

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

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Date : 25/09/2014

M/s

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Our Ref No : GIER 2014-000282-01

Tender Due: 15:00 Hrs ISTon 21/10/2014

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 & on field Installation of Meteorological Sensors setup with Data logger for ET measurement at field site, The Sensor Setup nconsist of: Data Logger-CR1000	NOS	1 ✓
2	Four component Radiometer (CNR 4 net radiometer)	NOS.	1 ✓
3	HC2S3-Air Temperature and Relative Humidity Sensor	NOS	2 ✓
4	Barometric Pressure Sensor	NOS	1 ✓
5	Wind Speed & Direction Sensor	NOS	1 ✓
6	HFP01SC Soil Heat Flux Plates	NOS	2 ✓
7	Solar Panel Primary Battery and backup battery setup	NOS	1 ✓
8	5 meter tower/Tripod/Mast with mounting accessories at two heights with Datalogger+Batteries casing and connections (All the sensor must be compatible with CR1000 Datalogger, The Technical Specification of each sensor is given in Annexure-I)	NOS.	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

Note: Final Setup of sensors will be configured based on cost and budget available, some of the sensors may be used for two different height measurements (i.e. two no. of sensors may be ordered for supply) or few of them will be excluded from the setup.

Technical Specification for each Sensor/Component

Sl. No	Specifications
Data Logger-CR1000	
	Item Specs-1
	<ul style="list-style-type: none"> • Data Logger should support and should be compatible with all slow and fast sensors put on meteorological tower to measure Temperature at two heights, RH at two heights, Wind Speed & Direction, Barometric pressure, Soil Heat Flux Plates (pair) • 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. • Should come with 32 channel relay multiplexer. • Standard operating range: -25° to +50°C • User Interface to program the logger. • software for data logger support. • Ethernet TCP/IP, compatible with RS-232 and RS-485 interface • Should come with Ethernet interface and compact flash module. <ul style="list-style-type: none"> • 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 this input range: +5000mV, +2500mV, +250mV, +25mV, +7.5 mV, + 2.5 mV: 0 to 5 V DC. • 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. • SDI-12 Input: 04 Channel • Analog to Digital Conversion : Resolution (13 Bit) or more and Conversion Accuracy +/-1 LSB • RS 232 C- Port: The DCP 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
HC2S3 - Air temperature and Relative humidity sensor	
	Item Specs-3
	<p>HC2S3-L Specifications • Electronics Operating Limits: -40° to +100°C • Storage Temperature: -50° to +100°C • Diameter: 15 mm (0.6 in.) • Length w/o connector: 85 mm (3.3 in.) • Length w/connector: 183 mm (7.25 in.) • Weight: 10 g (0.35 oz) • Filter: Teflon / Polyethylene • Current Consumption: < 4.3 mA @ 5 Vdc < 2.0 mA @ 12 Vdc • Supply Voltage: 5 to 24 Vdc • Startup Time: 1.5 s.</p> <ul style="list-style-type: none"> • Air Temperature Sensor: PT100 RTD, IEC 751 1/3 Class B • Measurement Range: - 40° to +60°C • Output Signal Range: 0 to 5 V DC or (compatible with data logger) • Accuracy at 23°C: ±0.5°C with standard configuration settings • Relative Humidity Sensor : Measurement Range: 0 to 100% RH, non- condensing • Output Signal Range: 0 to 5 V DC • Long- Term Stability: < 1% RH per year • Response Time: Typical 15 s, 63% of a 35% to 80% RH step change (1 m/s air flow at sensor) • Accuracy at 23°C: ±1% RH with standard configuration settings •
Hukse Flux - HFP01SC soil heat flux plates	
	Item Specs-6
	<ul style="list-style-type: none"> • Self-calibrating soil heat flux sensor for high accuracy measurement of soil heat flux. • Should include film heater for online calibration to automatically correct for variations in thermal conductivity of sensor and soil <p>Specifications HEAT FLUX SENSOR SPECIFICATIONS. • Sensitivity (nominal): 50 μV/ Wm². • Resistance (nominal): 2 Ohm. • Temperature range: -30 °C to +70 °C. • Expected accuracy: +/- 3% FILM HEATER SPECIFICATIONS. • Resistance (nominal): 100 Ohm. • Voltage input/output: 9-15 V DC/0-2V DC. • Duration of calibration: ± 3 min at 1.5 Watt, typically every 3 or 6 hours. • Average power consumption: 0.02 or 0.04 Watt. • CABLE LENGTH 100 feet / ~33 meter, with -PT option.</p>
CNR4 4 component net radiometer (Kipp & Zonen)	
	Item Specs-2

