

Registered Air Mail/Courier  
CENTRAL SCIENTIFIC INSTRUMENTS ORGANISATION,  
SECTOR 30 C, CHANDIGARH 160 030 (INDIA)

**FAX 0091-172-2657082, 2657267**

Please quote our reference in all  
Correspondence to ensure prompt attention

**PHONE: 0091-172-2652651**  
**GRAMS: CENINSTS**

**No: CSIO/3(744)/Pur**

**Dated: 06.03.2009**

**Sub: Notice Inviting Tender for Strain Gauge Trainer Kit etc.**

**Dear Sirs,**

We are interested in purchase of the subject equipment/material as per the detailed specifications given here under:

<b>S.No</b>	<b>Description of material</b>	<b>Quantity</b>
1.	Strain Gauge Trainer Kit etc. detailed specifications as per sheet (Three sheets enclosed)	<b>As per list</b>

**Yours faithfully,**

**(B.M.Khanna )**  
**Stores & Purchase Officer**

**PTO**

\_\_\_\_\_ **Cut and Paste on the envelope** \_\_\_\_\_

**NIT No. CSIO/3(744)/Pur**

**Due Date 22<sup>nd</sup> April, 2009**

**Stores & Purchase Officer**  
**Central Scientific Instruments Organisation**  
**Sector 30, Chandigarh 160 030 (India)**

Terms and Conditions

1. Please send your Proforma Invoice/quotation showing FOB Prices with full specifications before 22<sup>nd</sup> April, 2009 upto 2.30 P.M.. The envelope should be superscribed Tender for Strain Gauge Trainer Kit etc. Your REF. No. CSIO/3(744)/Pur and due date & time of opening.
2. Quotations would be opened on 22<sup>nd</sup> April, 2009 at 3.30 PM.
3. Kindly mail your quotation well in advance so that the same reaches us before the due date because late/delayed/incomplete tenders area not be considered at all.
4. Tenders/Quotations sent by FAX/E.mail are not be considered.
5. Please quote FOB prices. The Air freight and Insurance charges is to be paid by the buyer in India, however estimated Air Freight and Insurance Charges should be mentioned in your Proforma Invoice to arrive at CIF value.
6. Please send catalogue/leaflet alongwith your Proforma Invoice.
7. The gross weight of the consignment may be intimated in the Proforma Invoice to decide the mode of dispatch.
8. The Proforma Invoice should be valid for six month from the date of opening.
9. Liquidated Damages: Being a Research and Development Organisation, time is essence of the order the date of delivery should be strictly adhered to. Otherwise the Director of this Organisation reserves the right not to accept delivery in part of full and to claim the liquidated damages 1% per week subject to maximum 5% of FOB value of the order.
10. The price quoted by the supplier should not be higher than the maximum retail price, if any, for the stores and the same shall not be higher than the price usually charged by the supplier for stores of the same nature, class or description to any other purchaser.
11. Does the prices quoted include any Commission for your Agents in India, if so, please state:-
  - a. the name and full address of the Indian Agents.
  - b. what services the Agents will render
  - c. the amount of the Agency Commission for the agents are included in the quoted prices
  - d. In the even of order being placed on you, the amount of commission to your Agents in India is payable in Indian Currency after receipt of goods which should be mentioned in the Proforma Invoice.
  - e. The Invoice to be presented by you will be for the value of our order less Agency Commission payable in Indian Currency to your Indian Agents.
12. In the event of sending the quotation/proforma invoice by the Indian Agents of foreign suppliers they must enclose an authority letter from their Principals that the Indian Agents namely\_\_\_\_\_ are authorized to quote on their behalf and the terms and conditions settled by the Indian Agents with the buyer will be binding on their Principals, failing which they offer may not be considered. Further an Indian Agent can not quote on behalf of two different foreign suppliers. If they submit two offers on behalf of two different foreign suppliers, their offers may not be considered.
13. Instructions for Indian Agents:

Agents in India of Foreign manufacturers shall submit alongwith the tender an income tax clearance certificate alongwith other relevant documents i.e. a copy of registration certificate from DGS&D in support of their being Agents (in case of restrictive item) of the foreign manufacturers

