NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA – 769 008, ODISHA

Advertised Tender Enquiry

Department: Electronics and Communication Engineering

Tender Notice No: NITR/PW/EC/2020/192 **Date: 14/08/2020**

To

Bidding Through

CPP Portal

(e- Procurement)

(https://eprocure.gov.in/eprocure/app)

Important Dates

Event	Date	Time
Pre-bid Conference	**NA**	**NA**
Last date of submission of bid	**04/09/2020**	**03:00 PM**
Date of opening of Techno-commercial bid	**07/09/2020**	**03:00 PM**

Dear Sir,

We intend to purchase the commodities specified below and invite quotations in accordance with the terms and conditions detailed in the bid document. If you are interested, kindly send your offer with prices and complete terms within the time mentioned above.

For any clarification:

Attention: Head, Department of Electronics and Communication Engineering
Prof. D.P.Acharya
National Institute of Technology
Rourkela- 769 008, Odisha.
Phone: 0661 – 2462463
E-mail: dpacharya@nitrkl.ac.in

Yours sincerely,

_____
Prof. D.P.Acharya
Professor-In Charge: IoT Laboratory

Encl:

1) **Schedule of requirement, specifications, dates etc.**

2) **Bid document containing detail terms and conditions.**

1. **Schedule of requirements**

SL.NO	Description of Goods/Service	Quantity
1.	**Purchase of testing and measurement instrument** (As per the specification attached in Annexure –I)	**As per Annexure- I**

2. Specifications and allied Technical Details: As per the specification attached in the **Annexure-I**

3. Format of Quotation (tick appropriate box)

   [√] It is a two-part with separate techno-commercial and price bids.

4. The bid should be submitted through https://eprocure.gov.in/eprocure/app

5. Quotations should be valid for a period of **120 days** from the date of opening of techno-commercial bid.

6. Some important dates:

i.	Pre-bid Conference	Date: **NA**	Time: **NA**
ii.	Last date for submission of bid	Date: **04/09/2020**	Time: **03:00 PM**
iii.	Opening of techno-Commercial bid	Date: **07/09/2020**	Time: **03:00 PM**

7. **Warranty** as per company policy.

8. **Technical Evaluation Criteria:** As per the detail equipment technical specifications given in Annexure –I. If required, the bidder may be asked to provide clarification regarding the technical aspects.

   Other Qualification criteria:

   i. Complete technical specification of the instruments and its necessary parts and accessory items required for running the instrument.

   ii. A complete design along with the clear indication/marking of the specification mentioned in the technical bidding document (wherever possible) of the instrument.

   iii. Make, model and specification of the list of equipment as mentioned in schedule of requirement.

   iv. Scanned copy of the technical brochure and website reference of the same must be included in the bid.

9. **Financial Bid Evaluation Criteria:** The comparison will be made for award of contract on the overall price basis.

10. **GST:** GST should be charge according to applicable rates.

11. **Bid Security (EMD) and Tender Cost:**

    Tender cost (Non- refundable) in the shape of Demand Draft for **INR 500/- (Rupees Five hundred only)** in favor of **"Director, NIT Rourkela" Payable at Rourkela** from any Scheduled Commercial Bank except Co-operative and Gramin bank. Bid Security/EMD in the shape of Demand Draft for **INR 8000/-(Rupees Eight Thousand only)** in favour of **"Director, NIT Rourkela" Payable at Rourkela** from any Scheduled Commercial Bank except Co-operative and Gramin bank. And DD for the Bid security/EMD should remain valid for a period of 45 days beyond the bid validity period from the date of opening of bids. Bid security/EMD of unsuccessful bidders should be return to them at the earliest and latest on or before the 30th day after the award of the contract. Tender cost & Bid Security/EMD should reach physically through speed post/ register post/courier, containing in an envelope & superscripted with subject, tender reference number addressing to **Registrar, NIT Rourkela-769008, Odisha; on or before 07/09/2020 at 03:00 PM.**

12. **Performance Security: INR 20,000/- (Rupees Twenty Thousand Only)** in shape of Demand Draft (DD)/Bank Guarantee in favour of "Director, NIT   Rourkela" and payable at Rourkela from any Scheduled Commercial Bank except Co-operative and Gramin bank. Performance security should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the suppliers including warranty obligation. Performance Security should be submitted within 15 days from the date of receipt of Order. And EMD (Earnest Money Deposit) amount of successful bidder will be return after the receipt of performance security in case of award of contract to successful bidder.

