

National Center for Geodesy



INDIAN INSTITUTE OF TECHNOLOGY KANPUR

TENDER REFERENCE NO.: IITK/NCG/2019-20/12

BID SUBMISSION END DATE- 31.01.2020

TENDER DOCUMENTS

FOR

“Supply, Integration and Installation of Automatic Weather Station”

BID DOCUMENT

Online bids (Technical & Financial) from eligible bidders, which are valid for a period of 120 days from the date of Technical Bid opening (i.e. 03.02.2020) are invited for and on behalf of the Assistant Registrar (Store and Purchase), IIT Kanpur for the **“Supply, Integration and Installation of Automatic Weather Station”**

Name of Work	“Supply, Integration and Installation of Automatic Weather Station”
Date of Publishing	10.01.2020 (17:00 hrs)
Bid Submission Start Date	10.01.2020 (17:00 hrs)
Last Date and time of uploading of Bids	31.01.2020 (16:00 hrs)
Last Date and time of submitting EMD and other documents at IIT Kanpur (if any)	31.01.2020(12.00 hrs)
Pre Bid Meeting	NA
Date and time of opening of Technical Bids	03.02.2020 (16:00 hrs)
Date and time of opening of Financial Bids	Will be separately notified for Technically shortlisted/qualified bidders

Interested parties may view and download the tender document containing the detailed terms & conditions from the website <http://eprocure.gov.in/eprocure/app>

(The bids have to be submitted online in electronic form on <http://www.eprocure.gov.in> only. No physical bids will be accepted.)

INSTRUCTIONS FOR ONLINE BID SUBMISSION

The bidders are required to submit soft copies of their bids electronically on the Central Public Procurement (CPP) Portal <http://eprocure.gov.in/eprocure/app>, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

REGISTRATION:

- (i) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal ([URL:https://eprocure.gov.in/eprocure/app](https://eprocure.gov.in/eprocure/app)) by clicking on the link "Online Bidder Enrolment" option available on the home page. **Enrolment on the CPP Portal is free of charge.**
- (ii) During enrolment/ registration, the bidders should provide the correct/true information including valid email-id & mobile no. All the correspondence shall be made directly with the contractors/ bidders through email-id provided.
- (iii) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- (iv) For e-tendering possession of valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) is mandatory which can be obtained from SIFY /nCode/eMudra or any Certifying Authority recognized by CCA India on eToken/ SmartCard.
- (v) Upon enrolment on CPP Portal for e-tendering, the bidders shall register their valid Digital Signature Certificate with their profile.
- (vi) Only one valid DSC should be registered by a bidder. Bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse and should ensure safety of the same.
- (vii) Bidders can then log into the site through the secured login by entering their user ID/ password and the password of the DSC/eToken.

SEARCHING FOR TENDER DOCUMENTS:

- (i) There are various search options built in the CPP Portal to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords, etc., to search for a tender published on the CPP Portal.
- (ii) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
- (iii) The bidder should make a note of the unique Tender ID assigned to each tender; in case they want to obtain any clarification / help from the Helpdesk.

PREPARATION OF BIDS:

- (i) For preparation of bid, Bidders shall search the tender from published tender list available on site and download the complete tender document and should take into account corrigendum if any published before submitting their bids.
- (ii) After selecting the tender document same shall be moved to the 'My favorite' folder of bidders account from where bidder can view all the details of the tender document.

- (iii) Bidder shall go through the tender document carefully to understand the documents required to be submitted as part of the bid. Bidders shall note the number of covers in which the bid documents have to be submitted, the number of documents – including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- (iv) Any pre-bid clarifications if required, then same may be obtained online through the tender site, or through the contact details given in the tender document.
- (v) Bidders should get ready in advance the bid documents in the required format (PDF/xls/rar/dwf/jpg formats) to be submitted as indicated in the tender document/schedule. **Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.**
- (vi) Bidders can update well in advance, the documents such as experience certificates, annual report, PAN, EPF & other details etc., under “My Space/ Other Important Document” option, which can be submitted as per tender requirements. This will facilitate the bid submission process faster by reducing upload time of bids.

SUBMISSION OF BIDS:

- (i) Bidder should log into the site well in advance for bid submission so that he/ she upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay.
- (ii) Bidder should prepare the EMD if any as per the instructions specified in the NIT/ tender document. The details of the DD/BC/BG/ others physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.
- (iii) While submitting the bids online, the bidder shall read the terms & conditions (of CPP portal) and accepts the same in order to proceed further to submit their bid.
- (iv) Bidders shall select the payment option as offline to pay the EMD if applicable and enter details of the DD/BC/BG/others.
- (v) Bidder shall digitally sign and upload the required bid documents one by one as indicated in the tender document.
- (vi) Bidders shall note that the very act of using DSC for downloading the tender document and uploading their offers is deemed to be a confirmation that they have read all sections and pages of the tender document without any exception and have understood the complete tender document and are clear about the requirements of the tender document.
- (vii) Bid documents may be scanned with 100 dpi with black and white option, which helps in reducing size of the scanned document. For the file size of less than 1 MB, the transaction uploading time will be very fast.
- (viii) If price quotes are required in XLS format, utmost care shall be taken for uploading Schedule of quantities & Prices and any change/ modification of the price schedule shall render it unfit for bidding.
- (ix) Bidders shall download the Schedule of Quantities & Prices i.e. Schedule-A, in XLS format and save it without changing the name of the file. Bidder shall quote their rate in figures in the appropriate cells. Thereafter, save and upload the file in financial bid cover (Price bid) only.
- (x) If the template of Schedule of Quantities & Prices file is found to be modified/corrupted in the eventuality by the bidder, the bid will be rejected and further dealt as per provision of clause no 23.0 of ITB including forfeiture of EMD if submitted.
- (xi) The bidders are cautioned that uploading of financial bid elsewhere i.e. other than in cover 2 will

result in rejection of the tender.