The Agency Commission included in the Tender must be disclosed correctly which will be paid in Indian Currency after receipt of the goods at destination in satisfactory condition. Any breach or default on the part of the suppliers/Indian Agents to disclosure of Agency Agreement in India, there would be a penalty of banning business and dealing with the Govt. or damages or payment of named sum.
14. Performance Bank Guarantee: The supplier has to provide the performance bank guarantee for 10% of FOB value for warranty period after the satisfactory installation and commission of the equipment/instruments or supply of materials in good condition as the case may be
15. Terms of Payment: -
  - (i) No advance payment with the order or before dispatch of consignment of goods will be accepted as our rules do not permit for the same.
  - (ii) One of the following payment terms are acceptable which must be mentioned in your offer;
  - (iii) Credit basis: The payment will be made after receipt of the goods in good condition by bank draft.
  - (iv) Sight Draft: The payment (90%) is released against the shipping documents through our banker which will be mentioned in the order & balance after receipt of goods in good condition.
  - (v) Letter of Credit: The letter of credit for 100% FOB value will be established in the supplier's country after acceptance of order with its terms by the supplier. 90% payment will be released against shipping documents and balance 10% is released after receipt of the goods in good condition/satisfactory installation (wherever necessary) at Destination.
16. All disputes, if any, subject to Chandigarh(India) jurisdiction.
  - ▶ NOTE: - Kindly clearly mention the packing, forwarding, freight, insurance charges wherever applicable. The tenders received without showing these charges will be rejected.

1. Strain Gauge Trainer Kit (with Cantilever Beam). 1 No.
2. LVDT Trainer Kit. 1 No.
3. RTD Trainer Kit. 1 No.
4. Thermocouple Trainer Kit. 1 No.
5. Speed Measurement module using Photo electric sensor. 1 No.
6. Speed Measurement module using Magnetic sensor. 1 No.
7. Inductive Pick up Module. 1 No.
8. Capacitive Pick up Module. 1 No.
9. Piezoelectric Transducer Module. 1 No.
10. Hall Effect Sensor Module. 1 No.
11. Load Cell Module. 1 No.
12. Pressure measurement Module. 1 No.
13. Linear Potentiometer Displacement Measurement Module. 1 No.
14. Bread Board Trainer Module. 5 Nos.
15. Stepper Motor Trainer Module. 1 No.
16. Microprocessor based PID Simulator Module. 1 No.
17. AC Position Control System Trainer Module. 1 No.
18. DC Position Servo Mechanism Trainer Module. 1 No.
19. Magnetic Amplifier Module. 1 No.
20. Actuating Elements Module. 1 No.
21. Control Engineering Tutor Module. 1 No.
22. PLC Trainer Module. 1 No.
23. Linear System Simulator Module. 1 No.

## Detailed Specifications

### **24. Strain Gauge Trainer Kit (with Cantilever Beam).**

Range : 0-500m Strain  
Sensor type : Strain Gauge fitted on Strain Bar  
Weight Capacity : 2 Kg. (Minimum)  
Operating Power : 230 V, 50Hz  
With standard accessories and connecting wires

### **25. LVDT Trainer Kit.**

Sensor type : Linear variable differential transformer with  $\pm 10$  mm Displacement  
Operating Power : 230 V, 50Hz  
On Board Digital Panel Meter with displacement Signal Output  
Micrometer for reference Displacement Reading using screw gauge  
Built in power supply  
With standard accessories and connecting wires

### **26. RTD Trainer Kit.**

Sensor type : RTD (PT 100)  
Display : 3½ digital  
Resolution : 0.1<sup>o</sup> or better  
Operating Power : 230 V, 50Hz  
Built in power supply  
With standard accessories and connecting wires

### **27. Thermocouple Trainer Kit.**

Sensor type : K-Type Thermocouple  
Display : 3½ digital  
Resolution : 0.01mV or better  
Operating Power : 230 V, 50Hz  
Built in power supply  
With standard accessories

### **28. Speed Measurement module using Photo electric sensor.**

Sensor type : Photo diode  
Built in Display  
Operating Power : 230 V, 50Hz  
Built in power supply  
With standard accessories and connecting wires

### **29. Speed Measurement module using Magnetic sensor.**

Sensor type : Magnetic sensor  
Operating Power : 230 V, 50Hz  
Built in Display  
Built in power supply  
With standard accessories

### **30. Inductive Pick up Module.**

Sensor type : Inductive.  
Display : 3½ digital  
Resolution : ±2%  
Operating Power : 230 V, 50Hz  
Built in power supply  
With standard accessories and connecting wires

### **31. Capacitive Pick up Module.**

Sensor type : Variable gang condenser  
Range : 0 to 180°  
Display : 3½ digital  
Operating Power : 230 V, 50Hz  
Built in power supply  
With standard accessories and connecting wires

