Institute of Physics

(An autonomous Research Institute of Dept. of Atomic Energy, Govt. of India)

P.O: Sainik School, Bhubaneswar, Orissa- 751 005, India

GLOBAL TENDER NOTICE NO.: **01/2011-12**

Last date of receipt of the sealed quotations: Upto 3 P.M. of 12/08/2011

Sealed quotations are invited from leading manufacturers and / or their accredited associates for supply, installation, testing & commissioning of

1. **High Speed Imaging Camera-01 Unit**
2. **Spectral Response System and Accessories- 01 Unit**

Detailed technical specifications and other terms & conditions for supply of the above items/ equipments can be obtained by downloading the same from the Institute's official website: www.iopb.res.in . All quotations should be submitted in sealed envelopes in two parts separately, i.e. "Technical bid" (Part- A) & "Financial bid" (Part-B). Both the parts should be further sealed in an envelope superscribing the name of the Item. The price Bid of the only technically qualified bidders will be opened at a later date with prior intimation to the respective bidders.

The Institute reserves the right to accept or reject any or all quotations either in full or in part without assigning any reasons thereof.

DIRECTOR

TECHNICAL SPECIFICATIONS:

1. High Speed Imaging Camera-01 Unit

Max. Resolution: 1MP (e.g. 1024x1024, 1200x800.) or more.

Frame rate at 1MP: 7000 fps (minimum)

Shutter: Global electronic; Exposure: 1 micro sec (min)

Sensor: CMOS, pixel size: 20 microns x 20 microns (min)
Quantum efficiency(at select visible wavelength): 30% (min),
Pixel depth: 12bit (min); Dynamic range >=55dB
Sensitivity (35mm equiv): ISO 2000 (color); ISO6000 (monochrome);

Memory (High speed, on board): 8GB (min)

Lens mount: F and C

Camera Controls: On board or remote via Ethernet/RS-232 (MATLAB compatible)

Connectivity: Gigabit Ethernet or equivalent speed interface

Analog video out: PAL/Component/HD-SDI

Trigger: Manual, programmable, image based auto trigger desirable

Memory segmentation: Minimum 16 segments

File format: RAW (open source readable), AVI, JPEG, TIFF, Quicktime

Power: 220V @ 50Hz; Option for DC power input

Warranty: 1 year comprehensive (min); Extended warranty to be specified separately

Ultra high speed option:
Highest frame rate at lower resolution (Approx. 1000 pixels): 1000,000 fps
(If any export control license required and/or extra cost is involved is to be mentioned).

Accessories:(to be quoted separately, if not included with the camera)

(1) Lens: large aperture, macro, planar
(e.g. Carl-Zeiss 50mm f2.0 makro planar or equivalent)

(2) Tripod: Both for table-top and free standing

(3) Lens and sensor cleaning kit

(4) Storage box or bag

(5) Remote control unit, cables

(6) Additional memory (16GB/32GB/128GB)

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2. - MODULAR TYPE SPECTRAL RESPONSE & I-V TESTER SYSTEM:- 01 Unit

The above system should consist of the following:

a) 250 Watt Quartz Tungsten Halogen lamp housing (vertically mounted lamp) with one standard lamp + One spare lamp, Beam condensing lens assembly along with stabilized DC Power Supply …….1 Unit.

b) Long pass filters with transmission greater than 90% at 200 nm, 300 nm, 500 nm, 900 nm, and 1600 nm.

c) Motorized filter wheel, 6 filter positions (5 sort order filters & one open) with stepper motor controller having RS-232 interface.

d) Computer controlled 250 mm FL monochromator with 3 grating turret having the specs below:

• Motorized stepper motor direct drive mechanism
• RS-232 serial Interface
• Scanning Range: typically 0~1000nm, depending on grating(s).
• Optical Resolution: 0.2 nm
• Dispersion at output port: 4.0 nm/mm
• Wavelength accuracy: +/- 0.3 nm
• Wavelength reproducibility: +/- 0.1nm
• Optical Plane Center Height: 3 inches
• Input Focal Plane Gap: 3mm
• Output Focal Plane Gap: 3mm standard

* Bilaterally Adjustable Slit

e) i) Ruled grating 1200 lines/mm & blazed at 400 nm

ii) Ruled grating 1200 lines/mm & blazed at 750 nm

iii) Ruled grating 600 lines/mm & blazed at 1600 nm

f) Suitable stand for system alignment and light tight sample chamber

g) Suitable cell holder w/ four wire I-V measurement connections

h) Dual Phase Digital signal processing Lock-in Amplfier having the specs below:

• 1 mHz (0.001Hz) to 102.4 kHz frequency range
• 100 dB dynamic reserve
• 5 ppm/°C stability
• 0.01° phase resolution
• Time constants from 10 µs to 30 ks (up to 24 dB/oct rolloff)
• Auto-gain, -phase, -reserve and -offset
• Synthesized reference source
• GPIB and RS-232 interfaces

i) Computer controlled optical chopper: Frequency range: 0.5 Hz to 100 Hz.

