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|  | **Department of Aerospace Engineering**  Indian Institute of Technology Madras  Chennai – 600 036, India |

Prof. R.I. Sujith

PROJECT COORDINATOR

**Ref: No. ASE/RISU/ Microphone-Pressure Transducer/ GATE /2014/ Date: 08 .04. 2014**

**Due date: 29.4.2014**

**Dear Sir,**

1. Quotations are invited in duplicate for the various items shown below/overleaf**/enclosed list**.
2. The quotations are to be in two parts as

**Technical Offer and as Commercial offer:**

The two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in separate envelopes must be enclosed in the one bigger envelope duly sealed and super scribed with reference number and due date and must be addressed to the undersigned so as to reach him on or before the due date stipulated above.

1. Fax and Email quotation are not acceptable.
2. Quotations should be valid for 60 days from the due date and period of delivery required , warranty terms etc. should also be clearly indicated. A minimum of one year warranty is required from the date of commissioning.
3. Imported supplies should be quoted **for CIF Madras**.
4. Local firms to quote for free delivery to this Institute. If quoted for Ex-Godown delivery charges be indicated separately.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples / machine/ equipment if called for should be submitted / demonstrated at free of charges, and collected back at the supplier’s expenses. Compliancy certificate is to be provided indicating conformity to the technical specifications
6. Sales Tax/General Taxes/ED if applicable and such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. If this is not indicated no such claim will be admitted at any stage. Thetaxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to Non-Government Educational Institutions run with no profit motive for which a concession is given. Sales Tax Certificate will be issued at the time of final settlement of the bill.
7. Goods should be supplied carriage paid and insured.
8. Goods shall not be supplied without an official supply order.
9. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
10. In case of LC. Payment, 90% of the payment will be made after completion of the supply. The balance 10% of the payment will be made after satisfactory installation of the equipment.
11. IIT Madras is exempt from payment of Excise Duty and is eligible for concessional rate of custom duty. Necessary certificate will be issued on demand. IIT Madras will make necessary arrangements for the clearance of imported goods at the Airport/Seaport. Hence the price should not include the above charges.
12. **Acceptance and Rejection**:- I.I.T. 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

**Project coordinator**

Items required: **Microphones and Pressure transducers** as per specifications enclosed.

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­­­­­­­­­­­­­­­­­­­­­­Phone Nos.: **(044) 2257 5000 / 5027 / 5031 FAX: (044) 2257 4002**, E-mail: sujith@ iitm.ac.in

**1. Technical specifications of Microphones and Preamplifiers**

The microphones and preamplifiers of this purchase will be used in an experimental combustor for studying combustion instabilities.

Microphones and preamplifier with following specifications are required.

1. Nominal microphone diameter :1/2 inch
2. Type of microphone : Pressure Field
3. Type of polarization : Pre-polarized or Externally polarized
4. Sensitivity = 50 mV/Pa (± 2 dB)
5. Frequency Range : 3.15-10000 Hz
6. Dynamic Range =41-146 dB
7. Temperature Range: -40 degree Celsius to 120 degree Celsius
8. Temperature coefficient of sensitivity : 0.009 dB/ degree Celsius
9. Static Pressure Coefficient : -0.001 dB/ k Pa
10. Number of microphones required = 3 Nos.
11. Suitable preamplifiers = 3 Nos.

Microphones and preamplifier with following specifications are required.

1. Nominal microphone diameter :1/4 inch
2. Type of microphone : Pressure Field
3. Type of polarization : Pre-polarized
4. Sensitivity = 1 mV/Pa
5. Frequency Range : 4-70000 Hz (± 2 dB)
6. Dynamic Range = 41-165 dB
7. Temperature Range: -40 degree Celsius to 120 degree Celsius
8. Temperature coefficient of sensitivity : 0.007 dB/ degree Celsius
9. Static Pressure Coefficient : -0.003 dB/ k Pa
10. Number of microphones required = 2 Nos.
11. Suitable preamplifiers = 2 Nos.

**Vendor has to provide the specification compliance report along with the quotation.**

**2. Technical specifications of Piezoelectric Pressure Transducer**

The Piezoelectric pressure transducers of this purchase will be used in an experimental combustor for studying combustion instabilities.

Brief scope of supply

1. Number of piezoelectric pressure transducer required: 8
2. The pressure transducer will be used in a combustion environment
3. The transducer shall be capable of measuring absolute dynamic pressure
4. The specifications are given below:

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| Measurement Range (±5V Output) | 1.00 psi (6.89kPa) |
| Useful Over range | 6.00 psi |
| Sensitivity (±15 %) | 5000 mV/psi (725mV/kPa) |
| Maximum Pressure(Dynamic) | 10 psi |
| Resolution | 0.02 mpsi |
| Resonant Frequency | ≥40 kHz |
| Rise Time | ≤12.5 µ sec |
| Low Frequency Response (-5 %) | 2.5 Hz |
| Sensing Element | Quartz |
| Acceleration Sensitivity | ≤0.002 psi/g |
| Temperature Range (Operating) | -65 to +250 °F |
| Output Impedance | ≤100 Ohm |
| Output Bias Voltage | 7 to 14 VDC |
| Discharge Time Constant (at room temp) | ≥0.2 sec |

1. Signal Conditioners (4 channel) are required- 2 Nos.
2. Battery powered signal conditioner (1 channel) is required- 1 Nos.
3. Rack mountable Signal Conditioner (6 channel) is required- 1 Nos.
4. Low noise coaxial cables are required- 5 Nos.
5. Related accessories shall be provided. (Clamp nut, O- ring, Adhesive mounting ring etc.)

**Vendor has to provide the specification compliance report along with the quotation.**

**For any query please contact:**

Mr. Vishnu R Unni,

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