



**SATYENDRA NATH BOSE NATIONAL CENTRE FOR BASIC SCIENCES**

**[An Autonomous Institute under Department of Science & Technology, Government of India]**

BLOCK JD, SECTOR III, SALT LAKE, KOLKATA- 700 098

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Ref. SNB/ENQ/MP/Pulse Generator/15-16/242(WP)

17.06.2015

Dear Sir,

Sealed quotations is hereby invited for the following items in two parts (Technical and Commercial bids). One large envelope containing two smaller envelopes containing Part A: Technical Bid and Part B: Commercial Bid need to be submitted separately – Two smaller envelopes should be super-scribed "**Technical Bid**" / "**Commercial Bid**" as the case may be.

| Sl. No. | PARTICULARS   | Qty |
|---------|---|-----|
| 01.     | <b><u>PULSE DELAY GENERATOR</u></b><br><br>[See attached sheet for detailed specification.] | 01  |

Note: Attached herewith Annexure-I (check list) and Annexure-II (Tender Terms & Conditions).

❖ **Annexure I** ⇒ is to be duly filled in by the bidder and should be submitted with the Technical Bid only. Offer received without any of the relevant information / certificate / document asked as per Annexure-I from sl. no.01 to 18, may not be considered for further evaluation. ❖ **Annexure II** ⇒ should also be submitted with the technical bid duly sealed and signed as an acceptance of all tender terms & conditions mentioned therein. ❖ The Centre reserves the right to accept or reject offer of the tenderer. ❖ The Centre's decision shall be final and binding on the tenderer. Attached documents should be duly marked.

**Technical bid** should contain complete technical information literature/working manual of the quoted item, & authorization certificate of the manufacturer.

**Price Bid** - In case of imported item CIF Kolkata airport price should be mentioned and for indigenous item FOR basis up to S. N. Bose National Centre for Basic Sciences, Kolkata may be quoted.

Note:

- 1) The quoted price should be inclusive of delivery charges.
- 2) Validity should be for 90 days from the date of opening
- 3) Minimum three (3) years standard onsite warranty should be mentioned in the quotation.
- 4) Our Payment term is subject to after delivery and installation only.
- 5) Delivery period should be mentioned in the quotation.
- 6) Our ref. no. should be mentioned on top of the quotation envelope.
- 7) Quotation for the above item should reach this office by **30<sup>th</sup> June, 2015**

Thanking you,  
Yours faithfully,

S. K. Singh  
AR (Purchase)

# Technical specification for Four Channel Digital Pulse Delay Generator:

## Key Specification

1. 4 Pulse (pulse repetition rate up to 10 MHz) with 8 Delay Outputs.
2. Delays:
  - Range: 0 to 2000 s
  - Resolution: 5 ps
  - Jitter : <25 psrms
- Accuracy: 1 ns + (time-base error x delay)
3. Precision Rate Generator: 100µHz to 10 MHz
4. Fast transition times
5. Easy synchronization with 80 MHz mode locked lasers
6. Fast Rise Time Module (< 100ps)
7. Ethernet, GPIB & RS-232 Interfaces.

## Details Specification

| <b>Delays</b>                  |   |
|--------------------------------|---|
| Channels                       | 4 independent pulses controlled in position and width with 8 delay channels |
| Range                          | 0 to 2000 seconds   |
| Resolution                     | 5 ps  |
| Accuracy                       | 1 ns + (timebase error × delay)   |
| Jitter (rms)                   |   |
| Ext. trig. to any output       | 25 ps + (timebase jitter × delay)   |
| T <sub>0</sub> to any output   | 15 ps + (timebase jitter × delay)   |
| Trigger delay                  | 85 ns (ext. trigger to T <sub>0</sub> output)                               |
| <b>External Trigger</b>        |   |
| Rate                           | DC to 1/(100 ns + longest delay). Maximum of 10 MHz                         |
| Threshold                      | ±3.50 VDC   |
| Slope                          | Trigger on rising or falling edge   |
| Impedance                      | 1 MΩ + 15 pF  |
| <b>Internal Rate Generator</b> |   |
| Trigger modes                  | Continuous, line or single shot   |
| Rate                           | 100 µHz to 10 MHz   |
| Resolution                     | 1 µHz   |
| Accuracy                       | Same as timebase  |
| Jitter (rms)                   | <25 ps (10 MHz/N trigger rate)<br><100 ps (other trigger rates)             |

