**INDIAN INSTITUTE OF TECHNOLOGY, KANPUR**

**Department of Material Science and Engineering**

**REQUEST FOR QUOTATION**

**Enquiry No. IITK/MSE/Modulator/2018-19/02 Date: 09/09/2019**

**Tender Opening date: 9 September 2019 Tender Closing Date: 17 September 2019**

**Piezo Actuator with controller and accessories.**

Quotations are sought for a Piezo Actuator and controller setup complying with all of the specifications mentioned in Annexure A. The closing date for the above item is 17 September 2019.

The prospective suppliers are required to send both “Detailed Technical Specifications” and “Financial Bid” in single sealed envelope. The Technical Specifications should contain detailed technical specification of the product being offered. The Financial Bid should include the detailed price quotation clearly including the cost of the equipment, taxes, service charges if any, shipping and handling charges. The sealed envelope should be clearly marked as “Quotation for Enquiry No. IITK/MSE/Modulator/2018-19/02”.

**Terms and Conditions:**

1. Maximum educational discount, if any should be offered

2. Validity of quotation should be at least for 30 days

3. Prices should show both FOB and CIF separately

4. Prices should include the installation and training cost

5. Warranty and support should be for at least one year after installation

6. Quotation should carry proper certifications like agency certificate, proprietary certificate, etc. In addition, the supplier should have supplied a similar product to at least one central government institute like IIT’s, IISc or NIT’s and a certificate from user in this regard is required.

Kindly send the bids in sealed envelopes (by post) latest by 17 September 2019 to the below given address or mail it to ksanjeev@iitk.ac.in.

Dr. Shashank Shekhar

Department of Materials Science and Engineering

Office: WL 304A, Western lab

IIT Kanpur, U.P. 208016, India.

**Items Required:**

|  |  |  |
| --- | --- | --- |
| **S.No** | **Required Components** | **Quantity** |
| 1 | Preloaded piezo actuator (Annexure-A1) | 2 |
| 2 | High frequency power Amplifier and controller with two channel (Annexure-A2) | 1 |

**Annexure-A1: Technical Specifications Preloaded Piezo Actuator**

|  |  |
| --- | --- |
| **Parameters** | **Specification Required** |
| General | Preloaded Piezo actuator (protected or covered) |
| Travel ranges | 7μm to 10 μm |
| Force generation  | Between 800 N to 1100 N |
| Capacitance  | 0.3-0.8µf |
| Stiffness  | ≥110N/µm |
| Load capacity | High |
| Operating voltage | 0 and 150 V  |
| Resolution of displacement | Sub-nanometer |
| Resonant Frequency | 65-70 kHz |
| Overall Dimensions (Including cover/ protection) : Length Width  | Not more than 20 mm Not more than10 mm |
| Mechanical Interface | Flat Interface with threaded hole or threaded rod coming out of piezo |
| Accessory | Connecting Cable / Open End, at least of 5 m length, compatible with controller |
| Operating Condition | This set of piezo and amplifier and controller should be able to work at high frequency (at least 20 KHz) continuously for at least 30 minutes. |

**Annexure-A2: Technical Specifications High frequency power Amplifier and controller with two channel**

|  |  |
| --- | --- |
| **Parameters** | **Specification Required** |
| Function | Power amplifier and control for above-mentioned Piezo actuator |
| Output voltage | 0 to 150 V |
| Amplifier channels  | 2 |
| Control input voltage | -0 to 7.5V |
| Peak output power  | 360 W or higher  |
| Peak and Average current  | 6500 mA or higher and 2400 mA or higher respectively |
| Amplifier bandwidth | Small signal and Large signal (DC to 30 kHz)  |
| Current limitation  | Short- circuit- proof |
| Voltage gain  | 20 ±1%  |
| Interface and operation |  PZT voltage output (LEMO), Control input (BNC)  |
| Supply voltage and frequency | 240 V, 50 Hz AC  |
| Operating temperature range  | Should work from RT to at least up to 40 °C |
| Operating condition | This set of piezo and amplifier and controller should be able to work at high frequency (at least 20 KHz) continuously for at least 30 minutes. |

**Other details:**

* Please indicate the actual value of the above-mentioned parameters in your tender.
* It is desired that the two actuators are synchronized with controller.
* Additional optional accessories should be indicated separately along with their prices.