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29 May 2013

Ref.: IITK/PHY/SAR/13MAY2013/NCON-2 dated 13 May 2013

Sir / Madam,

The last date for this tender is extended until 16 June 2013.

We invite sealed quotations for a **“3 D nano-positioning piezo-based stage with controller” (One number)** with the following specifications or better. Kindly send the quotations to reach me on or before 16<sup>th</sup> June, 2013.

**Minimum Specifications required of the 3 D nano positioning**

- Active axes X,Y,Z
- Piezo-actuators based motion control
- **Should have a clear central aperture > 60 mm · 60 mm**
- Total thickness of the nanopositioning stage ~ 30mm
- Travel Ranges of 200 · 200 · 200  $\mu$ m in X,Y, Z directions (Closed loop travel)
- Positioning resolution of 2 nm (closed loop) with Capacitive Sensors or better
- Reproducible positioning better than 20 nm (along each axis) or better
- Linearity: Better than 0.1%
- Pitch and yaw motion < 10 microrad.
- Flatness in X and y <  $\pm$ 10nm
- Crosstalk between X,Y, Z axes <  $\pm$ 50 nm
- Load capacity 50 N or more
- Mass of the stage ~ 1.5 kg or less
- Unloaded resonant frequency of 300 Hz or greater
- Operating temperature range 5 to 40° C
- Thermal stability: 1 micron /celsius or better

**Controller for the above 3D nanopositioning stage**

- 32 bit floating point DSP based controller for controlling fine motion on all three axes
- DAC resolution 24 bit or better
- 4 channels
- Noise < 3mV RMS
- Bandwidth: 10 kHz or better
- Computer / communication interface: USB, ethernet and RS232
- Software drivers: Labview DLLs, Python
- Should have electronic display for power, errors etc.
- Should have inbuilt protection for prevention of short-circuit of the piezo-actuators
- Should be capable of external synchronization with other equipment, for example, through

- trigger TTL pulses
- Operating temperature range 5 to 40° C
- Should be compatible with 220V / 50Hz electrical power supply.

**Please note the following essential points while preparing the quotation.**

The specified numbers for various parameters above are guidelines and can vary for the quoted systems by utmost 10% from those specified here.

Quote should be made in two parts: Technical bid and Financial bid separately in sealed envelopes.

Financial bids for products whose technical bid is not acceptable will not be opened. Any quote where the financial bid is included in the technical bid will be summarily rejected.

The sealed envelopes with the quotes should be superscribed with the Inquiry number and it is a technical or financial bid.

Any technical bid wherein only the above specified points are copied and no details about the suppliers own system are given will be summarily rejected. The supplier should necessarily give all the specifications of their own system with pictures and technical literature about their system.

If the product is proprietary, a proper certification to that effect must be made.

Authorization certificate from the Principal manufacturer should accompany the technical bid.

Firms submitting acceptable technical bids may be invited to make a technical presentation on the product to the Purchase committee in case technical clarifications are required before opening of the financial bids. The committee may choose to reject the bids of firms not making the presentation at its discretion.

Quotes should be made with options for the following delivery modes

- Ex-works for pickup by our Institute transport provider
- FOB/FCA in country of origin
- CIF, New Delhi
- For delivery to IIT Kanpur

Maximum educational discounts should be applied – apart from research, this equipment will be used to teach and train students.

Quotes should have a minimum validity of 60 days

Address the quotations to

Prof. S. Anantha Ramakrishna  
Department of Physics  
Indian Institute of Technology Kanpur  
Kanpur – 208016 India.

so as to reach us before the last date, i.e., 16<sup>th</sup> June 2013

Sincerely  
S. Anantha Ramakrishna