



**National Institute of Technology, Meghalaya**  
**Bijni Complex, Laitumkhrah, Shillong 793003**

## INVITATION LETTER

Ref No.: TEQIP III/2019/NITMGH/Shopping/159

Date: 14-Jun-2019

Package Code: TEQIP-III/2019/nimt/81

Current Date: 14-Jun-2019

Package Name: NITMGH/TEQIP III/ME/012 (Solar/Thermal Air Velocity,  
Temperature and Quality Measuring Unit with Data Acquisition System)

Method: Shopping Goods

To,

**Sub: INVITATION LETTER FOR NITMGH/TEQIP III/ME/012 (Solar/Thermal Air Velocity, Temperature and Quality Measuring Unit with Data Acquisition System)**

Dear Sir,

You are invited to submit your most competitive quotation for the following goods with item wise detailed specifications given at Annexure I,

Sr. No	Item Name	Quantity	Place of Delivery	Installation Requirement (if any)
1	Solar/Thermal Air Velocity, Temperature and Quality Measuring Unit with Data Acquisition System	01	National Institute of Technology Meghalaya, Bijni Complex, Laitumkhrah, Shillong - 793003	Yes

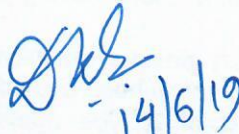
1. Government of India has received a credit from the International Development Association (IDA) towards the cost of the **Technical Education Quality Improvement Programme [TEQIP]-Phase III** Project and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this invitation for quotations is issued.

**2. Quotation**

- 2.1 The contract shall be for the full quantity as described above.
- 2.2 Corrections, if any, shall be made by crossing out, initialling, dating and re writing.
- 2.3 All duties and other levies payable by the supplier under the contract shall be included in the unit Price.
- 2.4 Applicable taxes shall be quoted separately for all items.

- 2.5 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.
- 2.6 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 **45** 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 Delivery & Installation - 10% of total cost**  
**Satisfactory Acceptance - 90% of total cost**
9. Liquidated Damages will be applied as per the below:  
Liquidated Damages Per Day Min % :N/A  
Liquidated Damages Max % : N/A
10. All supplied items are under warranty of **24** months from the date of successful acceptance of items and AMC/Others is **As applicable**.
11. You are requested to provide your offer latest by **02:00** hours on **01-Jul-2019**.
12. Detailed specifications of the items are at Annexure I.
13. Training Clause (if any) **Yes**

14. Testing/Installation Clause (if any) **Yes**
15. Performance Security shall be applicable: **0%**
16. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
17. Sealed quotation to be submitted/ delivered at the address mentioned below, **National Institute of Technology, Meghalaya, Bijni Complex, Laitumkrah, Shillong 793003**
18. For authenticity/genuineness of the quoted product, the firm should be a reputable, well established and suppliers of the goods or services as part of their normal business.
19. **Technical Presentation:** If necessary then the authority may ask the technically qualified bidders to give full presentation or live demonstration of the Quoted equipment at NIT Meghalaya before finalization of the tender as a support of their specification.
20. Dealership Certificate: The bidder/tenderer should be either a manufacturer or authorized dealer of the foreign/Indian manufacturer. Dealers or Agents quoting on behalf of Manufacturer must enclose valid dealership certificate.
21. We look forward to receiving your quotation and thank you for your interest in this project.

  
 (Authorized Signatory) Coordinator (T/C)  
 Name & Designation **National Institute of Technology**  
**Meghalaya**

**Annexure I**

Sr. No	Item Name	Specifications
1	Solar/Thermal Air Velocity, Temperature and Quality Measuring Unit with Data Acquisition System	<p><b>Solar/Thermal Air Velocity, Temperature and Quality Measuring Unit with Data Acquisition System</b></p> <p>The unit should comprise of 8 channel thermal data logger with sensors, solar pyranometer with portable data logger, thermocouple with wire welder, thermocouple calibration system, air velocity measuring instrument and air quality measuring system</p> <p><b>a.8 Channal Analog Input Portable Data Logger</b></p> <ul style="list-style-type: none"> <li>• Equipped with programmable inputs configurable for millivolts (-100 mv to 100 mv or wider, volts (-50 to 50 volt or wider), milliamps (-20 to 20 milliamps or wider) for thermocouple. RTD, thermistor, strain gauge.</li> </ul>