- (xii) Bidders shall submit their bids through online e-tendering system to the Tender Inviting Authority (TIA) well before the bid submission end date & time (as per Server System Clock). **The TIA will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders at the eleventh hour.**
- (xiii) After the bid submission (i.e. after Clicking “Freeze Bid Submission” in the portal), the bidders shall **take print out of system generated acknowledgement** number and keep it as a record of evidence for online submission of bid, which will also act as an entry pass to participate in the bid opening.
- (xiv) Bidders should follow the server time being displayed on bidder’s dashboard at the top of the tender site, which shall be considered valid for all actions of requesting, bid submission, bid opening etc., in the e-tender system.
- (xv) All the documents being submitted by the bidders would be encrypted using PKI (Public Key Infrastructure) encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128-bit encryption technology.

ASSISTANCE TO BIDDERS:

- (i) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contract person indicated in the tender. The email for the helpdesk is ncg@iitk.ac.in
- (ii) Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24X7 CPP Portal Helpdesk. The 24 x 7 Help Desk Number 0120-4200462, 0120-4001002 and 0120-4001005. The helpdesk email id is support-eproc@nic.in

INSTRUCTION FOR e-PROCUREMENT

PREPARATION AND SUBMISSION OF BIDS:

- (i) The detailed tender documents may be downloaded from <http://eprocure.gov.in/eprocure/app> till the last date of submission of tender. The tender may be submitted online through CPP Portal <http://eprocure.gov.in/eprocure/app>
- (ii) The bidder should submit the bid online in two parts viz. Technical Bid and Financial Bid. Technical Bid should be uploaded online in cover 1 and Financial Bid in “.xls” should be upload online in cover-2

SUBMISSION OF THE BID:

All interested eligible bidders are requested to submit their bids online on CPP Portal: <http://eprocure.gov.in/eprocure/app> as per the criteria given in this document:

- a. Technical Bid should be uploaded online in cover-1.
- b. Financial Bid should be uploaded online in cover-2.

Both Technical and Financial Bid covers should be placed online on the CPP Portal

(<http://eprocure.gov.in/eprocure/app>).

TECHNICAL BID:

Signed and scanned copies of the Technical Bid documents as under must be submitted online on CPP Portal: <http://eprocure.gov.in/eprocure/app>

List of Documents to be scanned and uploaded (Under Cover-1) within the period of bid submission:

- (i) Scanned copy of Bank details. (Bank details of principal supplier in case of Import shipments)
- (ii) Scanned copy of work experience.
- (iii) Scanned copy of certificate of GST. (GSTIN of Indian Agent in case of Import Shipments)
- (iv) Scanned copy of tender acceptance letter and all other documents as per cover-1.
- (v) Scanned copy of specifications or brochures (if any).
- (vi) Scanned copy of other documents mentioned in tender document (if any)
- (vii) Scanned copies of (a) Tender compliance sheet and (b) authorization letter from OEM.

Please note that no indication of the rates/amounts be made in any of the documents submitted with the TC-BID.

FINANCIAL BID:

- (i) The currency of all quoted rates shall be in multi-currency.
- (ii) In preparing the financial bids, bidders are expected to take into account the requirements and conditions laid down in this Tender document. The financial bids should be uploaded online as per the specified ".xls" format i.e. Price Bid Excel sheet attached as '.xls' with the tender and based on the scope of work, service conditions and other terms of the Tender document. It should include all costs associated with the Terms of Reference/Scope of Work of the assignment.
- (iii) The Financial Proposal should be inclusive of all applicable taxes, duties, fees, levies, and other charges imposed under the applicable laws. The rates quoted in the Tender are inclusive of all applicable taxes, duties.

LAST DATE FOR SUBMISSION OF TENDER:

- (i) Online bids complete in all respects, must be submitted on or before the last date and time specified in the schedule of events.
- (ii) The IIT, Kanpur may, at its own discretion, alter/extend the last date for submission of tenders.

BID VALIDITY:

- (i) All the Bids must be valid for a period of 120 days from the last date of submission of the tender for execution of Contract. However, the quoted rates should be valid for the initial/ extended period of the Contract from the effective date of the Contract. No request will be considered for price revision during the original Contract period.
- (ii) A bid valid for a shorter period shall be declared as non-responsive.

- (iii) In exceptional circumstances, prior to expiry of the original time limit, the IIT may request the bidders to extend the period of validity for a specified additional period beyond the original validity of 120 days. The request and the bidders' responses shall be made in writing. The bidders, not agreeing for such extensions will be allowed to withdraw their bids without forfeiture of their Bid Security.

MODIFICATION / SUBSTITUTION / WITHDRAWAL OF BIDS:

- (i) No Bid shall be modified, substituted or withdrawn by the Bidder after the Bid's due Date.
- (ii) Any alteration/ modification in the Bid or additional information supplied subsequent to the Bid's due date, unless the same has been expressly sought for by the Authority, shall be disregarded.

REJECTION OF THE BID:

The bid submitted shall become invalid and tender fee shall not be refunded if:

- (i) The bidder is found ineligible.
- (ii) The bidder does not upload all the documents as stipulated in the bid document.

Tender Document

National Centre of Geodesy
Indian Institute of Technology Kanpur
Kanpur (UP) 208016 India

Enquiry date: January 10, 2020

Enquiry No: IITK/NCG/2019-20/12

Contact:

Prof. Onkar Dikshit

Department of Civil Engineering

Indian Institute of Technology Kanpur

Kanpur 208016 (UP), India

Online quotations are invited for **“Supply, Integration and Installation of Automatic Weather Station”**.

