



Telephone No.: 22575284

Department of Civil Engineering
Indian Institute of Technology, Madras, Chennai-600 036.

CIE/RAVG/2015/DAQ2/SPL

Dated 17.08.2015

To

DUE DATE: 10.09.2015

Dear Sirs,

On behalf of the Indian Institute of Technology Madras, quotations are invited for the supply of "Two Multi Purpose Data Acquisition Systems" conforming to the specifications given in the Annexure.

1. Instructions to the Bidder

i) Preparation of Bids: The quotation should be submitted under the two-bid system (i.e.) Technical Bid and Financial Bid in separate envelopes.

ii) Delivery of the quotation: The quotation shall be sent to the Head of the Department, Department of Civil Engineering, Indian Institute of Technology, Chennai-600 036 either by Post or by Courier so as to reach on or before the due date.

iii) The quotation should be valid for 60 (Sixty days) from the due date.

iv) Opening of the Quotation:- The offer/Bids will be opened by a Committee duly constituted for this purpose. The Technical bids will be opened first and it will be examined by the Technical Committee, which will decide the suitability of the bid as per the specifications and requirements. The Financial offer/bid will be opened only for the offers/bids that technically meet all our requirements as per the specification.

v) The price should be quoted in net per unit (after break-up) and must include all packing and delivery charges. The offer/bid should be exclusive of taxes and duties, which will be paid by the purchaser as applicable. However, the percentage of tax & duties (as on date) should be clearly indicated. The price should be quoted without Customs duty and Excise duty, since IIT Madras is exempt from payment of Excise duty and the Customs duty will be paid at a concessional rate against duty exemption certificate. In case of import supply, the price should be quoted on CIP or CIF basis indicating the mode of shipment.

vi) Agency Commission:- Agency commission, if any, will be paid to the Indian agent in Rupees on receipt of the equipment and after satisfactory installation. Agency commission will not be paid in foreign currency under any circumstances. The details should be explicitly shown in the

quotation even in the case of nil commission; i.e., the quotation should indicate the percentage of agency commission to be paid to the Indian agent.

2. Terms of Delivery: The item should be supplied to our destination in case of local supply. In case of import supply, the item should be shipped to Chennai Airport. The Installation/Commissioning should be completed as specified in our conditions.

Yours sincerely,

for 
HEAD OF THE DEPARTMENT



Encl: Specification

SCHEDULE

I) Important Conditions:

1. The due date for submission of the quotation is 10.09.2015
2. The offer/bids should be submitted in two bid systems, i.e., Technical bid and Financial bid. The technical bid should consist of all technical details along with commercial terms and conditions. No prices should ever be included in the Technical bid. Financial bid should indicate item-wise prices for the items mentioned in the technical bid. The Technical bid and the Financial bid should be put in separate covers and sealed. Both the sealed covers should be put into a bigger cover. The limited quotation for supply of "Two Multi Purpose Data Acquisition Systems" should be written on the left side of the outer cover.
3. If an Indian agent is involved, the following documents must be enclosed.
 - i) Foreign Principal's Proforma invoice indicating the commission payable to the Indian Agent and nature of after-sales service to be rendered by the Indian Agent.
 - ii) Copy of the agency agreement with the Foreign Principal and the precise relationship between them and their mutual interest in the business.
 - iii) The enlistment of the Indian agent with Director General of Supplies and Disposals under the Compulsory Registration Scheme of Ministry of Finance.
4. The offer/bids should be sent only for equipment that is available in the market and that has been supplied to a number of customers. A list of customers in India and abroad with details, for contacting them and possibly inspecting the equipment, must accompany the quotation. Quotation for a prototype equipment will not be accepted.
5. Original Catalogue of the quoted models duly signed by the Principal must accompany the quotation in the Technical bid.
6. Documentary proof for the claimed position and repetition accuracies must be obtained from the Principal and submitted along with the relevant pages of the standards.
7. Compliance or Confirmation report with reference to the specifications, and other terms and conditions should also be obtained from the principal.
8. Delivery Schedule: The quotation should indicate clearly the time required for delivery of the item. In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.
- 9 Risk Purchase Clause: In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.
10. Payment: No Advance payment will be made for domestic purchase. However 90% Payment against Delivery and 10% after installation can be agreed to, wherever the installation



is involved. In case of import supplies, the payment will be made only through Letter of Credit, and 90% payment will be released against delivery and 10% after installation, wherever the installation is being done.

