

भारत सरकार
अन्तरिक्ष विभाग
भारतीय सुदूर संवेदन संस्थान
देहरादून
क्रय एवं भंडार अनुभाग
निविदा आमंत्रण

टेलीफोन: 0135-2524317, 4318
फ़ैक्स: 0135-2748041
ईमेल: prs@iirs.gov.in

संदर्भ सं. जी.आई.ई.आर. 2015-00240-01

दिनांक: 20/10/2015

निविदा जमा करने की अंतिम तिथि: 12.11.2015 (1500 बजे)

सेवा में,

महोदय,

1. इस संस्थान द्वारा निम्नलिखित सामग्री का क्रय किया जाना है। आपसे आग्रह है कि उक्त सामग्री की पूर्ति हेतु संलग्न निविदा प्रपत्र में अपनी मुहरबंद बोली जमा करने का कष्ट करें। उक्त बोली के साथ यथावश्यक कैटेलाॅग/पैम्फलेट/लिट्रेचर आदि भी जमा करें। मुहरबंद लिफाफे पर ऊपर की ओर संदर्भ संख्या तथा अंतिम तिथि अंकित होनी चाहिए। सामग्री की पूर्ति से संबंधित निबंधन एवं शर्तें संलग्नक (प्रपत्र सं.....) में वर्णित हैं।

क्रम सं.	सामग्री का विवरण तथा विनिर्देश	इकाई	संख्या
1.	Supply, Installation and Operationalization of the following Seismic Instruments with Specification as per the enclosure, Broad Band Seismometer (Detailed as per annexure enclosed)	No.	01
2.	Data Acquisition System	No.	01
3.	Strong Motion Accelerograph	No.	01
4.	Solar Power Supply (Optional)	No.	01
5.	Basic Monument/platform construction and installation	Job.	01
6.	Installation, Maintenance and warranty including AMC should cover first 3 years. Quote Separately for 4 th and 5 th year, Note: Quote Separately for each items	Job.	01

डिलिवरी का स्थान : भारतीय सुदूर संवेदन संस्थान

प्रेषण की विधि : द्वार पर

शुल्क छूट :

विशेष निर्देश : कुछ नहीं

विशिष्ट शर्तें :

वी.वी. नारायणन कुट्टी
क्रय एवं भंडार अधिकारी
कृते भारत के राष्ट्रपति,
क्रेता

o/c

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

Ph No: 0135 - 2524317, 4318
Fax 0135 - 2748041
Email: pns@iirs.gov.in

Date :20/10/2015

M/s

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Our Ref No : GIER 2015-000240-01


Tender Due: 15:00 Hrs ISTon 12/11/2015

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 and Operationalization of the following Seismic Instruments with Specification as per the enclosure, Broad Band Seismometer (Detailed per annexure enclosed)	NOS.	1
2	Data Acquisition System	NOS.	1
3	Strong Motion Accelerograph	NOS.	1
4	Solar Power Supply (Optional)	NOS.	1
5	Basic Monument/platform construction and installation	JOB.	1
6	Installation, Maintenance and warranty including AMC should cover first 3 years. Quote Separately for 4th and 5th year, Note: Quote Separately for each items	JOB.	1

DELIVERY AT: IIRS
MODE OF DESPATCH DOOR DLVRY
DUTY EXEMPTIONS
SPECIAL INSTRUCTIONS NIL
SPECIFIC TERMS


20/10/15
V.V. NARAYANAN KUTTY
PURS. & STORES OFFICER
For and on behalf of the President of India
The Purchaser