	<ul style="list-style-type: none"> • Four-component net radiometer (CNR-4) for accurate and reliable measurements of incoming and reflected solar radiation • Should come with an integrated ventilation unit and heater to facilitate a clean air flow over all four of the radiometer domes and windows and to operate under all weather conditions. Number of signal outputs: 4 - incoming and reflected short-wave radiation downward and upward long-wave radiation Pyrometer temperature sensors: 10 K thermistor and Pt-100 Response time (95 %): < 18 s Non-linearity (over full range): < 1 % Temperature dependence of sensitivity: < 5 % from -10 °C to +40 °C Sensitivity: 7 to 20 $\mu\text{V}/\text{W}/\text{m}^2$ short-wave 5 to 10 $\mu\text{V}/\text{W}/\text{m}^2$ long-wave Operating temperature: -40 °C to +80 °C
	<p>Spectral range (50 % points): 300 to 2800 nm short-wave 4.5 to 42 μm long-wave</p> <p>Field of view: 180 ° short-wave upper sensor 170 ° short-wave lower sensor 180 ° long-wave upper sensor 150 ° long-wave lower sensor</p> <p>Mounting rod: Screw-in, 350 mm long x 16 mm along with necessary mounting brackets</p> <p>Standard cable: 50 m cable required to connect the sensor to a data logger</p> <p>Weight with rod (excluding cable(s)): 850 g</p> <p>Ventilation unit: Should include a ventilation unit for clean air flow along with heater operating at 12 VDC.</p>
Barometric Pressure Sensor	
	Item Specs-4
	<ul style="list-style-type: none"> • Operating Temperature: -40° to 60°C. • Range 600 to 110 hPa. • Linearity: ± 0.4 mb. • Hysteresis: ± 0.05 mb. • Repeatability: ± 0.03 mb. • Resolution: ± 0.01 mb. • Long-Term Stability: ± 0.1 mb per year. • Response Time: < 100 ms. • Excitation: 9.5 to 28 Vdc
Wind Speed and Direction Sensor	
	Item Specs-5
	<ul style="list-style-type: none"> • Operating Temperature: -50 °C to +50°C, assuming non-icing conditions. • Overall Height: 37 cm (14.6 in.). • Overall Length: 55 cm (21.7 in.). • Main Housing Diameter: 5 cm (2.0 in.). • Propeller Diameter: 18 cm (7.1 in.). • Mounting Pipe Description: 34 mm (1.34 in.) OD; standard 1.0-in. • IPS schedule 40. Weight: 1.5 kg (3.2 lb) <p>Wind Speed : • Range: 0 to 100 m/s. • Accuracy: ± 0.3 m/ or 1% of reading. • Distance Constant (63% recovery): 2.7 m (8.9 ft).</p> <p>Wind Direction : • Range: Mechanical: 0 to 360°. • Accuracy: $\pm 3^\circ$. • Output: analog DC voltage from potentiometer – resistance 10 kohms; linearity 0.25%; life expectancy 50 million revolutions, Power switched excitation voltage should be supplied by datalogger</p>
Solar Panel primary Battery and backup Battery setup.	
	Item Specs-7
	<ul style="list-style-type: none"> • Vendor should provide power budget calculations • The vendors should provide Sealed Maintenance Free Lead Acid (VRLA) Batteries of 12V/34 AH. • A suitable in-built charge controller having over and under voltage protection should be provided in the DCP. <p>The capacity of the Solar panel should be such that the battery can be charged with 30% to 50% sunshine</p>
5 meter Tower/tripod/ Mast with mounting accessories	
	Item Specs-8
	<p>Tower/Tripod/Mast with arrangement with mount sensors at two different heights and casing for data logger and battery/batteries. The Tower/Tripod/Mast should be manufactured taking in the consideration the installation requirement of each separated. Mast should have Baseplate, Lightning protection, U-shaped Mounting arm for wind speed and direction sensors, 2-sided Mounting arms upper temperature sensor and Radiation Sensor and 1-sided Mounting arm lower temperature sensor</p>

GOVERNMENT OF INDIA
DEPT. OF SPACE, GOVT. OF INDIA
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PURCHASE DEPARTMENT

NO.IIRS/P&S/GIER-2014-000282-01/14-15

Date : 25.09.2014

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-2014-000282-01/14-15, Due on 21.10.2014 at 1500 hrs** (Techno-Commercial Bid) and Tender No. **GIER-2014-000282-01/14-15, Due on 21.10.2014 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, On field Installation of Meteorological Sensors setup with Data logger etc against Enquiry No. **GIER-2014-000282-01/14-15, Due on 21.10.2014 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.
5. EMD of Rs. 20,000/- to be submitted along with the quotation in the form of Crossed Demand Draft drawn on any Nationalized / scheduled bank in favour of Pay & Accounts Officer, IIRS, payable at Dehradun Quotation received without EMD will not be considered. The EMD of unsuccessful bidder will be returned after finalization of order.
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