Civil Engineering Department

IIT Delhi, Hauz Khas, New Delhi -16

NOTICE INVITING QUOTATION (NIQ)

Date: 02nd March 2013

Sealed Quotations are invited from well-known MNCs or their authorized representatives for supply of **Data Acquisition System, 8 Channel Digital Universal Signal Conditioner** conforming to technical specifications and prescribed terms & conditions as given hereunder. Interested parties are required to submit their technical and commercial bids in separately sealed envelops and marked respectively as **"Technical Bid"** and **"Commercial Bid"** on the outside.

The NIQ should be addressed to Dr. B. Munwar Basha and submitted in Department of Civil Engineering, IIT Delhi, Hauz Khas, New Delhi – 110016 **latest by 3:00 PM on Mar 15, 2013**

TECHNICAL SPECIFICATIONS DIGITAL UNIVERSAL ACQUISISTION SYSTEM

A Data Acquisition system (DAS) is required to monitor force, pressure, Displacement and strain parameters. The basic DAS shall be modular type with Desktop configuration. The total number of 8 channels required. Each should accept universal input with capability of handling up to 12 measurement technologies/ signal conditioning. The system should be modular and upgradeable upto 32+ channels.

I. 8 Channel Digital Universal Signal Conditioner

1) No of modules	One Input module each containing 8 electrically isolated & individually configurable channels. Facility to upgrade to 32+ channels via cascading.
2) Signal conditioning	All 8 Channels should Support Strain gage half and full bridge Strain gauges, Load cells, Force transducers, Half & full inductive bridges, LVDT, PT100, PT1000, Thermocouples, Potentiometer, voltage, current & resistance. All individually adjustable for each channel inputs
3) A/D Converter	Each channel should have separate 24 bit A/D Converter for synchronous & parallel measurements. No Multiplexing / sample & hold.
4) Sampling rate per channel	Upto 19.2 KHz/channel. Individually adjustable / channel
5) Excitation for Active Sensors	5 ... 24VDC adjustable for each channel
6) Bridge Excitation Voltage	1 or 2.5Vrms
7) Carrier frequency (sine)	4800Hz
8) Accuracy class	0.05
9) Linearity error	< 0.02%
10) Strain gauge based Sensors	± 10 mV (must support 6 wire Krezuer circuitry)
11) LVDT's	± 3000 mV

12) Inductive sensors	± 1000 mV
13) Piezoresistive sensor	± 2500 mV
14) Potentiometer	± 1000 mV
15) DC voltage & Currents	± 60 V, ± 10 V, ± 100 mV & 4…20mA
16) Resistance	5000 ohms
17) Thermocouples &	Type K,J,S,T,R,N,B,E
18) Thermistors	PT100, PT1000 with linearization range of −200 ... +848^{0}C
19) Pulses & Frequency	0 ... 1,000,000 pulses/sec; 0 ... 1,000,000 Hz
20) Channel Isolation	All inputs to be electrically isolated
21) Bessel & Butterworth Filters	0.01 HZ to 3.2 KHz individually adjustable per channel
22) Transducer impedance	300 ... 1000W
23) Transducer cable length	Should support ≥80 meters
24) Common Mode Rejection	>100dB
25) Common Mode Voltage	60V
26) Zero drift	<0.002% of Full Scale
27) Full Scale drift	<0.005% of the measured value
28) TEDS support	TEDS (IEEE 1451.4) supported on every channel. Capability to read & Write TEDS. Support full bridge TEDS in ≤ 6 wire circuit.
29) Transducer connector	D-SUB-15HD with TEDS chip
30) Interface	Fire wire, Gigabit Ethernet
31) Synchronization	Via Firewire, NTP
32) EMC requirements	EN 61326
33) Vibration (30 min)	50m/s2
34) Shock (6 ms)	350m/s2
35) Operating temperature	-20 ... +65°C
36) Power Supply	10 ... 30V DC for field applications with 230 VAC adapter for Lab.
37) Size & Weight	Must be compact and portable. Weight < 1Kg and size < 1 liter

II. Specifications for Software

38) Software	The software should include: Hardware setup, simplified data Logging, simplified Data Viewing. Automatic sensor recognition through TEDS, Labview & API drivers are essential. No programming knowledge should be required to work on the software or make online digital displays, graphs & calculations.
39) Channel configuration	Automatically via TEDS (integrated editor). Manually via integrated sensor database which must be open & expandable.
40) Online calculations	Arithmetic, exponent, root, root mean square value, logic,

	trigonometry, integral/differential, exponential, logarithm, limit values (connect digital output, play audio file via external speaker, entry in log file), software filters (moving averages, Bessel, Butterworth), Experimental stress analysis using SG
41) Data Storage Format	ASCII, Microsoft Excel, RPC III, MATLAB, nCode, MDF 4.0, NI DIAdem. The complete meta data (sensors, measurement, configuration, test parameters), statistics log should be stored for data traceability.

LIST OF DELIVERABLES

S.NO	DESCRIPTION	QTY
1	8 Channel Universal Amplifier Type 1-MX840 , Make: HBM With all essential accessories: CatmanEasy software ,power supply, connectivity Cables and connectors to connect transducers to DAS (8Nos.) Type SCM-SG 350 modules –8Nos.	1Set

Terms & Conditions:

1. Vendors should provide Compliance statement (with proof marked/ highlighted in the datasheet) along with technical bid. If compliance statement is not provided or not properly filled, it will be considered that specifications are not met by the vendor.
2. Vendors should provide an authorization letter from OEM's Indian Technical Center confirming the authorization, originality of equipment & after sales service support
3. Warranty: 1 Years from the date of acceptance of stores.
4. Training: For at least two persons at IITD by OEM's authorized Personnel
5. Installation & commissioning: Should be in the scope of supply
6. Manuals: A set of system operating manuals should be supplied.
7. Separate Technical and commercial bids are required to be submitted in separate sealed Envelopes**.**
8. The Model no. of both Workstation & Monitor must be mentioned with the technical datasheet.
9. If the quote is submitted by the representative of Principals/Manufacturers, a Valid AgencyShip/Dealership Certificate, **specific to this tender** at a recent date in original should be enclosed.
10. Validity of the quotation should be at least 90 days from the date of submission.
11. Sealed quotations should reach the undersigned on or before **15.03.2013 up to 3:00 p.m.**
12. Quotation must indicate a delivery schedule, which in no case should exceed 6 weeks from the Date of placement of order.
13. Payment will be made after satisfactory installation as per IIT norms.

14. Institute Reserves the right to accept/Reject any or all quotation without assigning any reason.
15. No Query regarding the tender will be entertained.

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