



KERALA AGRICULTURAL UNIVERSITY
Regional Agricultural Research Station (SZ), Vellayani
Thiruvananthapuram - 695 522, Kerala
E-mail : advellayani@kau.in, Phone No.0471 2383239



No. RARS/SZ(6)/309/2022

Dated: 10/02/2022

E-TENDER NOTICE

E- Tenders are invited for the supply and installation of following Laboratory Instruments for Regional Agricultural Research Station (Southern Zone), College of Agriculture, Vellayani, as per the technical specifications and the terms and conditions mentioned below.

List of Equipment

Sl. No.	Equipment	Qty.
1	Muffle furnace	2
2	Multiparameter(pH, EC, TDS, Salinity, dissolved oxygen, temperature, colorimeter, turbidity)	2
3	Automatic Nitrogen Distillation System	1
4	Flame Photometer	1
5	Laminar Air flow Chamber (W 4 x D 2 x H 2 feet)	1
6	Horizontal Laminar Air flow Cabinet (76" x 40" x 60")	1
7	Horizontal Laminar Air Flow Chamber (6ftx2ftx2ft)	1

Detailed Specifications

Sl. No.	Instrument	Qty.
1	<u>Muffle furnace</u> Digital type Power 4.0 KW Internal dimension - 20 x 20 x 30 cm Light weight, insulated with ceramic wool Maximum temperature 1000°C, working temperature 900°C , Controlled by digital temp . controller cum indicator, fitted with Thermo couple Pyrometer Analog type Thermal fuse may be provided Warranty- Minimum 2 years from the date of installation Warranty : 2 years onsite	2 Nos.
2	<u>Multiparameter</u> <u>(pH, EC, TDS, Salinity, dissolved oxygen, temperature, colorimeter, turbidity)</u> <ul style="list-style-type: none">• Choose auto-calibration with preset values for quick easy calibration, or manual multi-point calibration for greater accuracy.• Easy standardization with auto-standardization feature - detect the exact cell constant value of the electrodes with the press of a button.• Up to 3-point calibration with auto-buffer recognition.	2 Nos.

- High performance 2 -cell Conductivity probe.
 - Quick, easy electrode diagnosis with the effective cell constants display.
 - Non-volatile memory up to 500 data points - time and date-stamped for GLp compliance.
 - Bi-directional easy data transfer to computer.
 - Cal-due alarm and limit alarm alerts when reading falls out of range.
 - Auto-logging function for convenient continuous monitoring.
- Password protection for setup and calibration,

Specifications of Multiparameter

pH

Range : 0 to 14.00 pH
 Resolution and accuracy : 0.01pH ; $\pm 0.01\text{pH} \pm 1$ digit
 Sensor : Combined electrode
 Temp.Compensation : Auto & manual

mV/ORP

Range : $\pm 1999\text{mV}$
 Resolution : 1mV
 Accuracy : $\pm 1\text{mV} + 1$ digit
 Sensor : Combined electrode

Conductivity/TDS

Range: 0 to 100 mS (5 ranges)
 0 ppm to 100 ppt (5 ranges)
 At TDS factor 0.5 (approx.) & TEMPCO 2%
 Accuracy: $\pm 1\%$ of FS ± 1 digit
 Sensor : Conductivity cell (acceptable from 0.1 to 5.0 cell constant)
 Temp. Compensation: Auto/manual

Salinity

Range: 0 to 40 ppt
 Resolution: 0.1ppt
 Accuracy: $\pm 2\%$ of FS ± 1 digit
 Sensor: Conductivity cell (acceptable from 0.1 to 5.0 cell constant)
 Temp. Compensation: Auto/Manual

Dissolved Oxygen

Range: 0 to 20 ppm
 Resolution: 0.1ppm
 Accuracy: $\pm 1\%$ of FS ± 1 digit ± 0.1
 Sensor: Au/Ag probe
 Temp. Compensation: Auto/Manual

Temperature

Range: 0 to 100°C
 Resolution: 0.1°C
 Accuracy: $\pm 0.5^\circ\text{C} \pm 1$ digit
 Sensor: PT 100