Terms and Conditions:

1. All equipment must be compatible with Indian electrical standards and codes. Engineering documentation on the physical sizes and weights of all major and minor components must be submitted.
2. Warranty & Support: Three years comprehensive on-site for both hardware and SW from OEM directly.
3. Quotations must be valid for 120 days.
4. IIT Kanpur is fully exempted from payment of GST on Imported Goods against our DSIR certificate.
5. IIT Kanpur is partially exempted from payment of Customs Duty (We will provide Custom Duty Exemption Certificate, CD applicable is 5.5%).
6. Tender Specific Manufacturer Authorization Form from OEM is required.
7. The Institute reserves the right of accepting or rejecting any quotations without assigning any reason thereof.
8. All prices should be both *FOB and CIP basis*. IIT Kanpur has its own freight forwarder i.e., Balmer Lawrie & Co. Ltd.
9. IIT Kanpur is authorized to procure the equipment by opening the LC. Hence, procurement through opening of LC will be the preferred choice. All relevant documents to this effect will be provided by IIT Kanpur. However, one can also quote in Indian rupees as well. Therefore, it is desirable that the quotation is provided for procurement by both these arrangements.

10. Supply, installation and integration must be done by the OEM or authorized suppliers of the OEM.
11. Full details of the *standard* configuration of equipment along with *accessories* and *technical literature* should be provided. **The standard configuration must be accompanied by associated brochure giving the complete and clear configuration of the system offered (e.g. part no., preferably photograph of the part, number of units, accessories: wires, connectors, etc.).**
12. The vendor must provide a compliance document which should clearly specify how each technical requirement is satisfied by the system suggested by the vendor.
13. Various *optional features* with the equipment (along with their cost) should be specified.
14. The vendor is liable to update all the necessary softwares and firmwares without any additional charges under warranty period. This will be counted from the date of training.
15. Custom clearance/License/NOC from any Government agency required for Wireless, Bluetooth communication, if any, will be the responsibility of the vendor. However, necessary papers will be provided by IIT Kanpur, if required.
16. The vendor must bid for the latest equipment with a certificate from the manufacture that the equipment is still under production and not outdated.
17. The short-listed vendor(s) may be asked to demonstrate the functionality of quoted equipment and associated software at IIT-Kanpur. IIT Kanpur will provide a prior date for the same before the opening of the Financial bid.
18. The delivery of the equipment must be made within ten weeks after establishment of LC.
19. **Please clearly mention the arrangements and cost of the following:**
 - i) Warranty period of three years for equipment/ hardware from the OEM.
 - ii) Software maintenance period of three years.
 - iii) **Details of after-sales service (a) to be provided** which should include details of in-house facilities for the same, turn-around time with acceptable solution, availability of spare parts and their warranty and stand-by system.
20. **Training:** Provision of training of highest standards is one of the primary requirements in this work. **Please note that cost of training will be released by IIT-Kanpur only after certification that satisfactory training has been provided at IIT Kanpur.**

Please clearly mention the cost of such training with the following requirements:

- (i) A minimum of five days good quality training should be provided at IIT-Kanpur to the users of the equipment which should cover the basic and the advanced concepts on the usage and data processing with the equipment.
- (ii) Please mention number of certified/qualified staff members/trainers who will conduct the training.
- (iii) One hard copy of handout and one softcopy of all training manuals should be provided, covering installation, operation, maintenance and calibration of the system, usage and the system application software at IIT Kanpur.

- (iv) The vendor should provide all operation, service and maintenance manuals (in English).
21. Hard copies of detailed manuals/brochures/demand drafts of tender processing fee and EMD should reach to the office of "Assistant registrar" (Store and Purchase) on or before technical bid opening date i.e. 31.10.2019 by 12 noon.
 22. Bidder should bid for complete set of equipment, SW and training. Partial bidding shall be summarily rejected.

CRITERIA FOR QUALIFICATION

- a) The applicant should be an organization engaged in the related field of work. A minimum of **5 years** of experience is mandatory.
- b) The applicant must be a profit-making organisation continuously for last three years ending March 2019.
- c) The applicant must have an average annual turnover of Rs 2.0 crore in the previous 3 years ending March 2019.
- d) The applicant who is barred or blacklisted by any Central/State Government in India or abroad will not be eligible for qualification.
- e) The details of technical qualification are provided under level of work done and turnover (See Annexure 6 for more details).
- f) Even though an applicant may satisfy the above requirements, he/she would be liable to disqualification if he/she has:
 - i. Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the prequalification document.
 - ii. Record of poor performance such as abandoning work, not properly completing the contract, or financial failures / weaknesses etc.
- g) Persons who are individually or institutionally, in any manner, involved with the selection/screening process of the tender and employees of IIT Kanpur, are ineligible for applying.
- h) **Technical evaluation consists of fulfilment of pre-requisite qualifications and technical details of equipment and successful demonstration of equipment and SW. The technical bid shall be examined by the expert group of the Institute. The bidders shall be invited to make presentations before the expert group. Based on the presentations, the agencies shall be shortlisted for opening the financial bid. Technical bids without EMD and tender fee will be summarily rejected.**

The institute reserves the right to shortlisting of the agencies, subject to thorough verification of their credential and inspection of similar nature works carried out / in progress by them, through a Technical Committee of experts to be constituted by IIT Kanpur.

