



PONDICHERRYUNIVERSITY
(A Central University)
(www.pondiuni.edu.in)
Kalapet, R.V.Nagar
Puducherry-605 014

**Tender Notice for High Power Q-switched nanosecond Nd:YAG
Laser Systems**

Pondicherry University invites sealed tender under Two Bid system (Technical and Commercial) for purchase of equipments. The complete details are available in the University website: www.pondiuni.edu.in.

The last date and time for submission of tender is 3rd Feb 2014 at 2.00 pm.

Registrar

Pondicherry University
Department of Physics

**Specifications For High Power Q-switched nanosecond Nd:YAG
Laser Systems**

Sl. No.	Description	Quantity
I.	<p style="text-align: center;">A) High Power Q-switched nanosecond Nd:YAG Laser</p> <p>Typical Specifications: (A) Repetition rate: 10 Hz @ 1064 nm: 1000 mJ @ 532 nm: 500 mJ @ 355 nm: 250mJ @ 266 nm: 120 mJ</p> <p>(B) Energy Stability @ 1064 nm: $\pm 2\%$ or better @ 532 nm: $\pm 4\%$ or better @ 355 nm: $\pm 5\%$ or better @ 266 nm: $\pm 8\%$ or better</p> <p>(C) Beam diameter : (Approx) 7 mm (D) Beam Point stability : $< 100 \mu\text{rad}$ or better (E) Pulse width : 8 -10 ns (F) Beam Spatial Profile (Gaussian fit) Near field: 0.75 Far field : 0.95 Jitter : ± 0.5 ns (G) Operating Voltage at 230 V AC, 50 Hz</p>	One
I. 2.	Associated Chiller for Nd: YAG Laser Specified in Item (I.1) above	One
I. 3.	<p>Essential Accessories : A) Laser Goggles (OD 7+ at 1064nm, 532nm,355nm,266nm)</p> <p>B) Beam Dump</p>	Two Two
II.	<p>II.1 BoxCar Averager System The whole systems should comprise of</p> <ul style="list-style-type: none"> • NIM Bin and Power Supply is suitable for accommodating multichannel boxcar Averager systems • Signal Channel: Normal or Baseline Sampling • Coupling AC/DC • Input Impedance $1 \text{ M}\Omega / 50 \Omega$ (Selectable) • Input Time Response 2 ns • Max. Input Bandwidth 400 MHz (for 50Ω) • Amplitude Response Flat over all gate-widths down to 2 ns • Max. Sensitivity All gate-widths: 20 mV • Trigger Source: Internal (upto 40kHz (typical)), <ul style="list-style-type: none"> ○ External (ECL- Positive edge, 5 ns min pulse 	One

	<p style="text-align: center;">width / Negative edge, 20 ns min pulse width and TTL) with Trigger indicator</p> <ul style="list-style-type: none"> ○ Max Trigger Rate 80 kHz ○ Baseline Input: TTL line <ul style="list-style-type: none"> ● Trigger Generator Output BNC TTL out on rear panel active in all trigger modes. ● Outputs: <ul style="list-style-type: none"> ○ Average out and Last sample out should be $\pm 10V$ FS with 50Ω output impedance ○ Gate Monitor: typically about 0.5V into $50\ \Omega$ ○ Trigger: TTL ○ Baseline Output: TTL output line ● Analog Output Averager: Mode: Linear or Exponential ● Output: Both analog and digital outputs port ● Gate Widths selectable from 100 ps to 150 μs, repetition rates up to 50 kHz ● Gate Delay Input 0 to 10 V DC varies delay by 0.5% to 100% of range setting ● Inter-Sample Correlation less than 0.5% less ● Min. Trigger to Sample Time: (typical) 20 ns ● Standard Gate-width Range 1 ns to 150 μs(Typically) ● LED Indicators :Overload and Trigger ● Gate Scanner is designed to automate waveform recovery by providing the voltages needed to scan the SR250's gate delay. Scan times from 10 ms to 5 minutes can be selected <ul style="list-style-type: none"> ● Analog / Digital Output, Display module: The display module may contain an analog meter/ digital meter/ bar graph meter which are useful for monitoring the output of the boxcar system ● Fast Sampler for gated integration with gate widths as short as 100 ps. Four discrete gate widths are provided: 100 ps, 200 ps, 500 ps, and 1000 ps. Output is provided in both analog and digital form. SR245 adds both analog and digital data acquisition capabilities to the SR200 series. Eight analog I/O channels can be configured as inputs or outputs, and two front-panel digital ● Windows compatible software package designed to acquire, display and analyze data taken with the Boxcar system. ● Computer Interface module to communicate with computer over the GPIB/USB or RS-232 interfaces. <p>Operating Voltage at 230 V AC, 50 Hz</p>	<p style="text-align: center;">One</p>
	<p>II.2 Preamplifier:</p> <ul style="list-style-type: none"> ○ 4 Channels with gain of 5 at each stage Bandwidth DC to 350 MHz for amplifying inputs from low level light from Photomultiplier tubes and avalanche photodiode ○ Operating Voltage at 230 V AC, 50 Hz 	<p style="text-align: center;">One</p>