Colorimeter

Range: 0 to 2.00 Abs, 0 to 100 % T
 Conc.: 0 to 1999
 Resolution: 0.001 Abs / 0.1 % T
 Accuracy: ± 0.05 Abs

Sensor: Photodiode
 Source: Tungsten Lamp
 Filters: Blue (440nm)
 Green(540 nm)
 Red (660nm)

Turbidity

Range: 0 to 1 NTU
 0 to 10 NTU
 0 to 100 NTU

Accuracy: ± 2 % of FS

Sensor: Photodiode
 Source: Tungsten Lamp

General

Display ; LCD
 Printer Port : Epson Compatible 80 Column D.M. printer
 Power: 230 V 50 Hz ± 10% or internal battery with charger
 Dimensions : 420 (W) X 520 (D) X 175 (H) mm
 Weight : 9kg (approx.)

Warranty : 2 years onsite

3

Automatic Nitrogen Distillation System

- Auto sequencing Microprocessor based PC Compatible Distillation System with in-built software with 30 redefinable user storage programs,
- Automatic sequencing with auto Intelligent run of programmable steps, Automatic Dilution, Automatic Alkali Addition, Automatic Steam Processing, Process over indication with alarm with delay time feature,
- Two line alpha numeric digital LCD display, RS 232 interface for connectivity to PC,
- Tube insert error indication, Auto door open warning indication, Auto deactivation of System on error diagnosis, Adjustable steam power, Auto online water saving mechanism
- Stainless steel non corrosive steam Generator, Fully Automatic water level monitoring with centrifugal refilling pump & Peristaltic pump for reagents addition
- Reagents tanks to be wall mounted for easy handling and users visibility
- The control panel unit along with inbuilt temperature controller, timer, mother board and SMPS should be isolated in separate control tower and housing to protect electronics from wet chemistry & acid/alkali process area for longevity and safety of all electronic components.
- Equipment should have transparent view window to watch the distillation process & splash head
- Nitrogen level : 0.1 to 200 mg Nitrogen (Min / Max Detection Limit)
- Nitrogen Reproducibility: ± 0.1% RSD , Nitrogen Recovery : > 99.5%
- Electrical Requirement: 220-230V single phase 50Hz A.C
- Brochure to be attached along with quotation

Warranty : 2 years onsite

1 No.

4	<p><u>Flame Photometer</u></p> <ol style="list-style-type: none"> 1. Microcontroller based 2. Able to determine three elements viz., Na, K and Ca 3. Measurement in ppm and meq/l 4. Calibration up to five points 5. Auto ignition 6. Gas leak sensor 7. Auto gas cut off 8. Data processing with linear mode or quadratic curve fitting 9. Results of measurement taken can be recalled and displayed 10. Graphics LCD read out (240 x 128 Dot) for adequate user interfaces 11. Built in real time clock for date and time 12. Range of operation <ol style="list-style-type: none"> 1. Na : Minimum concentration without dilution 0.2 ppm, Maximum concentration (without dilution) low concentration mode: 10 ppm and in high concentration mode 100 ppm 2. K: Minimum concentration without dilution 0.1 ppm, Maximum concentration (without dilution) low concentration mode: 10 ppm and in high concentration mode 100 ppm 3. Ca: Minimum concentration without dilution 3.0 ppm, Maximum concentration without dilution (low concentration mode) 100 ppm and in high concentration mode 300 ppm 13. Reproducibility: \pmfs 1 % + 2 digits in low concentration mode \pmfs 2% + 2 digits in high concentration mode 14. Curve fitting accuracy: \pmfs 2% (High conc. Range) 15. Filters (Regular) : Na (589 nm), K (768 nm), Ca (622 nm) 16. Separate channel and separate silicon photodiode (detector) for each element 17. Minimum sample size: Approximately 3 ml 18. Aspiration time: Three element Analysis within 20 seconds on single aspiration 19. Operating air pressure: 0.45 kg/cm² 20. Power supply: 230 v \pm 10%, 50 Hz 21. Compressor with built in air regulator and air filter <ol style="list-style-type: none"> 1. Pressure: 0.0 to 1.00 kg/ cm² (maximum) 2. Power supply: 230 V \pm 10 % 3. Dimensions: 255 (W) x 205 (H) x 210 (D) mm 4. Mounting: Floor <p>Warranty : 2 years onsite</p>	1 No.
5	<p><u>Laminar Air flow Chamber (W 4 x D 2 x H 2 feet)</u></p> <p>Main Filter: HEPA Filter: Media: Ultra clean glass fiber paper – imported Type : Mini-Pleat HEPA Filter, Particle retention size : 0.3 Micron with a max. 25mm WG Efficiency: 99.997%, Grade: H13 rating, Pre Filter : Media Synthetic, non-woven polyester fibers Casing GI with PU coated, particle Retention size : 5 Micron & above , Efficiency: 95 %</p> <p>Cleanliness: ISO Class 5 as per ISO 14644-1, Direction of Flow: Horizontal, Particle Retention 0.3 Micron & Above, Noise Level: 65 decibel on “A” scale \pm 5</p>	1 No.

