KERALA AGRICULTURAL UNIVERSITY

College of Climate Change and Environmental Science,
Vellanikkara, Thrissur Dist. Pin:680656
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No. CCCES/146/2025- A2 (NT -ix) Dtd.25.07.2025

TENDER NOTICE

Sealed tenders are invited from competent firms for the supply and installation of following items at College of Climate Change and Environmental Science with specifications as detailed below. The tender will be accepted up to **05.08.2025 @ 3.00 PM**. The tenders received after the stipulated time will not be considered at any circumstances. The received tenders will be opened at **05.08.2025 @3.30 PM.**

<table>
<tr><th>Si No</th><th>Item</th><th>Quantity</th></tr>
<tr><td>1</td><td>MicroPipette</td><td>1</td></tr>
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Ultra-light weight mechanical pipette
Four-digit display with display window facing user with 2 button operations
Provision for the customer to adjust the pipette for better accuracy to use difficult
liquids or high-density liquids. Also, it should be adjusted back to factory setting withoutthe need calibration.
Quick connection clip to remove the lower part easily
Pipette Piston with highly resistant to heat, acids and alkalis, mildew, bleaches, aging, sunlight and abrasion
Very low tip ejection force 3.6N
Tip cone should have Spring to reduce stress for up to 1 ml pipette
Volume adjustment with few turnarounds from maximum to min volume.
Without removing any parts, full pipette needs to withstand Autoclave sterilization at 121°C for 20 min

No discoloration upon UV irradiation
NABL certification can be done on request, *Charges may apply

Basic, single-channel, variable, 0.1 - 2.5 µL, dark gray
Basic, single-channel, variable, 0.5 - 10 uL, medium gray
Basic, single-channel, variable, 2 - 20 µL, yellow
Basic, single-channel, variable, 10 - 100 µL, yellow
, Basic, single-channel, variable, 20 - 200 µL, yellow
Basic, single-channel, variable, 100 - 1000 µL, blue
Basic, single-channel, variable, 0,5 - 5 mL, purple
Basic, single-channel, variable, 1 - 10 mL, turquoise
Basic, single-channel, variable, 2 - 20 µL, light gray
Basic, single-channel, variable, 30 - 300 µL, orange

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<tr><td>2</td><td>Pocket weather meter</td><td></td></tr>
<tr><td></td><td>
SENSORS
<table>
<tr><th>SENSOR</th><th>ACCURACY (+/-)</th><th>RESOLUTION</th><th>SPECIFICATION RANGE</th><th>NOTES</th></tr>
<tr><td>Wind Speed |Air Speed</td><td>Larger of 3% of reading, least significant digit or 20</td><td>0.1 m/s
1 ft/min
0.1 km/h
0.1 mph
0.1 knots</td><td>0.6 to 40.0 m/s
118 to 7,874 ft/min
2.2 to 144.0 km/h
1.3 to 89.5 mph
1.2 to 77.8 knots</td><td>1 inch|25 mm diameter impeller with precision axle and low-friction Zytel® bearings.</td></tr>
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		ft/min	1 B* 0.1 F/S*	0 to 12 B* 2-131.2*	Startup speed stated as lower limit, readings may be taken down to 0.4 m/s |79 ft min|1.5 km/h |.9 mph |.8 kt after impeller startup. Off-axis accuracy -1% @ 5º off axis; -2% @ 10º; -3% @ 15º. Calibration drift < 1% after 100 hours use at 16 MPH |7 m/s. Replacement impeller (NK PN-0801) field installs without tools (US Patent 5,783,753). Wind speed calibration and testing should be done with triangle on impeller located at the top front face of the Kestrel. Measuring wind speeds above 60 m/s / 134.2 mph can damage the impeller.	
	Ambient Temperature	0.9 °F 0.5 °C	0.1 °F 0.1 °C	-20.0 to 158.0 °F -29.0 to 70.0 °C	Airflow of 2.2 mph|1 m/s or greater provides fastest response and reduction of insolation effect. For greatest accuracy, avoid direct sunlight on the temperature sensor and prolonged sunlight exposure to the unit in low airflow conditions. Calibration drift is negligible for the life of the product. For further details, see Display & Battery Operational Temperature Limits.	
	Relative Humidity	2%RH	0.1 %RH	10 to 90% 25°C non- condensing	To achieve stated accuracy, unit must be permitted to equilibrate to external temperature when exposed to large, rapid temperature changes and be kept out of direct sunlight. Calibration drift is typically less than ±0.25% per year.	
	Pressure	1.5 hPa|mbar 0.044 inHg 0.022 PSI	0.1 hPa|mbar 0.01 inHg 0.01 PSI	25°C/77°F 700-1100 hPa|mbar 20.67-32.48 inHg 10.15-15.95 PSI	Monolithic silicon piezo-resistive pressure sensor with second-order temperature correction. Between	

