SATYENDRA NATH BOSE NATIONAL CENTRE FOR BASIC SCIENCES
[Funded by the Department of Science & Technology, Government of India]
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Ref: SNB/ENQ/AB/Lock-in-Amplifier/13–14/1778/WP   03.02.2014.

Dear Sir,

Sealed quotations are hereby invited for the following items in two parts (Technical and Commercial bids). One large envelope containing two smaller envelopes containing Part A: Technical Bid and Part B: Commercial Bid need to be submitted separately –

Two smaller envelopes should be super-scribed **"Technical Bid"** / **"Commercial Bid"** as the case may be.

Sl. No	PARTICULARS	Qty.
01.	Lock – in – Amplifier with digital signal processing (DSP) [See reverse for detailed technical specifications]	03 nos.
Technical bid should contain complete technical information/ literature/brochure of the quoted item including user's list and authorization certificate of the principal manufacturer. Users list of the quoted item should include the name, address, ph. no(s)., fax and email address in India.		
Price Bid - In case of imported item CIF Kolkata airport price should be mentioned and for indigenous item FOR price up to S. N. Bose Centre may be quoted.		

Note:-

1) The quoted price should be inclusive delivery and installation charges.

2) Validity should be for 90 days from the date of opening.

3) Minimum three years onsite standard warranty is to be provided for the above item.

4) Payment is subject to after delivery and satisfactory installation.

5) Delivery period should be mentioned in the quotation.

6) Our ref. no. should be mentioned on top of the quotation envelope.

7) Quotation for the above items should reach this office by **17th February' 2014.**

Thanking you,
Yours faithfully,

S. K. Singh
AR(Purchase)

Detailed specifications of Lock-In Amplifier with digital signal processing (DSP)

General:
Bandwidth: maximum: 100kHz or higher, minimum: 1mHz or lower.
Frequency resolution: 4½ digits or 0.1 mHz, whichever is greater.
Dynamic reserve > 100dB.
Time constant: minimum 10 μs or lower, maximum: 25 ks or greater.
Display: 4½-digit LED display.
Interface: IEEE-488.2 and RS-232 interfaces standard. All instrument functions should be controlled and read through IEEE-488.2 or RS-232 interfaces. Free Labview drivers available.

Signal Channel:
Voltage inputs: single ended and differential.
Sensitivity: 2 nV to 1 V.
Current input: 10^6 or 10^8 V/A.
Voltage input: 10 MΩ + 25 pF, AC or DC coupled.
Current input: 1 kΩ to virtual ground.
Gain accuracy: ±1 % or better.
Noise: < 8 nV/√Hz at 1 kHz
Stability: < 5 ppm/°C.

Reference Channel:
Reference Input: TTL or sine (400 mVpp min.).
Input impedance: 1 MΩ, 25 pF.
Phase resolution: 0.01° or better.
Phase error: < 1° absolute, <0.001° (relative).
Orthogonality: 90° ± 0.001°.
Internal Ref.: Synthesized, <0.0001° rms at 1 kHz.
External Ref.: 0.005° rms at 1 kHz, 100 ms, 12 dB/oct.

Inputs and Outputs:
Ch1 and Ch2: ±10 V output of X, R, X-noise, Aux 1 or Aux 2, updated at 512 Hz.
X, Y outputs: In-phase and quadrature components.
Aux. A/D inputs: 4 BNC inputs, ±10 V, 1 mV resolution, sampled at 512 Hz.
Aux. D/A outputs: 4 BNC outputs, ±10 V, 1 mV resolution.
Sine Out: Internal oscillator analog output.
TTL Out: Internal oscillator TTL output.
Data buffer: Atleast two 16k point buffers.
Trigger In (TTL): Trigger synchronizes data recording.

Warranty: 3 year onsite.

☞ *Quantity Required: 03 nos.*