13. Please go through the enclosed "bid document" carefully for other bidding instructions.

14. Please send your quotations through: https://eprocure.gov.in/eprocure/app

15. For technical details, you may contact

> **Professor D.P.Acharya**
> **Department of Electronics and Communication Eng.**
> **National Institute of Technology, Rourkela – 769 008**
> **Phone: 0661 – 2462463**
> **Mobile No. +91 9438484151**
> **E-mail: dpacharya@nitrkl.ac.in**

NB: Please furnish your Dealership Certificate (must) and Proprietary Nature Certificate (If applicable)

NATIONAL INSTITUTE OF TECHNOLOGY

ROURKELA – 769 008, ODISHA

BID DOCUMENT

1   Instructions to the bidders

1.1   Bids are invited on behalf of the Director, National Institute of Technology (NIT), Rourkela–769008, ODISHA, from the intending bidders for supply of the goods/stores/ equipment for the Institute as detailed in the enquiry letter.

1.2   The bidders should quote their offer/rates in **BOQ** in clear terms without ambiguity.

1.3   In case of any discrepancy between the rates in figures and that in words, the rate in words will be accepted as correct.

1.4   The last date for receipt of the bid is marked in the enquiry.

1.5   The bids should be uploaded in https://eprocure.gov.in/eprocure/app . **Please follow the guidelines of the site.**

1.6   If a prospective bidder requires any clarification in regard to the bidding documents, s/he may make a request the concerned officer or faculty member at least 15 days before the deadline for receipt of bids.

1.7   Bids received after the deadline of receipt indicated in para 1.4 above, shall not be taken in to consideration.

1.8   Each bidder shall submit only one bid. A bidder, who submits more than one bid, shall be disqualified and considered non-responsive.

1.9   **(**In respect of high value plant, machinery etc. of a complex and technical nature). The bids may be submitted in two parts, viz., techno-commercial bid and financial bid.

1.10   The bidder has to sign in full at all pages of the scanned part of the bidding document. No over- writing in those pages is acceptable.

1.11   If any bidder does not fulfil technical specification, his/her eligibility will be cancelled even if his/her price got L1 status.

1.12   Bidders registered with any of the following agencies/ bodies as per Public procurement policy for Micro & Small Enterprises (MSE) order 2012 are exempted categories from payment of EMD provided that the registration Certificate issued by any one of these below mentioned agencies must be valid as on close date of tender. Micro small or medium enterprises who have applied for registration or renewal of registration with any of these agencies/bodies but have not obtained the valid Certificate as on close date of tender are not eligible for exemption.

i)   Khadi and Village Industries Commission (KVIC)

ii) National Small Industries Corporation (NSIC)

iii) Any other body specified by Ministry of MSME/GOI

2   Conditions of the bid

2.1   The rates quoted should preferably be net, inclusive of packing, forwarding, freight, Insurance and all other incidental charges including taxes. In case these charges are quoted extra in addition to the quoted rates, the amount thereof or ad-valorem rate must be specified. Packing, forwarding, freight, etc., when quotes separately are reimbursable at actuals. If external agencies are employed, their receipts must be enclosed with the invoice.

2.2   Duties and Taxes are to be quoted separately. Ad-valorem rates thereof should be clearly indicated with reference to the relevant Acts and Rules.

It may be noted that the Institute is availing custom duty exemption in terms of Notification No. 51/96 − Customs dt. 23.07.1996, Notification No. - 47/2017- Integrated Tax (Rate) dt. 14.11.2017 and Notification No- 45/2017 − Integrated tax (Rate) dt. 14/11/2017 & Notification No. - 45/2017- Central tax (Rate) dt. 14.11.2017, Notification No. - 45/2017- Union Territory Tax (Rate) dt. 14/11/2017 [Vide DSIR, Ministry of Science and Technology, Government of India, Registration No.: TU/V/RG- CDE (227)/2016, dated: 13.11.2018]

2.3   The goods are required to be delivered at the indenting Department of NIT, Rourkela, and must be reached within **30 days** from the date of placement of the supply of order under the risk and arrangement of the bidder and offers with delivery beyond the above period shall be treated as unresponsive. In case the delivery time is higher, the same must be mentioned clearly in the quotation.

2.4   The bid should remain valid for a period of **120 days** from the date of opening. In case your offer has a different validity period that should be clearly mentioned in the quotation.

2.5   Conditional discount, if any, offered by the bidder shall not be considered at the time of evaluation.

2.6   The goods offered should strictly conform to the specification and technical details as mentioned in schedule of requirements in the tender documents.