Technical Specifications

Data Inputs

- Analog: 16 channels
- Input range: The datalogger should have multiple input ranges along with “AutoRanging” facility to measure the sensors accurately without any loss of accuracy. The datalogger should have these input ranges: $\pm 5000\text{mV}$, $\pm 1000\text{mV}$, $\pm 200\text{mV}$
- Analog: voltage measurement accuracy no less than $\pm(0.04\%$ of reading + offset) over temperature range of 0° to 40°C , no less than $\pm(0.06\%$ of reading + offset) over temperature range of -40° to 70°C
- Analog: all channels performed one at a time
- Excitation: at least four independently configurable voltage sources that can operate in at least one of two modes:
 - Switched Excitation, a single 16-bit digital-to-analog converter (DAC), provides a user-specified voltage during measurement only.
 - Switched Regulated Voltage Supply, provides continuous 3.3 Vdc or 5 Vdc.
- Pulse Counting: At least two inputs individually configurable for switch closure, high-frequency pulse, or low-level AC measurements. Independent 32-bit counter for each input.
- Switch Closure Inputs with Minimum Switch Closed Time: 5 ms, Minimum Switch Open Time: 6 ms, Maximum Bounce Time: 1 ms open without being counted
- Digital: At least eight ports configurable for digital input and output including status high/low, pulse width modulation, external interrupt, edge timing, switch closure, pulse counting, high-frequency pulse counting, UART, RS-232/RS-485, SDI-12, I2C.

Analog to Digital Conversion

- Resolution: (24 Bit)
- Conversion Accuracy ± 1 LSB
- The DCP should have watchdog timer to reset the system and restore the previous set-up case of microprocessor resets and power glitch.

Real Time Clock

- The normal time clock of the system should be derived from TCXO with accuracy of 3.0 ppm/yr.
- In addition, the system should also have battery backed real time clock so that the time is updated even during power failure.
- The accuracy of this clock should be better than 3 minutes in six-months periods.

Communication

- Interface: USB: Micro-B, RJ-45: RS-232, RJ-45: Ethernet
- Internet Protocols: Ethernet, PPP, IP, RNDIS, ICMP/Ping, Auto-IP(APIPA), IPv4, IPv6, UDP, TCP, TLS, DNS, SLAAC, SNMPv2, NTP, Telnet, HTTP(S), FTP(S), SMTP/TLS, POP3/TLS
- Protocols: SDI-12, Modbus, RTU/ASCII/TCP, DNP3, NTCIP, NMEA 0183, I2C, SPI, Custom user definable over serial, TCP, UDP

Data Storage

- Storage: no less than 4 MB SRAM + 72 MB flash
- Storage Expansion: Removable microSD flash memory; up to 8 GB
- Data File Formats: CSV, XML, JSON, binary, encrypted, custom user definable

Power Requirements

- Typical Current Drain in Sleep Mode: ~2 mA or better 1 Hz Scan (8 diff. meas. 60 Hz rej., 2 pulse meas.): 3 mA. 12 V switched DC with maximum current supplying capacity of 1.0A during measurement period for powering up the sensors. Short circuit and over load protection.

Operating conditions

- Maximum average current drain @12Vdc ≤ 1 mA Idle and ≤ 1.5 mA @ 1 Hz scan.
- Temperature range: -40 to +70° C
- Voltage input: 10 to 16 Vdc
- Voltage input protection: Reverse polarity protected; overvoltage protected up to 30 Vdc

Weight

- Data logger should be less than 3.6 kgs. Weight of battery and NEMA-IV enclosure is excluded.

Power

Bidders to provide 12V power supply for the system. AC power will be provided by the organisation.

Sensors

Wind Speed

Range	0 to 100 m/s (0 to 224 mph)
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Gust Survival	86 m/s
Accuracy	±0.3 m/s (±0.6 mph) or 1% of reading
Starting Threshold	1.0 m/s (2.2 mph)
Distance Constant	2.7 m (8.9 ft) 63% recovery
Input Power Supply	10V DC to 15V DC
Output	Compatible to datalogger (ac voltage (three pulses per revolution) 90 Hz (1800 rpm) = 8.8 m/s (19.7 mph))
Resolution	(0.0980 m s ⁻¹) / (scan rate in seconds) or (0.2192 mph) / (scan rate in seconds)
Sensor Consumption	<1.5mA at 12V DC
Operating Temp Range	-50° to +50°C (assuming non-riming conditions)

Wind Direction

Type	Combined, Propeller Vane Type
Mechanical Range	0 to 360°
Electrical Range	355° (5° open)
Input Power Supply	10V DC to 15V DC
Sensor Consumption	<1.5mA at 12 VDC
Accuracy	±3°
Starting Threshold	1.1 m/s (2.4 mph) at 10° displacement
Distance Constant	1.3 m (4.3 ft) 50% recovery
Distance Constant	1.3 m (4.3 ft) 50% recovery
Damping Ratio	0.3
Damped Natural Wavelength	7.4 m (24.3 ft)
Undamped Natural Wavelength	7.2 m (23.6 ft)
Output	Compatible to logger (Linearity is 0.25%. Life expectancy is 50 million revolutions. Analog dc voltage from potentiometer (resistance 10k ohm))
Operating Temp Range	- 40 °C to + 50 °C

Digital Thermopile Pyranometer

ISO Classification	Class C (second class)
Measurement Range	0 to 2000 W/m ² (net short-wave irradiance)
Measurement Repeatability	< 1%
Non-Linearity	< 1%
Tilt Response	+/- 1 % at 1000 W m ⁻²
Long-Term Drift	< 2% (per year)
Sensitivity	0.057 mV/W/m ²
Detector Type	Blackbody thermopile
SDI-12 Response Time	2 s
Field of View (FOV)	180°
Spectral Range	385 to 2105 nm (50% points)
Directional (Cosine) Response	< ±20 W/m ² (at 80° solar zenith)
Temperature Response	< 5% (from -15° to +45°C)
Output	SDI-12 (version 1.4) 1200 bps
Zero Offset A	8 W/m ²
Zero Offset B	< 5 W/m ²
Operating Temperature Range	-50° to +50°C
Operating Environment	0 to 100% relative humidity
Heater	0.2 W (on-board)
Heater Power Requirements	25 mA current drain (at 12 Vdc)
Input Voltage Requirements	6 to 24 Vdc
Current Drain	<ul style="list-style-type: none"> • 5 mA (measurement) • 3 mA (standby)
Non-linearity (at 1000 W m ⁻²)	+/- 1
Uncertainty in Daily Total	< 5%
Error Due to Clouds	±2 %
Mechanical Rating	IP66/68
Diameter	3.43 cm (1.35 in.)
Height	3.96 cm (1.56 in.)
Weight	~65 g (2.3oz) May vary due to potting.