### **32. Piezoelectric Transducer Module.**

Sensor type : Piezoelectric  
Display : 3½ digital  
Operating Power : 230 V, 50Hz  
Built in power supply  
With standard accessories and connecting wires

### **33. Hall Effect Sensor Module.**

Sensor type : Hall Effect Sensor  
Measurement : up to 40 m Tesla  
Operating Power : 230 V, 50Hz  
Accuracy : ±2% or better  
Built in power supply  
With standard accessories and connecting wires

### **34. Load Cell Module.**

Measurement Range : up to 2 Kg.  
Sensor type : Load Cell  
Display : 3½ digital  
Operating Power : 230 V, 50Hz  
Built in power supply  
With standard accessories and connecting wires

### **35. Pressure measurement Module.**

Measurement Range : 0-10kg /cm<sup>2</sup>  
Sensor type : Strain Gauge  
Accuracy : Atleast ±2 %  
Display : 3½ digital  
Operating Power : 230 V, 50Hz  
Built in power supply  
With standard accessories and connecting wires

### **36. Linear Potentiometer Displacement Measurement Module.**

Measurement Range : 0 to 20 mm  
Accuracy : Atleast ±1.5%

Operating Power : 230 V, 50Hz  
Built in power supply & Display  
With standard accessories and connecting wires

### **37. Bread Board Trainer Module.**

Bread board : 2 Nos. vertically common strips  
4 Nos. horizontally common strips  
Operating Power : 230 V, 50Hz  
Built in power supply  
With standard accessories and connecting wires

### **38. Stepper Motor Trainer Module.**

Microprocessor/Microcontroller based  
Speed/Steps/Direction control  
Operating Power : 230 V, 50Hz  
Built in power supply  
With standard accessories and connecting wires

### **39. Microprocessor based PID Simulator Module.**

Characteristics study : P, PI, PD and PID  
Operating Power : 230 V, 50Hz  
Built in power supply  
With standard accessories and connecting wires

### **40. AC Position Control System Trainer Module.**

The system should include:

- Precision Servo Potentiometers
- A.C. Servo Motor With Gear Train
- Servo Amplifier
- Associated Power Supply
- Test Points
- Detailed Instruction Manual

Operating Power : 230 V, 50Hz

### **41. DC Position Servo Mechanism Trainer Module.**

Linearity :  $5\text{ K } \Omega \pm 1\%$   
The system should include:

- Precision servo Potentiometers having bearings used as error detector
- Summing Amplifier with adjustable gain
- Armature controlled D.C. Servo motor with suitable coupling required for :
  - I) Output Position Indicator and Load
  - II) Tachogenerator.
- D.C. Tachogenerator coupled to D.C. motor, for derivative feedback.
- Preamplifier and power amplifier to drive the D.C. motor on the basis error signal.
- Suitable test points brought on the side

With standard accessories and connecting wires  
Operating Power : 230 V, 50Hz

### **42. Magnetic Amplifier Module.**

Output Power : Max. 1KW Dc  
Amplifier Gain : Upto 10000

Output voltage : Can be Varied Upto 200V Dc  
Load Current : Can be Upto 5amp. D.C.  
Operating Power : 230 V, 50Hz  
Can Be Used as a DC Voltage Stabilizer  
With standard accessories and connecting wires

#### **43. Actuating Elements Module.**

Input : 0-20 MA  
Output variation : 3 psi to 15 psi  
Operating Power : 230 V, 50Hz  
With standard accessories and connecting wires

#### **44. Control Engineering Tutor Module.**

Digital Phase Angle Measurement :  $0^{\circ}$  - $180^{\circ}$  (or more)  
Frequency Measurement : 30 Hz (or less) to 100 Hz (or more)  
Operating Power : 230 V, 50Hz  
With standard accessories and connecting wires

#### **45. PLC Trainer Module.**

Should Includes

- Simple Resistance Welding
- Repeat Resistance Welding
- Event Counter
- Star-Delta Starter
- Pick and Place capable
- With Annunciator

Operating Power : 230 V, 50Hz  
With standard accessories and connecting wires

#### **46. Linear System Simulator Module.**

Error Detector : Atleast 3 Inputs and 1 output  
Gain : Atleast 10  
Operating Power : 230 V, 50Hz  
Built in Standard Signal Source  
With standard accessories and connecting wires