

**University College of Engineering and Technology,
Karni Industrial Area, Pugal Road,
Bikaner-334004**

INVITATION LETTER

Package Code:

Date: 05.03.2020

Package Name: Digital Storage Oscilloscope, DC Power Supply, Clamp Meter, Function Generator and Current Probe

Method: Shopping Goods

To,

Sub: Invitation Letter for Digital Storage Oscilloscope, DC Power Supply, Clamp Meter, Function Generator and Current Probe

Dear Sir,

1. You are invited to submit your most competitive quotation for the following goods with item wise detailed specifications given at Annexure 1, Annexure 2, Annexure 3, Annexure 4, Annexure 5.

| Sr. No | Brief Description | Quantity | Delivery Period (In days) | Place of Delivery | Installation Requirement (if any) |
|---------------|---|-----------------|----------------------------------|---|--|
| 1 | Digital Storage Oscilloscope (Annexure 1) | 1 | 30 | University College of Engineering & Technology, Karni Industrial Area, Pugal Road, Bikaner 334004 | Yes |
| 2 | DC Power Supply (Annexure 2) | 1 | 30 | | Yes |
| 3 | Clamp Meter (Annexure 3) | 1 | 30 | | Yes |

| | | | | | |
|---|---------------------------------|---|----|--|-----|
| 4 | Function Generator (Annexure 4) | 1 | 30 | | Yes |
| 5 | Current Probe (Annexure 5) | 1 | 30 | | Yes |

2. Quotation,

- 1.1 The contract shall be for the full quantity as described above.
- 1.2 Corrections, if any, shall be made by crossing out, initialing, dating and re writing.
- 1.3 All duties and other levies payable by the supplier under the contract shall be included in the unit price.
- 1.4 Applicable taxes shall be quoted separately for all items.
- 1.5 The prices quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- 1.6 The Prices should be quoted in Indian Rupees only.

3. Each bidder shall submit only one quotation.

4. Quotation shall remain valid for a period not less than **55 days** after the last date of quotation submission.

5. Evaluation of Quotations,

The Purchaser will evaluate and compare the quotations determined to be substantially responsive i.e. which

5.1 are properly signed; and

5.2 Confirm to the terms and conditions, and specifications.

6. The Quotations would be evaluated for all items together.

7. Award of contract:

The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.

7.1 Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.

7.2 The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.

8. Payment shall be made in Indian Rupees as follows:

Satisfactory Acceptance - 100% of total cost

9. Liquidated Damages will be applied as per the below:

Liquidated Damages Per Day Min %: 0.01

Liquidated Damages Max % : 10

10. All supplied items are under warranty of **36** months from the date of successful acceptance of items and AMC/Others is NA.

11. You are requested to provide your offer latest by **14:00** hours on **16-March-2020** and quotation opening date is scheduled on **16-March-2020** at **2.30 PM** in **Seminar Hall, UCET Bikaner**.

12. Detailed specifications of the items are at **Annexure 1,2,3,4,5**.

13. Training Clause (if any) **NA**.

14. Testing/Installation Clause (if any) **Yes**

15. Performance Security shall be applicable: **5%**

16. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.

17. Sealed quotation clearly indicating on top "**Quotation for Digital Storage Oscilloscope, DC Power Supply, Clamp Meter, Function Generator and Current Probe**" to be submitted/ delivered at the address mentioned below,

Mr. Janardan Kundu

UCET Bikaner, Pugal Road,

Karni Industrial Area, Bikaner-334004

Ph. No: 9432583409

18. We look forward to receiving your quotation and thank you for your interest in this project.

Principal Investigator (CRS)
Department of Electrical Engineering
UCET, Bikaner

Annexure 1

| Sr.No | Item Name | Technical Parameter | Specifications |
|---|---|---------------------------------------|--|
| 1 | 4 Analog Isolated channel DSO | No. of Fully Isolated channel | 4 |
| | | Bandwidth | 100 MHz |
| | | Sample Rate per Channel | 1 GS/s per channel |
| | | Record Length per Channel | 2.5K point per channel |
| | | Vertical Sensitivity | 2 mV to 5 V/div |
| | | Vertical Zoom | Vertically expand or compress a live or stopped waveform |
| | | Max Input Voltage (1 MÙ) | 300 VRMS CAT II |
| | | Float Voltage | 600 VRMS CAT II |
| | | Time Base Range | 5 ns to 50 s/div |
| | | Input Coupling | AC, DC, GND |
| | | Acquisition Modes | Peak Detect,Sample,Average,Sequence,Scan/Roll Mode |
| | | Trigger Modes | Auto, Normal, Single Sequence |
| | | Automatic Waveform Measurements | Period, Frequency, +Width, -Width, Rise Time, Fall Time, Max, Min, Peak-to-Peak, Mean, Cycle RMS |
| | | Power Measurements Software(optional) | Package that should offer instantaneous power waveform analysis, waveform analysis, harmonics analysis, switching loss, phase angles, dv/dt and di/dt cursors. |
| | | Cursors(Type , Measurements) | Voltage, Time(ΔT , $1/\Delta T$ (frequency), ΔV , dv/dt, di/dt) |
| | | Battery | Instrument should have battery pack for power backup for up to 4 hour, and should have the option for extended battery for higher backup. |
| | | Mass storage CompactFlash memory | Should Accepts any Type 1 CompactFlash |
| | | Waveform storage | 96 or more reference waveforms per 8 MB |
| | | Setups | 4000 or more front-panel setups per 8 MB |
| | | Screen images | 128 or more screen images per 8 MB (the number of images depends on file format selected) |
| I/O interface | RS232 | | |
| Impedance isolated external trigger input | Should be available | | |
| Display | TFT Color LCD display | | |
| Probes to be supplied with instrument | 100MHz, 10X Passive probe per channel should be supplied. | | |
| Warranty | 3 Year Minimum | | |

