the date of receipt of the goods in good condition or receipt of the bill, commissioning of the equipment, and after successful installation and demonstration where ever applicable, whichever is later/latest.

2.13   In case of Advance payment, the payment will be made on either in Foreign Demand Draft or Wire Transfer only. The proforma invoice copy need to be sent for advance payment.

2.14   In the event of any dispute arising out of the bid or from the resultant contract, the decision of the Director, NIT, Rourkela shall be final.

2.15   The bid document/resultant contract will be interpreted under Indian Laws

Specifications for Research grade lock-in amplifier

Item No	DESCRIPTION
1.	**1. General:** The lock-in amplifier should be of research grade. This point must be supported by providing a list of the journal research papers published using this equipment. A copy of best selected papers should also be attached along with the technical bid. The system should be based on digital signal processing technique and should be able to simultaneously display the magnitude and phase of a signal.

2. Signal Channel

Voltage inputs	Single-ended and differential
Sensitivity	2 nV to 1 V
Current input	10^6 or 10^8 V/A
Input impedance	
Voltage	10 MΩ + 25 pF, AC or DC coupled
Current	1 kΩ to virtual ground
Gain accuracy	±1 % or better
Noise	6 nV/√Hz at 1 kHz
	0.13 pA/√Hz at 1 kHz (10^6 V/A)
	0.013 pA/√Hz at 100 Hz (10^8 V/A)
Line filters	50Hz and 100Hz
CMRR	100 dB up to 10 kHz, decreasing by 6 dB/oct above 10 kHz
Dynamic reserve	>100 dB
Stability	<5 ppm/°C

3. Reference Channel

Frequency range	1 Hz to 100 kHz (At least)
Reference input	TTL or sine
Input impedance	1 MΩ, 25 pF
Phase resolution	At least 0.01°
Absolute phase error	<1°
Relative phase error	<0.001°
Orthogonality	90° ± 0.001°
Phase noise	
Internal ref.	<0.0001° rms at 1 kHz
External ref.	0.005° rms at 1 kHz
Harmonic detection	2F, 3F, ... nF to 102 kHz (n < 19,999)
Acquisition time	50 ms or lesser

4. Demodulator

Stability	Should be no drift in Digital outputs and <5 ppm/°C for Analog outputs.
Harmonic rejection	−90 dB
Time constants	10 µs to 30 ks (6, 12, 18, 24 dB/oct roll off). Synchronous filters should be available below 200 Hz.

5. Internal Oscillator

Range	1 Hz to 100 kHz (at least)
Frequency accuracy	25 ppm + 30 µHz
Frequency resolution	4½ digits or 0.1 mHz, whichever is greater
Distortion	−80 dBc (f <10 kHz), −70 dBc (f >10 kHz) @ 1 Vrms amplitude
Amplitude	4mV to 5 Vrms (2 mV resolution), 50 Ω output impedance.
Amplitude accuracy	1 %
Amplitude stability	50 ppm/°C
Outputs	Sine, TTL

6. Displays

Channel 1 & 2	4½-digit digital display separately for Channel 1 and 2, displaying. (X,Y), (R, θ), (X-noise, Y-noise), Aux 1/Aux 2/ Aux 3/Aux 4..
Offset	Provision of offset in X, Y, R up to ±105 % of full scale should be there.
Expand	Provision for expanding X, Y, R by 10/100 times should be present.
Reference	The reference signal should be displayed at least in 4½-digit display

7. Inputs and Outputs

CH1, CH2 output	Output via BNC port for (X,Y), (R,θ) and (Xnoise,YNoise) should be there either in the front or rear panel.
X, Y outputs (rear panel and front panel)	Should have X, Y outputs (BNC) both in the rear and front panel. Data should be refreshed at 256 kHz at least.
Aux. A/D inputs and D/A outputs	Should have at least 4 nos of inputs and outputs respectively, of ±10 V, 1 mV resolution.
Internal oscillator	The instrument should have in built sine wave oscillator.
External Oscillator	Provision of using external oscillator in association with this lock-in should be available
Data buffer	Input data should be sampled at rates of 512 Hz or better and read through the computer interfaces.
Remote preamp	The Instrument should have provision for adding pre-amplifier. The Pre-amplifier unit may be quoted as optional.

8. Interfaces

The instrument should be compatible with IEEE-488.2 and RS-232 interfaces standard and equipped with the required ports for interfacing.

9. Circuitry

The circuit should be board/card based, having separate boards/cards for power supply, signal processing, signal in, etc. The structure should be such that repairing of the unit can be under taken by the user himself/herself, on the remote guidance of company technical. The unit manual should list all the electronic components used in it with clear schematic diagrams.

10. Available power supply at NIT Rourkela:

220-240Volts, 50 Hz, i.e, system should compatible with Indian power standards.

11. Warranty

Standard one year warranty for the system from the date of installation and commissioning at NIT Rourkela.
Only reputed original equipment manufacturers (OEM) of international standard should submit tender with supported document. The system being supplied should meet international standards.
Vendor shall provide a list of customers along with their names, addresses, e-mail addresses where similar systems are installed.
Resell or refurbished equipment would not be acceptable.

Details of the configuration and deviation must be provided along with technical bid.

Other Qualification Criteria:
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1. At least five user names and contacts from NIT/IIT/reputed Indian institute/Govt. R&D organizations must be provided where the above equipment and accessories (**Annexure-I**) have been supplied in last five years. Scan copies of the minimum five purchase orders of the above equipment and accessories (**Annexure-I**) must be enclosed along with the technical bid.
2. There must be a local maintenance center with availability of the spares in India.
3. Scanned copies of the technical brochure of the above equipment and accessories (**Annexure-I**) given in the quotation must be included in the technical bid.
4. Web references must be provided along with the technical bid.
5. Pointwise technical compliance along with any deviation of the mentioned specifications (**Annexure-I**) must be indicated along with technical documents.
6. Customized equipment and accessories (as per **Annexure-I**) will not be accepted. The standard equipment and accessories (as per **Annexure-I**) will only be accepted.
7. Make and model no. should be mentioned in the technical bid.