

**GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE  
INDIAN INSTITUTE OF REMOTE SENSING  
IIRS  
DEHRADUN  
PURCHASE & STORES  
INVITATION TO TENDER**

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Date : 19/08/2014

Our Ref No : GIER 2014-000220-01

Tender Due: 15:00 Hrs IST on 16/09/2014

M/s

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Dear Sirs,

Please submit your sealed quotation , in the Tender Form enclosed here along with the descriptive catalogues / pamphlets / literature ,superscribed with Our Ref.No. and Due Date for the supply of the following items as per the terms & conditions mentioned in Annexure( Form No: )

S.No.	Description of Items with Specifications	Unit	Quantity
1	Supply & Installation of Automatic Weather Station with data logger + telemetry (Technical Specifications given in annexure-1 & 1.1)	SET.	1

**DELIVERY AT:** IIRS

**MODE OF DESPATCH** DOOR DLVRY

**DUTY EXEMPTIONS**

**SPECIAL INSTRUCTIONS NIL**

**SPECIFIC TERMS**



V.V. NARAYANAN KUTTY  
PURS. & STORES OFFICER

For and on behalf of the President of India  
The Purchaser

## Annexure -1: Technical specifications for complete AWS with data logger + telemetry

### Data Logger:

GSM Wireless Comm :	Quad-Band GSM/GPRS
Wi-Fi Wireless Comm:	2.412 - 2.484 GHz IEEE 802.11 b/g
Ethernet :	10Base-T or 100Base-TX (using external RJ45 jack) 256-bit
Data Channels Maximum :	15
Normal Operating Range :	-20 to 40°C (-4 to 140°F)
Extended Operating Range:	-40 to 60°C (-40 to 140°F) see battery life
Local Communication:	USB
Data Storage Memory:	512K bytes local storage in non-volatile flash memory
Logging Interval :	1 minute to 18 hours, user-specified
Power :	Solar panel (1.2w, 3w, 6w) or AC adapter is required
Battery Life :	3-5 years, 4 volt 10 AHr rechargeable sealed lead acid

### Sensors:

- 1. Temperature Sensor:-** Range -40°C TO 75°C (Min. & Max.)  
Accuracy: Temp: +/- 0.21°C from 0° to 50°C  
Resolution: Temp: 0.02°C at 25°C (0.04°F at 77°F)
- 2. Relative Humidity Sensor:-** RH: 0-100% RH at -40° to 75°C  
Accuracy: RH: +/- 2.5% from 10% to 90% RH (typical), to a maximum of +/- 3.5%, RH: 0.1% RH at 25°C (77°F)
- Solar Radiation Sensor:-** Measurement parameters: average over logging interval, user-defined sampling interval from 1 second

**Measurement range:** 0 to 1280 W/m<sup>2</sup>

**Operating Temperature Range:** -40° to 75°C (-40° to 167°F)

**Accuracy:** ±10 W/m<sup>2</sup> or ±5%, whichever is greater in sunlight. Additional temperature induced error ±0.38 W/m<sup>2</sup> /°C from 25°C (0.21 W/m<sup>2</sup>/°F from 77°F)

**Resolution:** 1.25 W/m<sup>2</sup>

### 4. Wind speed & Direction Sensor:-

<b>Measurement Range</b>	0 to 45 m/s (0 to 100 mph)	0 to 355 degrees, 5 degree dead band
<b>Maximum Wind Speed Survival</b>	54 m/sec (120 mph)	60 m/sec (134 mph)
<b>Accuracy</b>	± 1.1 m/s (2.4 mph) or ± 4% of reading whichever is greater	± 5 degrees
<b>Resolution</b>	0.38 m/s (0.85 mph)	1.4 degrees
<b>Starting Threshold</b>	1.0 m/s (2.2 mph)	1.0 m/s (2.2 mph)

**6. Tipping Bucket Rain Gauge:-** Measurement range: 0–10 cm or 0–5 in. per hour; maximum 4000 tips per interval

**Operating Range:** 0° to 50°C (32° to 122°F); survival -40° to 75°C (-40° to +167°)

**Mechanism:** Tipping bucket, stainless steel shaft with brass bearings

**Resolution:** 0.2 mm and 0.01 inch models

**Calibration Accuracy:** ±1.0% at up to 20 mm or 1" per hour

**8. Enclosures for sensors-** Weather Proof data retrieval: through Data shuttle to PC with application software

This AWS is to be installed in ASAN watershed near Dehradun.