Air Temperature and Relative Humidity Sensor

Specifications

Supply Voltage	7 to 30 V dc (typically powered by the data logger's 12 V supply)
Average Current Consumption	< 1.2 mA
Filter Description	30 μ m pore size, stainless-steel mesh
Start up Time	2s
Weight	Approximately 300 g with 5 m cable

Air Temperature

Air Temperature

Sensor	1000 Ω Platinum Resistance Thermometer (PRT)
Operating Temperature Range	-40° to +60°C
Storage Temperature Range	-40° to +80°C
Input power supply	7V to 28V DC
Output Signal Range	0 to 1 Vdc
Reported Resolution	0.001 DegC
Sensor Consumption	<1 mA at 12 V DC
Output	Digital(Sdi-12)
Accuracy	$\pm 0.2^{\circ}\text{C}$ (at +23°C)

Relative

Humidity

Sensor	Capacitance
Measurement Range	0 to 100% RH (non-condensing)
Output Signal Range	0 to 1 Vdc
Temperature Dependence	Typically 0.03% RH/°C
Temperature Range	-40°C to +70°C
Response Time	< 15 Seconds
Input power supply	7V to 28V DC
Accuracy at -15° to +40°C	<ul style="list-style-type: none"> • $\pm(1.3 + 0.003 \cdot \text{RH reading})$ % RH (0 to 90% RH) • $\pm 2.3\%$ RH (90 to 100% RH)

Accuracy at -25° to +60°C	$\pm (1.4 + 0.01 \cdot \text{RH reading}) \% \text{ RH}$
Accuracy at -40° to +60°C	$\pm (1.5 + 0.015 \cdot \text{RH reading}) \% \text{ RH}$

Barometric Pressure Sensor

Pressure Range	600 to 1100 hPa
Long-Term Stability	± 0.1 hPa per year
Response Time	< 100 ms
Resolution	± 0.01 hPa
Excitation	9.5 to 28 Vdc
Accuracy	<ul style="list-style-type: none"> • ± 0.5 hPa (@ +20°C) • ± 1.0 hPa (@ 0° to 40°C) • ± 1.5 hPa (@ -20° to +50°C) • ± 2.0 hPa (@ -40° to +60°C)
Linearity	± 0.4 hPa
Hysteresis	± 0.05 hPa
Repeatability	± 0.03 hPa
Warm-up Time	< 1 s
Current Consumption	<ul style="list-style-type: none"> • < 3 mA (active) • < 1 μA (sleep mode)
Operating Temperature Range	-40° to +60°C
Power Supply	+10V to +15V DC (reverse polarity protected)
Weight	<0.25 Kg

Precipitation Metric Rain Gage

Sensor Type	Tipping bucket/magnetic reed switch
Material	Anodized aluminum
Operating Temperature Range	0° to 50°C

Resolution	1 tip
Rainfall per Tip	0.1 mm (0.004 in.)
Accuracy	1.0% up to 2 in./h (50 mm/h)
Cable Type	2-conductor shielded
Cable Weight	0.1 kg (0.2 lb) per 3.05 m (10 ft) length
Tipping Bucket Weight	1.1 kg (2.4 lb)

Alter-Type Rain Gage Wind Screen

- Compatible with tipping bucket rain gages.

Soil Water Content Reflectometer and Soil Moisture

Specifications

Measurements Made	Soil electrical conductivity (EC), relative dielectric permittivity, volumetric water content, soil temperature
Required Equipment	Measurement system
Sensing Volume	3600 cm ³
Electromagnetic	CE compliant (Meets EN61326 requirements for protection against electrostatic discharge and surge.)
Operating Temperature Range	-50° to +70°C
Sensor Output	SDI-12; serial RS-232
Warm-up Time	3 s
Measurement Time	3 ms to measure; 600 ms to complete SDI-12 command
Power Supply Requirements	6 to 18 V dc (Must be able to supply 45 mA @ 12 Vdc.)
Maximum Cable Length	610 m (2000 ft) combined length for up to 25 sensors connected to the same data logger control port
Ingress Protection Rating	IP68

Electrical Conductivity	
Range for Solution EC	0 to 8 dS/m
Range for Bulk EC	0 to 8 dS/m
Accuracy	$\pm(5\% \text{ of reading} + 0.05 \text{ dS/m})$
Precision	0.5% of BEC
Relative Dielectric Permittivity	
Range	1 to 81
Accuracy	<ul style="list-style-type: none"> • $\pm(3\% \text{ of reading} + 0.8)$ from 1 to 40 for solution EC ≤ 8 dS/m • ± 2 (from 40 to 81 for solution EC ≤ 2.8 dS/m)
Precision	< 0.02

Volumetric Water Content	
Range	0 to 100% (with M4 command)
Water Content Accuracy	$\pm 1\%$ (with soil-specific calibration) where solution EC < 3 dS/m $\pm 3\%$ (typical with factory VWC model) where solution EC < 10 dS/m
Precision	< 0.05%
Soil Temperature	
Range	-50° to +70°C
Resolution	0.001°C
Accuracy	<ul style="list-style-type: none"> • $\pm 0.1^\circ\text{C}$ (for typical soil temperatures [0 to 40°C] when probe body is buried in soil) • $\pm 0.5^\circ\text{C}$ (for full temperature range)
Precision	$\pm 0.02^\circ\text{C}$