				1100–1600 mbar, unit will operate with reduced accuracy. Sensor may not operate above 1600 mbar and can be damaged above 6,000 mbar or below 10 mbar. Calibration drift is negligible for the life of the product.
Compass	5°	1° 1/16th Cardinal Scale	0 to 360°	2-axis solid-state magneto-resistive sensor mounted perpendicular to unit plane. Accuracy of sensor dependent upon unit's vertical position. Self-calibration routine eliminates magnetic error from batteries or unit and must be run after every full power- down (battery removal or change). Readout indicates direction to which the back of the unit is pointed when held in a vertical orientation. Declination/variation adjustable for True North readout.

CALCULATED MEASUREMENTS

MEASUREMENT	ACCURACY (+/-)	RESOLUTION	SENSORS EMPLOYED
Air Density	0.0002 lb/ft3 0.0033 kg/m3	0.001 lbs/ft3 0.001 kg/m3	Temperature, Relative Humidity Pressure
Air Flow	6.71%	1 cfm 1 m3/hr 1 m3/m 0.1m3/s 1 L/s	Air Speed, User Input (Duct Shape & Size)
Altitude	typical: 23.6 ft/7.2 m from 750 to 1100 mBar max: 48.2 ft/14.7 m from 300 to 750 mBar	1 ft 1 m	Pressure, User Input (Reference Pressure)
Barometric Pressure	0.07 inHg 2.4 hPa|mbar 0.03 PSI	0.01 inHg 0.1 hPa|mbar 0.01 PSI	Pressure, User Input (Reference Altitude)
Crosswind & Headwind/ Tailwind	7.1%	1 mph 1 ft/min 0.1 km/h 0.1 m/s 0.1 knots	Wind Speed, Compass

Delta T	3.2 °F 1.8 °C	0.1 °F 0.1 °C	Temperature, Relative Humidity Pressure
Density Altitude	226 ft 69 m	1 ft 1 m	Temperature, Relative Humidity, Pressure
Dew Point	3.4 °F 1.9 °C 15-95% RH. Refer to Range for Temperature Sensor	0.1 °F 0.1 °C	Temperature, Relative Humidity
Evaporation Rate	0.01 lb/ft2/hr 0.06 kg/m2/hr	0.01 b/ft2/hr 0.01 kg/m2/hr	Wind Speed, Temperature Relative Humidity Pressure, User Input (Concrete Temperature)
Heat Index	7.1°F 4.0°C	0.1 °F 0.1 °C	Temperature, Relative Humidity
Moisture Content | Humidity Ratio ("Grains")	4.9 gpp 0.7 g/kg	0.1 gpp 0.01 g/kg	Temperature, Relative Humidity Pressure
Probability of Ignition (PIG)	PIG Accuracy dependent on proximity of inputs to reference table steps.	10%	Temperature, Relative Humidity
THI (NRC)	1.5 °F 0.8 °C	0.1 °F 0.1 °C	Temperature, Relative Humidity
THI (Yousef)	2.3 °F 1.3 °C	0.1 °F 0.1 °C	Temperature, Relative Humidity
Relative Air Density	0.3%	0.1%	Temperature, Relative Humidity Pressure
Wet Bulb Temperature - Psychrometric	3.2 °F 1.8 °C	0.1 °F 0.1 °C	Temperature, Relative Humidity Pressure
Wet Bulb Temperature – Naturally Aspirated (NWB TEMP)	1.4 °F 0.8 °C	0.1 °F 0.1 °C	Wind Speed, Temperature Globe Temperature, Relative Humidity, Pressure
Wind Chill	1.6 °F 0.9 °C	0.1 °F 0.1 °C	Wind Speed, Temperature