<p>III.</p>	<p>III.1 Photomultiplier Tube (PMT)</p> <p>Photomultiplier Tube with Housing DC or Pulsed operation for</p> <ol style="list-style-type: none"> i. Spectrophotometers, Fluorescence and Laser Applications ii. Photon counting <p>(Two separate quotes for DC operation and Photon counting applications may be quoted)</p> <ul style="list-style-type: none"> • Wavelength Range : 180-1050nm (peak at Visible Range around 400-500nm) • Cathode : Luminous Sensitivity (typ) 600 μA/lm • Radiant Sensitivity (typ) 3.6×10^4 A/W • Anode : Luminous Sensitivity (typ) 300 μA/lm • Gain : 5×10^5 • Anode Dark Current : 1nA (typical) : 20 per second (in Photon Counting applications) • Rise time: : 2ns <p>III.2 Appropriate Base pin socket Assembly and Voltage divider network (for the PMT quoted)</p> <p>III.3 Appropriate High Voltage Supply with connecting and power cables for Quoted PMT</p> <ul style="list-style-type: none"> • All Instruments should be operating at supply Voltage of 230 V AC/50 Hz 	<p>One One</p> <p>One each</p> <p>One</p>
<p>IV.</p>	<p>IV.1 Portable Spectrophotometer Wavelength Range: 200-1100nm with 0.75nm resolution or better should be interfaced with Computers</p> <p>IV.2 Essential Accessories:</p> <ol style="list-style-type: none"> i. Deuterium Tungsten Halogen mini- Lamp to be used with above Spectrometer (wavelength range 200-2000nm) including power supply and its holder ii. Sample Holder (Cuvette Holder 1cm Path) compatible with the above Spectrometer iii. 1m Patch Cord Fiber Optic Cable (for wavelength range 200-1100nm with core diameter 300microns) iv. Software to operate the spectrometer and collect data and transfer on the computer <ul style="list-style-type: none"> ○ Please list and quote for any other essential recommended accessories required to work with the instrument not mentioned above 	<p>One</p> <p>One</p> <p>One</p> <p>Two</p> <p>One</p>
<p>V.</p>	<p>Miscellaneous (electric cables and connectors, GPIB, DAQ card and its cable)</p> <ol style="list-style-type: none"> i. USB to 9pin RS232C Serial Interface cable ii. USB to GPIB (IEEE-488) Interface Cable iii. GPIB (IEEE-488) Interface Card PCI-GPIB Complete with 	<p>One</p> <p>One</p> <p>One</p>

	<p>driver Software</p> <p>iv. RS232 Cable</p> <p>v. Shielded GPIB Cable -2meter</p> <p>vi. BNC TEE connectors- Male-Female-Female</p> <p>vii. RG-58 BNC Male Cables 12”long</p> <p>viii. RG-58 BNC Male Cables 24”long</p> <p>ix. RG-58 BNC Male Cables 48”long</p> <p>Appropriate Data Acquisition Software to be used with above cable if any</p>	<p>One</p> <p>Two</p> <p>Two</p> <p>Six</p> <p>Two</p> <p>Four</p>
VI	<p>Double Monochromator (Complete Assembly inclusive of kits to meet the following requirements)</p> <p>VI.1 1/4 m Double Monochromator and Imaging Spectrograph</p> <ul style="list-style-type: none"> • F number (input) F/4 • Wavelength : 200nm-20microns (should be able to go scan the entire range with appropriate gratings) • Gratings :200nm to 1600nm (more than one grating blazed at different wavelength maybe used in the spectrograph to cover the range) • 4 grating turret with automatic grating switching • Two flat field output ports with automatic port switching • Stray light: 3×10^{-4} (Deuterium Tungsten Lamp) • Slit width: Motorized /Manual controllable from 4microns to 2mm • Slit Height: 20mm • Resolution: 0.05nm • Motorized Flip mirror to choose appropriate output wavelength through the exit port • Communicate Via an external computer using USB, RS-232 or IEEE-488 protocols. <p>VI.2 Linear CCD Array Wavelength 200nm to 1100nm with low light applications to record the spectra and should be compatible with the spectrograph</p> <p>VI.3 Appropriate Software to control the instrument and for data acquisition</p> <p>Operating voltage is 23VAC 50Hz</p>	<p>One</p> <p>One</p> <p>One</p>
VII	<p>Gated Photon Counter</p> <ul style="list-style-type: none"> • Signal : Bandwidth DC to 300MHz <ul style="list-style-type: none"> ○ Input impedance: 50 Ω • Discriminators Level : Fixed or scanned <ul style="list-style-type: none"> ▪ Range: -300mV to +300mV Discriminator Slope Rising or Falling ▪ Resolution 0.2mV DISC outputs NIM levels into 50 Ω • Trigger Input Impedance :10k Ω • Gate Generators: Both gates maybe fixed or scanned <ul style="list-style-type: none"> ○ Insertion delay: 25ns ○ Max Delay: 1sec (typ) ○ Gate Width: Min 5ns Max: 999ms or CW 	<p>One</p>