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Description of Items	Quantity
1. Broad Band Seismometer Broad Band Force Balance triaxial seismometer with frequency response 120s (or better) to 50 Hz, Dynamic range ≥ 138 db, Less than 1.3W power consumption, Remote calibration, 15m high quality low noise seismometer cable with both side and connector - As per the detailed specifications mentioned in the Annexure-'A'	01 Nos.
2. Data Acquisition System (DAS) True 24 bit 3 channel Digitizer, Dynamic Range ≥ 135 dB at 100 SPS, user selectable hardware gain, user selectable sampling - continuous and triggered recording-Compact Flash and/or/HDD storage, 100 Mbps T-Base Ethernet, less than 2.0 W power consumption with storage, Inbuilt GPS receiver, External GPS antenna, GPS cable 15 meter - As per the detailed specifications mentioned in the Annexure-'B'	01 Nos.
3. SMA - Strong Motion Accelcrograph , 24bit digitizer, +/-4g to +/-0.25g adjustable in various range, Dc-420-440 Hz, Dynamic Range 160db @ 1Hz, 10 to 1000 SPS user selectable SPS, Inbuilt GPS receiver , GPS antenna and 10 meters cable, 8GB storage media. - As per the detailed specifications mentioned in the Annexure-'C'	01 Nos.
4. Solar Power supply (optional) 160W Solar Power, 100 AH Rattery (SMF), 10 Amps Charge Controller; mounting kit, cables, and junction box with warranty support.	01 Nos.
5. Basic Monument/Platform construction and installation	01 nos.
6. Installation, maintenance and warranty including AMC should cover first 3 years. Quote separately for 4th year and 5th year	01 nos.

ANNEXURE-'A'

DETAILED TECHNICAL SPECIFICATIONS FOR BROADBAND SEISMOMETERS

1. Broadband Seismometer

1.1	Topology	Tri-axial, Symmetric/Orthogonal, broadband velocity transducer with electronic feedback and axial accuracy better than 1° and output for one vertical and two horizontal components orthogonal to each other.
1.2	Frequency response	Flat response (within +/- 3dB) to ground velocity in the range of 120 sec to 50Hz or better.
1.3	Dynamic range	≥135 dB
1.4	Output voltage	±20 V.
1.5	Damping	0.7 of critical.
1.6	Velocity sensitivity	1000 V/m/sec or Higher.
1.7	Clip Level	>13 mm/s up to 1.5Hz
1.8	Linearity	Less than ±1 % of full scale.
1.9	Mass centering	Automatic or on external command locally or from remote.
1.10	Calibration facility	Calibration facility from Data Acquisition System.
1.11	Frequency response curve and system information	Frequency response curve of the unit along with information regarding transfer function including poles and zeros should be provided.
1.12	Noise Response	Must be below the USGS Low Noise Model in the frequency range of 50 sec to 5 Hz. OR better.
1.13	Indicators	a) Should have an indicator for leveling the transducer. b) Should have an indicator mark on its body to indicate the direction of relative orientation of the seismometer.
1.14	Mass position indicator	Facility to display and monitor the sensor inertial mass position should be provided.
1.15	Humidity & operating temp. range	Up to 100% RH and -20° to 50°C. IP67 or better
1.16	Power	<2.0 watt derived from DAS
1.17	Housing	The tri-axial sensors should be mounted in a single water-proof and vacuum-tight enclosure.
1.18	Mass locking & safety mechanism	Must contain a robust locking and safety mechanism during transportation
1.19	Connectors	All connectors should be water-proof and rust-proof.

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1.20	Cable	Low-loss shielded cable of at least 15 meters with end Connectors
1.21	Thermal insulation cover	Air-tight thermal insulation cover should be provided.
	Supporting document	All technical documents in support of specifications should be provided

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ANNEXURE-'B'

DETAILED TECHNICAL SPECIFICATIONS FOR BROADBAND SEISMOMETERS

2. Data Acquisition Systems (DAS) and its accessories		
2.1	Number of channels	Three channels upgradable to 6 Channels in one housing
2.2	Dynamic range	At least 135 dB at 100sps.
2.3	ADC	Three independent 24-bit digitizers, one for each channel.
2.4	Input range	Should match to the sensor output
2.5	Hardware Gain	User Selectable in Digitizer
2.6	Common mode rejection ratio	Greater than 70 dB.
2.7	Channel to channel skew	a) Zero – Simultaneous sampling of all the channels. b) Immune to Electromagnetic interference.
2.8	System noise	The overall system noise should not be more than 2-3 counts of 24-bit system
2.9	Sampling rate	User selectable up to at least 200 SPS per channel in different data streams (at least two or more). Simultaneous recording at different sampling rates in different streams (two or more), both in continuous and trigger modes. Trigger parameters should be user selectable.
2.10	Filter	Linear phase digital FIR filter.
2.11	Internal RAM	At least 16 MB RAM
2.12	Storage capacity	Compact Flash Memory of 16 GB or more (preferably in two slots)
2.13	Recording format	Standard earthquake format compatible to Windows and UNIX with proven compression technique. User-friendly data management utilities to be provided.
2.14	Timing system	a) GPS receiver based timing system with accuracy better than 0.1m sec when GPS is locked. b) Recording of GPS status information. c) Free running TCXO accuracy of 1 ppm over operating temperature range. d) Provision to synchronize time by alternate methods in case of GPS failure.