ADDITIONAL PRODUCT INFO	
Display & Backlight	Multifunction, multi-digit monochrome dot-matrix display. Choice of white or red LED backlight.
Response Time & Display Update	Display updates every 1 second. After exposure to large environmental changes, all sensors require an equilibration period to reach stated accuracy. Measurements employing RH may require longer periods particularly after prolonged exposure to very high or very low humidity. WBGT requires about 8 minutes to

	reach 95% accuracy and about 15 minutes to reach 99% accuracy after exposure to large environmental changes.
Data Storage & Graphical display, Min/Max/Avg History	Logged history stored and displayed for every measured value. Manual and auto data storage. Min/Max/Avg history may be reset independently. Auto-store interval settable from 2 seconds to 12 hours*, overwrite on or off. Logs even when display off except for 2 and 5 second intervals. Kestrel 5 series units hold over 10,000 data points.
Data Upload & Bluetooth® Data Connect Option	Wireless range up to 100ft. Connection requires optional USB data transfer cable or Kestrel Link Dongle or Kestrel LiNK app. Employs Kestrel Link protocol for data transmission with Link supported devices. (Kestrel LiNK for iOS/Android, Kestrel Link for PC/MAC).
Clock / Calendar	Real-time hours:minutes:seconds clock, calendar, automatic leap-year adjustment.
Auto Shutdown	User-selectable – Off, 15-60 minutes with no key presses.
Languages	English, French, German, Spanish.
Certifications	CE certified, RoHS, FCC, IC tested and WEEE compliant. Individually tested to NIST-traceable standards.
Origin	Designed and built in the USA from US and imported components. Complies with Regional Value Content and Tariff Code Transformation requirements for NAFTA Preference Criterion B.
Battery Life	AA Lithium included. Up to 400 hours of use, reduced by backlight, alert light and buzzer, or Bluetooth radio transmission use.
Shock Resistance	MIL-STD-810H, Transit Shock, Method 516.8 Procedure IV; unit only; impact may damage replaceable impeller.
Sealing	Waterproof (IP67 and NEMA-6)
Display & Battery Operational Temperature Limits	14° F to 131° F | -10 °C to 55 °C Measurements may be taken beyond the limits of the operational temperature range of the display and batteries by maintaining the unit within the operational range and then exposing it to the more extreme environment for the minimum time necessary to take reading.
Storage Temperature	-22.0 °F to 140.0 °F | -30.0 °C to 60.0 °C.
Size & Weight	5.0 x 1.9 x 1.1 in | 12.7 x 4.5 x 2.8 cm, 4.3 oz | 121 g. (Lithium battery included)

**F/S only in Ballistics units. Beaufort not available in

	Ballistics units.	
3	**Water bath**	1
	Material Mild Steel Voltage 220 to 440 V Frequency 50 Hz Automatic Grade Semi-Automatic Brand U-Tech Size 695 x 530 x 320mm Power Supply Ac220V, 50Hz	
4	**Soxhlet Extraction Unit**	1
	Voltage-220-230V AC Type of Product-Soxhlet Extraction Unit Application-Pharmaceutical laboratory, microbiology, oil and gas industry, food production laboratory Design-Without Glass Parts Temperature controller-Energy Regulator No. of Tests-3	
5	**Heating mantle** **[3-Unit Heating Mantles (High Temperature)]**	1
	The heating mantles are designed for repetitive extraction, refluxing, and distilling procedures in various industries, including food, textile fiber, water and wastewater, and petroleum. The latest model features a lower profile for space-saving, a revolutionary heating element container system for easy replacement, and spill containment chambers. The cabinet is made from clear anodized aluminum with a chemically resistant black Teflon® resin-coated top. Available in two configurations, it offers six-place for 100-300 ml flasks and three-place for 500-1,000 ml flasks, and in low-temperature (400°C RX version) and high-temperature (600°C RJ version) options. Ideal for Kjeldahl, Soxhlet, and other extraction procedures, each three-place unit includes clamps for glassware with diameters of 1 5/8" - 2", attached to horizontal support rods. Two Series RL control choices are available: percentage timer or proportional voltage, with the former pulsing full-line voltage and the latter providing steady-state voltage. Controls are cord-connected for convenient placement. Dimensions for the three-place unit are 610 x 286 x 159 mm, with a 300W rating per position and a total mantle weight of 9.1 kg. Control types include a digital display control, percentage timer, and proportional voltage, all compatible with 3-place RJ or RX, operating at 240V, with weights of 5.0 kg for digital and proportional voltage controls, and 2.3 kg for the percentage timer	
6	**GPS**	**2**
	Display: Size: 2.2 inches (35 x 44 mm) Resolution: 240 x 320 pixels Type: 65K color TFT, sunlight-readable Memory and Storage: Internal Memory: 8 GB Expandable Storage: microSD™ card slot (supports cards up to 32 GB) Waypoints: Up to 2,000 Routes: Up to 200 Track Log: 10,000 points; 200 saved tracks Battery: Type: 2 AA batteries (NiMH or Lithium recommended) Battery Life: Up to 25 hours Navigation Features: Preloaded Maps: Ability to Add Maps: Support for GPS and GLONASS Satellite Systems Hunt/Fish Calendar Sun and Moon Information Area Calculation Geocaching-Friendly Supports paperless geocaching	
7	**Weighing Balance**	**3**
	Accuracy : 0.004 g Power Supply : Battery 4AAA or external power supply Weighing range (max) : 620 g / 21.8 oz Readability (d) : 0.001 g	
8	**Digital Inclinometer**	**1**

