

Proceedings of Pre bid Meeting

Tender ID: **2018_DARE_403741_1**

Tender Title: **SUPPLY OF LABORATORY EQUIPMENT- SUPPLY OF LABORATORY EQUIPMENT- Photosynthesis Meter**

It is informed that, The revised technical specifications are as below.

Revised Technical Specifications.

Sr	Specification (IRGA)
1	Portable Photosynthesis System should be ideal for field or lab work that should include the Fluorescence measurement and Gas Exchange. System to be supplied complete with following System Configuration :
2	System should have facility to control CO ₂ , H ₂ O, /RH, temp, VPD
3	System Console with at least 512 MB RAM with 8GB Flash Memory/USB for Data storage with high speed Processor. The system should be Capable of survey measurements in less than one minute. System must have User-cleanable optics and simple maintenance procedures minimize down time and maintenance costs.
4	Display : Sunlight-readable TFT Color LCD Display with facility to view graphics as well as numeric data with full touch screen and self-diagnostic for any error with the measurement and control setting.
5	CO₂ Gas Analyzer : Absolute non dispersive IR Gas Analyzer Measurement Range: 0- 3000 $\mu\text{mol mol}^{-1}$ or PPM or equivalent conversion Precision/ Linearization: at least 0.1 $\mu\text{mol mol}^{-1}$ or better Accuracy: $\pm 1\%$ or better
6	The system should be supplied with Chamber Apertures for 8-9,6,3 cm ² ,area.
7	H₂O Gas Analyzer Absolute non dispersive IR Gas Analyzer Measurement Range: 0-75 mmol mol ⁻¹ or equivalent.
8	PAR sensor: <ul style="list-style-type: none"> • External for ambient PAR measurement and Internal light sensor Range:0-2500 or better $\mu\text{mol m}^{-2} \text{ s}^{-1}$
9	Light measurement <ul style="list-style-type: none"> • Range: 0-2500 or better $\mu\text{mol mol}^{-2} \text{ s}^{-1}$ • Resolution:<1 $\mu\text{mol m}^{-2} \text{ s}^{-1}$ • Calibration accuracy: $\pm 5\%$ of reading • Detector: Silicon photodiode
10	Temperature measurement Operating temp: 0-50°C Temperature Control Range: ± 10 °C from ambient <ul style="list-style-type: none"> • Sensitivity range: -10 to 50 °C or better
11	Air flow rate: leaf chamber flow rate 0-1400 $\mu\text{mol s}^{-1}$
12	External Co₂ source: supplied with minimum 8 gm cylinder (nos.200)
13	Chamber pressure

	Console: operating range 50-110 kPa Chamber: range -2 to 2 kPa, resolution <1 kPa <ul style="list-style-type: none"> • Or alternate mechanism to perform similar function.
14	Chlorophyll Fluorescence <ul style="list-style-type: none"> • Modulated frequency: 1Hz – 250 kHz and should be capable for OJIP studies • Actinic Light Output: 0-3000 $\mu\text{mol mol}^{-2} \text{s}^{-1}$ • Saturation light Intensity: 0-16,000 $\mu\text{mol m}^{-2} \text{s}^{-1}$ Far-red light intensity: 0-20 $\mu\text{mol m}^{-2} \text{s}^{-1}$
15	<ul style="list-style-type: none"> • Battery: Lithium Ion Batteries, should be sufficient to whole day field measurement With option of external and internal charging. For continuous measurement minimum 4 Batteries should be supplied.
16	System should have Ethernet connectivity for remote access over internet and networking.
17	Accessory and consumable: tripod, stand, sodalime (minimum 5), drierite (minimum 5), system spare kit etc should be supplied
18	The system should have 6-8 extra port to connect the other sensors for simultaneous measurement of Other parameter like soil moisture, soil temp during photosynthesis measurement. Price for two units of Soil Moisture & soil temperature Sensors along with standard length cable may be quoted
19	Warranty: Minimum 2 year comprehensive from date of installation
20	Bidder must competent to provide training and handle the instrument and to trouble shoot during use. Onsite training after installation should be given.
21	Supplied with printed user manual , software, carrying case etc.
22	Original brochure highlighted the desired specification,
23	User list with complete address with phone no should be given
24	The selected vendor may be asked for demonstration of the equipment, if required by NIASM before issuing purchase order.

1. Warranty:

- i. There should be a comprehensive warranty of 24 (twenty four) months post installation and operationalisation of the equipment.
- ii. Subsequent to the period of comprehensive warranty, rate for comprehensive Annual Maintenance Contract (AMC) may also be quoted on year-to-year basis for 3 years.

Sd/-
Assistant Administrative Officer