j) Necessary Focusing optics, if needed.

k) Current-Voltage source meter for I-V measurement. It should have the following features:

Main features:

• Designed for use with continuous or pulse Light Sources
• An output trigger TTL signal is used to synchronize its data acquisition with pulse source.
• Variable resistive load
• Max Electrical Power Reading: 20 W base model
• Base model voltage range 200 V
• Base model current range 1 A
• Separate terminal interface for voltage and current measurements
• Should save each I-V curve dataset in separate ASCII text file
• I-V range select ability should be there
• Number of sample points selectable
• Should have Windows based control software

l) Calibrated reference cell: Mono Crystalline Silicon:

The certification is accredited by NIST to the ISO-17025 standard and is traceable both to the National Renewable Energy Laboratory (NREL), and to the International System of Units (SI).

m) Current testing resistor, if needed.

This item establishes the maximum current your test cell can achieve.

n) Complete software package to get Spectral Response Curve as well as I-V Plot.

o) Latest version DELL-make computer system with LCD monitor should be compatible to the system

INSTALLATION & TRAINING: FREE OF COST (ON SITE)

WARRANTY: One year from the date of installation

Commercial Terms & Conditions: -

1. **Price**: - The price should be quoted only on Ex-Works/ FCA basis separately including export packing (Air worthy) charges (this does not include the applicable taxes).
2. **Destination**: - The consignment should be sent to **"**The Director, Institute of Physics, P.O. Sainik School, Bhubaneswar-751005, INDIA**"** on freight to pay (payable in Indian Currency) basis.
3. **Delivery**: - Delivery of the consignment should be made within ----------weeks from the date of issue of Letter of credit (L/C).
4. ****Payment**: - *The payment will be released against irrevocable Letter of Credit (LC). You are required to issue an order confirmation letter in order to establish the L/C. 90% of the L/C value will be released on delivery of the consignment & balance 10% will be released after successful installation & commissioning of the equipment against submission of Performance Bank Guaranty (PBG) of equivalent amount (10%) valid for the warranty period and acceptance protocol signed by both the parties (supplier / it's authourised representative & buyer (IOP)). All Bank Charges towards Confirmation of the LC, if required, will be borne by the supplier.*

5. Bank Charges:- *All bank charges(except confirmation charges) inside India will be borne by the Institute & outside India will be borne by the supplier. If The LC confirmation is required by the supplier, the total confirmation charges will be borne by the beneficiary (supplier).*

6. **Bank Guarantee**: - You are required to submit a Performance Bank Guaranty equivalent to 10% of the equipment cost, valid for the entire warranty period issued by a nationalized Bank in favour of "Director, Institute of Physics, Bhubaneswar.

7. ****Details of the Consignment**: - You are required to submit the details of the consignment such as weight of the equipment, dimension of the packing & number of packets etc. at the time of order confirmation.

8. **Freight forwarder**: - The Institute will appoint the freight forwarder for forwarding & custom clearing of the consignment at the customs. The name of the freight forwarder will be intimated to the supplier at the time of opening of the L/C.

9. **Insurance**: - The transit Insurance of the consignment covering all risks and damages will be arranged by the Institute of Physics or its freight forwarder, duly authorized by the Institute.

10. **Warranty**: - The equipment should be warranted for a period of --------- months from the date of successful delivery / commissioning at Institute's site. The necessary warranty certificate in this effect should be furnished along with the supply/ commissioning of the equipment. Spare parts in warranty period are required to be replaced on DDP (Destination Duty Paid) basis.

11. **Documents**: - The despatch documents along with the signed invoice copy & the copy of the airway bill (2 copies each) should be despatched through courier / faxed to the Institute immediately after the equipment is handed over to the freight forwarder.

12. **Operational Manual**: - You are required to supply the operational manual of the equipment, circuitry diagrams etc. written in English only along with the consignment.

13. **Installation & training:- I**nstallation, personnel training & test measurement of the system at our site (Institute of Physics, Bhubaneswar) will be carried out by your trained engineers with your instruments, accessories, tools & tackles; deploying appropriate manpower as required, at your cost.

14. **Essential Spares/ consumables: -** Essential spares & Consumables along with the price list applicable for a period of 3/5/10 years are required to be supplied with the equipment & to be quoted separately.

15. **Shipment**: - Partial will not be strictly allowed.

16. **Agency Commission**: - No agency commission will be paid to any body / organization for this purchase.

17. **Banker**: - Our banker is Indian Overseas Bank, 121, New Station Square, Unit III, Bhubaneswar- 751001, INDIA. You are required to specify the Banking details such as A/c No, SWIFT code, Branch Code, name of the Bank etc. in order to release the payments.

18. **Training**: -

19. Service support: -

20. **Preventive Maintenance**: -

21. **Pre-Delivery Inspection:**

22. **Acceptance**: - If the terms & conditions mentioned above are acceptable to you, you are required to send the order confirmation letter along with a copy of this purchase order & details of consignment to the Institute within 02 weeks from the date of issue of the P.O. as a token of your acceptance.

DIRECTOR