	<p>Front door: 4 mm thick Polycarbonate – Foldable Type, U V lamp : UV Lamp of suitable length, Illumination: LED Tube Fittings, Pressure : Inclined Manometer 0 –25 mm range, Working Size: W 4 x D 2 x H 2 feet, Other accessories 5 /15 Amp power point, Gas inlet, Castor Wheels & Power chord Power Supply 230V, Single phase, 50 Hz, Outer rotor type blower system Free Installation and HEPA Filter Test Certificate. Warranty :2 years onsite</p>	
6	<p><u>Horizontal Laminar Air flow Cabinet(76" x 40" x 60")</u> With double filters (Pre Filters and HEPA filters) Work table made of stainless steel Size of HEPA Filter : 6' x 2' Outer dimension [W x D x H] : 76" x 40" x 60" Warranty :2 years onsite</p>	1 No.
7	<p><u>Horizontal Laminar Air Flow Chamber (6ftx2ftx2ft)</u> Air flow direction: Horizontal Stainless steel Working space: 6ftx2ftx2ft Air filtration: Pre-filter -10 Microns (washable) HEPA filters (0.3 microns) Standard fittings: Air/gas cock mains on/off switch, light on/off, UV light on/off switch, blower on/off switch Warranty :2 years onsite</p>	1 No.

Instructions to the bidders

- Bid documents including the Bill of Quantities (BoQ) can be downloaded free of cost from the e- Government Procurement (e-GP) Website www.etenders.kerala.gov.in.
- All bid documents are to be submitted online only and in the designated cover(s)/envelope(s) on above website.
- Price Bid shall be submitted only through online.
 - Rates quoted should be valid up to 31/03/2022.
 - Tenders not stipulating period of firmness of rates and with price variation clause and/or subject to prior sale condition are liable to be rejected.
 - The equipment should be delivered and installed at the expenses of the successful bidder.
 - Rate quoted should be inclusive of all charges such as packing, forwarding, freight, loading/unloading/handling or installation charges and Government duties leviable, if any.
 - The supplier has to make his own arrangement for the ordinary / special tools, machinery, and other consumables required for successful completion of installation and testing.
- **Payment of fee:** Tender submission fee & EMD shall be remitted online during the time of tender submission.
- **Scanned Documents to be submitted online:**
 - Company Data sheets, Brochures & other documents such as relevant technical literatures, drawings, pamphlets containing all the relevant technical specifications of the equipment duly signed by the bidder on each page.
 - **Tender form: Each and every pages of the tender form should be attested after reading the conditions provided.**
 - Duly filled and signed preliminary agreement of the bid executed in Kerala stamp paper worth Rs.200/-.
 - Bids received online without the scanned copy of preliminary agreement will not be considered.
 - Users list of the equipment, if any.
 - Copy of up-to-date GST registration certificate & PAN of the bidder
 - Supporting document regarding service support
 - Authorization certificate from the manufacturer, if the bidder is a dealer.
 - Valid EMD exemption certificate from the Store Purchase Department, Govt. of Kerala, if the firm is exempted from payment of EMD.
 - Undertaking to the effect that the bidder is not Debarred/ Blacklisted or Banned from any University/ Government Institute / PSU.
 - Purchase Order and performance certificate of the quoted model of Equipment from three reputed customers, preferably University/ Government Institute / PSU, if any.
- As per DSIR registration, the University is eligible for relaxation in GST as per Notification No.45/2017 Central Tax (Rate) dated 14.11.17 & Notification No.47/2017 Integrated Tax

(Rate) dated 14.11.17. Necessary documents for availing GST exemption will be provided to the successful bidder.