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2.15	GPS antenna and cable	a) Electronic circuits associated with GPS receiver should be inside the DAS with antenna exposed to outside. b) Antenna cable length should be minimum 30 meters. c) Antenna should be enclosed in a watertight enclosure and should work effectively in extreme climatic conditions. d) Lightning protection to be provided. e) Rust-proof antenna mounting rod and its accessories.
2.16	Sensor control features	a) Sensor calibration facility. b) Sensor mass position monitoring. c) Sensor mass centering on command.
2.17	Calibration	Facility for integrated system calibration to be provided and described
2.18	Recording mode	The DAS should support real-time data telemetry to a central site through VSAT telemetry network.
2.19	Communication ports:	a) USB and / or serial port connectivity to a local terminal for parameter setting and event data downloading. b) A separate port for dial-up modem connectivity to download the event data to Central Receiving Station. c) In case of GSM / CDMA network cost should include purchase of 3G/2G SIM and operational use for three years.
2.20	VSAT telemetry Connectivity (optional)	Ethernet port (100 Base-T) supporting TCP/IP, UDP/IP. DAS firmware should support the following features: a) Web browsing support / communication over TCP/IP protocol. b) Full Duplex communication between field and Central Receiving Station (CRS), Multicast. c) Triggered or continuous data transmission. d) Support off-the-shelf communication equipment. e) Extensive error correction. f) Network state of health (SOH), communication Performance statistics.
2.21	Status display	Status display LCD readable (optional) status display for power, data acquisition, SOH, GPS satellite position, seismic on line waveform, etc. should be provided.
2.22	Power requirements	a) Supply voltage 10-15 Volts DC. b) Power consumption of DAS up to 2-4 W at 12V DC recording 3 channels at 100 SPS including Seismometer. c) Provision for charging the batteries from solar cells source. d) Voltage from battery to sensor and DAS units should be through isolating DC/DC converters. e) DAS should resume data acquisition automatically when the power is restored after disruption. f) Power should be isolated from the signal ground. g) Power autonomy minimum 3-4 days in case of failure of Solar Light. h) The recorder should be configured so that the auxiliary external 12V DC power source may be easily connected in such a

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		way as to add the capacity of the batteries.
2.23	Operating temperature and humidity range	20° to 50°C. Up to 100% RH.
2.24	Environment	All the indoor units should work in typical tropical environment conditions and should work without air conditioning.
2.25	Housing	GPS Antenna and DAS modules should be enclosed in weather- and shock-proof sealed enclosures with lightning protection.
2.26	Carrying Case	Rugged PVC carrying case for Digitizer and other accessories.

