



NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR
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REFERENCE: NITD/PHY/HC/RIG/2017-18/1

Dated: 14.03.2018

**Sub: Invitation for Quotations for supply of “Soil Analysis Sensor Probe
and its Accessories” under “Research Initiation Grant-2017”**

Tender Documents may be downloaded from Central Public Procurement Portal <http://eprocure.gov.in/eprocure/app>. Aspiring Bidders who have not enrolled / registered in e-procurement should enrol/ register before participating through the website <http://eprocure.gov.in/eprocure/app>. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at ‘Instructions for online Bid Submission’.

Tenderers can access tender documents on the website (For searching in the NIC site, kindly go to Tender Search option and type ‘NIT’. Thereafter, Click on “GO” button to view all NIT Durgapur tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website <http://eprocure.gov.in/eprocure/app> as per the schedule given below. No manual bids will be accepted. All quotation (both Technical and Financial) should be submitted in the E-procurement portal.

SCHEDULE

Name of Organization	National Institute of Technology Durgapur
Tender Type (Open/Limited/EOI/Auction/Single)	Open
Tender Category (Services/Goods/works)	Goods
Type/Form of Contract (Work/Supply/ Auction/Service/Buy/Empanelment/ Sell)	Buy
Product Category (Civil Works/Electrical Works/Fleet Management/ Computer Systems)	Instrument /Equipment
Source of Fund (Institute/Project)	Institute (Research Initiation Grant 2017)
Is Multi Currency Allowed	NO
Date of Issue/ Publishing	14/03/2018 (15.00 Hrs.)
Document Download/ Sale Start Date	14/03/2018 (15.00 Hrs.)
Document Download/ Sale End Date	16/04/2018 (15.00 Hrs.)
Date for Pre-Bid Conference	N/A
Venue of Pre-Bid Conference	N/A
Last Date and Time for Uploading of Bids	16/04/2018 (15.00 Hrs.)

Date and Time of Opening of Technical Bids	17/04/2018 (15.00 Hrs.)
Tender Fee	NIL
EMD	INR 1000.00
No. of Covers (1/2/3/4)	02
Bid Validity days (180/120/90/60/30)	90 days (From last date of opening of tender)
Address for Communication	Dr. Hirok Chaudhuri Principal Investigator (Research Initiation Grant 2017), Department of Physics, National Institute of Technology Durgapur, Mahatma Gandhi Avenue, Durgapur -713209, West Bengal, INDIA
Contact No.	+91 9434789019
Email Address	hirok.chaudhuri@phy.nitdgp.ac.in

1. You are invited to submit your most competitive quotation for the goods as per annexure- I. Manufacturer/authorized dealers of reputed brands of high technical quality with adequate after-sales support facilities are eligible to apply.
2. Each bidder should submit only one quotation for each item. Manufacturer/authorized dealers of reputed brands of high technical quality with adequate after-sales support facilities are eligible to apply.
3. The bid must be addressed to Dr. Hirok Chaudhuri, the Principal Investigator, Research Initiation Grant, Department of Physics, NIT Durgapur, M. G Avenue, Durgapur- 713209, West Bengal, India.
4. **Bid Price**
 - a. The contract shall be applicable for the full quantity as described in the annexure-I. Corrections, if any, shall be made by crossing out, initialing, dating and re writing.
 - b. All duties, taxes and other levies payable by the contractor under the contract along with delivery charges and installation charges, if applicable, would be included in the total price **F.O.R. Dr. Hirok Chaudhuri, Principal Investigator, Research Initiation Grant (RIG) 2017, Department of Physics, NIT Durgapur.**
 - c. Commercial Terms & Conditions regarding Tax, duties, and other levies, delivery charges and installation charges, if applicable, must be quoted clearly.
 - d. The rates quoted by the bidder shall be fixed for the duration of the contract (until full payment is made to the dealer) and shall not be subjected to adjustment on any account.
5. The bid submitted by the bidder must comprise the following:

Part- I (Technical Bid)

- a. Digitally signed copy of the filled in Notice Inviting Tender (NIT)
- b. Detailed technical specifications and literature/ drawings/ manuals of the goods/ services have to be supplied,
- c. Authorized dealership certificate from the original manufacturer, if applicable,
- d. Scanned copy of EMD.
- e. List of other important documents

Category	Sub Category	Sub Category Description
Certificate Details	GST Registration Certificate	GST Registration Certificate
	Partnership Deed (If applicable)	Partnership Deed
	Permanent Account Number	Permanent Account Number Details
	Power of Attorney (If applicable)	Power of Attorney
	Registration Certificate	Registration Certificate Details

Part – II (Financial Bid)

Price bid shall be submitted separately as annexure-II (BOQ: Available in the abovementioned website).

6. Validity of Quotation

Quotation shall remain valid for a period not less than **90** days after the deadline date specified for submission.