2.7   The Institute may like to conduct pre-dispatch inspection of goods, where applicable.

2.8   Period of guarantee/warranty, where applicable, should be specified in the bid.

2.9   If the successful bidder, on receipt of the supply order, fails to execute the order within the stipulated period, in full or part, it will be open to the Director, NIT, Rourkela to recover liquidated damage from the firm at the rate of 1 percent of the value of undelivered goods per month or part thereof, subject to a maximum of 5 percent of the value of undelivered goods. Alternatively, it will also be opened to the Director, to arrange procurement of the required goods from any other source at the risk and expenses of the bidder.

2.10   The successful bidder may be required to execute a contract, where applicable.

2.11   The bidder has to furnish up to date GST and Income Tax Clearance Certificate along with the bid.

2.12   Payment (*100 percent*) will be made by Account Payee Cheque/Bank Draft, within 30 days from the date of receipt of the goods in good condition or receipt of the bill, commissioning of the equipment, where applicable, whichever is later/latest.

2.13   In the event of any dispute arising out of the bid or from the resultant contract, the decision of the Director, NIT, and Rourkela shall be final.

2.14   The bid document/resultant contract will be interpreted under Indian Laws.

DETAILED TECHNICAL SPECIFICATION AND QUANTITY

(Purchase of testing – measurement instrument for IOT Lab)

Sl. No.	Description of Goods/Service	Quantity
1.	Digital Multimeter.	10
2.	50 MHz Digital Storage Oscilloscope.	02
3.	70 MHz Digital Storage Oscilloscope.	01
4.	25 MHz Arbitrary /Function Generator	01

Specification and Accessories for Sr. No. 1, 2, 3 & 4.

SR. No 01. Digital Multimeter:-

Features include:
• Resistance, continuity, frequency, capacitance, and diode test
• Measures 10 A (20 A overload for 30 seconds)
• Large white LED backlight to work in poorly lit areas
• Compact ergonomic design for one-handed operation
• Compatible with optional magnetic hanger (ToolPak™)
• True-rms for accurate measurements on non-linear loads
• Min/Max/Average with elapsed time to record signal fluctuations
• CAT III 600 V safety rated

Accuracy specifications

Measurement	Range	Resolution	Accuracy ± ([% of reading] + [counts])
DC millivolts	600.0 mV	0.1 mV	0.5 % + 2
DC volts	6.000 V 60.00 V 600.0 V	0.001 V 0.01 V 0.1 V	0.5 % + 2
Auto volts	600.0 V	0.1 V	2.0 % + 3 (dc, 45 Hz to 500 Hz) 4.0 % + 3 (500 Hz to 1 kHz)
AC millivolts$_1$true-rms	600.0 mV	0.1 mV	1.0 % + 3 (dc, 45 Hz to 500 Hz) 2.0 % + 3 (500 Hz to 1 kHz)
AC volts$_1$ true-rms	6.000 V 60.00 V 600.0 V	0.001 V 0.01 V 0.1 V	1.0 % + 3 (45 Hz to 500 Hz) 2.0 % + 3 (500 Hz to 1 kHz)
Continuity	600 Ω	1 Ω	Beeper on < 20 Ω off > 250 Ω; detects opens or shorts of 500 μs or longer.
Ohms	600.0 Ω 6.000 kΩ 60.00 kΩ 600.0 kΩ 6.000 MΩ 40.00 MΩ	0.1 Ω 0.001 kΩ 0.01 kΩ 0.1 kΩ 0.001 MΩ 0.01 MΩ	0.9 % + 1
Diode test	2.000 V	0.001 V	0.9 % + 2
Capacitance	1000 nF 10.00 μF 100.0 μF	1 nF 0.01 μF 0.1 μF	1.9 % + 2

	9999 µF 100 µF to 1000 µF > 1000 µF	1 µF	
Lo-Z capacitance	1 nF to 500 µF		10 % + 2 typical
AC amps true-rms (45 Hz to 500 Hz)	6.000 A 10.00 A	0.001 A 0.01 A	1.5 % + 3 20 A overload for 30 seconds max.
DC amps	6.000 A 10.00 A	0.001 A 0.01 A	1.0 % + 3 20 A overload for 30 seconds max.
Hz (V or A input)	99.99 Hz 999.9 Hz 9.999 kHz 50.00 kHz	0.01 Hz 0.1 Hz 0.001 kHz 0.01 kHz	0.1 % + 2

Sr. No. 02: 50 MHz Digital Storage Oscilloscope:-

Specification:

