



भारत सरकार

GOVERNMENT OF INDIA  
भाभा परमाणु अनुसंधान केंद्र, विशाखापट्टनम  
BHABHA ATOMIC RESEARCH CENTRE, VISAKHAPATNAM  
COMPUTATIONAL ANALYSIS DIVISION

Ref: CAD /HEDM/WO/IND/21-22/26

Date: 15/3/2022

**Sub: Fabrication and supply of USB Data Acquisition System**

**1. Scope**

See Annexure-1 attached separately.

**2. General guidelines for submitting tender**

- You shall send your offer in a **sealed envelope** indicating delivery period, price inclusive of taxes and other relevant information by speed post/courier to:

Head,  
Computational Analysis Division  
Bhabha Atomic Research Centre, Visakhapatnam  
PEB 4, Main Site, Maduturu, Near Nagavaram-Atchutapuram  
Highway  
Visakhapatnam. Pin: 531011  
(Kind Attention : Saroj Kumar Jha, SO/D)

- Quotation shall reach us on or before 24/3/2022 **by Speed Post/Courier.**
- On top left corner of the envelope please indicate **Quotation For - for "Fabrication and supply of USB Data Acquisition System"** as per Annexure 1 and **due date** 24/3/2022
- Overwriting, scratching etc. must be avoided in the quotation. Rewriting the whole figure shall be carried out for any alteration in the figure. The authorised person from the firm shall countersign such figure.
- The delivery period required is **maximum three months** from the date of issue of **work order**. The delivery period mentioned in the quotation shall be strictly adhered to. If the contractor fails to supply and secure extension of delivery date before effecting delivery of the supply against the contract, acceptance of such item by the purchaser will in no way prejudice the right of the purchaser to levy liquidated damage nor will it be entitled to the contractor for payment of statutory levies that comes into force after the expiry of the delivery date.
- Supplier shall clearly mention the PAN /TAN no. on quotation.**
- GST number shall be clearly mentioned on Quotation**
- All the charges and taxes shall be mentioned clearly.

Since the goods are to be supplied against the work order meant for research purpose of a research organization under DAE, the necessary GST will be exempted to the party.

Following GST rate shall be applicable:

- For Inter-state Supply of Good: IGST @ 5%

*Saroj Kumar Jha*



- For Intra-state Supply of Good: SGST @ 2.5% and CGST @ 2.5%
  - GST exemption certificate shall be issued to the supplier.
- (This is as per Office Order No. BARC/GST/12/2017 dt. 27.12.2017)

- You may contact us for any clarification on or before 19/3/2022 (Saroj Kumar Jha, 9831184213)

### 3. PLACE OF DELIVERY: Visakhapatnam

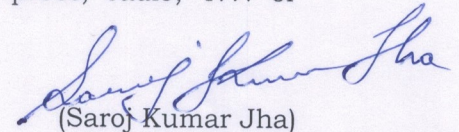
The inspected and accepted components shall be delivered to:  
Stores Officer  
Bhabha Atomic Research Centre, Visakhapatnam  
TL-10, Main Site, Maduturu, Near Nagavaram-Atchutapuram Highway  
Visakhapatnam. Pin: 531011

### 4. PAYMENT TERMS:

- a) Part payment/Advance cannot be made.
- b) Payment will be made only after satisfactory completion of work and on production of (along with Delivery Challan):
  - (i) Bill/Invoice containing Location of supply, separate tax components along with PAN and GSTN numbers
  - (ii) Advance Stamped Receipt
  - (iii) Bank Account No, Bank and Branch name with IFSC code.
  - (iv) Undertaking stating that GST has been promptly deposited with the authorities
- c) It may be noted that:
  - a. Income tax @1.5% will be deducted from your bill.
  - b. Any delay, which is attributable to the contractor, is liable for penalty @ ½% per week (max 5%) to be imposed on the contractor.
  - c. TDS(under GST) will be deducted as applicable from your bill of taxable goods and/or services, where the total value of such supply exceeds 2.50lakh.

### 5. CONFIDENTIALITY CLAUSE :

- a. No party shall disclose any information to any third party, concerning the matters under this contract generally. In particular, any information identified as " Proprietary" in nature by the disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party. This clause shall apply to the sub-contractors, consultants, advisers or the employees engaged by a party with equal force.
- b. "Restricted information" categories under section 18 of the Atomic Energy Act, 1962 and "Official Secrets" under section 5 of the official secrets act, 1923: Any contravention of the above-mentioned provisions by any contractor, sub-contractor, consultant, adviser or the employees of a contractor will invite penal consequences under the aforesaid legislation.
- c. Prohibition against use of BARC's name without permission for publicity purposes:-The contractor or sub-contractor, consultant, adviser or the employees engaged by the contractor shall not use BARC's name for any publicity purpose through any public media like press, radio, T.V. or Internet without the prior written approval of BARC.

