



Telephone :

EN

Department of Civil Engineering

Indian Institute of Technology, Madras

I.I.T.P.O., MADRAS - 600 036.

Ref. No.

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Date : 19/1/2015

Dear Sirs,

DUE DATE : 2/2/2015

1. Quotations are invited in duplicate for the various items shown below / overleaf / enclosed list.
2. The Quotations duly sealed and superscribed on the envelope with the reference No. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above.
3. The Quotations should be valid for sixty days from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS & D Rate contract. Rate Contract Number and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price. If so, please send copy of the R.C. (Please note that we are not Direct Demanding Officers)
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms : Quotations should be for free delivery to this Institute. If Quotations are for Ex-Godown, delivery charges should be indicated separately.
7. Firms Outside Chennai : Quotations should be for F.O.R. Chennai. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If-Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of Sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have Concessional Sales Tax applicable to Non-Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificates will be issued at the time of final settlement of the bill.
9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. Payment : Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later.

Details as per enclosed list.

Yours faithfully



For HEAD OF THE DEPT.

*Strike out whichever is not applicable.

SPECIFICATION FOR (i) OXIDES OF NITROGEN (NO/ NO₂ /NO_x) ANALYSER & (ii) OZONE (O₃) ANALYZER

The system should be designed and manufactured under ISO-9001 and should comply with most of international regulatory and safety requirement. The instrument should be portable with suitable carry case for safe transportation of the equipment. The system should be compatible with the Microsoft Windows operating system for data acquisition and data analysis.

1. OXIDES OF NITROGEN (NO/ NO₂ /NO_x) ANALYSER (AMBIENT)

STANDARD	Conforming to USEPA Automated Federal Reference Method (FRM) Designation and CPCB Guidelines
TECHNICAL SPECIFICATION	
Principle	Chemiluminescence
Measurement	NO, NO ₂ NO _x in Ambient Air.
Display/Units	Digital/ppb, ug/m ³
Ranges	Auto ranging 0-2000 PPB.
Minimum Detectable Limit	0.5 PPB
Noise	± 0.5 PPB
Zero Drift	< 1 PPB/24 Hrs.
Span Drift	< 2% in 15 days of full scale
Response Time	30 seconds or earlier
Linearity	± 1% of full scale
Calibration	Internal Zero facility and external connectivity for Span calibration using cylinders. Gas Cylinders should be made of Aluminium and minimum capacity is 10 liters with two stage regulator.
Consumables and spares	Recommended requirements of 3 years of continuous operation excluding warranty period

2. OZONE (O₃) ANALYSER (AMBIENT)

STANDARD	Conforming to USEPA Automated Federal Reference Method (FRM) Designation and CPCB Guidelines
TECHNICAL SPECIFICATIONS	
Principle	UV Photometric
Measurement	Ozone in Ambient Air
Display/Units	Digital/ppb, ug/m ³
Range	Auto ranging 0 - 500 PPB
Minimum Detectable Limit	2.0 PPB
Noise	± 1.0 PPB
Zero Drift	< ½% per month
Span Drift	< 1% per month
Flow Rate	1-3 Liters / Minute
Calibration	Attached with Zero reference and Ozone generator for calibration
Consumables and spares (optional)	Recommended requirements of 3 years of continuous operation excluding warranty period

General Specification

- The ON/OFF switch and display of the entire important status signals viz., Sample flow, temperature, concentration, range switch, manual / auto mode, zero / span mode should be shown in front panel.
- The analysers should operate at operating voltage 230 volts \pm 10 volts AC and 50 Hz \pm 3%. The power supply input to be protected against spikes from and to the analyser by an LC filter. The power connection cable should be CEE type complete with 15 Amperes plug adaptable to Indian mains socket.
- The analysers must function properly in Indian conditions without any defect between 0 - 50°C ambient temperature, 10 - 95% relative humidity and in high ambient dust levels.
- The Manufacturer shall provide operational & preventive maintenance of hands-on training.
- The analysers shall be supplied with all ancillaries necessary for operation including external pump (if any) and any other items such as charcoal scrubber, Teflon air sample intake filter, drier, Teflon tubing suitable for connection to air sampling manifold. Dust filter should be provided before solenoid valve to protect frequent chocking of solenoid valve.
- The connector systems for outgoing signal for recording and the computer terminal should be on back panel with screw type connecting pins.
- Supplier should supply operation manuals comprising installation, operational preventive, routine and corrective maintenance.
- The analyser should have both digital and analog outputs for transferring the data through RS232