INPUT CHANNELS

Type of input channels	Analog
Number of Analog Channels	2
Record Length Per Analog Channel Simultaneously	100K points
Sampling Rate Per Analog Channel Simultaneously	1 GS/sec
Digital Channels	no
Number of Digital Channels	NA
Record Length Per Digital Channel Simultaneously	NA
Sampling Rate Per Digital Channel Simultaneously	NA

PERFORMANCE FEATURES

Bandwidth	50 megaHertz
Bandwidth Upgradability	no
Operating System	Non -Windows

DISPLAY

Display Type	colour TFT
Minimum Display Size	7 inch

MEASUREMENTS FEATURES

Vertical Sensitivity	500µV/Div to 10 V/div
Vertical Resolution	8 bit
Frequency Analysis Feature	no
In-built Frequency Counter	yes
In-built Function Generator	no
Time Base Range	5 ns/div to 50 s/div
Time Base Accuracy	100 parts per million

GENERIC

Minimum Detectable Pulse Width	10 nanosecond
Memory Upgradability	no
Segmented Memory Feature Availability	no
Waveform Update Rate (Waveform/sec)	50000
Coupling	AC,DC,GND
Trigger Types	Edge,pulse width,video,External,pattern
Measurements	Math function-Add, subtract, multiply, divide,Automatic Measurements of Amplitude and time,FFT (phase),low-pass filter,Time & Voltage cursors,FFT (magnitude)
Acquisition Modes	Normal,Peak Detect,Averaging,High Resolution
I/O Interface	USB
Any other features,if applicable	Integrated 3-digit Digital Voltmeter Meter and 5 – digit Frequency counter ¬ Built-in training signals, that enable users to quickly learn to capture and analyze simple (e.g. sine wave) or complex (e.g. radar pulse) signals with controlled real-time signal generation and It includes dynamic teaching labs contains an array of built-in training signals,

OPERATING CONDITION

Minimum Operating Temperature	0 degree Celsius
Maximum Operating Temperature	50 degree Celsius
Operating Humidity (RH)	95 percent

SERVICE

Warranty	3 year

ACCESSORIES

Standard Accessories to be supplied	- Two Nos. 1:1/10:1 Switchable 75MHz Passive Probe, - Power Chord, - Certificate of calibration, - A comprehensive oscilloscope lab guide, - A tutorial written specifically for undergraduate students, and - An oscilloscope fundamentals PowerPoint slide set for professors and lab assistants.

Sr. No. 03: 70 MHz Digital Storage Oscilloscope.:-

Key performance specifications

- 70 MHz bandwidth models
- 2-channel models
- Up to 2 GS/s sample rate on all channels
- 2.5k point record length on all channels
- Advanced triggers including pulse and line-selectable video triggers

Key features

- 7 inch WVGA (800X480) Active TFT Color Display
- 34 automated measurements
- Dual window FFT, simultaneously monitors both the time and frequency domains
- Built-in waveform limit and TrendPlot™ testing
- Dual channel frequency counter
- Zoom Function
- Automated, extended data logging feature
- Autoset and auto-ranging functions

Vertical system – Analog channels

Vertical resolution	8 bits
Input sensitivity range	2 mV to 5 V/div on all models with calibrated fine adjustment
DC gain accuracy	±3%, from 10 mV/div to 5 V/div
Maximum input voltage	300 V$_{RMS}$ CAT II; derated at 20 dB/decade above 100 kHz to 13 V$_{p-p}$ AC at 3 MHz and above
Offset range	2 mV to 200 mV/div: ±1.8 V>200 mV to 5 V/div: ±45 V
Bandwidth limit	20 MHz
Input coupling	AC, DC, GND
Input impedance	1 MΩ in parallel with 20 pF
Vertical zoom	Vertically expand or compress a live or stopped waveform

Horizontal system — Analog channels

Time base range

70 MHz models	5 ns to 50 s/div
Time base accuracy	50 ppm
Horizontal zoom	Horizontally expand or compress a live or stopped waveform

Input/Output ports

USB interface	USB host port on front panel supports USB flash drives. USB device port on back of instrument supports connection to PC.
GPIB	interfaceOptional

Data storage

Nonvolatile storage

Reference waveform display	2.5K point reference waveforms
Waveform storage withoutUSB flash drive	2.5K point
Maximum USB flash drive size	64 GB
Waveform storage with USBflash drive	96 or more reference waveforms per 8 MB
Setups without USB flashdrive	10 front-panel setups

Setups with USB flash drive	4000 or more front-panel setups per 8 MB
Screen images with USB flashdrive	128 or more screen images per 8 MB
Save All with USB flash drive	12 or more Save All operations per 8 MB

