| BOSE INSTITUTE |
| KOLKATA |

| Tender No. | CAPSS/15/98/IRHPA-II(SKG)/15-16 |
| Tender Date | 08/04/2015 |
| Tender Type | OPEN |

| Tender Title | **3D Ultrasonic Anemometer** |
| Specification | Please see Annexure - 1 |
| Quantity | ONE |

| Last Date & Time for submission | 30/04/2015 upto 2.00 p.m. |
|---|---|
| Date & Time for opening bids | 30/04/2015 at 3.00 p.m. |
| Submission of Tender (address) | CAPSS, Bose Institute, Block EN-80, Sector – V, Salt Lake, Kolkata 700 091 |
| Venue of bid opening | CAPSS, Bose Institute, Block EN-80, Sector – V, Salt Lake, Kolkata 700 091 |
| For any query the interested bidders may contact (Dept./Section/Div./Unit) | 033 2569 3106 |

## General Terms & Conditions

| Warranty | One year from the date of installation |
|---|---|
| Payment terms | Payment will be made after complete delivery of the instrument in good condition and satisfactorily installation. |
| Delivery schedule | Within 30 days from date of order & if any defect of the supplied item is found, it should be replaced immediately from your side. |
| Bid security (earnest money deposit) if applicable | NO |
| Submission of Performance Bank Guarantee (PBG), if applicable | NO |
| Any other information (if applicable) | NO |

**Name of the instrument and submission of tender should be mentioned on the envelop positively**

**Director, Bose Institute reserves the right to accept or reject any or all tenders either in part or in full without assigning any reasons there for**

Sr. Prof. & Incharge, Registrar's Office

## Annexure - 1
## 3D Ultrasonic Anemometer

**General Description of Instrument:** Three dimensional wind speed and directions with virtual temperature is measured by ultrasonic anemometer. Wind speed and directions are calculated by measuring the time taken by ultrasonic pulse of sound in three dimensions. The instrument should be accompanied with calibration chart, necessary softwares, data converter, cables and operation/maintenance manuals with optional spares. Proposal should include future calibration scope.

**Detail Specification:**

| Sl. No. | Description | Specifications | Minimum Technical Requirements |
|---|---|---|---|
| 1 | Wind velocity | Measuring range | Min. 0.01 to > 50 m/s |
| | | Resolution | Min. 0.01 m/s |
| | | Accuracy: | Min. +/- 2.0 % (> 5 m/s) |
| 2 | Wind direction | Measuring range | 0 to 360 deg |
| | | Resolution | Min. $1^0$ |
| | | Accuracy: | Min.±2 deg. |
| 3 | Virtual temperature: | Measuring range | Min.-40 to 50 deg C |
| | | Resolution | Min. 0.1 K |
| | | Accuracy: | Min. ±0.5 K |
| 4 | Data Output DIGITAL | interface | Sensor: RS485/422; Computer (Min. 30 m from Sensor): USB |
| | | Baud rate: | 12000…921600 |
| | | Output | Instantaneous, Mean values, standard deviations, etc. |
| | | Output rate | 1/msec. to 1/min selectable. |
| | | Status signal: | Over Heating, Distance error and temperature etc. |
| 5 | Analog Outputs | Output | Min. 0 to 20 mA/ Min.0 to 10 V for wind vectors X, Y and Z |
| | | Resolution: | Min.16 bit |
| 6 | Analog Input | Number | Min.3x standard, 2X additional configurable. |
| | | Input voltage: | Min.0 to 10 V |
| | | Sampling rate: | 0.1 Hz to 100 Hz per channel |
| | | Accuracy: | Min. 0.1 % within the ambient temp. variation |

| Sl. No. | Description | Specifications | Minimum Technical Requirements |
|---|---|---|---|
| 7 | General Specifications | Internal measuring range: | Min. 275 complete measuring sequences per second |
| | | Bus mode | Bus mode of min. 90 devices |
| | | Housing material | Aluminium and/or stainless steel IP 67 or equivalent |
| | | Min cable length between sensor to PC | Min. 30 m |
| 8 | Software | It should include Operational data logging, data analysis & data display software to run on Windows environment, XP or higher versions through a PC | |
| 9 | Documents | Operation & Maintenance manual (if any) with calibration document | |
| 10 | Operating Temperature | 0 to 40 degree Celsius | |
| 11 | Power Requirement | 220 to 240 Volt AC 50 Hz | |
| 12 | Warranty | 3 year | |

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