

**E-5**

**Mechanical**

**PROCUREMENT OF GOODS  
UNDER  
NATIONAL SHOPPING  
PROCEDURES**

**COEP/TEQIP-II/CoE-SRES/March2016/NS/03**

**For**

**Exhaust Gas Emission Analyzer (Single module item)**

**Bid Price: Nil/-**

**PACKET NO : COEP/TEQIP-II/ CoE-SRES/ March2016 /NS /03**

**INVITATION FOR QUOTATIONS FOR SUPPLY OF**

**Exhaust Gas Emission Analyzer (Single module item)**

1. You are invited to submit your most competitive quotation for the following goods: -

| Sr. No | Title /Name of the equipment /System               | Brief description [Attach separate annexure if necessary for detailed specifications | Quantity |
|--------|--|--|----------|
| 1      | Exhaust Gas Emission Analyzer (Single module item) | Exhaust Gas Emission Analyzer (Single module item)<br>Please refer to the Annexure A | One      |

The schedule is as follows

|  |                                   |
|--|-----------------------------------|
| Date of inviting the quotations                                    | 23/03/2016                        |
| Last date of submitting the sealed quotation to TEQIP office, COEP | 04/04/2016 [upto 3:00 pm]         |
| Opening of the quotations  | 04/04/2016 [4:00 pm]              |
| Validity of quotation  | Min 45 days                       |
| Delivery Period  | 4 weeks from the acceptance of PO |

2. College of Engineering has received the grants for establishing Center of Excellence in Smart Renewable Energy System under MHRD's Technical Education Quality Improvement Program-Phase II. The said procurement is for this center. This project is World Bank sponsored project. This procurement is being carried out using the National Shopping Process, and will observe the guidelines of Shopping under TEQIP-II.

**3. Bid Price**

- The contract shall be for the full quantity as described above and in the annexure. Corrections, if any, shall be made by crossing out, initialing, dating and re-writing.
- All duties, taxes and other levies payable by the contractor under the contract shall be included in the total price. However, break- up of the basic price and taxes/duties shall be indicated clearly.

- c) The bidders will be evaluated on the basic price.
  - d) The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
  - e) The Prices should be quoted **in Indian Rupees** only.
4. Each bidder shall submit only one quotation.
5. **Validity of Quotation**
- Quotation shall remain valid for a period not less than 45 days after the deadline date specified for submission.
6. **Evaluation of Quotations**
- The purchaser shall evaluate and compare the quotations determined to be substantially responsive i.e. which
- (a) are properly signed ; and
  - (b) conform to the terms and conditions, and specifications.
- The Quotations would be evaluated considering all items together in this packet.**
7. **Award of contract**
- The Purchaser shall award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.
- 7.1 Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.
- 7.2 The bidder whose bid is accepted shall be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.
8. 80 % Payment shall be made immediately after delivery of the goods. Remaining 20 % payment will be made after successful commissioning and testing of the equipment/system.
9. Three years commercial warranty/ guarantee shall be applicable to the supplied goods.

10. You are requested to provide your offer in sealed envelope latest by **04<sup>th</sup> April 2016**. Please indicate ***“Quotation for Exhaust Gas Emission Analyzer Single module item) CoE-SRES/ March2016 /NS /03”*** at the right hand corner of the sealed envelope”
11. The bidder has to supply the material within the prescribed date. A penalty as per norms will be imposed for delayed supply up to 6 weeks. Any further delay will automatically terminate the purchase order/ contract.
12. The supplier requires supplying the store exactly as per the specifications and will be responsible to replace the defective supplies at his risk and cost.
13. The Supplier should submit deviation statement if any. The quotations simply mentioning “as per your specification and cost” shall be rejected.
14. The supplier should arrange for free demo / working trial of equipment (if required) at the Institute / Manufacturers place as the case may be at suppliers cost. The Purchase Order would be placed subject to satisfactory demonstration of the equipment.
15. Commissioning / Installation is at suppliers cost unless otherwise specified.
16. Conditional quotation will not be accepted.
17. We look forward to receiving your quotations and thank you for your interest in this project.