7. The items must be delivered within **12 weeks** from the date of placement of purchase order.

8. Installation, commissioning and demonstration would be performed within 20 days after the delivery of the item(s).

9. Payment shall be made immediately within 60 days after satisfactory installation, commissioning and demonstration after the acceptance of the goods in proper condition.

10. Comprehensive onsite warranty shall be applicable to the supplied goods for a period of minimum **12 months** from the date of installation. Terms and conditions of warranty, if applicable, must be documented clearly.

11. Evaluation of Quotations

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

- a) are properly signed and
- b) conform to the terms and conditions, and specifications.

12. Award of contract

- a) The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive in terms of technical specifications asked for and who has offered the lowest evaluated quotation price.
 - b) 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.
 - c) 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.
13. The Institute is **exempted from payment of custom and excise duty** on items mentioned below:
- a) Scientific and technical instruments, apparatus, equipment (including computers);
 - b) Accessories, spare parts and consumables thereof;
 - c) Computer software, CD-ROM, recorded magnetic tapes, microfilms, and microchips.
14. A **Demand Draft (DD)** worth of **INR 1000.00** in favor of “**NIT Society Durgapur**” payable at “**Durgapur**” as EMD has to be prepared. The received amount of EMD will be returned on application by the supplier after the receipt of Performance Security. (**The successful bidder have to send the original draft at the concerned department office within 10 days of declaration of Financial Evaluation**).
15. The successful bidder must submit before the release of payment a valid bank guarantee through any nationalized bank of an amount of **10%** of the order value towards **Performance Security** upto the **warranty period + 60 days** or the same will be deduced from the bill/ invoice before payment is made. The same will be released on application by the supplier after the said interval (warranty period + 60 days).
16. Delivery to be made at the “**Department of Physics, NIT Durgapur, Mahatma Gandhi Avenue, Durgapur- 713209, West Bengal, India**”.
17. **Liquidated Damage** will be applicable at the rate of **0.5%** per week. The purchaser has the right to cancel the purchase order when LD accumulates to 10 %.
18. Installation and Performance Demonstration must be done at the “**Department of Physics, NIT Durgapur, Mahatma Gandhi Avenue, Durgapur- 713209, West Bengal, India**”.
19. The installation, commissioning and demonstration certificates must be delivered at the day of installation, commissioning and demonstration. Payment will be released only after receiving the installation, commissioning and demonstration certificates.
20. All other terms and conditions of **GFR 2017 of the Government of India** will be applicable.
21. Settlement of any dispute will be made under the jurisdiction of honourable Durgapur Court.

We look forward to receiving your quotations and thank you for your interest in this project

Sd/-

(Dr. Hirok Chaudhuri)
Principal Investigator,
Research Initiation Grant- 2017,
Department of Physics,
NIT Durgapur, Durgapur- 713209

Required Technical Specification of Soil Analysis Sensor Probe and its Accessories