## Annexure -1.1: Other major specifications for AWS and data logger

1. The broad scope of supply is to deliver Meteorological Station. The System will constitute of Data Logger and Meteorological Sensors
2. The system will constitute of fully developed and established hardware for Data Logger/ Data Collection Platform (DCP). 12V/100 AH rechargeable Lead Acid Battery, Solar Panel, Charge Controller, Meteorological Sensors and Accessories.
3. The data logger should be programmable by higher level language for flexible R&D requirements. The fully integrated system will only be accepted.
4. The sensors must comply to the type, range, accuracy, resolution and operating temperature conditions of the specifications.
5. The Data logger, sensors and solar panel will be mounted on a tower/ tripod which should cater for fitments of assemblies for sensors, data logger, solar panel and other accessories.
6. Different sensors as mentioned in spec should be provided with complete accessories i.e. connectors, approx. 2-3 meter cable and mounting fixtures. The integration of the sensors with the Data logger will be ensured by the firm.
7. Software, if any, for processing the data collected through Flash Card/ RS 232 port.
8. Training should be provided to the IIRS Dehradun on the operation and maintenance of the station.

### SPECIFICATION OF DATA LOGGER (General)

1. The Data Logger should incorporate the latest state-of-the-art technology and must consume very low power. Since the equipment will have to operate under stringent weather conditions in hilly regions, the system should be rugged and sealed to avoid ingress of moisture.
2. The complete details of the current set up of the datalogger should be provided. The loading of setup/program will be demonstrated with compact Flash card and Tough book separately. The user manual should spell out the settings. A separate copy of the set up programme should be provided in a CD.
3. The design of the datalogger should be modular and the replacement of the modules should be easy and user friendly.
4. The data loggers should have least tuning parts (preferably none) and should provide consistent performance for at least two years.
5. The Data loggers should be enclosed in a Hoffman NEMA-4X & IP66 rated enclosure made of FRP composite material.
6. Keeping in view the low temperature conditions in the field, there should be a provision for quick and easy replacement of the Data loggers from the NEMA-4X enclosure. The mounting/ dismounting of the Data logger in the enclosure should be with the help of latches
7. The complete Technical Demonstration should be provided.
8. User manual for the station will also be provided by the firm which will include the setup/program details, calibration constants, wiring diagram of the concerned sensors, and any other station specific details.

### SPECIFICATION OF DATA COLLECTION PLATFORM/DATA LOGGER (Technical)

1. **Analog Channel:** Analog Data Inputs: 16 and Input range: The data logger should have multiple input ranges along with "Auto Ranging" facility to measure the sensors accurately without any loss of accuracy. The data logger should have this input range: +5000mV, +2500mV, +250mV, +25mV, +7.5 mV, + 2.5 mV: 0 to 5 V DC.
2. **Digital Channel:** Frequency Type: 04 Channel, Counter Type: 02 Channel and the facility to convert counter channels to frequency channels & vice versa should be provided.
3. **SDI-12 Input:** 04 Channel
4. **Analog to Digital Conversion :** Resolution (13 Bit) or more and Conversion Accuracy +/-1 LSB
5. **Watchdog Timer:** The Data logger should have watchdog timer to reset the system and restore the previous set-up in case of microprocessor resets and power glitch.
6. **Real Time Clock:** The normal time clock of the system should be derived from TCXO with accuracy of 1.0 ppm/yr. In addition, the system should also have battery even during power failure. The accuracy of this clock should be better than 10 seconds in six months period.
7. **Communication port:-** 1 CS I/O, 1 RS232, 1 parallel peripheral



