

**INDIAN INSTITUTE OF TECHNOLOGY, DELHI**  
**Department of Mechanical Engineering**

**NOTICE INVITING QUOTATIONS**

Dated: **16 Sep 2015**

Tender No:

Subject: **Purchase of Sensor Kits**

**Invitation for Tender Offers**

Indian Institute of Technology Delhi invites sealed tender offers from eligible and experienced supplier for **supply, installation & commissioning of Sensors** with One year on site comprehensive warranty from the date of receipt of the material as per terms & conditions specified in the tender document.

**The quotation should reach to Dr. Sunil Jha, Room 156 Block III Dept. Of Mechanical Engineering IIT Delhi, Hauz Khas, New Delhi – 110016 latest by 5:00 P.M. on 30<sup>th</sup> Sep 2015.**

**TECHNICAL SPECIFICATION:**

<b>S. No</b>	<b>Items</b>	<b>Qty</b>
1.	<b>2D Laser scanner</b> with following specifications: Measurement range 0,1 ... 30 m (wb 90 %) Light source - laser diode Modulated infrared light with Wave length 905 nm Operating voltage 10 ... 30 VDC Measuring speed - 250000 measurements per second Angle resolution - 0.014 ° Absolute accuracy - typ. ± 25 mm Repeat accuracy < 12 mm Scan rate 10 ... 50 s-1 Resolution 1 mm Interface type Fast Ethernet Protocol HTTP , TCP/IP and UDP/IP IP65 protection Cable accessories	2 nos.
2.	<b>Long Range Ultrasonic sensor</b> with following specifications Sensing range - 800 ... 10000 mm Adjustment range - 800 ... 10000 mm Standard target plate - 100 mm x 100 mm Transducer frequency approx. - 60 kHz	2 nos.

	<p>Rated operating voltage - 24 V DC  Output type - 2 switch outputs PNP, NO  Repeat accuracy <math>\pm 15</math> mm  Operating current <math>I_L</math> - 300 mA , short-circuit/overload protected  Voltage drop <math>\leq 3</math> V  Switch-on delay - 800 ms  Output type - 1 current output 4 ... 20 mA rising slope  Default setting 800 ... 10000 mm  Linearity error <math>\leq 1.5</math> %  Load resistor <math>\leq 300 \Omega</math></p>	
3.	<p><b>Short Range Ultrasonic sensor</b>  with following specifications:  Sensing range 60 ... 2000 mm  Adjustment range 90 ... 2000 mm  Unusable area 0 ... 60 mm  Standard target plate 100 mm x 100 mm  Transducer frequency approx. 175 kHz  Response delay approx. 150 ms  Operating voltage UB 17 ... 30 V DC , ripple 10 %SS  No-load supply current <math>I_0 \leq 50</math> mA  input impedance: <math>&gt; 12</math> KOhm  Output type 1 analog output 0 ... 10 V  wide sound lobe  Resolution 0.7 mm  Deviation of the characteristic curve <math>\pm 1</math> % of full-scale value  Repeat accuracy <math>\pm 0.1</math> % of full-scale value  Load impedance <math>&gt; 1</math> kOhm  Temperature influence <math>\pm 1</math> % of full-scale value  Ambient temperature -25 ... 70 °C (-13 ... 158 °F)  Storage temperature -40 ... 85 °C (-40 ... 185 °F)  Protection degree IP54  Cable accessories</p>	4 nos.
4.	<p><b>Multiturn Absolute Encoder</b>  With following specifications  Operating voltage - 10 ... 30 V DC  Power consumption max. - 4 W  Linearity <math>\pm 0.5</math> LSB ( up to 12 Bit )  Output code - binary code  Code course (counting direction) programmable, cw ascending (clockwise rotation, code course ascending) cw descending (clockwise rotation, code course descending)  Interface type TCP/IP  Transfer rate - 10 MBit/s / 100 MBit/s  Cable accessories</p>	2 nos.
5.	<p><b>Passive infrared motion sensor</b>  With following specifications:</p>	2 nos.

<p>Effective detection range - max. 12 m (frontal)  Detection field - max. 1800 mm x 2600 mm for a mounting height of 2500 mm  Operating voltage - 12 ... 24 V AC / 12 ... 30 V DC  Switching type - Output active/passive, programmable  Signal output - Relay, 1 alternator  Switching voltage - 48 V AC/DC  Switching current - 1 A  Switching power max. - 30 W / 60 VA  De-energized delay - 0.5 s (preset)  All-weather hood for sensor</p>	
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### **Terms & Conditions**

1. Items quoted must be strictly in order according to the NIQ. Supplier has to submit quote for all items together.
2. IIT Delhi is exempted from paying custom duty under notification No.51/96 (partially or fully) and necessary "Custom Duty Exemption Certificate" can be issued after providing following information.
  - a. Shipping details i.e. Master Airway Bill No. and House Airway No. (if exists)
  - b. Forwarder details i.e. Name, Contact No., etc.
3. IIT Delhi is exempted from paying Excise Duty and necessary Excise Duty Exemption Certificate will be provided for which following information is required-
  - a. Quotation with details of Basic Price, Rate & Amount on which ED is applicable.
4. Please quote prices of imported items at FOB (Freight on Board) IIT Delhi inclusive of all taxes, freight, delivery, installation and onsite training charges. The quotation should provide the total price of the system including all taxes and transportation charges.
5. In case IIT Delhi is imposed with demurrage charge due to import on CIF, the entire demurrage charge has to be borne by the Indian Agent of foreign supplier.
6. One year comprehensive warranty be provided and AMC price beyond 1 years should be mentioned separately.
7. Payment: 100 % payment within 30 days after successful installation and commissioning
8. Delivery period: within 1 month from the issue of supply order.
9. The products will be used for educational purposes. Any applicable academic institution discounts should be offered and stated clearly.

10. In 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 the other source on the total risk of the supplier under risk purchase clause.

11. If the delivery is not made within the due date for any reason, the Committee will have the right to impose penalty 1% per week and the maximum deduction is 10% of the contract value / price.

12. Authority of IIT Delhi reserves the right to reject any or all quotations without assigning any reasons.

Dr. Sunil Jha  
Associate Professor  
Room No 156, Block III  
Dept of Mechanical Engineering  
IIT Delhi, HauzKhas,  
New Delhi – 110016