

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

Ref: OEC / 18-19/146/ DSTx / VSAR


Date : 16th January 2019

FIELD INSTRUMENT FOR SURVEYING

Due date :

- * Submission of technical and commercial proposal : On or before **30th January 2019 @15:30 hrs.**
- * Bid opening : **30th January 2019 @16:00 hrs**

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 closed 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 terms etc. 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 /machines/ 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-WORKS** 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

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Data Acquisition system – 1nos

8 Channel Digital Universal DAQ with suitable accessories		
Sl no	Parameter	Description/Range
	Type	8 Channel Digital Universal DAQ
	Quantity	1
1	No of channels	An input module containing 8 electrically isolated & individually configurable channels.
2	Type of Input signals	All 8 Channels should support half and full bridge Strain gauges, Load cells, Force transducers, Half & full inductive bridges, LVDT, PT100, PT1000, Thermocouples, Potentiometer, voltage, current & resistance.
3	A/D Converter	Each channel should have dedicated 24 bit A/D Converter for synchronous & parallel measurements.
4	Sampling rate per channel	≥ 40 KHz/channel(adjustable)
5	Excitation for Active Sensors	10 to 20VDC adjustable for each channel
6	Bridge Excitation Voltage	1 or 2.5Vrms with selectable AC & DC excitation
7	Career frequency (sine)	4800Hz
8	Accuracy class	a) 0.1 or better for strain gauge-full bridge & half bridge (10mV/V) (Both AC/DC Excitation)
		b) 0.1 or better for Resistive (strain gauge) full bridge , 100mV/V, 1000mV/V (DC excitation)
		c) 0.1 or better for Inductive full/half bridge 100mV/V , 1000mV/V full bridge (AC excitation)
		d) 0.1 of better for LVDT, Potentiometer and current fed piezoelectric transducers
		e) 0.1 or better for ±10VDV , ± 60 DC , ± 100mV, ± 20mA
		f) 0.1 or better for resistance, PT100,PT1000
		g) 0.05 or better for pulse counting
9	Range	a) Strain gauge based Sensors (±10mV)
		b) Inductive Sensors (±1000 mV)
		c) PiezoresistiveSensors (±2000mV)
		d) Potentiometer (±1000mV)
		e) LVDT's(±2000mV)
		f) 0.1 or better for resistance, PT100,PT1000
		g) 0.05 or better for pulse counting
10	DC voltage & Currents	±60 V, ±10 V, ±100 mV&4 to 20mA
11	Resistance	2 Kohms
12	Thermocouples	Type K,J,S,T,R,N,B,E. With cold junction compensation
13	Thermistors	PT100, PT1000
14	Pulses & Frequency	up to 0.1 M pulses/sec; 0 to 100 KHz

15	Transducer impedance	300 to 1000Ω
16	Channel Isolation	All inputs to be electrically isolated
17	Transducer cable length	Should support ≥80 meters
18	Common Mode Rejection	>100dB
19	Common Mode Voltage	60V
20	TEDS support	TEDS (IEEE 1451.4) supported on every channel.
21	Transducer connection	D'Connector
22	Interface	Firewire, Ethernet
23	Standards	IEEE1394b EN 61326(EMC requirements)
24	PC connectivity	Ethernet, CAN
25	Protection	IP67
26	Operating temperature	up to +50°C
27	Humidity	5-95 %RH
28	Power Supply	10 to 24V DC for field applications with 230 VAC adapters for Lab.
29	Distributed & Scalable Modules	The modules must be upgradeable to > 100 channels. Every 8 / 16 channel unit must be able to be used separately with a computer. The quoted system must work with the existing MX840 system as well as NI – PCI express card (while acquiring data simultaneously).
	Connectivity	
30	Ethernet cable (CAT 5+)	2m
	AC-DC Power supply unit	
31	Auxiliary Power Supply	<30 W
32	Input voltage	110 - 240 VAC
33	Power supply cable	Minimum 2m with ODU plug (2 wire)
34	Output	24 V
35	Weight	<2 Kg
	Software Requirement	
36	Software	The universal DAQ should be easily configured with the MATLAB. No additional software should be required to acquire data, except *.dll file/driver to configure, communicate and initiate the hardware. The DAQ coding should be configured with the existing NI card (accessed through Session-based Matlab coding). Hence, the DAQ should have the capability to access through API and .NET assembly. No OEM Software need to be quoted. The system should work without the software, if exists it should be free.
37	Channel configuration	Automatically via TEDS (integrated editor). Manually via integrated sensor database which must be open & expandable.

2.Prerequisite

The Vendor has to submit proof of documents for similar **Data Acquisition system** supply in India. In addition, the proof of documents for successful completion of at least two supplies of same **Data Acquisition system** 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.
2. Submission of Methodology, Delivery and commissioning periods.

Tax details.

5.Force Majeure

Neither the Agency nor the owner shall be considered in default in performance of its obligations hereunder if such performance is prevented or delayed for any causes beyond the reasonable control of the party affected, such as war, hostilities, revolution, riots, civil commotion, epidemic, major fires, explosions, floods, earthquakes or because of any law, order, proclamatory regulations or ordinance of government, provided notice in writing of such cause with necessary evidence that the obligation under the contract is thereby affected or prevented or delayed, is given within 14 days from the happening of the event and in case it is not possible to serve the notice within the 14 days period, then within the shortest possible period without delay.

As soon as the cause of Force Majeure has been removed, the party whose ability to perform its obligation has been affected shall notify the other party the actual delay occurred on account of such activities.

Although the time for completion of work shall be suitably extended (not exceeding the period during which the work was stopped on account of Force Majeure clause), such extension shall not result in any financial claim by the agency against the owner on any account of such a delay for any other reason whatsoever.

- * Pre-bid meeting will be held on **23th January 2019 @3:30 pm.**
- * Venue : Department of Ocean Engineering, IIT Madras.

Proposal sent to the following address :-

Dr. V.Sriram

Associate Professor

Dept. of Ocean engineering,

IIT Madras, Chennai-600036.