Specifications

Operating Temperature Range	<ul style="list-style-type: none"> • -40° to +70°C (standard) • -55° to +85°C (extended) • Non-condensing environment
Case Material	High-impact-resistant polycarbonate and UV-resistant TPE, recycle code 7
Universal Inputs	12 individually configured inputs for analog or digital functions
Pulse Counters	16 (C1 to C4 and U1 to U12)
Communications Ports	<ul style="list-style-type: none"> • Ethernet • USB Micro B • CS I/O • RS-232 • CPI • RS-485 • SDI-12
Data Storage Ports	microSD
Switched 12 Volt	2 terminals
Digital I/O	16 terminals (C1 to C4, U1 to U12) configurable for digital input and output. Terminals are configurable in pairs for 5 V or 3.3 V logic for some functions.
Input Limits	±5 V
Analog Voltage Accuracy	<ul style="list-style-type: none"> • Accuracy specifications do not include sensor or measurement noise. • ±(0.04% of measurement + offset) at 0° to 40°C • ±(0.06% of measurement + offset) at -40° to +70°C • ±(0.08% of measurement + offset) at -55° to +85°C (extended temperature range)
ADC	24-bit

Power Requirements	<ul style="list-style-type: none"> • 16 to 32 Vdc for charger input (CHG) • 10 to 18 Vdc for battery input (BAT)
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Real-Time Clock Accuracy	±3 min. per year (optional GPS correction to ±10 µs)
Internet Protocols	Ethernet, PPP, CS I/O IP, RNDIS, ICMP/Ping, Auto-IP(APIPA), IPv4, IPv6, UDP, TCP, TLS, DNS, DHCP, SLAAC, SNMPv3, NTP, Telnet, HTTP(S), FTP(S), SMTP/TLS, POP3/TLS
Communication Protocols	CPI, PakBus, SDM, SDI-12, Modbus, TCP, DNP3, UDP, NTCIP, NMEA 0183, I2C, SPI, and others
Battery-backed SRAM for CPU Usage & Final Storage	4 MB
Data Storage	4 MB SRAM + 72 MB flash (Storage expansion of up to 16 GB with removable microSD flash memory card.)
Idle Current Drain, Average	<ul style="list-style-type: none"> Assumes 12 Vdc on BAT terminals; add 2 mA if using CHG terminals. < 1 mA
Static Vibrating-Wire Measurements	Supported
Dimensions	21.0 x 10.2 x 5.6 cm (8.3 x 4.0 x 2.2 in.) Additional clearance required for cables and leads.
Weight	0.42 to 0.52 kg (0.92 to 1.15 lb) depending on communication option selected

CR6-WIFI Option	
Operational Modes	Client or Access Point
Operating Frequency	2.4 GHz, 20 MHz bandwidth
Antenna Connector	RPSMA
Antenna	pn 16005 unity gain (0 dBd), 1/2 wave whip, omnidirectional with articulating knuckle joint for vertical or horizontal orientation

Solar Panel

Transmit Power	7 to 18 dBm (5 to 63 mW)
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Specifications

Guaranteed Minimum Peak Power	At least 18 W
Current at Peak	~ 1.19 A
Voltage at Peak	At least 16.8 V

Enclosures & Mounting - Main Station Mounts 7 to 10 ft

Galvanized-Steel-Tubing Tripod with Grounding Kit**Specifications**

Vertical Load Limit	200 kg (440 lb)
Leveling Adjustment	Slide collars on each leg adjust individually
Maximum Slope Angle	45° or 100% grade
Measurement Height	<ul style="list-style-type: none"> • 2.1 to 2.8 m (7 to 9.3 ft) with upper mast retracted • 3 to 3.7 m (10 to 12.3 ft) with upper mast extended
Leg Base	11.43 x 13.97 cm (4.5 x 5.5 in.) with four 1.58 cm (0.62 in.) holes for stakes
Collapsed Diameter	20.3 cm (8 in.)
Collapsed Length	1.83 m (6 ft)
Main Lower Mast Outer Diameter	48 mm (1.90 in.)
Retractable Upper Mast Outer Diameter	44 mm (1.74 in.)
Base Diameter	2.7 to 3.5 m (8.7 to 11.5 ft)
Weight	24.5 kg (54 lb) with mast

Rain Gage Mounts Rain Gage Mounting Pole with Short Legs

Data Retrieval

Retrieval of should be provided with the following options:

- a. Through Compact Flash Card (Industrial Grade with operating temperature range of -35° to +65°C) of 1GB capacity

b. Through Ethernet communication to retrieve the data from the Automatic Weather Station.

SOFTWARE

General Description:

Versatile software that supports data logger programming, diagnosis, variety of telecommunication options, manual data collection, and data display is required.

The software should have easy to use program generator for easy programming as well as full-featured program editors for advanced programming.

Features:

- The software should have easy station setup
- The software should support the proposed data logger for the AWS
- There should be programming tools to create/edit data logger programs that measure sensors and stores data values as per requirements
- Data retrieval via direct connect, phone modems, Ethernet, radios (UHF, VHF or spread spectrum), or multidrop modems should be supported in the software as it may be required in the future.
- Real-time or historic data displays should be available
- Time-series graphs for up to two elements from a data file
- Troubleshooting tools (terminal emulator and communications log) should be available

HOW TO APPLY

Bidders should submit bids through online mode on CPPP. Any other mode is not accepted in any case. The documents as listed below (but not limited to) should be submitted in two respective sealed envelopes, clearly marked on the envelope its contents, as given below.