8. **RS 232 C- Port:** The Data logger should have a free RS232-C port capable of having communication with external devices. Also, it should be possible to access the data logger through this port. Serial communications with serial sensors and devices supported via I/O port pairs & Pakbus, Modbus, and DNP3 protocols supported.
9. **Data Storage:** The system should have in-built facility to store about 20 lakh data records for minimum duration of one year in at least 4 MB memory. It should also be possible to download the stored data on a Flash/USB card including data and time information.
10. **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.
11. **Weight:** Data logger should be less than 3.6 kg. Weight of Battery and NEMA-4 enclosure is excluded.
12. **Maximum Scan rate :** 100 Hz
13. **Analog Voltage Accuracy :-** +- 0.06% of reading +offset
14. **Analog resolution :-**0.33 uV
15. **Typical Current drain:** - 0.6 (sleep mode), 1to 16 without RS232, 17 to 28 with RS232.
16. **Data logger should be CE Compliant.**

#### **BATTERY & CHARGING SYSTEM**

1. Vendor will provide power budget calculations
2. The vendors will provide Sealed Maintenance Free (SMF) Valve Regulated Lead Acid (VRLA) Battery of 12V/12 AH which should get enclosed in the same NEMA-4X enclosure of Data Collection Platform. The AWS sites will be charged with the Solar Panel.
3. A suitable in-built charge controller having over and under voltage protection should be provided in the DCP.
4. The capacity of the Solar panel should be such that the battery can be charged with 30% to 50% sunshine

#### **ENVIRONMENTAL SPECIFICATIONS**

1. The DCP, Antenna, Sensors, Cable, Connectors, Battery, Solar panel etc. should be able to operate at optimal efficiency and withstand the following environmental conditions
2. Storage Temperature:: -25°C to 50°C
3. Operating Temperature :-25°C to 50°C
4. Humidity : 10% to 100%
5. Wind Speed: Upto 50 m/s
6. The System should be hermetically sealed to avoid ingress of dust, rain and moisture.

#### **TERMS AND CONDITIONS**

1. The entire AWS System should be supplied with all accessories and should be installed by the vendor at sites decided by IIRS. The system should be made full operational on turn-key basis including all communication devices/charges for a period of three years.
2. Communication- In case GPRS/GSM/INSAT network is not available; the system should store data in the data logger/flash card with 15 min. interval (Industrial grade) for at least 6 months, which can be retrieved at regular interval perfectly through flash cards (industrial Grade).
3. Data logging interval would be from 5 minutes to one hour. Fencing and site preparation charges are to be included in the total cost. Full warranty and AMC of all instruments of AWS is to be provided for first year. Comprehensive AMC along with full warranty is to be provided for a period of next three years and is to be quoted separately.
4. In case of any manufacturing and replacement of parts, it has to be replaced with similar or higher standard spare parts. Calibration certificate of data logger and other instruments should be provided.
5. Quote separately for spare parts and mention their availability for at least 5 years.

#### **MPR Opening Statement**

Supply, installation & operationalization of AWS as per the Specification & condition enclosed on Annexures.

GOVERNMENT OF INDIA  
DEPT. OF SPACE, GOVT. OF INDIA  
INDIAN SPACE RESEARCH ORGANISATION  
INDIAN INSTITUTE OF REMOTE SENSING  
No.4, KAIDAS ROAD, P.B.NO.135, DEHRADUN-248001

## PURCHASE DEPARTMENT

NO.IIRS/P&amp;S/GIER-2014-000220-01/14-15

Date : 19.08.2014

**SPECIAL TERMS AND CONDITIONS FOR SUBMITTING TWO PART BID**

1. This is a two part tender viz., Techno-Commercial Bid (consisting of Technical Specifications, Commercial terms & condition etc.) and Price Bid. Hence, quotation should be submitted in separate sealed covers super-scribing "Tender No. **GIER-2014-000220-01/14-15, Due on 16.09.2014 at 1500 hrs** (Techno-Commercial Bid) and Tender No. **GIER-2014-000220-01/14-15, Due on 16.09.2014 at 1500 hrs** (Price Bid).
2. Both the sealed tenders (Techno commercial & Price bid) should be kept in one big cover super scribing TENDER for Supply & Installation of Automatic Weather Station with data logger + telemetry etc against Enquiry No. **GIER-2014-000220-01/14-15, Due on 16.09.2014 at 1500 hrs.** and put in the Tender Box available in Purchase Division, IIRS or send by post or Courier within the due date and time prescribed.
3. Only Techno-Commercial bid will be opened on the date of tender opening. The price Bids of those tenderers whose Techno-Commercial Bids are found to be meeting our specifications / requirements will be opened.
4. The Techno-Commercial Bid should have technical & commercial details only. No price should be quoted in the Techno-Commercial Bid.

