

**Department of Ocean Engineering (DOE)
Indian Institute of Technology Madras (IITM)
Chennai 600 036, Tamil Nadu, India**

Ref: OED/2018/017/Project/SASA

Date: 01st November 2018

FIELD SURVEY INSTRUMENT FOR TOGRAPHIC SURVEY

Due date:

* Submission of technical and commercial proposal: On or before 16th November 2018@3:00 pm.

* Bid opening: 16th November 2018@3:30 pm

1. Quotations are invited in duplicate for the item shown in enclosed list as **Annexure 1**.
2. The quotations must be submitted under two bid system indicating clearly technical bid and financial bid on the envelope. Both the bids should be enclosed in the single envelop in a sealed cover.
3. The Quotations duly sealed and super scribed on the envelope with the reference No. and due date, Should be addressed to the undersigned so as to reach him on or before the due date stipulated above.
4. The Quotations shall be valid for 90 days from the due date and the period of delivery, warranty term setc. should also be clearly indicated. A minimum of one year warranty is required.
5. Brochure detailing technical specifications and performance, list of industrial and educational establishments where the items enquired have been supplied must be provided.
6. Compliancy certificate is to be provided indicating conformity to the technical specifications.
7. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples / machine/ equipment if called for should be submitted / demonstrated at free of charges, and collected back at the supplier's expenses.
8. Packing and delivery charges must be clearly indicated.
9. The rates of GST and other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for GST/General Taxes will be admitted at any stage and on any ground whatsoever.
10. IIT Madras is eligible for concessional GST. Relevant certificate will be issued. In case of Imports, the price should be quoted without custom duty. IIT Madras is exempted from levy of IGST on Imports and eligible for concessional custom duty. In case of import supply, the price should be quoted on **EX-WORXS** and **CIP** basis indicating the mode of shipment.
11. Goods should be supplied carriage paid and insured.
12. Goods shall not be supplied without an official supply order.
13. Payment: Every attempt will be made to make payment within 30 days from the date of receipt of bill/ acceptance of goods, whichever is later.
- 14. Acceptance and Rejection:** - IIT Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.

Yours faithfully,



Annexure-1

Ref: OED/2018/017/P roject / CASA

Real Time Kinematic Global Positioning System (RTKGPS) along with Differential Global Positioning System (DGPS)

One Complete Set of Real Time Kinematic Global Positioning System (RTK GPS) along with Differential Global Positioning System (DGPS) with all primary accessories for the field operations.

Find the specifications below:

Specifications:

| The RTK GPS with DGPS enabled One Base and One Rover with identical and interchangeable along with the followings: | |
|--|---|
| Technical Specifications | Description |
| Receiver & Controller | |
| Time of Initialization | 5 s or less |
| RTK Range | Upto 30 km |
| Position Update Rate | 20 Hz |
| Data Recording Rate | Upto 20 Hz |
| Satellite tracking | Tracking of most of the presently available frequencies of globally existing GNSS constellations: <ul style="list-style-type: none"> ➤ GPS - L1, L2, L2C, L5 ➤ GLONASS - L1, L2 ➤ BeiDou - B1, B2 ➤ Galileo ➤ SBAS - WAAS – EGNOS – MSAS – GAGAN– QZSS ➤ IRNSS (Optional) |
| No of Channels | 400 channels or more |
| DGPS <ol style="list-style-type: none"> 1. Horizontal 2. Vertical | DGPS <ol style="list-style-type: none"> 1. ±0.25m to +1 ppm 2. ±0.50m to +1 ppm |
| Kinematic <ol style="list-style-type: none"> 1. Horizontal 2. Vertical 3. Initialization Time | Kinematic <ol style="list-style-type: none"> 1. ±8 mm + 1 ppm 2. ±15 mm + 1 ppm 3. 10 sec upto 30 km or better |
| Static & Fast Static <ol style="list-style-type: none"> 1. Horizontal 2. Vertical 3. GNSS Interface | Static & Fast Static <ol style="list-style-type: none"> 1. ±3 mm + 0.5 ppm or better 2. ±5 mm + 1 ppm or better 3. Cable, Bluetooth, RS 232, USB & Web UI |
| Navigation | Full navigation information in position and stakeout displays, position, course, speed, bearing and distance to waypoint |