	<ul style="list-style-type: none"> ○ Resolution: 0.1% 1ns minimum ○ Accuracy: 2ns ○ Max Trigger rate-1MHz ○ GATE view Output NIM levels into 50 Ω ● Display Mode Continuous or HOLD ● D/A output <ul style="list-style-type: none"> ○ Should be proportional to linear or log to A, B, A-B or A+B modes and is updated at the end of each count period. Output ports should be able to be set or Scanned via Compute interface ○ Full Scale: ± 10 VDC ○ Resolution: 12bits 5mV ○ Output Impedance $< 1 \Omega$ ● Interfaces: GPIB/USB and RS232 ● Operating Voltage: 230VAC 50Hz 	
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TERMS AND CONDITIONS

I. General Information

1. Last and time of receipt of the Tender: 03.02.2014, 2.00 p.m
2. Date and Time of opening of Tender and Technical Bid: 03.02.2014, 2.30 p.m
3. Date and Time of opening of Price Bid: will be intimated
4. Tender Document fee Rs. 1000/-
5. EMD rates: 2.5% of the quoted price.
6. Two bid systems have to be strictly followed. One for Technical bid and another for commercial bid and each bid should be submitted in separate sealed covers.
7. Quoting merely the lowest price does not confer any right to any bidder for award of supply order . The University's Purchase Committee, reserves the right to select the equipment any bid under the grounds of specification compliance, technologically advanced quality, proven performance track record, brand reputation, service backup support, additional warranty, offer of additional / special features, Compatibility with the existing System, Training, etc.
8. The Tender Document Fee and EMD should be submitted in a separate cover superscripting Bank Demand Draft and which should be enclosed with the technical bid .
9. The tender / quotation must be submitted along with the stipulated tender document fee and, EMD in the sealed cover, super-scribing "Tender – DST FIST Level -II, Department of Physics".
10. The cover should also contain the information like, Name of the Equipment and Serial Number of Equipments for which the bids are submitted. The name and address of the bidder should also be mentioned at the from address space.

11. The tenders should be addressed to The Registrar, Pondicherry University, Puducherry 605 014.

12. Quotations will not be accepted through fax / e-mail.

II. Common Conditions

1. Purchase of Tender Document:

The Tender document can be either downloaded from the University website www.pondiuni.edu.in or procured from the Information Facilitation Counter, Dr.Ambedkar Administrative Block, Pondicherry University on payment of fee as specified above, by means of a D.D. drawn in favour of the Finance Officer, Pondicherry University, payable at Puducherry. The downloaded application should be accompanied with the tender document fee, in the form of a Demand Draft. Separate bids should be submitted.

2. Price Schedule

The bidder may either quote for the entire equipment's or individual items required for the Laser Laboratory. The rates should be quoted for a single unit and also for the total quantity required by the University. The price should include the Delivery, installation, training charges (if any), etc. at the respective Department, Pondicherry University.

The prices quoted shall remain firm until equipment is supplied to the respective Department, Pondicherry University.

3. Quoting the Core price & Tax, Duties, Discount etc.

The taxes / duties / discounts, if applicable, are to be explicitly and separately shown in the bid.

4. Eligibility:

The firm must have the requisite domain expertise with regard to supply, installation and post- sale service of the items they are quoting.

The firm should have been in existence for at least six years as on the date of this tender and must have executed at least three orders for this kind of equipment during the last three years.

5. Duty Exemption

The University has been granted the benefit of exemption from the payment of the Central Excise Duty and Customs Duty by the Department of Scientific and Industrial Research (DSIR), India, vide their Notification No.10/97 dt. 01-03-1997 and 51/96 dt. 23.07.96 respectively,

In respect of

- a. Scientific and technical instruments, apparatus, equipment including computers.
- b. Accessories and spare parts of goods specified in (a) above and consumables.

c. Computer software, compact disks, CD ROM, Recording magnetic tapes, microfilms, micro-chips etc.

d. Prototypes.

Customs duties at Indian port, if any, will be to the account of the University.

