

CSIR- NATIONAL PHYSICAL LABORATORY

Dr. K.S. Krishnan Marg,
New Delhi – 110012 (INDIA)

Contact: 011 4560 8624
Email: sr.cosp@nplindia.org
purchase-sol@nplindia.org

From: Director, CSIR-NPL

Ref No. 14-VIII/RPA(30-GTE)2024PB/T-05

Dated : 14.05.2025

CORRIGENDUM

With reference to NPL's Global Tender ID: **2025_CSIR_795826_1**, A Pre-Bid Conference (PBC) meeting was concluded on 29.04.2025 for the procurement of "Lock in Amplifiers and Lock in Pre-Amplifiers". Consequent upon the outcome of PBC, **some changes have been made in the technical specification of captioned tender. Revised specifications are as follows:**

Annexure-1:

Final Technical specification of "Lock in Amplifiers and Lock in Pre- Amplifiers"

Specifications of Lock-In -Amplifier (Quantity: 02 Nos)

1. Frequency range: less than or equal to 0.5 Hz to greater than or equal to 4 MHz
2. Input Coupling: Single Ended and Differential
3. Measurement parameters: X, Y, R, θ , and NOISE
4. Voltage measurement: less than or equal to 10 nV to greater than or equal to 1 V (F.S)
5. Current measurement: less than or equal to 10 fA to greater than or equal to 1 μ A (F.S)
6. Voltage Measurement accuracy: better than 1% for voltages greater or equal to 1 mV for a signal of 1 kHz
7. Noise (Voltage): better than or equal to 5 nV/ $\sqrt{\text{Hz}}$
8. Noise (Current): better than or equal to 20 fA/ $\sqrt{\text{Hz}}$
9. Time constant: 1 μ s-30 kS or better
10. Filter Slope: 6, 12, 18, 24 dB/oct roll-off
11. Common Mode Rejection Ratio: 100 dB or better
12. Input impedance: 10 M Ω // 25 pF or better
13. Auxiliary input (DCV Measurement): ± 10 V or better
14. Auxiliary output (DCV Output): ± 10.0 V (Resolution 0.001 V) or better
15. Internal Oscillator Frequency: 0.5 Hz to 4 MHz or better

16. Internal Oscillator Amplitude: 0-1.000 V_{rms} or better
17. Phase Sensitive detection: Dual Phase and Dual Frequency with Simultaneous measurements
18. Phase Resolution: 0.001° or better
19. Phase Noise: 0.001°_{rms} or better
20. External reference: 10 MHz synchronous input can be synchronized with the reference frequency of other devices by using an external reference frequency
21. Interfaces: USB, GPIB, RS-232, LAN/Ethernet (any three should be available)
22. Accessories: Instructional Manual, CD-ROM (remote control driver, etc.), Power Cord, BNC cables for input and output connections (BNC to BNC 1 m cables, 10 Nos)
23. System Warranty: 01-year standard Warranty.
24. The lock-ins should be supplied along with a GPIB-USB adaptor card to automate the instrument with NI (LabVIEW software, preferably NI GPIB-USB adaptor card)
25. Installation of the Lock-in-amplifier and Lock-in-preamplifiers should be done by the company or their representative.

Modified Specifications: Annexure-1

Low-noise voltage preamplifier (2 Qty.)

| Sl. No. | Parameter | Specification |
|---------|--|---|
| 1. | Frequency | DC to 1MHz (DC Coupling) 0.2 Hz to 1MHz (AC Coupling) |
| 2. | Input Form | Single Ended and Differential (AC or DC coupling) |
| 3. | Input Impedance | 100MΩ + 25 pF or better) |
| 4. | Equivalent Input Noise Voltage Density | ≤ 5nV / Hz (1kHz) |
| 5. | Gain | Equal to or Better than 1000 (in 1-2-5 sequence) |
| 6. | Max. Output voltage | ±5V or higher |
| 7. | CMRR | 100dB or more |
| 8. | Input/output connector | BNC to BNC |
| 9. | DC Power Input | ±15V / ±20V / ±24V (suitable power supply should be supplied for independent operation of the pre-amplifiers) |
| 10. | Accessories | Coaxial cable (BNC-BNC 2 m: 03 Nos for connecting to the Lock-in-amplifier) Instruction manual DC cable 2m |
| 11. | Warranty | 01-year standard warranty |

Low noise current preamplifier (1 Qty.)