Annexure-2

| Sl. No. | Item Name | Parameter | Specifications |
|-------------------------|---|---|---|
| 1 | DC Power Supply | No. of Channels: | 3 or more isolated channels |
| | | Channel 3: | 0-5 V, 0-3A or better |
| | | Channel 1 & 2: | 0-30V, 0-3A or better |
| | | Maximum power: | 195W |
| | | Voltage Resolution: | 1.0 mV or better |
| | | Voltage Accuracy (setting and read-back): | 0.03% + 10mV |
| | | Current Resolution (setting and read-back): | 1mA or better |
| | | Current Accuracy: | 0.1% + 5mA |
| | | Load Regulation(V): | 0.01% + 3mV or better |
| | | Load Regulation(I): | 0.01% + 3 mA or better |
| | | Line Regulation(I): | 0.01% + 3 mA or better |
| | | Voltage Ripple: | 1 mV RMS or better |
| | | Display and keyboard panel: | Voltage and current outputs of three channels are displayed simultaneously. Front panel should have Keyboard Panel for setting voltage and current value. |
| | | Remote Sensing | All channels should have remote sensing for setting programming voltage accurately applied to the load |
| | | Load Transient Recovery Time: | Voltage setting band 50 mV, 50% to 100%, 1 kHz, rise and fall rate 5 A per μ s: $\leq 50 \mu$ s |
| | | Memory: | 36 setup memories |
| | | Communication port: | USB, GPIB & RS232 |
| | | Power Supply: | 200 - 240 VAC, 50Hz, Standard Indian style 3-pin power plug |
| | | Warranty: | 3 year |
| | | Operating Temperature: | 0 °C to 40 °C, 10% to 80% relative humidity up to 40°C |
| Safety | European Union: Conforms to Low Voltage Directive USA: NRTL listed to UL61010-1-2004 Canada: CAN/CSA C22.2 No. 61010-1 2004 | | |
| Calibration Certificate | Required | | |

Annexure-3

| Sl. No. | Item Name | | Range | Resolution | Accuracy | |
|---------|-------------|-----------------------------------|---|--|---|---|
| 1 | Clamp Meter | DC current measurement | 0,0...659.9 A 660...2000 A | 0.1 A 1 A | $\pm(2.0\% \text{ m.v.} + 5 \text{ digits})$ $\pm(3.0\% \text{ m.v.} + 5 \text{ digits})$ for 660...1000 A $\pm(5.0\% \text{ m.v.} + 5 \text{ digits})$ for 1000...2000 A | |
| | | AC current measurement (TRUE RMS) | 0,0...659.9 A 660...15000 A | 0.1 A 1 A | $\pm(2.0\% \text{ m.v.} + 10 \text{ digits})$ for 50...60 Hz $\pm(3.0\% \text{ m.v.} + 10 \text{ digits})$ for 61...400 Hz | |
| | | DC voltage measurement | 0.000...6.599 V 6.60...65.99 V 66.0...659.9 V 660...1000 V | 0.001 V 0.01 V 0.1 V 1 V | $\pm(0.5\% \text{ m.v.} + 2 \text{ digits})$ | |
| | | AC voltage measurement | 0.000...6.599 V 6.60...65.99 V 66.0...659.9 V 660...750 V | 0.001 V 0.01 V 0.1 V 1 V | $\pm(1.5\% \text{ m.v.} + 8 \text{ digits})$ for 50...500 Hz | |
| | | Resistance measurement | 0.0...659.9 Ω 0.660...6.599 k Ω 6.60...65.99 k Ω 66.0...659.9 k Ω 0.660...6.599 M Ω 6.60...66.00 M Ω | 0.1 Ω 0.001 k Ω 0.01 k Ω 0.1 k Ω 0.001 M Ω 0.01 M Ω | $\pm(1.0\% \text{ m.v.} + 5 \text{ digits})$ $\pm(2.0\% \text{ m.v.} + 5 \text{ digits})$ $\pm(3.5\% \text{ m.v.} + 5 \text{ digits})$ | |
| | | Capacitance measurement | 0.0...6.599 nF 6.60...65.99 nF 66.0...659.9 nF 6.660...6.599 μ F 6.60...65.99 μ F 66.0...659.9 μ F 0.660...6.599 mF | 0.001 nF 0.01 nF 0.1 nF 0.001 μ F 0.01 μ F 0.1 μ F 0.001 mF | $\pm(3.0\% \text{ m.v.} + 30 \text{ digits})$ $\pm(3.0\% \text{ m.v.} + 10 \text{ digits})$ $\pm(3.0\% \text{ m.v.} + 30 \text{ digits})$ $\pm(3.0\% \text{ m.v.} + 10 \text{ digits})$ $\pm(5\% \text{ m.v.} + 10 \text{ digits})$ | |
| | | Frequency measurement | 10.00...65.99 Hz 66.0...659.9 Hz 0.660...6.599 kHz 6.60...65.99 kHz 66.0...659.9 kHz 0.660...1.000 MHz | 0.01 Hz 0.1 Hz 0.001 kHz 0.01 kHz 0.1 kHz 0.001 MHz | $\pm(0.1\% \text{ m.v.} + 5 \text{ digits})$ | |
| | | Duty cycle measurement | Range 5...95% digits) • frequency range: 5%...95% (40 Hz...20 kHz) | Resolution 0.1% | Pulse width >10 μ s | Accuracy $\pm(3.0\% \text{ m.v.} + 30 \text{ digits})$ |
| | | compliance with standards | EN 61010-1 EN 61010-2-032 | | | |