Cover 1:

- a) A Demand Draft (DD) towards tender processing fees (non-refundable) of Rs. 1000/- plus Rs. 180/- GST (a Total of Rs. 1180/). This DD should be in favour of Registrar, IIT Kanpur.
- b) For EMD, a demand draft of Rs. 1 lakh (refundable) in favour of Registrar, IIT Kanpur should be submitted.
- c) Covering letter as well as Authority letter as per Annexure 1
- d) Affidavit for registration of firm/company and an undertaking of not being blacklisted as per Annexure 2
- e) Organization structure as per Annexure 3
- f) Details of In-house services as per Annexure 4
- g) Brief Biodata of Key professionals as per Annexure 5
- h) The copies of valid registration/incorporation certificate of the firm(s) along with the copies of relevant documents.
- i) The *authorization certificate and propriety certificates* must be attached with the offer.
- j) The document establishing that the applicant has a work and qualifying experience of more than **five (5)** years in the related field as per Annexure 6.
- k) The applicant shall attach work performance certificates of the works completed as per the requirement of minimum qualification criteria. The details be submitted as per Annexure 7.
- l) Copy of the audited balance sheet for last three (3) financial years starting 2015 – 2016. The details be submitted as per Annexure 8.
- m) Technical specification compliance report per proposal (Annexure 9).
- n) Technical proposal as per the scope of the work.

Cover-2:

Financial bid: The financial bid shall be submitted as per BOQ:

Date:

Signature

Place:

Seal

Note:

1. The terms of payments:
 - a) 75% after the supply of equipment and SW (as per BOQ).
 - b) 25% after the installation and integration
 - c) Cost of training will be released only after providing satisfactory training and handing over all training material as specified in the tender document.
 2. No advance payment without bank guarantee of equal amount shall be admissible.
 3. Incorrect, incomplete, inadequate information may lead to rejection of the application. Canvassing in any form may lead to summarily rejection of application.
 4. IIT Kanpur reserves the right to reject any application without disclosing the reason.
 5. IIT Kanpur also will not provide any explanation to the applicants related to the short listing and selection process. The decision of IIT Kanpur in this respect shall be final and binding on all applicants.
 6. All disputes are subject to Kanpur jurisdiction only.
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TENDER ACCEPTANCE LETTER
(To be given on Company Letter Head)

Date: _____

To,

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No: _____

Name of Tender / Work: - _____

Dear Sir,

1. I / We have downloaded / obtained the tender document(s) for the above mentioned 'Tender/Work' from the web site(s) namely: _____ as per your advertisement, given in the above mentioned website(s).
2. I / We hereby certify that I / we have read the entire terms and conditions of the tender documents from Page No. _____ to _____ (including all documents like annexure(s), schedule(s), etc.), which form part of the contract agreement and I / we shall abide hereby by the terms / conditions / clauses contained therein.
3. The corrigendum(s) issued from time to time by your department/ organization too have also been taken into consideration, while submitting this acceptance letter.
4. I / We hereby unconditionally accept the tender conditions of above-mentioned tender document(s) / corrigendum(s) in its totality / entirety.
5. I / We do hereby declare that our Firm has not been blacklisted/ debarred/ terminated/ banned by any Govt. Department/Public sector undertaking.
6. I / We certify that all information furnished by our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/ organisation shall without giving any notice or reason therefore or summarily reject the bid or terminate the contract, without prejudice to any other rights or remedy including the forfeiture of the full said earnest money deposit absolutely.

Yours Faithfully,

(Signature of the Bidder, with Official Seal)

Annexures

All Annexures from 1 to 9 are to be filled, signed and executed by all the applicants. No blank is to be left empty. In case the blank is not applicable, then that is to be mentioned as "NOT APPLICABLE".

Annexure 1

TO BE SWORN ON A NON-JUDICIAL STAMP PAPER OF RS.100/-

AFFADAVIT

*I/we*Director/Proprietor/Partner of(mention name of organization and its complete address) do hereby solemnly affirm and declare as under:-

1. That *I/we *am/are registered as (mention name of *firm/company) vide Registration No..... under the provisions of (Mention the name of the Act).
2. That *I/we have applied in response to the Request for “**Supply, Integration and Installation of Automatic Weather Station**”.

DEPONENT VERIFICATION

I/we the above-named deponent do hereby verify that the contents of the aforesaid paragraphs 1 and 2 are true and correct to the best of *my/our knowledge and belief and nothing is concealed therefrom.

Verified at(place) this Day of 2018

(Strike off whichever is not applicable)

DEPONENT

Note: Deponent will be the authorized signatory of the Applicant

Annexure 2

TO BE SWORN ON A NON-JUDICIAL STAMP PAPER OF RS.100/-

AFFADAVIT

*I/we*Director/Proprietor/Partner of(mention name of organization and its complete address) do hereby solemnly affirm and declare as under:-

1. That (Mention name of organization) is eligible to submit the aforesaid proposal as neither the applicant has been barred and/or blacklisted by the Central Government and/or any State Government of India at any time prior to the date of submitting this affidavit.
2. That (mention name of organization) or any of its constituents during the last three years has neither failed to perform on any agreement nor was expelled from any project or agreement nor any agreement terminated for any breach by the applicants or any of its constituents.
3. That an annexure attached to this affidavit gives list of all contracts of (mention organization) or any of its constituents with the state / central government that are in arbitration.

DEPONENT

VERIFICATION

*I/we the above-named deponent do hereby verify that the contents of the aforesaid paragraphs 1 to 3 are true and correct to the best of *my/our knowledge and belief and nothing is concealed therefrom.

Verified at (place) this Day of 20.....