MS

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|---|---|
| Tilt compensation | With Tilt compensation ± 15 deg. |
| Internal Memory | 4 GB or more |
| Removable Memory | 8 GB or more |
| Temperature: 1. Operation 2. Storage | Temperature: 1. -40°C to 65°C or better 2. -40°C to 75°C or better |
| Water and Dust Proof | IP 66 or better |
| Humidity | 95% or better |
| Shock | Shock proof of 2m pole drop should work |
| Vibration | Rugged Protective fiber coating |
| Power Supply / Management: a) Battery b) Battery Operation time c) Charger d) External Power supply e) Over Voltage Protection | a) Lithium ion Battery b) Minimum 8hours working or better c) External & Integrated optional d) Nominal voltage 12V DC e) Must be with over voltage protections |
| Communications: 1. Ports 2. Interface | 1. 3 serial port RS232, 1 USB, 1 Bluetooth 2. Provision of Integrated UHF Radio Frequency Mode, SIM Card GSM Mode for RTK |
| LED status indicators | Bluetooth, Position, Logging, etc |
| GNSS Measurements | Fully independent code and phase measurements of all frequencies with phase tracking precision of 0.5 mm. L-band correction system |
| Field and Post Processing Software: | <ul style="list-style-type: none"> • Planning GPS Survey • Post Processing for GPS (L1/L2), GLONASS, Galileo, QZSS, etc • Design and Network Adjustments • GIS and CAD Export options • RINEX Import and Export option • Transformation between WGS 84 to any coordinate system • Transformation between any projections. • View and Edit Options |
| Operating System: | Windows 10 Operating System |
| Controller: a) Display b) Keyboard c) Graphical Display d) Type | One Controller for One GPS a) Full Graphical with Touch Screen b) Separate Alphanumeric keys c) Show Point, Line, Polygon in field with Zoom, Pan Options, Satellite Tracking, etc d) 4.0 inches Portrait/Landscape VGA display, 640 x 480 pixels – Sunlight-readable color TFT with LED or better |

| | |
|--|---|
| e) Camera f) Communication | e) 5 MP auto focus or better Integrated speaker and microphone f) RS232 Communication by any Baud Rate Standard USB Port, Bluetooth |
| Accessories for Each GPS | 1. All Required and Mandatory items provided by the OEM for Operations must be supplied. 2. Tripod:2nos 3. Height Measuring Device:2 nos 4. Tribrach with optical Plummet: 2 nos 5. Tribrach Adaptor or Carrier: 2 nos 6. Charger: External -1nos 7. External Power Cable – As required 8. External OEM Battery – 1 nos 9. Data downloading cable (USB / Serial) – 1 nos 10. RTK Rover set up including pole, Pole adapter to mount data controller – 1 nos 11. Battery: For Receiver & Controller – As per OEM 12. One Controller Per GPS |
| Application | Topographic Survey, Stakeout, Navigation Information, Point Management, etc by GSM, UHF, Static & RTK mode |
| Complete Accessories: | |
| Static Survey Kit | Receiver Kit for performing the static survey with suitable Tripod arrangement for base and rover units. |
| RTK Survey Kit | Rover Pole holder kit for RTK Survey |
| Office Software | GNSS Data processing and Post Processing Software |
| Training | On-Site training (shore / coast / hill, etc) for Installation, Data collection, Data processing and Post Processing of data using software. |
| Cover (water-proof) | For Tripod, Receiver and Antenna Box |
| Provide the optional accessories separately. | |
| The vendor has to do the Demonstration in front of the IIT Madras Committee Members, if required. | |
| Optional (include it in financial bid alone): AMC for 1 st Year: AMC for 2 nd Year: AMC for 3 rd Year: AMC for 4 th Year: AMC for 5 th Year: | |

2. Prerequisite

The vendor has to submit proof of documents for similar **RTKGPS** supply in India. In addition, the proof of documents for successful completion of at least two supplies of same **RTKGPS** should be submitted.

3. Payment terms

Please specify the payment terms. IIT Madras reserves the right to negotiate the terms of payment as acceptable to the purchase procedures prevalent from time to time.

4. Terms and conditions

Please quote the rate with the following details.

1. Quotation validity minimum 90 days.