REFERENCE: NITD/PHY/HC/RIG/2017-18/1

Dated: 14.03.2018

Item Description	Quantity
<p>Soil Analysis Sensor Probe with the following standard features:</p> <ul style="list-style-type: none"> • Compatible to analysis of soil moisture (volumetric water content in %), electrical conductivity (in $\mu\text{S}/\text{cm}$ or cs/m) and ground temperature (in $^{\circ}\text{C}$ or $^{\circ}\text{F}$) simultaneous. • The moisture content of the soil (Volumetric Water Content in %) could be determined by measuring the dielectric permittivity/ dielectric constant $\epsilon = 1$ (air) to $\epsilon = 80$ (water) with a soil moisture sensor. • Capacitive measurement of the permittivity at typically 80 MHz (frequency domain technology). • Measuring volume for the local soil moisture determination: approx. 700 mL. • Measurement of the soil moisture insensitive against salt content and structure of the ground. • Measurement of the electrical conductivity via high-quality stainless steel contacts (such as V4A). • Conductivity temperature compensation: None, linear or according to some reference. • Soil Analysis Sensor Probe can be configured freely via the data acquisition and analysis software. • Waterproofed, sealed and robust sensor element with minimum 5m (optionally longer) connection cable. • Readings should be saved directly in the data memory of the connected data logger (accessories). • Measuring range for the soil moisture (in terms of permittivity) typically: $\epsilon = 1$ (air) to $\epsilon = 80$ (water). • Measuring range for the soil moisture (in terms of Volumetric Water Content) typically: VWC = 0 % to VWC = 100 %. • Measuring range for the electrical conductivity: EC = 0 to 20000 $\mu\text{S}/\text{cm}$ or 0 to 200 cS/m. • Measuring range for the temperature: T = -30 $^{\circ}\text{C}$ to +80 $^{\circ}\text{C}$ or -22 $^{\circ}\text{F}$ to +176 $^{\circ}\text{F}$. • Average resolution for the soil moisture (in terms of permittivity): $\Delta\epsilon = 0.1$ for $\epsilon = 1$ to $\epsilon = 30$; $\Delta\epsilon = 0.7$ for $\epsilon = 30$ to $\epsilon = 80$. • Average resolution for the soil moisture (in terms of Volumetric Water Content) typically: $\Delta\text{VWC} = 0.15\%$ for VWC = 0 to 50%. • Average resolution for the conductivity typically: $\Delta\text{EC} = 10 \mu\text{S}/\text{cm}$ for EC = 0 to 5000 $\mu\text{S}/\text{cm}$; $\Delta\text{EC} = 50 \mu\text{S}/\text{cm}$ for EC = 5000 to 10000 $\mu\text{S}/\text{cm}$. • Average resolution for the temperature typically: $\Delta\text{T} = 0.1 \text{ }^{\circ}\text{C}$ for -30 $^{\circ}\text{C}$ to +80$^{\circ}\text{C}$. • Accuracy of the soil moisture (in terms of permittivity): $\epsilon = \pm 1$ for $\epsilon = 1$ to $\epsilon = 40$; $\pm 15\%$ for $\epsilon = 40$ to $\epsilon = 80$. • Accuracy of the soil moisture (in terms of Volumetric Water Content) typically: VWC = $\pm 3\%$ (for electrical conductivity < 10000 $\mu\text{S}/\text{cm}$). • Accuracy of the electrical conductivity typically: EC = $\pm 10\%$ for EC = 0 to 10000 $\mu\text{S}/\text{cm}$. • Accuracy of the temperature typically: T = $\pm 1 \text{ }^{\circ}\text{C}$ for -30 $^{\circ}\text{C}$ to +80$^{\circ}\text{C}$. • Power supply via one commercially available 3.6 Volt lithium battery (typical size: 1/2 AA-1200mAh). • Batteries should be replaced at any time. • Dimensions of the Soil Analysis Sensor Probe (without cable): approx. HxWxD= 35 x 115 x 17 mm • Weight of the Soil Analysis Sensor Probe with the connection cable: less than 200g 	01 (one) set
Accessories 1: Minimum 5m connection cable to connect sensor with the data logger	01 (one) no.
Accessories 2: Installation box (Compatible with the Soil Analysis Sensor probe)	01 (one) no.
<p>Accessories 3: Data Logger for online monitoring of Soil Analysis Sensor Probe with the following standard features:</p> <ul style="list-style-type: none"> • Storage (automatic) capacity: approx. 4000 readings (along with optional to increase memory), sufficient to store the readings for several years, depending on the measuring fashion. • Measuring data should be preserved via memory even without batteries. • When the memory is full, the oldest readings should be first overwritten (with ring buffer principle) 	01 (one) set

<ul style="list-style-type: none"> Measuring and storing rhythm: typically 1 second to minimum 6 hours, adjustable via the data acquisition and analysis software. Min/max monitoring for the registration of temperature values: automatic (without interruption). No. of input sensor equipment: 01 (one) internal sensor (for -10 to +50°C), 02 (two) optional external sensors (for -30 to +120°C). Differential temperature should be measured. Included real-time clock and real-time calendar. Power supply: standard AAA micro batteries. Battery lifetime: Approx. 02 (two) years. Batteries should be replaced at any time. Measuring resolution of the in-built temperature sensors: 0.1°C Measuring accuracy of the in-built temperature sensors: <math>\pm 1.0^{\circ}\text{C}</math> Dimensions: Approx. HxWxD= 100 x 60 x 20 mm Weight: less than 150g (including batteries) 	
Accessories 4: Standard AAA micro batteries	02 (two) nos.
Accessories 5: Memory expansion 64000 (Memory for approx. 64000 readings)	01 (one) no.
Accessories 6: Data logger storage case (Compatible with the Datta logger)	01 (one) no.
Accessories 7: Data Acquisition and Analysis Software with the following standard features: <ul style="list-style-type: none"> The Data Acquisition and Analysis Software should be compatible for the Data Logger for online monitoring of Soil Analysis Sensor Probe. Compatible with Microsoft Windows 7 /8/10 for data downloading and analysis. Capable for the graphical analysis and further processing of the measured values. Flexible to set any desired measurement rhythm from 01 (one) second up to minimum 6 hours. Able to configure the integrated clock or calendar of the devices and check the current battery status of the data loggers. Functions such as calibration and device information should be retrieved and changed. The data transfer via interface cable should be completely uncomplicated and very fast. The measurement data should be transfer to the PC computer within seconds. Flexible to Export measurement data into other programs such as Excel without any problems. Additional option for opening of numerical data analysis of this software. Languages of the software: English. The package must include the license to always obtain the latest version of the software from the company's website. 	01 (one) set
Accessories 8: USB interface cable to connect Data logger with PC computer	01 (one) no.