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**NATIONAL INSTITUTE OF TECHNICAL TEACHERS' TRAINING AND RESEARCH**

**Taramani P.O., Chennai – 600 113.**

**(Government of India, Ministry of Human Resource Development)**

**Ref. No. NITTTR/Mech./SPM/2017-18/**

**Date: 02.01.2018**

**To**

**Delivery required by :**  
**Department of Mechanical**  
**Engineering, NITTTR**  
**Chennai 600 113**

**QUOTATION DUE DATE**

- (a) Please send your quotation within the due date on sealed envelope on or before: **Date: 22.01.2018**  
(a) Delivery required at : **NITTTR, TARAMANI, CHENNAI -113**

Sl.No.	Description of Items	Quantity
1.	<b>1) Solar Power Meter</b> <b>2) Pyranometer (Solar Radiation Sensor)</b> <b>3) Data Acquisition System</b>  <b>(Specifications in Annexure – I)</b> <b>Note :</b> <b>1. Mention warranty period for the item</b> <b>2. Indicate the Reference No. and the last date on the Envelope</b> <b>3. GST Registration No. must be furnished (Enclose Pamphlets, if any)</b>	<b>1 No.</b> <b>1 No.</b> <b>1 No.</b>

**Cover should be addressed to:**

**M. Senthil Kumar,**  
**Asst. Professor, Dept. of Mech. Engg.,**  
**National Institute of Technical Teachers Training and Research,**  
**Taramani P.O., Chennai – 600 113.**

**(For terms and conditions please see overleaf)**

*M. Senthil Kumar*  
02.01.18.  
for **DIRECTOR**

**1) Solar Power Meter Specifications:**

Sensor	High Sensitivity Silicon Photodiode
Spectral Response	400~1100 nm
Range	0~2000 W/m <sup>2</sup> (0~ 634 BTU / ft <sup>2</sup> .h)
Accuracy (at 23°C, 60% RH)	±10W/m <sup>2</sup> (±3 BTU/ ft <sup>2</sup> .h) or ±5% (whichever is greater)
Resolution	0.00~99.99 W/m <sup>2</sup> : 0.01 W/m <sup>2</sup> , 100.0~999.9 W/m <sup>2</sup> : 0.1 W/m <sup>2</sup> ,1000~2000 W/m <sup>2</sup> : 1 W/m <sup>2</sup> 0.00~99.99 BTU/ft <sup>2</sup> .h : 0.01 BTU/ ft <sup>2</sup> .h, 100.0~634.0 BTU/ft <sup>2</sup> .h : 0.1 BTU/ ft <sup>2</sup> .h
Angular Accuracy	Cosine Corrected < 7% (angle < 60°)
Tilt Angle Range	0~90°
Tilt Angle Accuracy (at 23°C, 60% RH)	±1.2°(≤ 60°), Additional Temperature Induced Error±0.1°/°C from 23°C
Sample Time	Approx. 0.4 Second
Operation Temp. & Relative Humidity	0°C~50°C (32°F~122°F) Less than 80% RH
Store Temp. & Relative Humidity	-10°C~60°C (14°F~140°F) Less than 85% RH
Auto Power Off	Enable or Disable (Auto Power off after approx. 10 minutes)
Battery Life	Approx. 30 Hours for Continuous Use
Max / Min / Average	Yes
Data Hold	Yes
Low Battery Indication	Yes
Backlight Function	Yes
Zero Adjustment	Yes
Over Range Indication	Yes (“-HI-“)
Memory	Yes ( 20 Points Memory )
Compass	Yes
Solar Transmission Measurement	Yes
Tripod Socket	Yes
Dimensions	Main Instrument : 140 x 49 x 29 mm (approx.), Sensor Probe : 83 x 54 x 26 mm (approx.)
Display	Backlit LCD and 4 Digits Triple Display
Accessories	9V Battery, Instruction Manual, Carrying Case

**2) Pyranometer (Solar Radiation Sensor) Specifications:**

Operating Temperature	-40° to +150° F (-40° to +65° C)
Storage Temperature	-50° to +158°F (-45° to +70°C)
Transducer	Silicon photodiode
Spectral Response (10% points)	400 to 1100 nanometers Cosine Response
Percent of Reading	±3% (0° to ±70° incident angle); ±10% (±70° to ±85° incident angle)
Percent of Full Scale	2% (0° to ±90°)
Supplied Cable Length	3' (0.9 m)
Green wire	Output (0 to +3VDC); 1.67 mV per W/m <sup>2</sup>
Red & Black wires	Ground
Yellow wire	+3 VDC ±10%; 1mA (typical)
Temperature Coefficient	+0.067% per °F (+ 0.12% per °C)
Reference temperature	77°F (25°C)
Housing Material	UV-resistant PVC plastic

### **3) Data Acquisition System Specifications:**

08 Digital Inputs 11-bit (SE) resolutions Up to 50 kS/s sample rate  
08 Digital Outputs 11-bit (SE) resolutions Up to 50 kS/s sample rate  
08 single-ended or 4 differential analogue inputs  
02 12-bit analogue outputs, One Counter

#### **Software Facility**

TracerDAQ software included for acquiring and displaying data and generating signals  
Universal Library includes support for Visual Studio and and **NI LabVIEW** Supported by  
MATLAB Data Acquisition Toolbox InstaCal software utility for installation, calibration,  
and testing

**Supported Windows Operating Systems:** Windows 8/7/Vista/XP SP2,  
32-bit or 64-bit

## Terms & Conditions

1. The quotation must specify the period within which the supply could be effected from the date of receipt firm orders.
2. Quotation received after the due date mentioned on the reverse will not be considered.
3. Your quotations should be for materials strictly in accordance with the specifications shown. In case you are offering substitutes state clearly the exact specification etc, of the materials offered Drawing sketches or any other technical data should be submitted separately.
4. The prices quoted should clearly specify charges for delivery of the goods to destination indicated overleaf.
5. The prices quoted should include all packing costs and it will be assumed that packing materials (cases etc..) are non-returnable unless otherwise stated.
6. Sales tax or any other taxes if applicable should be shown separately giving the full rate of taxes for each items giving ex-incidence of such levies.
7. The Director reserves the right to accept the whole or part of any quotation without assigning any reason and the lowest or any quotation will not necessarily be accepted, and the Director's decision shall be the final.
8. Samples must accompany the quotation when so specified or within two days when asked for later.
9. If it is discovered that the materials supplied are not exactly according to the specification, the entire stock will be rejected.
10. We reserve the right to inspect the goods offered at any stage of manufacture / supply at your premises.
11. Any dispute arising out of or relating to this Enquiry shall be deemed to have arisen in Madras and is subject to adjudication of the Madras Courts.
12. Rates quoted once will remain firm for that particular dealing.
13. The quotation should be kept valid for a period of 60 days from the date of opening for acceptance.
14. Payment will be made after confirmation on receipt of the materials in good condition at this Institute (normally within 30 days.) Advance payment will not be entertained at any circumstances.
15. Printed conditions of the firm sent along with the quotation form if any, shall not be binding on us.
16. In case of Printing the Proof should be got approved before final strike.
17. Materials should be supplied at this institute in good condition.
18. Price quoted by the suppliers accepted by the Director is final, and no deviation there from will be accepted without the Director's agreement in writing.
19. If the rates are under D.G.S. & D. Please specify the same clearly enclosing necessary documents.