- Compatible for thermocouples types: J, K, T, E, R, S, B, C & N; frequency or pulse input of 0 to 250 kHz or wider with  $\pm 2$  Hz or better accuracy, thermocouple measuring accuracy of  $\pm 0.15\%$  or better; with 1GB or more internal memory & 32 GB or more SD card; with USB.
- Along with 5 nos of type K and 5 nos of type T thermocouples with protection probe, end connectors, length 12 inch or more (main probe); 4 nos of RTDs for measuring up to 300°C or more having 6 inch or more length, within 8mm of diameter and minimum 2 meters of cable length.

**b. Solar Pyranometer with Portable Data Logger**

- 1 no. of outdoor type solar pyranometer with sensitivity of 5 to 20  $\mu\text{V/W/m}^2$  or wider, having spectral range of 350 to 2800 nm or wider, maximum measuring value of 2000 W/  $\text{m}^2$  or more, with 180° field of view.
- Pyranometer data logger with 4 or more differential input, 4 or more single ended input, 4 or more digital input and one or more RS-485 serial input; input ranges of  $\pm 20$  to  $\pm 2500$  mV or wider in differential type and 0 to 2500 mV or wider in single ended type; measurement interval of 1 to 3600 sec or wider; communication through RS232, modem with external antenna; with SD card of 512 MB or more, compliance to IP65 or better norms.

**c. Thermocouple with Wire Welder**

- Thermocouple and One wire welder capable of welding thermocouple junctions; working in 220 Volt, 50 Hz, single phase supply consuming power of 170 VA or better: with energy out-put , 0 to 50 joule or wider; welding capacity up to 1.0 mm wire diameter or more; having duty cycle 5-10 welds / min or better.
- Along with wire holding pliers and lead, safety glasses, magnifying eye glass, carbon electrode; 2 amps spare fuse, Argon hose and power cable.
- Along with 200 ft. of T type and 200 ft of K type duplex insulated thermocouple wire each with two different scars of 18 AWG and 20 AWG with standard accessories and chemicals for the thermocouple Junction welding.
- Thermocouple extension cables: 100 mtrs each of type K and type T thermocouple extension cables with size of (1/24) inch in 2 core with Teflon insulation.

**d. Thermocouple Calibration System**

- Portable multifunction calibrator capable for calibrating all types of thermocouple viz J,K,T,E,R,S,B,L,U,N,C,XK,BP and Resistance thermometer viz. Pt100 (385, 3926, 3916), Pt1000, Pt10, Pt50, Ni120, Cu10, Cu50, Cu100, YSI400; accuracy of 0.015% or better for voltage and current of reading; capable of measuring current (0-20mA or wider), voltage (DC 0-30V or wider), resistance (0-4000 $\Omega$ ) or wider; conforming to the norms IP52 or better, 2004/108/EC or better, EN61326 or better; required interface: RS-232 and USB.
- Thermocouple calibration bath with temperature range of 50°C to 650°C or wider; accuracy of 0.3K to 0.8 K or better; stability of  $\pm 0.05$  K or better up to 100°C and  $\pm 0.1$  K or better up to 600°C; resolution of 0.01°C or better up to 100°C and 0.1°C or better above 100°C; heating time of 30 min or less (up to 600°C) and cooling time of 60 mm or less (up to 100°C from 600°C); should work in 230V, single phase supply.