| <b>Burst Generator</b>                            |  |
|---|--|
| Trigger to first T <sub>0</sub>                   |  |
| Range   | 0 to 2000 s  |
| Resolution  | 5 ps   |
| Period between pulses                             | 100 ns to 42.9 s   |
| Range   | 10 ns  |
| Resolution  |  |
| Delay cycles per burst                            | 1 to 2 <sup>32</sup> - 1   |
| <b>Outputs (T<sub>0</sub>, AB, CD, EF and GH)</b> |  |
| Source impedance                                  | 50 Ω   |
| Transition time                                   | <2 ns  |
| Overshoot   | <100 mV + 10 % of pulse amplitude  |
| Offset  | ±2 V   |
| Amplitude   | 0.5 to 5.0 V (level + offset <6.0 V)   |
| Accuracy  | 100 mV + 5 % of pulse amplitude  |
| <b>General</b>                                    |  |
| Computer interfaces                               | GPIB, RS-232 and Ethernet. All instrument functions should be controlled through the interfaces. |
| Non-volatile memory                               | Nine sets of instrument configurations should be stored and recalled.                            |
| Power   | <100 W, 90 to 264 VAC, 47 Hz to 63 Hz  |
| Warranty  | One year parts and labor on defects in materials & workmanship                                   |
|   |  |
| <b>Output</b>                                     |  |
| <b>8 High-Voltage Delay Outputs on Rear Panel</b> |  |
| Outputs (BNC)                                     | T <sub>0</sub> , A, B, C, D, E, F, G and H   |
| Source impedance                                  | 50 Ω   |
| Transition time                                   | <5 ns  |
| Levels  | 0 to 30 V into high impedance, 0 to 15 V into 50 Ω (amplitude decreases by 1 %/kHz)              |
| Pulse characteristics                             | At programmed delay  |
| Rising edge                                       | 100 ns after the rising edge   |
| Falling edge                                      |  |
| <b>Fast Rise Time Module</b>                      |  |
| Rise time   | <100 ps  |
| Fall time   | <3 ns  |
| Offset  | -0.8 V to -1.1 V   |
| Amplitude   | 0.5 V to 5.0 V   |
| Load  | 50 Ω   |

### **Specific Terms & Conditions for Pulse Delay Generator:**

- Tenderer shall give all Technical details, Specifications and other relevant/additional details, if any, for the above.
- The quotation should include an Earnest money (EMD) for Rs.5,500.00 (Rupees Five Thousand Five Hundred only) in the form of Demand Draft in favour of “S. N. Bose National Centre for Basic Sciences”, payable at Kolkata. Bid without EMD will not be considered and shall be rejected. *EMD should be submitted alongwith the Technical Bid.*
- EMD of unsuccessful bidder will be refunded without interest after opening of the Commercial bids of the technically qualified vendors. EMD of successful bidder will be returned after successful installation & commissioning of the system without interest.
- 5% certified value of the bill will be retained as Performance Guarantee till expiry of warranty period.
- The Performance Guarantee will be refunded without interest subject to satisfactory rectification/replacement of any defect arising within the warranty period duly certified by the concerned department.
- **Attached herewith Annexure-I (check list) and Annexure-II (Tender Terms & Conditions). All should be duly filled in by the bidder and should be submitted with the Technical Bid of. Offer received without any of the relevant information / certificate / document asked as per “Annexure I & II” may not be considered for further evaluation.**
- The Centre reserves the right to accept or reject offer of the tenderer without assigning any reason . The Centre’s decision shall be final and binding on the tenderer. Attached documents should be duly marked.

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### **General Terms & Conditions:**

