



Telephone No.: 22575284

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

CIE/RAVG/2014/Digital/SPL

Dated 13.08.2014

To

DUE DATE: 03-09-2014

Dear Sirs,

On behalf of the Indian Institute of Technology Madras, quotations are invited for the supply of a "64 Channel Digital Strain Signal Conditioner" 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) Prebid Meeting: 26th August 2014, 10 am, in Building Sciences Block, Ground floor, room BSB 105, Department of Civil Engineering, IIT Madras, Chennai.
- (iii) 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.
- iv) The quotation should be valid for 60 (Sixty days) from the due date.
- (v) 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.
- vi) 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.

A. K. Prasad

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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.

vii) 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,



HEAD OF THE DEPARTMENT



Encl: Specification

SCHEDULE

I) Important Conditions:

1. The due date for submission of the quotation is 03.09.2014
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 "64 Channel Digital strain Signal Conditioner" 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.

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

| <u>Specification for 64 Channel Digital strain Signal Conditioner</u> | |
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| No. of input Channels | 64 electrically isolated & individually configurable channels. Each unit must be self contained capable of working independently from each other to conduct 4 simultaneous tests or by combining the units have 64 channels of measurement. |
| Transducers to be Supported | Strain Gauges in 3-wire regulated and 4-wire Quarter bridges; in 5 wire Half bridges; in 4 & 6 wire Full bridges, PT100, resistance & inputs in the ± 10 V range |
| A/D Converter | Each channel should have its own 24 bit A/D & signal conditioner for synchronous, parallel & simultaneous measurements. No inter-channel skew. |
| Strain Gauge Bridge Excitation Voltage | 0.5, 1, 2.5, 5V. Both DC & Carrier Frequency excitation required. |
| Carrier frequency | 600Hz |
| Accuracy class | 0.05 |
| Quarter bridge Completion | Internal Completion resistors of 120 & 350 ohm with ± 5 ppm/ $^{\circ}$ C temperature co-efficient. Should be software selectable. |
| Bridge Measurement range | 20 mV |
| Transducer input | 300 ... 1000 Ω |
| Calibration | In-built shunt with ± 5 ppm/ $^{\circ}$ C temperature coefficient required, giving 1mv/V on every channel. Software selectable. Auto calibration required |
| Sampling rate per channel | Better than 15 K samples/sec/channel. Individually adjustable / channel |
| Measurement frequency range | 0 ... 3 kHz for DC & 300Hz for Carrier |
| Filters | Bessel & Butterworth, 4 pole, 0.01 Hz to 3 KHz (-3 dB) individually adjustable per channel |
| Transducer cable length | Up to 80 meters |

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| TEDS (IEEE 1451.4) | Supported on every channel. Transducer Identification via 6 wire circuit. (0-wire full bridge transducers) |
| Interface | Fire wire, Ethernet |
| Transducer connector | Push pull type connection/ RJ45 |
| EMC requirements | EN 61326 |
| Scalable | The system must be upgradeable to > 100 channels. |
| Operating temperature range | -20 ... +65°C |
| Power Supply | 10 ... 30V DC with 230 VAC adapters. |
| Size & Weight | Must be compact and portable. Weight < 5 kg and size < 5000 cc. |
| 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. |
| 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 |
| Software Display Elements | Numeric display, line recorder (y-t, x-y, y-f / FFT), spreadsheet, indicator, bar graph, LED, polar diagram, switch (button), checkbox, selection box, background image, text |
| 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. |
| Quantity | 1 set |
| Delivery deadline | Within 6 weeks after the release of the purchase order |
| Previous supplies in India | 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. |

f. Ramdas