11. On-Site Installation: The equipment or machinery has to be installed or commissioned by the successful bidder within 15 to 20 days from the date of receipt of the item at IIT Madras
12. Warranty/Guarantee: The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately.
13. Late offer: The offers received after the due date and time will not be considered.
14. Acceptance and Rejection: IIT Madras has the right to accept the whole or any part of the Quotation or portion of the quantity offered or reject it in full without assigning any reason. IIT Madras has the right to purchase one of the systems from one of the vendors, and the other from another vendor.
15. Disputes and Jurisdiction: Any legal disputes arising out of any breach of contract pertained to this quotation shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.
16. Acknowledgement: It is hereby acknowledged that the quotation has gone through all the conditions mentioned above and agrees to abide by them.


SIGNATURE OF THE PURCHASER

ANNEXURE

Description of the item: *Two Multi-Purpose Data Acquisition Systems*

Detailed specifications: The specifications of the two systems are as given below:

1. System 1

Specification for Data Acquisition System 1		
1	No. of input Channels	Data Acquisition system required for 32 analog input channels & 8 Bridge Input Channels.
2	Transducers to be supported	Voltage Inputs in ± 200 mV, ± 1 V, ± 5 V, and ± 10 V ranges and Strain Gauges in Quarter bridge
3	Measurement range	Analog Input Channels: ± 200 mV, ± 1 V, ± 5 V, and ± 10 V input ranges Strain Gauge Channels: ± 29.4 mV/V input range
4	CMRR	Analog Input channels: 100dB Strain Gauge Channels: 120 dB
5	Accuracy	Strain Bridge Channels: 0.02% Analog Input Channels: $\pm 1\%$
6	Isolation	Channel-Earth Isolation
7	Strain Gauge Bridge Excitation Voltage	2 V
8	Quarter-bridge completion	Internal Completion resistors of 120Ω with 10 ppm/ $^{\circ}$ C max temperature co-efficient.
9	Shunt Calibration	In- built shunt calibration with 0.09% accuracy for strain gauge channels
10	Strain Gauge channels Sampling Rate & Resolution	10KS/s/ch or higher & 24 bit resolution
11	Analog Input Module Sampling Rate & Resolution	Aggregate Sampling rate of 250KS/s or higher, 16 bit resolution
12	Input Impedance	>10 G Ω for Analog Input channels
13	Connectors	Analog Input Module: D-Sub Connector. Required Shielded cable, 1m and DIN-Rail Mount Terminal Block with spring terminals should be provided. Strain Gauge module: Spring terminal connector
14	Chassis	All the signal conditioning modules should be housed inside the chassis with USB interface. The chassis should have Input FIFO of 127 samples per slot & should accept 9 VDC-30 VDC



15	Software	The Hardware should support LabVIEW Software, and drivers should be provided
16	Size & Weight	Must be compact and portable. Weight < 2.5kg
17	EMC requirements	EN 61326
18	Operating temperature range	-20 °C to 55 °C
19	Delivery deadline	Within 14 weeks after the release of the purchase order.
20	Authorization letter	Authorization letter from the principal (manufacturer) should be provided authorizing the agent to supply the products.
21	Previous supplies in India	Similar equipment should have been supplied in India, preferably to Central Govt. institutions. Contact names and details should be provided along with the quotation
22	Installation and demonstration	Installation and demonstration of system must be done by qualified personnel at IIT Madras

