

Extension of tender period from 10th Feb.2017 to 18th Feb.2017

Tender Nos: SB/PHY/NC/022017IV

(bids should be received by 18th Feb.2017)

Tender Enquiry for an integrated measurement setup.

Separate Technical and financial bids are invited from suppliers for an integrated electronic measurement setup.

The technical and financial bids have to be supplied in two separate sealed envelopes. The envelop labelled "**Technical Bid**" should not disclose any price information of any sort. The envelope should contain only technical documents

Financial bid envelop should contain only documents relating to price quote and other related matters which are non- technical.

Integrated measurement setup:

We are seeking suppliers for providing an integrated electrical measurement solution. The integrated electrical measurement solution we are seeking has separate programmatically controllable units, namely,

Unit (1) : Controllable measurement voltmeter with specifications outlined in (1) below (after pg.2),

Unit (2): Power source with specifications outlined below in point nos. (2) below (after pg.2),

Unit (3): Scanner switcher mainframe with high density switcher cards with specifications outlined below in point nos. (3) below (after pg 3),

Unit (4) GPIB card, (after pg.4)

Unit (5) Accessories, (after pg.4)

Interested parties must suggest specific instruments for each unit above, which meet the specifications outlined below for each unit.

Detailed technical and financial bids have to be separately given for the proposed instrument which matches the specifications for the units outlined in (1), (2) and (3).

For each individual unit a company interested in bidding must suggest only two or three instruments which match the specifications. For example, for unit (1), at the most only one or two instruments which match the specifications outlined below have to be suggested. Random suggestion of a large number of instruments for each unit will lead to disqualification of the bid and further disqualification from all future bids (as it indicates the company is not aware of the strengths of its individual products neither does the company have the technical know-how of the instruments it deals in). Therefore, please carefully suggest the instruments for each unit of the

integrated measurement setup. Companies need not quote for all units, if they feel they can provide a very high quality setup for only one or two out of the three units. In such cases they should send their bids only for one or two units or all if they wish they can meet all.

The financial bids must give a price breakup of each units for the bids to be considered. Financial bids without breakups will not be considered.

An attractive consolidated discount is desired.

Price quote should be valid for a sufficient duration.

Unnecessary telephonic enquiries or seeking personal meetings are discouraged and may lead to negative impact on the final decision.

There should be a list (not exceeding two pages, max) of names of Institutes (renowned Research and Technical / Educational Institutions) of high standard within India to where instruments have been supplied. Suppliers with a good market reputation with reputed after sales service capabilities will be strongly considered. Decision will be based on reputation for how quick after sales services have been provides, how effective their technical support has been, how quickly have customer's problem been resolved, how effectively have they handled the customer's problems and helped resolve them. Companies matching with after sales reputation and ability to supply most of the units from the list desired, are likely to be considered favorably, as it indicates they have long experience in the high precision electronics test and measurement industry. Keen technical competence within India at the Indian company level for the instrument being bid for is a must. Proprietary technology on which the instrument is based will be considered favorably.

A very important factor will be speed of delivery which the company should emphasize and ensure they indicate it in their bid.

The envelop labelled "Financial Bid": (must contain only financial information)

1. Should contain best possible financial quote for the item. The company should consider offering attractive price discounts.
2. All price discounts, breakup should be clearly mentioned.
3. Payment terms and conditions.
4. Proprietary certificate from the company principle regarding the product, if any.
5. Detailed input from the Principals regarding the local agency commission to local agents if applicable.
6. Detailed documentation about after sales support.

Seal the two envelopes separately. However these two sealed envelopes you may pack into one single envelope (on the envelop do mark "Technical and Financial bids packed in separate envelops) . Please ensure your technical and Financial bids reach latest by **18th Feb 2017**, at the address below:

Satyajit Banerjee
Professor, Department of Physics,
Indian Institute of Technology Kanpur
Kanpur – 208016
India.