**Name: Prof. B. N. Chaudhari**  
Principal Investigator  
Center of Excellence-Smart Renewable Energy System

## Annexure A

### Detailed technical specifications for Exhaust Gas Emission Analyzer (Single module item)

#### Common Specification for modules:

- 1) Display : LED 22 Inch
- 2) OS : Windows
- 3) Login data rate : 50mSec to 1000mSec (user programmable)
- 4) PC – CPU : 4GB RAM/500GB HDD/HDMI,VGA port
- 5) System Certification : Must be certified by ARAI.
- 6) System modules : System should be upgradable to Combustion Pressure measurement, Engine & Vehicle component Measurement, Diesel timing.
- 7) Application software : a. Option for insertion of data at different location within network in PC.  
b. Printout of test report with VIN/Vehicle registration details or Engine Number.  
c. SQL data base.  
d. Data in CSV format
- 8) Type of Testing : Compatible for Engine Dyno / Chassis Dyno/ Road Driving Testing

#### I) Exhaust Gas Measurement

##### A. TECHNICAL DATA

1. Interface : RS 232/USB/Bluetooth - Class1
2. Operating Voltage : 12/24 VDC or 90-270 AC, PSM 19V, 3.5A
3. Power Consumption : 20 Watt Max.
4. Warm-up time : Approx. 2 min
5. Operating Temperature : 1 ... 50 °C
6. Storage Temperature : 0 ... 50°C
7. Humidity : 0 ... 90 % non condensing
8. Weight : 2.5 kg
9. Tilt : 0 ... 90°
10. Response Time (T95) : <10Sec
11. Filters : Hydrophobic filters should be used.
12. Condensate Separator : In-build.
13. Traceability : IR test bench satisfies the requirement of  
OIML R99 Class 00 (Results are traceable to  
OIML Class 00 with certification of Class 0)
14. Fuel Suitability : Diesel, Biodiesel, Hybrid, Hydrogen, Petrol,  
LPG & CNG.
15. Compliance Directives : 2004/108/EC, 2006/95/EC.
16. Compliance Standards : EN 61000-6:2:2005, EN 61000-6:3:2007,  
EN 61010-1:2001, EN 61326-1:2005.

##### B. MEASUREMENT DATA

| Parameter          | Measurement             | Resolution           |
|--------------------|-------------------------|----------------------|
| 1. CO              | : 0 ... 15 % Vol.       | 0.01 % Vol.          |
| 2. CO Corrected    |                         |                      |
| 3. HC              | : 0 ... 30 000 ppm vol. | 1 ppm (0 – 2000 ppm) |
| 4. HC corrected    |                         |                      |
| 5. CO <sub>2</sub> | : 0 ... 20 % Vol.       | 0.01 % Vol.          |
| 6. O <sub>2</sub>  | : 0 ... 25% Vol.        | 0.01 % Vol.          |

- |                               |  |            |
|-------------------------------|--|------------|
| 7. NO                         | : 0 ... 5000 ppm Vol.                                      | 1 ppm Vol. |
| 8. Dilustation measurement    |  |            |
| 9. Lambda                     | : 0 ... 9.999  | 0.001      |
| 10. Engine Speed              | : 400 ... 6000/8000 RPM                                    | 1 RPM      |
| 11. Oil Temperature           | : 0° ... 125° C  | 1° C       |
| 12. AFR (Offline)             | : As per fuel mode selection                               |            |
| 13. Atmospheric Pressure      | : 600 - 1060 hpa   |            |
| 14. Atmospheric Air Temp      | : 0°C - 50°C   |            |
| 15. Atmospheric Rel. Humidity | : 0-100 % Rel Non Cond.<br>(Optional, through Humidity Tx) |            |
| 16. Exhaust Gas Temperature   | : 0°C - 1000°C. (Optional, through Temperature Tx)         |            |

### C. STANDARD ACCESSORIES

1. Equipment (5 Gas Analyzer, Atmospheric Pressure & Atmospheric Air Temp)
2. Power Supply Adaptor
3. Probe and Hoses
4. Mains Cord
5. USB
6. Atmospheric relative Humidity (Optional)
7. Exhaust Gas Temp (Optional)