| Sl No. | Parameter | Specification |
|--------|-----------|---------------|
|--------|-----------|---------------|

| | | |
|----|-----------------------------|--|
| 1 | Input coupling | DC Coupling |
| 2 | Input Form | Unbalanced single-ended Input |
| 3 | Frequency | DC to 500kHz |
| 4 | Gain(V/A) | Switchable 10k to 100G or better |
| 5 | Input Impedance | 10Ω to 30kΩ (or better) |
| 6 | Signal Source Impedance | 1kΩ to 1GΩ (or better) |
| 7 | Input Noise Current Density | Min. 10 fA / √Hz or better |
| 8 | Maximum Output Voltage | ±5 V or higher |
| 9 | Input/ Output Connector | BNC |
| 10 | Power Supply | 220/240 VAC ±10% 50Hz, OR suitable power supply should be supplied for independent operation of the pre-amplifiers |
| 11 | Interface | GPIO, USB or any other for independent control |
| 12 | Accessories | Power cord: 1, fuse: 1, instruction manual: 1, suitable low noise BNC-BNC cable (03 Nos, length – 1m) should be supplied for connecting to the lock-in-amplifier |
| 13 | Warranty | 01-year standard warranty |

Therefore, following extension in due date of tender submission & opening date of the said tender may be read exactly as follows:

Due date & time of tender submission

For : 22.05.2025 up to 3.00PM (IST)

Read as : 27.05.2025 up to 3.00PM (IST)

Date & Time of Tender Opening

For : 23.05.2025 at 3:00PM (IST)

Read as : 28.05.2024 upto 3.00PM (IST)

All other terms & conditions of said tender will remain the same.

Sr. Controller of Stores & Purchase

FORM TO BE FILLED BY IO WHILE CONVENING PRE-BID MEETING OF TSC.**File No. 14-VIII/RPA(30-GTE)24-PB****Date: 29.04.2025****Pre-bid Meeting (To be typed clearly by the I/O)**

No. of Budgetary Quotes_: 02. Nos

(1) A pre-bid meeting of TSC was held on_29.04.2025

(2) Following queries were raised by participating Bidders:

| Name of the Firm | Queries Raised | Remarks, if any |
|---|--|--|
| Wayne Kerr Electronics Pvt. Ltd, Ghaziabad, Uttar Pradesh – 201010, India (for NF corporation Japan) | point no. 9 Interface port in Low noise voltage preamplifier, to be amended, as their product does not support this specification. | We can amend this specification |
| SIMCO Global Technology and Systems Limited, Vasant Kunj New Delhi 110070 [For Standford Research Systems (SRS)] | Lock in amplifier point number 24: The lock-ins should be supplied along with a GPIB-USB adaptor card to automate the instrument with NI (LabVIEW software, preferably NI GPIB-USB adaptor card only) : Our principal (SRS) will not provided GPIB –USB card .Can we offer this locally ? Kindly share specs accordingly. | GPIB-USB card is needed for automation purpose, the firm is free to supply this locally, an equivalent specification can be shared |
| | Lock in amplifier point number 22 : BNC cables for input and output connections (BNC to BNC 1 m cables, 10 Nos): SRS will not provided please let us know if we can offer this locally? | The firm is free to offer this item locally |
| | Low noise voltage preamplifier point number 10 DC Power Input $\pm 15V / \pm 20V / \pm 24V$ (suitable power supply should be supplied for independent operation of the pre-amplifiers: Our offered equipment SR560 Can run on internal battery, Do we need to quote this separately ? | If the OEM is not supplying this item, the firm is free to offer an equivalent power supply locally |
| | Low noise voltage preamplifier point number 11 Coaxial cable (BNC-BNC 2 m: 03 Nos for connecting to the Lock-in-amplifier): Our principal (SRS) not offer this can we offer this locally ? | The firm is free to offer this item locally |
| | Low noise current preamplifier point number 12 suitable low noise BNC-BNC cable (03 Nos, length – 1m) should be supplied for connecting to the lock-in- amplifier: Our principal (SRS) not offer | The firm is free to offer this item locally |

| | | |
|--|---|--|
| | this can we offer this locally ? | |
| | Warranty tenure for low noise current preamplifier Minimum : 01 year (02 years preferable) : WE can offer 2 month standard warranty and 2 years extended warranty is available on extra cost please let us know warranty tenure. | We can stick to 01-year standard warranty for all the equipment |
| | Required equipment's are plug and play instrument and there will no such installation is required because operational manual is available online which is self-explanatory to provide instruction with running of the equipment. Do you need installtion here ? If yes then what is scope of Installation and acceptance criteria ? | Installation and demonstration of the specification are to be carried out by the OEM or its representative. All the indented Specifications are to be demonstrated, and this is the acceptance criteria. |

Commercial Queries by SIMCO Global Technology

- Will you Provide custom duty exemption certificate for Indian bidders who will submit bid in INR currency against Imported item?