- 1) The bid should be submitted in two bid system each of which is to be submitted in separate envelope. One envelope should contain “Technical Bid” i.e., technical specifications, terms and condition, terms of payment except price and another envelope should contain “Price Bid” i.e., price of the quoted item. Both the envelopes should be separately sealed and kept in another large envelope which should be marked with tender reference number, name of the equipment and tender opening date. Separate bid should be submitted for each of the items. Combined bids will not be entertained.
- 2) The tenderer should have high technical, financial reputation with sufficient experience and capable enough for supply, installation & commissioning of similar type of equipment to actual users. Documentary evidence should be submitted in this respect.
- 3) Against such offers, if statutory requirement demands clearance from concerned Governments the tenderers should confirm in their offer that “Export License” in that respect would be arranged by them at their cost.
- 4) Offers should be complete in all respect indicating therein the unit price(s) including manuals, make, model, duties and taxes, delivery period, gross and net weight of the consignment, terms of payment, together with the descriptive leaflet/catalogue/pamphlet/manufacturer’s brochure.
- 5) The offers shall remain valid at least for a period of **90 days. The period starts from the date of closing of tender submission.**
- 6) The Institute shall not be responsible for delay, loss or non-receipt of the tender through post/Air Mail
- 7) The aforesaid Tender is being issued with no financial commitment and purchaser reserves the right to change / vary any items or items thereof at any stage.
- 8) No tenderer shall be entitled for any compensation what so ever for rejection/non consideration of their tender.
- 9) Invitation of tender does not constitute any right or claim for issue of purchase order to the tenderer.
- 10) If any information furnished by the tenderer is found incorrect or false at a later stage he shall be liable to be debarred from ordering / tendering
- 11) For items originating from abroad 80% payment shall be made by letter of credit and the balance 20% payment will be released after successful completion of installation & commissioning at site.
- 12) For indigenous item, payment will be made after satisfactory installation & commissioning of the equipment / instrument at site.

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**Annexure – I**

- The following form should be submitted with the technical bid duly filled and signed.  
 ➤ **Relevant documents must be enclosed with the technical bid as per Sl. no. 01 to 18.**

| S/N | PARTICULARS  | Yes/No | REMARKS |
|-----|--|--------|---------|
| 01  | Technical bid & Price bid duly sealed & signed enclosed in separate envelopes as instructed.   |        |         |
| 02  | <u>Contents of Technical bid</u><br>Technical details as per specification enclosed with technical bid ⇨<br>(b) Technical Compliance Statement (as per Annexure – I) to be furnished and any deviation should mentioned specifically in a separate sheet. ⇨<br>Literature/Manual of the offered item ⇨<br>Current Authorization Certificate from the Principal Manufacturer ⇨<br>Name, address, email & ph. no. of users in India. ⇨<br>(Preferably Research laboratories)<br>Copy of P.O. and installation certificate with the same specification from at least one user ⇨ |        |         |
| 03  | Delivery charges on F.O.R basis up to S. N. Bose Centre, Kolkata for indigenous items with detailed break-up of cost   |        |         |
| 04  | All applicable tax (VAT/CST/Sales/Service tax) should be mentioned   |        |         |
| 05  | Whether the price quoted is without excise duty, as the centre is fully exempted from payment of excise duty   |        |         |
| 06  | Copy of Trade License, VAT, PAN, Service Tax Registration no. enclosed with the technical bid.   |        |         |
| 07  | Installation charges included (if any) to be mentioned   |        |         |
| 08  | 03 years Standard warranty from the date of installation to be mentioned   |        |         |
| 09  | Payment after installation of material at site   |        |         |
| 10  | Payment mode should be mentioned   |        |         |
| 11  | Delivery/installation time from the date of PO to be mentioned   |        |         |
| 12  | Enquiry no. should be mentioned on top of all quotation envelopes  |        |         |
| 13  | Validity of Quotation should not be less than 90 days from the date of submission  |        |         |
| 14  | Maintenance procedure of the offered item to be mentioned  |        |         |
| 15  | Contact details of after sales service centres in Kolkata to be mentioned  |        |         |
| 16  | Bank details of the beneficiary to be mentioned  |        |         |
| 17  | In case of any defect found after receipt of material or in case of any deviation from the specifications or in case of any operational defect found during the warranty period, any part or the entire material is to be replaced by the supplier at no extra cost to the Centre.   |        |         |
| 18  | Whether your company has been blacklisted by any Central/State Govt. organization.   |        |         |

**Note:** Offer received without any of the relevant information / certificate / document asked in the above sl. nos. 01 to 18 may not be considered. The Centre reserves the right to accept or reject offer of the tenderer. The Centre's decision shall be final and binding on the tenderer. Attached documents should be duly marked.