ANNEXURE 'C'
DETAILED TECHNICAL SPECIFICATIONS FOR
STRONG MOTION ACCELEROGRAPH

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STRONG MOTION ACCELEROGRAPH		
S.No.	Parameter	Specification
3.1	Topology	Tri-axial Mechanical feedback coil transducers, horizontal - vertical in a single sealed unit with internal recorder. The unit should have an indicator mark on its body to indicate relative orientation of the sensors.
3.2	Type	Force Balanced
3.3	Full scale	Field user selectable, $\pm 2g$
3.4	Dynamic range	≥ 120 dB or better
3.5	Frequency Response	Appropriate frequency response curve and transfer function should be given
3.6	Damping	0.7 of critical
3.7	Cross axis sensitivity	$< 1\%$ (including misalignment)
3.8	Linearity	The relationship between output signal and input acceleration to be within $\pm 1\%$ of full scale for all frequencies from DC to 50Hz.
3.9	Output impedance	Matching to that of the recording unit
3.10	Level indicator	Bubble type
3.11	Input power	Single 12V DC Battery source for the sensor and the companion recording unit
II) Recorder (In-Built)		
3.12	Number of channels	Three channels
3.13	Sampling Rate	Software selectable up to 1000 SPS per channel
3.14	Dynamic Range	At least 130 dB at 100 SPS
3.15	Bit resolution	24 bit
3.16	Frequency response	DC to Nyquist frequency
3.17	Input range	Matched to the accelerometer output
3.18	Channel to channel skew	None
3.19	System response	± 3 dB Flat from DC to Nyquist frequency
3.20	Timing system	Internal 12 channel GPS receiver, GPS antenna with 15 cable to be supplied.
3.21	Timing Accuracy	Free running accuracy of 0.1ppm to give + 100 micro sec latch-on accuracy
3.22	Pre-event recording	Software selectable from 1 to 30 sec in steps of 1 sec
3.23	Post event recording	Software selectable up to 90 seconds or more
3.24	Triggering	The system must be capable of recording the acceleration data in triggered mode, e.g. threshold or STA/LTA ratio trigger.
3.25	Data Storage	Recording shall be on a market available memory card of the

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		order 8 GB. One additional card with each unit.
3.26	Recording capacity	At least 50 days of recording time @ 200 SPS for three channels on the storage device
3.27	Output Display	Can display waveform output in real time for viewing including real time FFT and PSD when connected with the Computer.
3.28	Output data format	Direct output of PGA, PGV and PGD
3.29	Communication	Ethernet interface, RS232, USB Remote data transmission should be preferable over GSM/CDMA network using 3G/2G connectivity as available. (Cost should include SIM card + usage for 3 years)
3.30	Anti-aliasing filter	To be provided
3.31	Operating temperature	-20° C to + 60° C ambient
3.32	EMI/RFI Protection	All I/O Lines
3.34	Humidity tolerance	Upto 100% RH
3.35	Power consumption (accelerometer + recorder)	< 3W
3.36	Power supply	12 V DC
3.37	Communication	1) 10/100 Base-T Ethernet, RS232 Serial 2) The system should be have a storage facility for SOH and communicate to a central recording station.

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<p>2. Data Acquisition System (DAS) True 24 bit 3 channel Digitizer, Dynamic Range ≥ -135dB at 100 SPS, user selectable hardware gain, user selectable sampling – continuous and triggered recording-Compact Flash and/or/HDD storage, 100 Mbps T-Base Ethernet, less than 2.0 W power consumption with storage, Inbuilt GPS receiver, External GPS antenna, GPS cable 15 meter – As per the detailed specifications mentioned in the Annexure-‘B’</p>	01 Nos.
<p>3. SMA – Strong Motion Accelerograph, 24bit digitizer, $\pm 4g$ to $\pm 0.25g$ adjustable in various range, Dc-420-440 Hz, Dynamic Range 160db @ 1Hz, 10 to 1000 SPS user selectable SPS, Inbuilt GPS receiver , GPS antenna and 10 meters cable, 8GB storage media. – As per the detailed specifications mentioned in the Annexure-‘C’</p>	01 Nos.
<p>4. Solar Power supply (optional) 160W Solar Power, 100 AH Battery (SMF), 10 Amps Charge Controller, mounting kit, cables, and junction box with warranty support.</p>	01 Nos.
<p>5. Basic Monument/Platform construction and installation</p>	01 nos.
<p>6. Installation, maintenance and warranty including AMC should cover first 3 years. Quote separately for 4th year and 5th year</p>	01 nos.

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

PURCHASE DEPARTMENT

NO. GIER-2015-000240-01

Date : 20-10-2015

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-2015-000240-01/15-16, Due on 12.11.2015 at 1500 hrs** (Techno-Commercial Bid) and Tender No. **GIER-2015-000240-01/15-16, Due on 12.11.2015 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 **Seismic Instruments** against Enquiry No. **GIER-2015-000240-01/15-16, Due on 12-11-2015 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. 50,000/- 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 37 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 Three Years 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.


20/10/15
Purchase & Stores officer