This query was cleared in the PBC meeting by CoSP

- As per Annexure VII Local content declaration form there is only class I /cass II supplier to participate against this tender , Can we participate a non local supplier where local content percentage is 0% ?

This query was cleared in the PBC meeting by CoSP

- Along with price bid envelope do we need to submit only Price schedule form as mentioned at page number 30 ? As per page number 8 price bid envelope contains a. Bid form , b. applicable price schedule form C. Any other doc related price information

This query was cleared in the PBC meeting by CoSP

- **Can we submit bid in foreign currency?**

This query was cleared in the PBC meeting by CoSP

Indentor's recommendation

1. The comments, as received from bidders during PBC, and our response is as follows:

| Tender Specification and its number | Comment of bidder | Response of Indentor (Accepted/ Not accepted) | Revised specification (If any) | Justification for non-acceptance |
|--|---|--|--|----------------------------------|
| Specs.no.09 Interface: RS232/GPIB/LAN/USB (any one of the interfaces should be available for independent control of the unit) | point no. 9 Interface port in Low noise voltage preamplifier, to be amended, as their product does not support this specification. | Accepted | The specification No.9 is removed | -NA_ |
| Lock in amplifier point number 24: The lock-ins should be supplied along with a GPIB-USB adaptor card to automate the instrument with NI (LabVIEW software, preferably NI GPIB-USB adaptor card only) `: | Our principal (SRS) will not provided GPIB –USB card .Can we offer this locally ? Kindly share specs accordingly. | The party can quote this item locally | The specification remains intact, no need to change. | -NA- |
| Lock in amplifier point number 22: BNC cables for input and output connections (BNC to BNC 1 m cables, 10 Nos): | SRS will not provided please let us know if we can offer this locally? | The party can quote this item locally | The specification remains intact, no need to change. | -NA- |
| Low noise voltage preamplifier point number 10: DC Power Input $\pm 15V$ / $\pm 20V$ / $\pm 24V$ (suitable power supply should be supplied for independent operation of the pre-amplifiers: Our offered equipment SR560 Can run on internal battery, Do we need to quote this separately ? | Our offered equipment SR560 Can run on internal battery, Do we need to quote this separately ? | The party can offer this item locally, external power supply is needed, as, sometimes internal battery is not dependable | The specification remains intact, no need to change. | -NA- |
| Low noise voltage preamplifier point number .11 : | Coaxial cable (BNC-BNC 2 m: 03 Nos for connecting to the Lock-in-amplifier): Our principal (SRS) not offer this can we offer this locally ? | The party can quote this item locally | The specification remains intact, no need to change. | -NA- |
| Low noise current preamplifier point number 12 suitable low noise BNC-BNC cable (03 Nos, length – 1m) should be supplied for connecting to the lock-in-amplifier: | Our principal (SRS) not offer this can we offer this locally ? | The party can quote this item locally | The specification remains intact, no need to change. | -NA- |
| Warranty tenure for low noise current preamplifier Minimum : 01 year (02 years preferable) : | WE can offer 2 month standard warranty and 2 years extended warranty is available on extra cost please let us know warranty tenure. | One year warranty is needed for both Lock-in-Amplifier and pre-amplifiers | The specification changed to 01-year standard warranty for all the items | -NA- |
| | Required equipment's are plug and play instrument and there | Installation by an Engineer from the | Installation by the Firm is recommended. | -NA- |

| | | | | |
|--|---|-------------------------|--|--|
| | will no such installation is required because operational manual is available online which is self-explanatory to provide instruction with running of the equipment. Do you need installtion here ? If yes then what is scope of Installation and acceptance criteria ? | company is recommended. | | |
|--|---|-------------------------|--|--|

FORM TO BE USED BY TSC FOR FINALISING PRE-BID MINUTES

File No. File No. 14-VIII/RPA(30-GTE)24-PB

Date: 29.04.2025

TSC Minutes (To be typed clearly by the I/O)

Based on the Pre-bid meeting and recommendation of I/O, following changes have been made in the specifications:

The following companies have attended the pre-bid meeting

1. Wayne Kerr Electronics Pvt. Ltd, Ghaziabad, Uttar Pradesh – 201010, India
(for NF corporation Japan)
2. SIMCO Global Technology and Systems Limited, Vasant Kunj New Delhi 110070
[For Standford Research Systems (SRS)]

During the pre-bid meeting queries from the companies were answered, and based on the feedback received from the companies, minor changes in the specification is done, and the revised specification is attached herewith, as annexure-1

| Original Specifications | Final Specifications |
|--------------------------------|---------------------------------|
| | (Attached as Annexure-1) |