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2. System 2

Specification for Data Acquisition System 2		
1	No. of input Channels	Data Acquisition system is required for 32 voltage channels, 8 LVDT Channels & 16 Bridge Input Channels.
2	Transducers to be supported	LVDT in 4 and 5-wire connections, Strain Gauges in Quarter bridges, Half bridges & Full bridges, & Voltage Inputs in $\pm 10V$ range
3	Measurement Range	Bridge Measurement range: ± 10 mV to ± 10 V LVDT Measurement Range: 0.05Vrms to 6 Vrms Voltage Measurement Range: ± 100 mV to ± 10 V
4	Sampling rate	Better than 300K Samples/s
5	Excitation	LVDT: 1 Vrms or 3 Vrms and at a frequency of 2.5 kHz, 3.3 kHz, 5 kHz or 10 kHz Strain Gauge: 0 V to 10 V in 0.625 V increments
6	Filters	Strain Gauge Module: Programmable 4-pole Butterworth filter (10 Hz, 100 Hz, 1 kHz, 10 kHz or bypass)

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		LVDT Module: 250Hz low Pass Filter Voltage Module: 10KHz Low Pass Filter
7	Accuracy Class	$\pm 0.1\%$ for strain gauge channels & $\pm 0.05\%$ for LVDT Channels & 0.012% of full scale for Analog Input Channels.
8	CMRR	75dB for LVDT channels, 85dB for Strain channels and 100dB for analog input channels
9	Bridge Type	Quarter, Half & Full Bridge and should support 120 Ω and 350 Ω
10	Shunt Calibration	In-built shunt calibration with switch resistance of 32 Ω for Strain Bridge channels. 2 shunt calibration circuits per channel should be available.
11	Temperature Drift in Excitation channels	$\pm 0.005\%/^{\circ}\text{C}$ temperature drift.
12	Other Features for Strain module	Automatic Null Compensation, Random scanning, Auto Calibration with onboard calibration reference and remote sensing (Error less than $\pm 0.02\%/\Omega$ of lead resistance) should be available
13	Other Features for LVDT module	Auto calibration, Random scanning
14	Impedance	>1 G Ω for Analog input channels & Strain Channels and 100k Ω for LVDT channels
15	Chassis	All the signal conditioning modules should be housed inside the chassis. The Chassis should have 3 internal analog buses, Forced Air Cooling & should accept 230AC Voltage
16	Data Acquisition Module	A Data Acquisition card is required to convert the signal conditioned signals to Digital signal which should have 16 bit resolution, better than 2MS/s, CMRR 100dB & Input impedance >10 G Ω
17	Software	The Hardware should support LabVIEW Software and the drivers should be provided
18	Scalable	The system must be upgradable to > 100 channels.
19	Size & Weight	Must be compact and portable. Weight < 9 kg
20	Interface	Suitable Shielded cable and Adapter should be provided to connect Data Acquisition card with signal conditioning modules
22	Operating temperature range	0....+50 $^{\circ}\text{C}$

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23	Delivery deadline	Within 14 weeks after the release of the purchase order.
24	Authorization letter	Authorization letter from the principal (manufacturer) should be provided for the supply to be made by the bidder.
25	Previous supplies in India	Similar equipment should have been supplied in India, preferably to Central Govt. institutions. Contact names and details should be provided along with the quotation
26	Installation and demonstration	Installation and demonstration of system must be done by qualified personnel at IIT Madras

Accessories: Special connectors, cables and other accessories required for connecting the Data Acquisition cards for further enhancement of operation should be mentioned and quoted separately.

General specifications:

- Similar equipment should have been supplied in India, preferably to Central Govt. institutions. Contact names and details should be provided for possible inspection and verification.
- Installation and commissioning charges, if any, should be specified.
- Costs should be given without including taxes. All taxes will be paid as applicable

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