



# INDIAN INSTITUTE OF TECHNOLOGY, DELHI

HAUZ KHAS, NEW DELHI-110016

Mechanical Engineering Department

**P M V Subbarao**

DATE: 20 Feb. 2014

## Notice Inviting Quotations

Sealed quotations are invited for the item "Exhaust Emission measurement with PC connectivity - Gas Analyzer (CO, CO<sub>2</sub>, HC, NO<sub>x</sub>, O<sub>2</sub>, Lambda, RPM and Oil Temperature) and Smoke meter for Internal Combustion Engines (Gasoline and Diesel engines).

The Equipment should measure the Gas components and smoke values preferably on one screen for Real time comparison. The Technical specifications of the item are given below.

The quotations should be submitted in a sealed cover (separate sealed bids: technical and commercial) to PMV SUBBARAO, Professor, Indian Institute of Technology Delhi, Hauz Khas, New Delhi-110016 on or before 7<sup>th</sup> March 2014. The late submission will not be entertained. Please super scribe the envelope with "Exhaust Gas Analyser."

## Gas analyzer Specifications

Measurand	Measuring Range	Resolution	Accuracy
CO	0 ... 5 % vol	0.01 % vol.	± 0.05 % vol.
CO <sub>2</sub>	0 ... 20 % vol.	0.01 % vol.	± 0.5 % vol.
HC	0 ... 10000 ppm vol.	10 ppm vol.	50 ppm vol.
O <sub>2</sub>	0 ... 25 % vol.	0.05 % vol.	± 0.2 % vol.
NO	0 ... 5000 ppm vol.	1 ppm vol.	5 ppm vol.

## Smoke meter Specifications:

Opacity (% Value)	- Measurement Range: 0 ... 99.9 % - Resolution: 0.1 %
Absorption (k-Value)	- Measurement Range: 0 ... 99.99 % - Resolution: 0.01 l/m

Interfaces	USB, RS232 & network connector.
------------	---------------------------------

P.M.V. Subbarao  
20/2

INDIAN INSTITUTE OF TECHNOLOGY DELHI  
Mechanical Engineering Department

**Terms and Conditions**

1. Warranty: Equipment's onsite free warranty must be at least 2 years.
  2. Vendor should support spare parts and services for at least 5 years after warranty period.
  3. 100% Payment will be made after delivery and demonstration of the equipment.
  4. Technical and commercial bids must be submitted in separate sealed envelopes super scribing 'Technical bid' and 'Commercial bid'.
  5. Submit a list of reputed clients with their contact details where the same instrument has been supplied in last one year.
  6. Delivery period should not exceed 30 days from the date of supply order.
- Price quoted must mention all taxes, CIF/FOB IIT Delhi.
  - Also submit proprietary certificate and authorized supplier certificate if applicable.

*P. M. V. Subbarao*  
Prof. P M V Subbarao

**Gas analyzer Specifications**

Parameter	Unit	Value
CO	ppm	0-1000
CO2	ppm	0-1000
NO	ppm	0-1000
NO2	ppm	0-1000
O2	ppm	0-1000
HC	ppm	0-1000

**Smoke meter Specifications**

Parameter	Value
Response Time	10 sec
Measurement Range	0-1000
Accuracy	± 2%
Resolution	100