## II) Opacity Measurement

### A. TECHNICAL DATA

- |                               |                               |
|-------------------------------|-------------------------------|
| 1. Interface                  | : RS 232/USB/Bluetooth Class1 |
| 2. Operating Voltage          | : 12/24 VDC or 90-270 AC.     |
| 3. Operating Temperature      | : 5 ... 45 °C                 |
| 4. Storage Temperature        | : -20 ... +60°C               |
| 5. Humidity                   | : 10 ... 90 % non condensing  |
| 6. Weight                     | : 3.5 kg                      |
| 7. Measuring Principle        | : Extinction Measurement      |
| 8. Measurement length         | : 215 mm ± 2 mm               |
| 9. Chamber Heating            | : 100 °C                      |
| 10. Max. emission temperature | : 200 °C                      |
| 11. Power Consumption         | : 78VA.                       |

### B. MEASUREMENT DATA

- | Parameter                    | Measurement  | Resolution |
|------------------------------|--|------------|
| 1. Opacity                   | : 0 ... 99,9 %   | 0.1 %      |
| 2. Absorption (k-Value)      | : 0 ... 99,99 %  | 0.01 l/m   |
| 3. Engine Speed              | : 400 ... 6000/8000 RPM                                    | 1 RPM      |
| 4. Oil Temperature           | : 0° ... 125° C  | 1° C       |
| 5. Atmospheric Rel. Humidity | : 0-100 % Rel Non Cond.<br>(Optional, through Humidity Tx) |            |
| 6. Exhaust Gas Temperature   | : 0°C - 1000°C. (Optional, through Temperature Tx)         |            |

### C. STANDARD ACCESSORIES

1. Probe and Hoses
2. Mains Cord
3. USB
4. Atmospheric relative Humidity (Optional)
5. Exhaust Gas Temp (Optional)

### III) VCI – Vehicle Communication Interface

#### A. TECHNICAL DATA

- |                           |  |
|---------------------------|--|
| 1. Power supply           | : 500mA with 5V through USB port.                |
| 2. Interface              | : High-quality industrial USB                    |
| 3. Operating Temperature  | : 0 ... 55 °C                                    |
| 4. Storage Temperature    | : -20 ... +70°C                                  |
| 5. Humidity               | : 10 ... 90 % non condensing                     |
| 6. Weight                 | : 480g   |
| 7. Input                  | : 2 BNC  |
| 8. Sensitivity            | : 0.050...20 V/scale division without probe head |
| 9. Accuracy               | : 0.2% +/- LSB                                   |
| 10. Impedence             | : 1 Mohm / 30 pF                                 |
| 11. Coupling              | : AC/DC  |
| 12. Scanning rate         | : 50 Mhz per channel                             |
| 13. Resolution            | : 12 Bits up to 50 MHz                           |
| 14. Conversion time       | : 20ns   |
| 15. Compliance Directives | : 89/336/EEC.                                    |
| 16. Compliance Standards  | : EN55011, EN55022, EN50081-1 & EN5008-1         |
| 17. With ultra-white LED  |  |

#### B. MEASUREMENT DATA

##### 9 mode operation supported by below protocols

1. KWP 1281 KWP 2000 on K-Line
2. KWP 2000 on TP2.0
3. KWP 1281 on TP1.6
4. UDS on ISO TP
5. ISO 11898 2 DWCAN
6. ISO 11898 3 DWFTCAN
7. ISO 11992 1 DWCAN
8. ISO 9141 2 UART
9. ISO 14230 1 UART
10. ISO 11898 RAW
11. SAE J1850 VPW
12. SAE J1850
13. SAE J1850 PWM
14. SAE J1850
15. SAE J2610 UART
16. SAE J2610
17. SAE J1708 UART
18. SAE J1708
19. SAE J1939 11 DWCAN
20. GMW 3089 SWCAN
21. CCD

#### C. STANDARD ACCESSORIES

1. OBD port extension cable
2. Cable - USB 2.0 to Mini USB.