**e. Air Velocity Measuring Instrument with Internal Memory and Data**



### **Export Function**

- 100 mm high precision vane probe enabled with Bluetooth, along with temperature sensor. Bluetooth probes for greater measuring convenience and a reduced tangle of cables in the case
- Clear overview with parallel display of 3 measuring values
- Internal memory for up to 7500 measurement protocols, USB interface for data export and optional printout of measuring values
- Operating temperature of -20 to +50 °C
- Measuring range: 0.1 to 15 m/s, -20 to +70 °C
- Accuracy:  $\pm(0.1 \text{ m/s} + 1.5\% \text{ of m.v.})$ , (0.1 to 15 m/s),  $\pm 0.5 \text{ °C}$
- Resolution: 0.01 m/s, 1°C
- Telescope extension (length 0.40 to 0.85 m) for air flow probes; Combo case for probes; Calibration Certificate is required

### **f. Air Quality Measuring System**

- Clearly structured measurement menus for the most important applications stored on the instrument
- Bluetooth probes for greater measuring convenience with wireless operation: and a reduced tangle of cables in the case
- A universal handle for all probes for compactness
- Clear overview with parallel display of 3 measuring values, configurations and results at a glance
- Internal memory for up to 7500 measurement protocols, USB interface for data export.
- Vane probe ( $\varnothing$  100 mm), fixed cable, including temperature sensor.
- Measuring range: 0.3 to 35 m/s, -20 to +70 °C with accuracy:  $\pm(0.1 \text{ m/s} + 1.5\% \text{ of m.v.})$ ,  $\pm 0.5 \text{ °C}$  and resolution of 0.01 m/s, 0.1 °C
- High-precision humidity/temperature probe with Bluetooth having measuring range of 0 to 100% RH, -20 to +70 °C, with accuracy within  $\pm(1\% \text{ RH} + 0.7\% \text{ of m.v.})$ ,  $\pm 0.5 \text{ °C}$  and resolution of 0.01% RH/0.1 °C

### **g. Infrared Thermometer**

- Measure safely and accurately even at high temperatures, 4-point laser shows the exact measuring range, preventing incorrect measurements.
- Optics: 50:1 (regarding the distance of 2.0 m to measuring object typically) + opening diameter of the sensor (24 mm)
- Measuring spot marking: 4 point laser; Spectral range: 8 to 14  $\mu\text{m}$
- Measuring range: -30 to +600 °C
- Accuracy  $\pm 1$  digit:  $\pm 2.5 \text{ °C}$  (-30,0 to -20,1 °C)  $\pm 1.5 \text{ °C}$  (-20,0 to -0,1 °C)  $\pm 1.0 \text{ °C}$  (+0,0 to +99,9 °C)  $\pm 1\%$  of mv (remaining range)
- Resolution: 0.1 °C; Emissivity: 0.10 to 1.00 (steps 0.01), Emissivity table: 20 values storable
- Memory: 200 values storable, Alarm (upper/lower limit): IR temperature, TC temperature
- Alarm signal: audible, optical
- Operating temperature: -20 to +50 °C; Storage temperature: -30 to +50 °C
- Material/Housing: ABS + PC
- Battery life: 25 h (typical 25°C without laser and backlight), 10 h (typical 25°C without backlight)

### **h. Differential Pressure Meter with provision for Data Storage**

		<ul style="list-style-type: none"><li>• Differential pressure measuring instrument with measuring range 0 to 100Pa, including calibration protocol and batteries.</li><li>• Temperature-compensated differential pressure sensor in instrument</li><li>• Additional 2 probe inputs for the connection of further probes for the measurement of pressure and temperature; Direct calculation of flow velocity and volume flow</li><li>• Display of hold, max. and min. values</li><li>• Easy data storage by measurement site as well as analysis, archiving and documentation via optional PC software</li><li>• Point and timed mean value calculation</li><li>• Measuring range: 0 to +100 Pa;</li><li>• Accuracy: <math>\pm(0.3 \text{ Pa} \pm 0.5\% \text{ of m.v.})</math></li><li>• Storage temperature -20 to +70 °C; Operating temperature 0 to +50 °C</li><li>• Power supply Battery/Rechargeable battery, Mains unit 12 V</li><li>• Memory 25000 reading;</li><li>• Measuring rate from 0.04 seconds</li><li>• PC RS232 interface</li></ul>
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**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)
<b>Total Cost</b>							

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. \_\_\_\_\_