6. Warranty:

The material covered under the purchase order, when installed, shall be warranted for the quality, workmanship, trouble free operation and performance for a period of three years from the date of putting the system into operation at the Pondicherry University.

If any item covered under warranty fails, the same shall be replaced free of cost including all the applicable charges including shipping cost both ways.

7. The information pertaining to infra-structural, power and any other requirement for satisfactory installation and commissioning of the whole system must be provided by the bidder, at least 120 days in advance of the installation to be commenced if purchase order is issued. All drawing for electrical connections, electrical safety items piping work etc. must be provided in detail.
8. Complete technical specifications and literature, including process flow, to be included with the quotation. Manufacturers of various major parts/equipment must be mentioned explicitly.
9. A clear statement regarding availability of after-sales service and availability of spare-parts for next 5 to 10 years should be included.
10. A recent customer list (within last five years) with contact details including email address is to be submitted with technical bids / bids as the case may be.
11. If the bidder is an authorized representative in India, they are requested to inform their technical ability to take care of the problems in the system, if developed later within the warranty and outside the warranty period. The responsibility of the Indian agent must be clearly specified.
12. The bidder from abroad shall obtain, if required, export permission from the appropriate authorities in his country or the country of origin for items to be shipped to India in case of items to be imported. The University shall provide necessary information if required for this purpose.
13. All equipment must operate at 230V/50 Hz single phase and / or equivalent three phase electrical power.
14. The validity of the each quotation should be at least 1 Year from closing date of the bid.
15. The offers will not be considered if received after the bid closing date and time.
16. The offers received through telex / tele-fax / e-mail will not be accepted by the University under any circumstances.
17. The University shall not be responsible for any delay / loss or non-receipt of tenders by post / courier service.

18. No unsolicited correspondence shall be entertained after the submission of the offer.
19. If an order is placed with the firm, the purchase shall be governed by an agreement as per the University rules in force at the time.
20. Additional terms and conditions will be incorporated in the purchase order, if needed, to safe guard the interests of the University.
21. Tender is not transferable
22. In case of any dispute in respect of the tender, all legal matters shall be instituted within the jurisdiction of the place where the purchaser ordinarily resides.
23. Power to reject the offer: Pondicherry University reserves the right to accept / reject any offer in full or in part or accept any offer other than the lowest offer without assigning any reason thereof. Any offer containing incorrect and incomplete information shall be liable for rejection.
24. No Agency commission will be paid to any authorized agent in India.
25. Liquidated damages: Timely supply of the ordered items, installation, commissioning (wherever is applicable) and training etc. is the essence of the contract. In case of failure to supply within the time specified in the Purchase order, a penalty/LD of 0.5% of the total value per week or a part thereof shall be levied subject to a maximum of 7.5% in respect of items which are not supplied. The decision of Pondicherry University shall be final in this regard.
26. The training should be provided by the supplying companies on the specimen and operation of the equipments for a minimum period of two weeks from the date of installation with an expert team.
27. For any clarification with respect to technical specifications, please contact the Prof. &Head as per the details given below: -

Prof. G. Chandrasekaran,
Prof. & Head,
Department of Physics,
Pondicherry University,
Puducherry 605014
Tel: 0413-2654401,
Email: chandra.phy@pondiuni.edu.in

III. Specific Conditions:

1. Payment of EMD:

The Tender must be accompanied by EMD as stated above, by means of a Demand Draft, drawn in favour of the Finance Officer, Pondicherry University, payable at Puducherry separately. The amount is refundable. The Small Scale units are exempted from payment of EMD provided they should enclose proof of their exemption Certificate issued by the competent authority.

2. Payments terms: Normally a letter of Credit will be opened for 90% of CIP price, on receipt of order acknowledgement. However, 100% of the LC also be considered, if the supplier provide Bank Guarantee towards performance Security for the 10 % of the total cost of the equipment to cover the Warranty Period.

Bank charges in India shall be borne by the purchaser and outside India shall be borne by the contractor / supplier.

3. The offer must be in English. The rates should be indicated both in figures and words against item specified in the given table. It is preferable that the price be quoted in Rupees or in US Dollars or in major foreign currencies.

4. The total cost should be quoted for FOB as well as CIF – Pondicherry University.

5. However, the price quoted under FOB or should also include the following cost if they are required during the initial stage:

a) Local freight / insurance for Chennai airport to University laboratory.

b) Installation cost if any.

c) Cost of consumables which are required for the equipment for initial operation up to reasonable time.

6. In case of the Principal supplier of Foreign country unable to meet the conditions stated at para no.4, the local agent / dealer should fulfill the above said conditions in respect of Local Insurance, Freight, safety transport and installation, etc.

7. The bidder from within India shall obtain the requisite approval for Imports etc., if required

Date: 10.01.2014

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