(Strike off whichever is not applicable)

DEPONENT

Note: Deponent will be the authorized signatory of the Applicant

Pro forma: ORGANISATIONAL STRUCTURE

(This form to be furnished not only by the Prime Consulting firm applying for the prequalification, but also furnish separately for sub-consultants who would be associated with this project work)

1	Name & Address of the applicant with Telephone No./Fax No./ Email ID	
2	a. Year of Establishment b. Date & Year of commencement of practice.	
3	Legal status of the applicant (attach copies of original document defining the legal status) A proprietary firm A firm in partnership A limited company or Corporation	
4	Names of Directors & other executives with designation	
5	Designation of individuals authorized to act for the organization	
6	Total No. of professional staff (In house):-	
7	Was the applicant ever required to suspend the project for a period of more than six months continuously after you commenced the planning? If so, give the name of the project and reasons of suspension of project.	
8	Has the applicant, or any partner in case of partnership firm, ever abandoned the awarded project before its completion? If so, give name of the project and reasons for abandonment.	
9	Has the applicant or any constituent partner in case of partnership firm, ever been debarred/black listed for competing in any organization at any time? If so, give details.	
10	Has the applicant or any constituent partner in case of partnership firm, ever been convicted by a court of law? If so, give details.	
11	In which field of work the applicant has specialization & interest	
12	Any other information considered necessary but not included above.	
13	Address of local office if any	

DETAILS OF IN-HOUSE SERVICES AVAILABLE FOR THE ASSIGNMENTS

S. No.	In-house Service	Availability of Services	Nos. of In-house Staff with experience		
			Experience of 10 years & above	Experience of 5 -10 years	Experience of less than 5 years
1	Training	Yes/No			
2	Repair	Yes/No			
3	Calibration	Yes/No			
4	Temporary replacement for faulty equipment	Yes/No			
5		Yes/No			
6		Yes/No			
7	Add other services as appropriate for this tender	Yes/No			
8		Yes/No			
9		Yes/No			
10		Yes/No			
11		Yes/No			
12		Yes/No			

If no in-house service is available, explain how it is proposed to be provided to IIT-Kanpur, if required

Note:

Maximum two-page CV of each main member and key expert shall be furnished as per Annexure 7.

BRIEF BIO-DATA OF KEY PROFESSIONALS

(with emphasis on providing training, technical support, calibration, repairs)

(This form to be furnished not only by the principal member of the firm applying for the prequalification, but also furnish separately for sub-consultants who would be associated with this project work)

Name of Firm: _____

Professional: _____

Date of Birth: _____

Years with Firm: _____

Nationality: _____

Membership in Professional Societies: _____

Detailed Task Assigned: _____

Key Qualifications: [Give an outline of staff member's experience and training relevant to responsibility in context of assignment. Describe degree of responsibility held by staff member on relevant previous assignment and give dates and location. Use up to half a page.]

Education: [Summarize college/university and other specialized education of staff member, giving names of schools, dates attended, and degree(s) obtained. Use up to a quarter page.]

Employment Record: [Starting with present position, list in reverse order every employment held. List all positions held by staff member since graduation, giving dates, name(s) of employing organization(s), title of positions held and location of assignments. For experience in last ten years, also give type of activities performed and client references, where appropriate. Use up to three quarter of a page.]

Languages: [Indicate proficiency in speaking, reading and writing of English language: excellent, good, fair, or poor.]

Certification: I, the undersigned, certify that to the best of my knowledge and belief, these biodatas correctly describe my qualifications, my experience and myself.

Annexure 6

DETAILS OF QUALIFYING PROJECTS HANDLED/COMPLETED DURING THE LAST FIVE (5) YEARS.

SIMILAR NATURE OF ASSIGNMENT - COMPLETED WORKS				
S. No.	Description	Work No.1	Work No. 2	Work No. 3
1	Name of work / Project and location			
2	Name & Address of Employer / Organization, Telephone no. of officer to whom reference may be made.			
3	Cost of work in Rs. Lakhs (Attach copy of Work Order) and the Site Area			
4	Date of commencement as per contract			
5	Stipulated date of completion			
6	Actual date of completion			
7	Litigation / arbitration pending / in progress with details *			
8	Service rendered In-house teams			
	Associated Consultants			
9	Names of Project In charge & Key staff & nos. of staff involved.			
10	Any other information			

* Indicate gross amount claimed and amount awarded by the Arbitrator.

The Applicant may provide in this annexure, details of maximum 3 projects, which in his/her opinion, best present his/her ability to participate in this tender (qualifying project referring to the project).

To qualify, one must have satisfactorily completed the following works (in the area of tender):

- (i) At least one work of 80% of the cost (approximately Rs. 1 Cr.) OR
- (ii) At least two works of 40% each of the cost (approximately Rs. 1 Cr.) OR
- (iii) At least three works of 30% each of the cost (approximately Rs. 1 Cr.)

CLIENT WISE PERFORMANCE REPORT OF WORKS

1	Name of work/Project & Location	
2	Agreement No.	
3	Estimated Cost	
4	Tendered Cost	
5	Date of start	
6	Date of completion	
	Stipulated date of completion	
	Actual date of completion	
7	Amount of compensation levied for delayed completion, if any	
8	Amount of reduced rate items, if any	
9	Performance Report	
	Quality of work	Very Good/Good/Fair/Poor
	Financial soundness	Very Good / Good / Fair / Poor
	Technical Proficiency	Very Good / Good / Fair / Poor
	Resourcefulness	Very Good / Good / Fair / Poor
	General Approach & Behaviour	Very Good / Good / Fair / Poor

Dated:

Signature & Seal of

Executive engineer or equivalent

AVERAGE ANNUAL FINANCIAL TURN OVER (GROSS) OF LAST THREE YEARS

Financial Analysis -

Details to be furnished duly supported by figures in balance sheet/profit and loss account for the last three years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax Department (copies to be attached).

Particulars	Financial Year		
	Year 2016-17	Year 2017-18	Year 2018-19
Gross Annual turnover on construction work. (In Lakhs)			
Profit / Loss			
Certified by			

Financial arrangements for carrying out the proposed work.

The following certificates are enclosed:

Current Income Tax Clearance Certificate / Profit & Loss account

Signature of Chartered Accountant with Seal

SPECIFICATION COMPLIANCE REPORT

S. No.	Equipment/SW	Specification	Pamphlet no.	Part/Catalogue/page

Certified that the quoted equipment and SW satisfies all specifications as per tender document

Seal and Signature of the Bidder