**6. PART I- TECHNO-COMMERCIAL BID – In one cover**

Techno-commercial part should clearly indicate the technical details, scope of supply, payment terms, delivery terms ( FOR/EX-Work/ ) delivery period, taxes and duties. Warranty, Guarantee, Security Deposit, Performance Bank Guarantee, etc. under separate head. Please note that the price should not be indicated in the Techno-commercial Offer.

Complete literature/leaflets/catalogues or brochures relevant to the offered models are to be enclosed with the Techno-commercial Part of the Tender.

**7. PART-II- PRICE BID – In one Cover**

The price alone should be indicated. Wherever installation/Commissioning is involved such charges may be indicated separately in the Price Bid.

8. a) In a tender, either the Indian agent on behalf of the Principal/OEM or Principal/OEM itself can bid, but both can not bid simultaneously for the same item/product in the same tender.



- b) If an agent submits bid on behalf of the Principal/OEM , the same agent shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.
9. The offer should be valid for a minimum period of 120 days from the due date.
  10. **TENDER OPENING:** The Techno-commercial Bid will be opened on the specified date and time. In case any further clarifications/discussion are required, such clarification/discussions shall be called for before opening of Price Bid.
  11. Late and Delayed Tenders will not be considered. Therefore, please ensure that your tender is posted well in time to reach us before the due date and time.
  12. Technical compliance statement should be enclosed with your quotation.
  13. Fax/Email offers shall not be considered for TWO PART BID
  14. All the pages of your offer should be signed/initialed by competent authority and affixed with your company's Seal
  15. Tenders which are not prepared in terms of these instructions are liable to be rejected.

## GENERAL TERMS & CONDITIONS

1. **Delivery:** Clearly mention the exact delivery period in your quotation.
2. **Sales Tax:** : We can not furnish Form C/D. Please indicate the applicable percentage of trade tax/vat in your quotation, if applicable.
3. **Specification:** Material should be offered strictly conforming to our specification, if any changes, should be clearly indicated by the supplier in the quotation. The supplier should also indicate make/type No. of the materials offered. Vague terms such as best India, Best Indigenous, Imported Make should not be used.
4. **Installation :** Installation should be done free of cost at IIRS, Dehradun
5. **Payment :** 90% Will be made within 30 days from date of supply, receipt, inspection & installation of the item by the indenting officer against pre-receipted bills in triplicate and balance 10% on production of Performance Bank Guarantee established through a nationalized bank valid for a period of 13 months from date of installation.
6. **CST -** With effect from 01.04.2007, Form-D has been withdrawn for Inter-State purchases by Government Departments. Now the percentage of CST on the Inter-State sales to Government Departments shall be the percentage of VAT/State Sales Tax as applicable in the State of the Seller/Dealer. Accordingly, the suppliers have to indicate clearly the % of CST applicable against each case in their offers.
7. **Customs Duty -** IIRS is eligible for **Customs Duty exemption** as per Notification No. 51/96 dated 23/6/1996 as amended by Notification No. 24/2007 dated 01.03.2007 . This may be taken into account while quoting for import items, if any.
8. In case tenderers offering items considering customs duty exemption, they should also indicate the price, separately, with Customs Duty component and terms and conditions thereto
9. **Force Majeure:** In case of strike, accident or any other unforeseen contingencies causing stoppage of work, we reserve the right to cancel and to modify the Order without liability for any compensation and/or claim of any description.
10. **Liquidated Damages :** If the items are not supplied and installed on or before the due date mentioned in the purchase order , Liquidated Damages are generally charged @ 0.5% of the value per week or part of a week subject to a max. of 10% of the total value of goods or 10% value of goods that could not be put to use due to late supply whichever is lower.
11. **Warranty:** Should be minimum One year from date of supply, installation and acceptance against any manufacturing defects.
12. Tenderers are required to quote Basic Price, Installation charges and statutory levies separately.
13. In case of any dispute(s) the decision of Director, IIRS will be final.
14. Director, IIRS reserve the right to accept or reject any quotation in full or part thereof without assigning any reason.

  
Purchase & Stores officer