Indian Institute of Technology Kanpur
Department of Electrical Engineering

Enquiry for Time Resolved Correlation Measurement Setup

Enquiry No.: IITK/EE/SG/2017-18/01
Enquiry Date: 27/09/2017
Closing Date: ~~04/10/2017 at 5 pm~~ Extended: 11/10/2017 at 5 pm

Sealed quotes (technical bid and financial bid separately sealed) are invited as per the specifications and terms and conditions listed below. All parts corresponding to the quotations should be from a single manufacturer for compatibility and maintenance. Any compliance claimed should be supported with necessary data sheet.

S. No.	Item and Specification
1.	**Light sources with drivers and accessories** Picosecond pulsed laser diodes and associated drivers with following must-have features: a. Picosecond pulsed laser diode with center wavelength: 405 ± 10 nm (Qty 1) i. Minimum pulse-width < 50 ps (FWHM) ii. Operation both in pulsed and CW mode iii. User-adjustable output power: Max average power 3 mW in pulsed and 50 mW in CW mode iv. Collimated beam v. Temperature stabilized b. Picosecond pulsed laser diode with center wavelength: 655 ± 10 nm (Qty 1) i. Minimum pulse-width < 90 ps (FWHM) ii. Operation both in pulsed and CW mode iii. User-adjustable output power: Max average power 6 mW in pulsed and 10 mW in CW mode iv. Collimated beam v. Temperature stabilized c. PC controlled (USB interface) laser-diode driver mainframe (Qty 1) with i. Independent picosecond laser driver modules (Qty 2) compatible with above laser-diodes ○ User-selectable repetition rates: minimum options of 2.5, 5, 10, 20, 40, 80 MHz ○ Input channels: 1 trigger and 2 gating (TTL) ○ Output channel: 1 sync ii. an oscillator (Qty 1) for synchronizing independent laser diodes ○ Crystal-locked oscillator ○ User-selectable repetition frequency ○ Input channels: 1 external trigger, 1 auxiliary (TTL) ○ Output channels: 8 trigger, 1 sync, 1 auxiliary iii. CW, picosecond pulsed, and burst modes iv. flexible internal triggering from single shot to 80 MHz v. computer controlled picosecond delays between the channels vi. possible combination of burst sequences in each channel d. Accessories: (i) Fiber coupling of each laser-diode to a single-mode polarization-maintaining fiber (3 m, FC/PC connector), (ii) Additional fiber coupled laser head only for picosecond pulsed operation at 405± 10 nm with similar specifications as stated above, (iii) Sub-nanosecond pulsed LEDs at 460± 10 nm, 500± 10 nm, and 600± 10 nm with repetition rate upto 40 MHz, average power greater than 20 µW, and compatible with above driver (Qty 1 each), (iv) Alignment tools for fiber coupling.
2.	**Single photon detectors with accessories (Qty 2)** Following are must-have features: a. Operating wavelength range: 300-720 nm b. Detection efficiency: atleast 40 % at 500 nm c. Detector response time: less than 120 ps (FWHM) d. Count rate > 10^7 counts/sec e. Detector area: 3-5 mm f. Dark counts < 1000 counts per second g. Negligible afterpulsing (probability <0.1%) and afterglow h. Should include power supply and cooling mechanism i. Accessories: (i) Signal inverter with SMA connectors (Qty 2), (ii) 20 dB signal attenuator and inverter with BNC connectors for TTL-NIM conversion (Qty 2), (iii) Power splitters with SMA and BNC connectors (Qty 1 each) (iv) SMA Cables 5m (Qty 2) and 3m (Qty 2), (v) Cable adapters for connecting electronics via standard SMA cables (Qty 2)

3.	**Time interval analyzer with accessories (Qty 1)** Stand-alone time correlated single photon counting (TCSPC) module with following must-have features: a. Two independent and synchronized input channels b. Minimum timing resolution: 4 ps c. Histogramming with 65536 time bins, 16 bit count depth d. Time tagging facility (both TTTR modes: T2 and T3) e. DLL library for custom programming of data acquisition, including LabView interface f. Adjustable delay upto ± 100 ns g. Count rate greater than 10^7 counts/sec in histogramming mode h. Sustained throughput of atleast $5X10^6$ events/sec in time-tagged mode i. Sync rate upto 84 MHz j. Dead time < 100 ns k. User-adjustable acquisition time from 1 ms to 100 hours l. Low differential nonlinearity <1% (rms) m. User-friendly software for Windows n. PC interface: USB 2.0 or higher o. Includes 2 SMA signal cables p. Accessories: (i) A trigger signal generator operating in VIS-NIR and compatible with TCSPC module, (ii) 3dB, 10 dB, and 20 dB attenuators with SMA connectors (1 Qty. each)

Terms and conditions:

1. All items **must be** supplied by one manufacturer for compatibility during assembly of the experiment.
2. All the items **must be** compatible with 220V/50Hz supply.
3. The electronic components **should be** covered under a warranty of 5 years and rest of the components for atleast 1 year from the date of installation, without additional charge.
4. No separate installation charges will be admissible. All required accessories must be included in the quote.
5. Include authorization certificate from the principal if you are a local agent.
6. If import is required, quoted price should be CIP New Delhi, and payment terms should be either NET30 or letter of credit without additional processing charges.
7. The manufacturer's specification sheets for the products **must be** enclosed.
8. Attach compliance sheet and complete details of the products.
9. Quotations should have a minimum validity of 60 days.
10. The goods should be delivered no later than 60 days from the day of the placement of the order from, IIT-K. Particular importance will be given for prompt delivery of the goods. The delivery period should be specifically stated.
11. Maximum educational discount should be applied – these products will be used for research as well as to teach and train students.
12. The institute reserves the right of accepting and rejecting any quotation without assigning any reason.
13. The indenter reserves the right to cancel the tender without being answerable.
14. Quote should be made in two parts: Technical bid and Financial bid separately in sealed envelopes. The sealed envelopes with the quote should be superscribed with the inquiry number and whether they contain technical or financial bid.

Address quotations to

Dr. Shilpi Gupta
Department of Electrical Engineering
Indian Institute of Technology, Kanpur
Kanpur, UP 208016, India