- **Quoting of equipment:** Only the best model fitting the specification must be quoted.
 - Vendors if quoted for lower end model while the same manufacturer is having better model meeting the above tender specifications, the technical committee shall take decision to disqualify.
 - The products should be nationally / internationally branded and CE certified.
 - The bids should be sent only for equipment model available in the market and supplied to a number of customers. Tenders with market standing, proven quality and durability only will be entertained.

- **Service:** The firms or companies bidder should ensure on-site service support for the equipment.
- The maximum period required for delivery and installation of the article should be mentioned.
- Availability of the spares for the entire instrument for a period of at least 10 years should be ensured.
- If any license or permit is required, Bidders must specify in their tender and also state the authority to which application is to be made.
- Details required for e-payment (Details of bank account having core banking facility and e-mail address of the bidder) shall be furnished along with the tender.
 - Payments will be made only after the supply is actually verified and taken to stock.

- **Warranty & AMC: Two years on-site warranty.**
 - Details of extended warranty if any, rate for extended warranty, rate for annual maintenance cost after warranty period etc. should be mentioned in the bid document.
 - If the Supplier, having been notified, fails to rectify the defect(s) within one to two weeks' time, the warranty will be extended to the extent of instrument lying idle without repair.
 - All parts of the instrument, accessories, and supporting instruments should be covered under the warranty.

- Bidders not accompanied by these details will be rejected.
- Associate Director of Research, RARS (SZ), College of Agriculture, Vellayani shall have no obligation to convey reason for rejection of any bid. It shall be open for Associate Director of Research, Vellayani to reject even the lowest bidder in the interest of the University and no reason need be given thereof.
- The undersigned shall not be responsible for any failure, malfunction or breakdown of the electronic system while downloading or uploading the documents by the Bidder during the e-procurement process.
- On receipt of purchase order, the supplier shall execute an agreement in Kerala stamp paper worth Rs.200/- at own cost and furnish a Performance Security of 5% of the cost. The format of the agreement can be downloaded from the above website.

- Withdrawal from the tender after it is accepted or failure to supply within a specified time or according to specifications will entail cancellation of the order and attract legal procedures as per the agreement.
- All subsequent Government orders connected to tenders and any revision in the rates of taxes would also be applicable to this tender.
- In addition to these all other General Conditions annexed in the Store Purchase Manual of Government of Kerala are also applicable to this tender.

Tender details	
Tender inviting Authority	The Associate Director of Research, RARS(SZ), College of Agriculture, Vellayani
Location of supply and installation	REGIONAL AGRICULTURAL RESEARCH STATION (SZ) College of Agriculture, Vellayani, Thiruvananthapuram – 695 522
Date of Publication of Tender	10/02/2022 5.00 pm
Last Date and Time of Receipt of Tenders	28/02/2022 5.00 pm
Date and Time of Opening of Bid	01/03/2022 2.30 pm If the tender opening date happens to be on a holiday or non-working day due to any other valid reason, the tender opening process will be done on the next working day at same time.
Earnest money deposit (EMD)	7400/-
Tender submission fee	1770/- (inclusive of GST)
Validity Period of Bid	Up to 31/03/2022
Period of supply and installation	Within two weeks from date of purchase order
Mode of submission of Bid	Online through the website www.etenders.kerala.gov.in only
Performance Security	5% of the quoted amount
Submission of performance security	Within 21 days from date of issue of purchase order

Further details on the tender process can be had from the office of Associate Director of Research, RARS(SZ), Vellayani during the office hours between **10.00 am and 5.00 pm**.


 10/2/22
Associate Director of Research