Annexure-4

| Sl. No | Item Name | Specifications |
|--|--------------------|---|
| 1 | Function Generator | No of Analog output Channels: 2 |
| | | Output waveforms: 25 MHz Sine |
| | | Sample Rate : 250 MSa/s or better |
| | | Vertical resolution: 14 bits |
| | | Waveform Memory Size: 16 Mpts or More |
| | | Amplitude range: 10 Vpp into 50 ohm |
| | | Output impedance: 50 ohm |
| | | Available Modulation types: AM, FM, PM, FSK, and PWM |
| | | Standard Waveform : Sine ,Square, Ramp, Pulse, Triangle, Gaussian, Noise |
| | | Arbitrary Waveforms: Exponential Fall & Rise, Gaussian Pulse, Haversine, Lorentz, D-Lorentz, Sine |
| | | Sweep : Linear and Logarithmic |
| | | Programmable interface: LAN/USB |
| | | Built-in Arbitrary Waveform Builder |
| | | Should have capability to save min. 10 arbitrary waveform inside the instrument itself. |
| | | Accessories: Suitable interface cables for o/p ports and standard accessories |
| | | Display: 9-in touch screen display or more |
| Power Requirements: 220 ± 10% VAC, 50 Hz | | |
| Warranty including uptime: 3 year minimum more | | |

Annexure-5

| Sl No. | Item Name | Characteristic | A622 |
|--------|---------------|----------------------------|--|
| 1 | Current Probe | Frequency range | DC to 100 kHz |
| | | Probe Type | 100 A AC/DC Current probe/BNC. |
| | | Maximum input current | 100 A peak |
| | | Output | 10 mV/A, 100 mV/A |
| | | Maximum conductor diameter | 11.8 mm (0.46 in.) |
| | | Termination | BNC 1 |
| | | Maximum bare-wire voltage | 600 V (CAT III) |
| | | Safety | UL3111-2-032, CSA1010.2.032, EN61010-2-032, IEC61010-2-032 |

Special Terms and conditions:

- The bidder should provide details of service center and information on service support Facilities/escalation service matrix that would be provided after the warranty period.
- The bidder should furnish detailed technical description and original literature of the Machine. .
- The Manufacturer should have trained and qualified customer support staff with ample experience in the required field. The details of the same should be provided.
- The bidders should submit the proof of supplying the required items to the reputed institutions like IIT, NIT and other TEQIP III funded colleges in the last three years.
- The bidder should provide undertaking regarding installation/commissioning, and after sales service of the instruments and training/ demonstration to at least two persons of the Lab/Department of the institution.
- Certificate to the effect is required to be submitted by the bidder undertaking that the “price quoted is not more than the cost of the equipment (with same / similar specifications)” which was sold to other Govt. organizations, Universities and institutions during last one year.

FORMAT FOR QUOTATION SUBMISSION

(In letterhead of the supplier with seal)

Date: _____

To:

| Sl. No. | Description of goods (with full Specifications) | Qty. | Unit | Quoted Unit rate in Rs. (Including Ex Factory price, excise duty, packing and forwarding, transportation, insurance, other local costs incidental to delivery and warranty/ guaranty commitments) | Total Price (A) | Sales tax and other taxes payable | |
|-------------------|---|------|------|---|-----------------|-----------------------------------|----------------|
| | | | | | | In % | In figures (B) |
| | | | | | | | |
| Total Cost | | | | | | | |

Gross Total Cost (A+B): Rs. _____

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. _____ (Amount in figures) (Rupees _____ amount in words) within the period specified in the Invitation for Quotations.

We confirm that the normal commercial warranty/ guarantee of _____ months shall apply to the offered items and we also confirm to agree with terms and conditions as mentioned in the Invitation Letter.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier

Name: _____

Address: _____

Contact No: _____