

**Indian Institute of Technology, Delhi****Centre for Energy Studies****NOTICE INVITING QUOTATION**

Ref: IITD/CES/RP02329/

Dated: 05 /06/2013

Sealed quotations are invited for purchasing of the Engine Exhaust Gas Analyzer for a specific research and development work related to SI engine. Please send the sealed quotations to Prof. L.M. Das, Room No.133, Block -V, Centre for Energy Studies, Indian Institute of Technology Delhi, Hauz Khas, New Delhi 110016. Your sealed quotation should reach latest by 5 PM on 26/06/2013.

**Specifications or requirement of the equipments/system is given below**

Measured quality:	Measuring range:	Resolution:	Accuracy:
CO:	0... 10 % vol	0.01 % vol	< 0.6 % vol: ± 0.03 % vol ≥ 0.6 % vol: ± 5 % of ind. val.
CO <sub>2</sub> :	0... 20 % vol	0.1 % vol	< 10 % vol: ± 0.5 % vol ≥ 10 % vol: ± 5 % v. M.
HC:	0... 20000 ppm vol	≤ 2000: 1 ppm vol, > 2000: 10 ppm vol	< 200 ppm vol: ± 10 ppm vol ≥ 200 ppm vol: ± 5 % of ind. val.
O <sub>2</sub> :	0... 25% vol	0.01 % vol	< 2 % vol: ± 0.1 % vol ≥ 2 % vol: ± 5 % v. M.
NO:	0... 5000 ppm vol	1 ppm vol	< 500 ppm vol: ± 50 ppm vol ≥ 500 ppm vol: ± 10 % of ind. val.
Engine speed:	250....9999 rpm	10 min <sup>-1</sup>	± 1 % of ind. val.
Oil temperature:	0... 150 °C	1 °C	± 4 °C
Lambda :	0... 9.999	0.001	Calculation of CO, CO <sub>2</sub> , HC, O <sub>2</sub>
Response time:	t <sub>95</sub> ≤ 15 s		
Operating temperature:	5... 45 °C		
Storage temperature:	-20... +60 °C		
Relative humidity:	≤ 90 %Max, non-condensing		
CO Corrective	Should be able to measure		
Interfaces:	RS 232 C, Pick up, Oil Temperature Probe, RPM (Trigger)		
Data Logging Software	Online Emission Data Logger system with a time interval of 1 second ,data exporting facility for generating graphs		

**2. Terms and Conditions****i. Price quoted**

The rate quoted must preferably be for free delivery CIF, IIT Delhi after allowing the discount, if any.

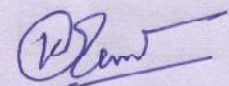
**ii. Terms of payment**

Our normal terms of payments within 30 days after receipt of stores in sound condition by means of cheque or Letter of Credit whichever is applicable.

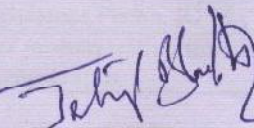
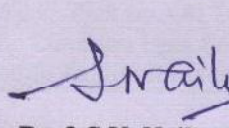
**iii. Director's rights**

Director reserves the rights of acceptance or rejection of any or all quotations. The discretion for increasing the

- quantities demanded also vests with him.
- iv. Validity of quotations      Quotations will be considered valid for 3 months from the date of receipt unless otherwise stated.
- v. Correspondence      No correspondence regarding the acceptance or rejection of a quotation will be entertained.
- vi. Demonstration/Samples      Equipment/System must be demonstrated before finalization of the quotation. Acceptance or rejection of any or all quotations will depend on the satisfactory demonstration.
- vii. Method of submission of quotation      **Quotation should be sent in a sealed cover marked at the top our N.I.Q. REFERENCE and the DUE DATE. Quotation should contain separately sealed**  
**(i) Commercial bid and**  
**(ii) Technical bid**  
**Both in one main sealed cover**
8. Discount/rebates      Special discount/rebate may please be indicated. Keeping in view that the item supplied are being made for Educational purpose in respect of Public Institution of National importance.
9. Compliance Statement      **Compliance Statement against tender specifications must be submitted. Quotation not satisfying the same will be rejected.**
10. Warranty      1 year
11. Rejection      Quotation not conforming to the set procedures as described above will be rejected.

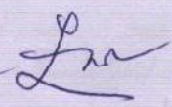


**Prof. K.K. Pant**  
**(Chemical Engg Dept)**



**Prof. S.N. Naik**  
**(CRDT)**

**Prof. T.S. Bhatti**  
**(CES)**



**Prof. L. M. DAS**  
**(PI, CES)**