	Specifications: Material: aluminum alloy Electrical source: 2 * AAA batteries Measuring range: 4 * 90° Working temperature: 0~40℃ Accuracy: ± 0.2° Resolution: 0.05° Repeatability: 0.1° Item size: 57 * 55 * 27mm Package size: 80 * 65 * 35mm / 3.15 * 2.56 * 1.38in Package weight: 84g	
9	**Pocket Stereoscope**	1
	Specifications: ▪ Materials: Tough, durable ABS plastic for all parts. ▪ Legs: High Grade Stainless steel. ▪ Lenses: Crown glass. ▪ Magnifications: 2X ▪ Storage: Vinyl plastic pocket. ▪ Weight: 0.12kg (0.22lb)	

Cost of Tender Forms: - 0.2% of the quoted amount rounded to the nearest multiple of 100, subject to a minimum ofRs.400/- and maximum of Rs. 1500 + GST 18%

Terms and Conditions:-

1. Tender should be submitted in the prescribed forms which can be downloaded from the website www.kau.edu/tenders. The cost of the tender forms will not be refunded under any circumstances.

2. The sealed cover containing the tender should be superscribed supply and installation **MicroPipette**, **Pocket Stereoscope**, **Digital Inclinometer, Weighing Balance, GPS, Heating mantle, Water bath, Soxhlet Extraction Unit, Pocket weather meter** (along with the notification number) and addressed to the Dean, College of Climate Change and Environmental Science, Vellanikkara, KAU.
3. Tender should be accompanied by EMD of Rs.2000/- and Tender fee @ 0.2% +GST 18% of quoted amount by way of three crossed Demand Drafts separately (1. Tender fee 2.GST on tender fee 3.EMD) drawn in favour of The Dean, College of Climate Change and Environmental Science, Vellanikkara, KAU, payable at the State Bank of India, KAU branch, Vellanikkara,. Late and incomplete tenders and tenders without EMD, tender fee and agreement will not be accepted. Firms which are exempted from payment of EMD should furnish copy of the current valid certificate from the Store Purchase Department, Government of Kerala.
4. The tender should be accompanied by an agreement in Kerala Stamp Paper worth Rs.200/- (Rupees Two Hundred only) and format can be downloaded from the above website.
5. The successful tenderer should execute an agreement in Kerala Stamp Paper worth Rs. 200/- (Rupees Two Hundred only) and should furnish a security deposit of 5% of the cost of the items quoted in the form of demand draft term deposit/ bank guarantee/demand draft drawn in favour of the Dean, College of Climate Change and Environmental Science, Vellanikkara, KAU at State Bank of India, KAU branch, Vellanikkara, the format of the agreement can be downloaded from the above website.
6. The price must be inclusive of all taxes and transportation charges and other charges, if any.
7. The cost of the item, tax and other charges should be stated separately
8. The exact specification, details of make, model, name of manufacturer, warranty details

etc.,of the item must be clearly specified.

9. If any Bandh/strike/ any unexpected holydays occur on the date of opening of tender, the tender will be opened at the same time on the next working day. The decision of the undersigned in accepting the tenders shall be final and binding.
10. Withdrawal of tenders after its acceptance of failure to supply the equipment or not according to the specification will entail cancellation of the tender.
11. The supply order will be issued on the acceptance of the tender and the invoice should be addressed to the Dean, College of Climate Change and Environmental Science, Vellanikkara. The payment will be effected only after satisfactory supply and installation of the item.
12. The successful tenderer should supply and install the item to College of Climate Change and Environmental Science, Vellanikkara, KAU. within Ten days from the date of the receipt of the supply order.
13. The Dean, College of Climate Change and Environmental Science, Vellanikkara, reserves the right to remove the name of the defaulted suppliers from the list of suppliers permanently or for a specific period.
14. The Dean, College of Climate Change and Environmental Science, Vellanikkara, has the right to accept or reject any or all of the offers without assigning any reason.
15. All the rules and regulations applicable to Government quotations will be applicable to this also.
16. In case of any delay in the procurement and installation of the equipment, the supplier/dealer shall be liable to pay a demurrage fee as determined by the College.

To,

1. KAU Website
2. Notice board

Signed by

(Sd/-)
DEAN