A single Save All operation creates 3 to 9 files (setup, image, plus one file for each displayed waveform)

Acquisition system

Acquisition modes

Peak Detect	High-frequency and random glitch capture. Captures glitches as narrow as 12 ns (typical) at all time base settings from 5 µs/div to50 s/div.
Sample	Sample data only
Average	Waveform averaged, selectable: 4, 16, 64, 128
Single Sequence	Use the Single Sequence button to capture a single triggered acquisition sequence
Roll	At acquisition time base settings of >100 ms/div

Trigger system

External trigger input	Included on all models
Trigger modes	Auto, Normal, Single Sequence

Trigger types

Edge (Rising/Falling)	Conventional level-driven trigger. Positive or negative slope on any channel. Coupling selections: AC, DC, Noise Reject, HFReject, LF Reject
Video	Trigger on all lines or individual lines, odd/even or all fields from composite video, or broadcast standards (NTSC, PAL, SECAM)
Pulse Width (or Glitch)	Trigger on a pulse width less than, greater than, equal to, or not equal to, a selectable time limit ranging from 33 ns to 10 s
Trigger source	Two channel models: CH1, CH2, Ext, Ext/5, AC Line

| Trigger view | Displays trigger signal while Trigger View button is depressed. |
| Trigger signal frequency readout | Provides a frequency readout of the trigger source. |

Frequency counter

Resolution	6 digits
Accuracy (typical)	+ 51 parts per million including all frequency reference errors and +1 count errors.
Frequency range	AC coupled, 10 Hz minimum to rated bandwidth
Frequency counter signal source	Pulse width or edge selected trigger source.

Frequency counter measures selected trigger source at all times in pulse width and edge mode, including when the oscilloscope acquisition is halted due to changes in run status, or acquisition of a single shot event has completed. The frequency counter does not measure pulses that do not qualify as legitimate trigger events. Pulse Width mode: Counts pulses of enough magnitude inside the 250 ms measurement window that qualify as trigger able events(e.g. all narrow pulses in a PWM pulse train if set to "<" mode and the limit is set to a relatively small number).Edge Trigger mode: Counts all pulses of enough magnitude.

| Channels | 2 channel |

Accessories

Standard accessories

Accessory	Description
Passive probes, one per channel	TPP0101: 100 MHz passive probe for: TBS1072B-EDU
Power cord	(Please specify plug option)
NIM/NIST	Traceable certificate of calibration
Printed documentation	Installation and safety manual(English, Japanese, and Simplified Chinese)
CD with customer documentation and software	Customer documentation including detailed user manuals (English, French, German, Italian, Japanese, Korean,Portuguese, Russian, Simplified Chinese, Spanish, Traditional Chinese), Courseware PC Software, exampleCourseware labs, ABC's of Probes application note, XYZ's of Oscilloscopes application note, Courseware PCSoftware download link, www.tek.com Education landing page

5-year warranty	Covers labor and parts for defects in materials and workmanship for 5 years, excluding probes and accessories(probes and accessories are not covered by the oscilloscope warranty and service offerings. refer to the data sheetof each probe and accessory model for its unique warranty and calibration term

Sr. No. 04: 25 MHz Arbitrary /Function Generator: -

MEASUREMENT FEATURES

Frequency Bandwidth (Sine Wave)	10 mHz to 25 MHz
Number of channels	1
Standard Waveforms	Sine,Square,Pulse,Ramp,Noise,Sin(x)/x,Exponentional rise/fall,Gussian,DC Offset
Band Width of Arbitrary Waveform Generator	10 mHz to 50 MHz
Sample Rate of Arbitrary Waveform Generator (Mega Samples/sec)	250
Record Length of Arbitrary Waveform Generator (Kilo Points)	128
Waveform Memory of Arbitrary Waveform Generator (Waveforms)	4
Vertical Resolution	14 bit
Amplitude Range (at 50 ohm impedance)	10mV to 10 V pp
Modulation	AM,FM,PM,FSK,Burst,PWM,Sweep

GENERIC

Interface	USB,GPIB,LAN
Display Type	LCD
Display Size	4.3 inch
Any others features,if applicable	na

ACCESSORIES

Details of Standard Accessories To be supplied with the devices	power chord

POWER SOURCE

Power Requirements	230 V +/-10% AC, 50 Hz +/- 3%

OPERATING CONDITION

Minimum Operating Temperature	0 degree Celsius
Maximum Operating Temperature	55 degree Celsius
Operating Humidity (RH) at 40 deg C non condensing (%)	80

SERVICE

Warranty	3 year

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