  
(Saroj Kumar Jha)

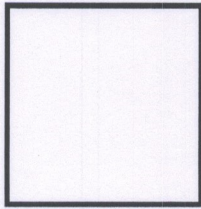


## Annexure-1 Scope of work

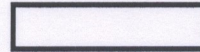
### Fabrication and supply of USB Data Acquisition System

**A. Introduction:** We require 3 no's of Data Acquisition System having USB based PC interfacing capability capable of handling atleast 100 MS/s continuous data. The System shall be fabricated as per specifications mentioned in following sections.

**B. Dimensions:** The system should be enclosed in box having approx. dimension as follows:



Top View: 170mm\*190mm



Front View: 170mm\*40mm

### C. Technical Specifications:

#### C.1.Hardware:

1. Number of analog channels: 4No.s
2. Input Connector type: Single-ended BNC connector
3. Minimum Bandwidth (-3 dB): 200 MHz
4. Minimum Amplitude Resolution: 16 bit
5. Input Voltage Range:  $\pm 10$  mV to  $\pm 20$  V
6. Input coupling: AC / DC
7. Analog Input Impedance: Around  $1\text{ M}\Omega \parallel 14\text{ pF}$
8. Max. Sampling rate any 1 channel: 1 GS/s (in 8-bit mode)
9. Time base ranges: 1 ns to 5000 s per division
10. Buffer memory: At least 512MS
11. System should be triggerable from any of the analog channels and also from external trigger as well.
12. There should be separate connector for external trigger input.
13. External Trigger Input Impedance: Around  $1\text{ M}\Omega \parallel 14\text{ pF}$
14. There should be Trigger Overvoltage protection of  $\pm 100$  Volts.
15. There should be an inbuilt signal generator in the system. It should have following features:
  - System should be capable of producing: Sine, square, triangle, DC voltage, ramp up, ramp down, sinc, Gaussian, half-sine signals.
  - Maximum Output signal frequency should at least 20 MHz
  - Output frequency resolution  $< 0.025$  Hz
  - Output voltage range:  $\pm 2$  V



16. System should be able to acquire frequency domain information of the input signals. It should have following features in this mode:

- Input Signal's frequency range: DC to 200 MHz
- Number of FFT points: Selectable from 128 to 1 million in powers of 2

17. System should have USB Power Port and DC Power Port provision.

**C.1. Software:** A software application should be developed to acquire and visualize data and also to configure various customizable feature of the system. Software should have following features:

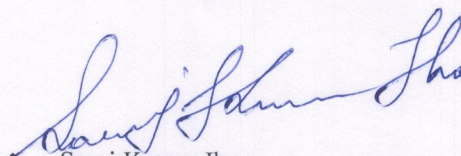
1. Software should be Compatible with Windows 7, 8 and 10 (32-bit and 64-bit versions).
2. Software should be able to communicate with the system over USB 3.0 connection.
3. Software should be able to display all the 4 channels at once in real time. It should also allow us to switch off the display of a particular channel.
4. Similarly it should allow displaying spectrum of one or more channels in real time.
5. Horizontal and vertical scale of display should be configurable.
6. Along with graphical format, software should be able to display the results in a table, with the parameter fields shown in columns. Table data should be exportable as a CSV file or spreadsheet for further analysis.
7. Application should be able to display frequency, pulse width, duty cycle, rise and fall time, overshoot, undershoot, max voltage and min voltage for each time cycle of input data.
8. Basic graphing features like zoom in, zoom out, pan, cursor, grid etc. should be there.
9. If multiple devices are plugged in a single PC, different instances of application should be running to cater different devices concurrently.
10. Application should be able to continuously stream data at least @ 100 MS/s.

**Accessories Specification:** Following accessories shall be supplied along with the system

1. Compatible Probe: 4 No.s for each system.
2. Compatible Power Adapter With USB Cable: 1 No. for each system.

### **C. General Conditions**

1. Vendor shall provide datasheet, manual, circuit diagrams, schematics etc. for all developed products.
2. The warranty for the hardware shall be valid for at least a year.

  
Saroj Kumar Jha  
SO/D, CAD  
Indenting Officer