\_\_\_\_\_  
Seal, Signature of bidder with date

## Annexure – II



### **SATYENDRA NATH BOSE NATIONAL CENTRE FOR BASIC SCIENCES**

**[Funded by the Department of Science & Technology, Government of India]**

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EMAIL: santosh@bose.res.in

### TENDER TERMS & CONDITIONS

#### 1. Earnest Money Deposit (EMD):

- a) Tenderers are required to submit an Earnest Money Deposit (EMD) in the form of Demand Draft in favour of “S. N. Bose National Centre for Basic Sciences”, payable at Kolkata. Bid without EMD will not be considered and shall be rejected. EMD should be enclosed with the technical bid only.
- b) EMD of unsuccessful bidder will be refunded without any interest whatsoever within 30 days after issue of purchase order to the successful bidder. EMD of the successful bidder will be returned without any interest whatsoever after receipt of performance Guarantee of **5%** of Purchase Order Value
- c) EMD of a tenderer will be forfeited, if the tenderer withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender including extended period, if any. Further, if the successful tenderer fails to furnish the required performance guarantee within the specified period, its EMD will be forfeited.

#### 2. Performance Guarantee (PG):

- a) 5% certified value of the bill will be retained as Performance Guarantee till expiry of warranty period. PG will cover the period of warranty/guarantee and will remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the supplier including warranty/guarantee obligations.
- b) PG will be refunded to the supplier without any interest whatsoever after it duly performs and completes the contract in all respects within 60 days of completion of all such obligations under the contract. In case the time for completion of work gets enlarged, the validity period of PG will get extended accordingly to cover such enlarged time for completion of work.
- c) PG will be forfeited and credited to the Centre’s account in the event of any breach of contractual obligations by the supplier.

3. Delivery & Installation: The whole work should be completed within the time limit mentioned in the P.O. Thereafter LD clause for both delay in delivery of material and delay in installation and commissioning of work will be applicable.

#### 4. LD Clause:

- a) If the supplier fails to deliver any or all the goods or to perform services like installation, erection, testing, commissioning or other allied works on or before specified time period mentioned in the purchase order or extended date of completion time granted by the Centre if any, he shall, without prejudice to any other right or remedy available under the law to the Centre on account of such breach, pay as agreed compensation the amount calculated at the rate stipulated below:
- b) LD Clause for delay of delivery, installation, testing, commissioning or other allied works will be as follows:-  
0.5% of delivered price of delayed goods (or services) for each week or part thereof subject to maximum 10% of contract value.



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EMAIL: santosh@bose.res.in

**5. Arbitration:**

- a) In case of any dispute, difference, question or disagreement or matter whatsoever, shall, before and after completion or abandonment of work or during extended period, hereafter arises between the parties, as to the meaning, operation or effect of the contract or out or relating to the contract or breach thereof, shall be referred to Sole Arbitrator to be appointed by the Director of the Centre at the time of dispute.
  - b) It is a term of the contract that the party invoking arbitration shall specify all disputes to be referred to arbitration at the time of invocation or arbitration under the clause.
  - c) It is a term of the contract that the cost of arbitration will be borne by the parties themselves.
  - d) The venue of the arbitration shall be at KOLKATA.
  - e) Subject to as aforesaid the provisions of the Arbitrations and Conciliation Act 1996 and any statutory modification or reenactment thereof rules made hereunder and for the time being in force shall apply to the arbitration proceeding under this clause.
6. The contract shall be deemed to have been entered at Kolkata and all causes of actions in relation to the contract will, therefore, be deemed to have arisen within the Ordinary Original Jurisdiction of High Court, at Kolkata, and shall be deemed to have taken effect from (date) when the purchase order for the goods was issued to the contractor.

**7. Termination of Contract for Default:**

- i) The purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, terminate the contract in whole or in part:
  - a) If the supplier fails to deliver any or all of the goods within the time period specified in the contract or any extension thereof granted by the purchaser; or
  - b) If the supplier fails to perform any other obligation under the contract within the period specified in the contract or any extension thereof granted by the purchase.
- ii) In the event the purchaser terminates the contract in whole or in part; the purchaser may take recourse to any one or more of the following action:
  - a) The performance security is to be forfeited;
  - b) the purchaser may procure, upon such terms and in such manner as it deems appropriate, goods similar to those undelivered, and the supplier shall be liable for all available actions against it in terms of contract.
  - c) however, the supplier shall continue to perform the contract to the extent not terminated.

**8. Termination of Contract for Insolvency:**

If the supplier becomes bankrupt or otherwise insolvent, the purchase may, at any time, terminate the contract, by giving written notice to the supplier, without compensation to the supplier provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

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Seal, Signature of bidder with date