

Under Certificate of Posting

Department of Physics, Indian Institute of Technology  
IIT.P.O. Madras-600 036

Ref. No.

Date. 23.10.13

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To

Dear Sir,

DUE DATE: 13.11.13

1. Quotations are invited in duplicate for the item shown below/overleaf/ enclosed list.
2. The quotations duly sealed and superscribed on the envelope with the reference No. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above.
3. The quotations should be valid for sixty days from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS &D RATE CONTRACT, RC No.and the price must be mentioned. It may be also please be indicated whether the supply can be made direct to us at the Rate Contract price. If so, please send copy of the RC ( Please note that we are not Direct Demanding Officers)
5. Relevant literature pertaining to the items quoted with full specifications ( and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. **Local Firms** : Quotations should be for free delivery to this Institute. If Quotations are for Ex-godown . delivery charges should be indicated separately.
7. **Firms outside Chennai:** Quotations should be for F.O.R. Chennai. If F.O.R. consignor station, freight charges by passenger train/lorry transport must be indicated. If Ex-godown, packing, forwarding and freight charges must be indicated.
8. The rate of Sales/General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim, for Sales/General taxes will be admitted at any stage and on any ground whatsoever . **The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to non-Government Educational Institutions run with no profit motive for which a concession. Sales tax Certificate will be issued at the time of final settlement of the bill.**
9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. Payment: Every attempt will be made to make payment within 30 days from the date of receipt of bill/acceptance of goods, whichever is later.

**Specification enclosed- Please indicate compatibility with specifications**

Yours Sincerely

**Dr. Manu Jaiswal**

**HEAD/CO-ORDINATOR**

### **Minimum Specifications for Source-Measure Unit based on Lock-in Amplifier Principle:**

1. Adjustable Internal Oscillator from 5 Hz (or less) to 100 kHz (or more) with 1 % accuracy (or better) in amplitude for the purpose of sourcing AC voltage.
2. Lock-in amplifier should be capable of measuring amplitude independent of the phase as well as phase-shift from a reference signal; 5 Hz to 100 kHz operation range (or wider); compatible with single-ended and differential voltages; adjustable dynamic reserve and signal filters; voltage noise less than  $10 \text{ nV}/(\text{Hz})^{1/2}$  at 1 kHz; current noise less than  $0.5 \text{ pA}/(\text{Hz})^{1/2}$  at 1 kHz; gain accuracy of 2 % (or better); signal input impedance of 100 MOhm (or better); full scale sensitivity of at least 100 nV for voltage and at least 1 pA for current.
3. Output display panels. Output in the form of DC voltages must be available.
4. Reference channel for fundamental or second harmonic (or more) modes. Option to use either external or internal sources as reference.
5. RS232 and GPIB options for interfacing with PC. Compatible with LABVIEW interfacing.
6. Compatible Lock-in Voltage Preamplifier (e.g. JFET preamp) with gain of 10 (or better), input impedance of 100 MOhm (or better) and noise less than  $10 \text{ nV}/(\text{Hz})^{1/2}$  at 1 kHz.
7. The instrument must be suitable for measuring low resistances (1 Ohm to 100 kOhm).
8. Any accessories, cables, connectors, India-compatible power cords, rack-mount facility, carrying-handle kit needed for complete and satisfactory operation of lock-in amplifier and for its connection to preamplifier.

Statement of Warranty must be included.