(PTO for the specification for units (1), (2), (3) and (4))

(1) Measurement voltmeter specifications

7.5 digit operation/display

Measuring range should 10 mV to 100 V.

At 10 mV resolution should be ≤ 1 nV

At 100 mV resolution should be ≤ 10 μ V

Noise specifications (volts peak to peak) ≤ 10 nV at 10 mV range

Noise specifications (volts peak to peak) ≤ 100 μ V at 100 V range

Noise for the fastest settling times have to be specified by underlining

NMRR and CMRR should be as low as possible (in dB, for line frequencies)

Atleast two channels for measurements (where the second channel may have slightly different characteristics w.r.t. above, however atleast one channel should have the above characteristics).

Line power input: 220 - 240 V, frequency 40 - 60 Hz.

Safety compliance specifications need to be specified by underlining.

Input impedance > 1 G Ω at lowest voltage range

Channel Isolation and Earth isolation specifications need to be specified by underlining.

Input voltage protection limits need to be specified by underlining.

Details of different filtering modes available have to be specified by by underlining.

GPIB (IEEE - 488.2) interface compliance required and SCPI

Relative measurement option has to be specified by underlining.

Different math functions available have to be specified by underlining.

Nanovolt preamplifier which is compatible with above voltmeter and its specification for 4 wire resistance/voltage measurement of superconducting samples should be included.

(2) Power source:

4 Quadrant Bipolar operation

Voltage range from 100 nV to greater than 100 V (bipolar operation)

Current range from few 10's fA to better than 1 Amp (bipolar)

DC, sine, square, triangular, pulse and arbitrary waveform possible.

Programmable output resistance. (from Ω to $G\Omega$ range depending on the type of application as a voltage or current source, and there should also be the option of setting negative resistances)

Very low noise < 500 μV rms (using low noise external filter with full current and voltage output capabilities)

Fast settling times, less than 1 msec.

External low noise filter options necessary (operation range > 100 V and > 1 A,).

GPIB (IEEE 488.2) compatibility

In 4 quadrant mode, measuring capability should extend in voltage mode from less than 500 mV to greater than ± 100 V (atleast) and in current mode from less than 20 μA to greater than 1 A.

Line voltage should be 220 – 240 V operation at 40 - 60 Hz frequency range.

Common mode isolation > 1 $G\Omega$

(3) Scanner Switcher – Mainframe with high density switch cards

Can support upto 80 channels.

Can operate from mV to greater than 100 V range and from fA to Ampere range

Frequency range can extend upto RF and optical range.

The mainframe should be able to control channel spacing, scan spacing, and the number of scans
It should have a built-in non-volatile memory stores at least 100 complete switch patterns
Configuration of mainframe should be such as to hold the minimum possible high density switch cards.

Mainframe should be programmable

Mainframe display should indicate the status of each channel.

Switch settling time can be adjusted with resolution of 1 msec

External trigger via TTL pulse or programmable edge, > 500ns minimum pulse, rear panel BNC

GPIB (IEEE 488.2) compatibility

Line power input : 220 - 240 V, frequency 40 - 60 Hz.

Relay drive should be less than 1 Amp (maximum)

This multiframe should be compatible with 4 x 10 matrix switch cards. Each of the cards should have independently switchable 2 pole elements. These high density cards should be fully compatible with the mainframe switcher.

It should be possible to isolate rows in the switcher cards using jumpers.

The terminal for the 2 pole connections should be screw type.

AC or DC voltage signals handling capability should be 100 V or better, and current equal to or better than 1 A.

Each channel resistance should be less than 1 Ω

Cross talk between channels has to minimal as possible (specify by underlining)

Specify relay drive current, and this should be handled by the mainframe itself.

Actuation time should be in millisecond time window.

Isolation paths between channels should be $> 1 \text{ G}\Omega$.

(Mainframe and switcher matrix cards should be quoted separately)

(4) GPIB Card (IEEE 488.2) with compatible software

(5) Other Accessories

Banana pin based triax accessories

GPIB cables.