

भौतिक अनुसंधान प्रयोगशाला
(अंतरिक्ष विभाग, भारत सरकार की यूनिट)
नवरंगपुरा, अहमदाबाद- 380 009, भारत
PHYSICAL RESEARCH LABORATORY
(A UNIT OF DEPT. OF SPACE, GOVT. OF INDIA)
NAVRANGPURA, AHMEDABAD-380 009, INDIA.

अंतर्राष्ट्रीय निविदा सूचना सं: PRL/GT-03/11-12 दिनांक 06.02.2012

GLOBAL TENDER NOTICE NO: PRL/ GT-03/11-12 Dated 06.02.2012

निदेशक, पी.आर.एल. मालिकों/निर्माताओं/आपूर्तिकर्ताओं और उनके मान्यता प्राप्त डीलरों से निम्नलिखित वस्तुओं की आपूर्ति के लिए सीलबंद प्रस्ताव आमंत्रित करते हैं:

The Director, PRL invites sealed offers from principals/manufactures/suppliers and their accredited dealers for supply of following:

क्रमांक Sr. No.	वस्तुओं का विवरण DESCRIPTION OF ITEMS	मात्रा/यूनिट QTY./UNIT	ईएमडी राशि EMD Amount (US\$)
<u>1</u>	Nutrient Auto Analyzer.	1 NO.	US\$ 1980
<u>2</u>	Organic and Elemental Carbon aerosol analyzer.	1 NO.	US\$ 1300
<u>3</u>	Analyzer System for the measurement of CO, CO ₂ , CH ₄ & H ₂ O in ambient air.	1 NO.	US\$ 2970

पूरे तकनीकी विनिर्देशों और अन्य जानकारी के लिए हमारी वेबसाइट www.prl.res.in और www.isro.gov.in पर क्रमशः प्रशासन एवं निविदाएं और टेंडर नोटिस लिंक पर जाएँ ।

For complete technical specifications and other details, please visit our website, www.prl.res.in & www.isro.gov.in under link Administration /Tenders & Tender Notices respectively.

उपरोक्त (क्रमांक 1 से 3) दो-बोली प्रणाली पर आधारित हैं। बोली लगाने वालों को दो अलग मुहरबंद लिफाफों में प्रस्ताव प्रस्तुत करना होगा। तकनीकी बोली और वित्तीय बोली वाले दोनों लिफाफे सुरक्षित रूप से सील और मुहरबंद होने चाहिए और उन पर स्पष्ट रूप से क्रमशः "लिफाफा नंबर 1 - तकनीकी बोली और वाणिज्यिक/कानूनी नियम एवं शर्तें" और "लिफाफा नंबर 2 - वित्तीय बोली" अंकित करना चाहिए। दोनों मुहरबंद लिफाफों को तीसरे बड़े लिफाफे में रखा जाना चाहिए और उस पर निविदा सूचना संख्या, दिनांक, क्रमांक और वस्तु विवरण लिखकर रजिस्ट्रार, भौतिक अनुसंधान प्रयोगशाला, नवरंगपुरा, अहमदाबाद 380 009, भारत को भेजा जाना चाहिए । तकनीकी बोली के लिए योग्य बोलीदाताओं की ही मूल्य बोली पर विचार किया जाएगा और वित्तीय बोली खोलने के लिए तारीख और समय के बारे में उन्हें सूचित किया जाएगा। कृपया ध्यान दें कि पूरे अनुपालन विवरण एवं तकनीकी साहित्य/ब्रोशर के बिना तकनीकी बोली को सरसरी तौर पर खारिज कर दिया जाएगा ।

(Sr No: 1 to 3) above is on two-bid system. The bidder must submit the offer in **two separate sealed envelopes**. Both the Technical bid and Financial bid envelopes should be securely sealed and stamped separately and clearly marked as "Envelope No. 1- Technical Bid and Commercial/legal Terms & Conditions" and "Envelope No. 2- Financial Bid" respectively. Both the sealed envelopes should be placed in third larger envelope duly super scribed **tender notice number, date, Sr. no., and item description and be sent to** The Registrar, Physical Research Laboratory, Navrangpura, Ahmedabad. 380 009, India. Only those bidders qualified for technical bids shall be considered for price bids and will be intimated regarding date & time to open financial bids. Please note that technical bid without complete compliance statement, duly supported by technical literature/brochure, shall be rejected summarily.

उपरोक्त (1) से (3) वस्तुओं के लिए अलग-अलग दरें प्रस्तुत करें।

The quotations(s) should be submitted separately for each of items (1) to (3) above.

(1) से (3) में से किसी भी वस्तु के लिए दरें दी जा सकती हैं।
Quotations(s) can be submitted for any number of items (1) to (3)

बंद और खुलने की तारीख और समय: 06.03.2012 को क्रमशः 2:00 व 3:00 बजे
Closing & Opening date & time: 06.03.2012 at 2.00 pm & 3:00 pm respectively.

निदेशक, भौतिक अनुसंधान प्रयोगशाला को अधिकार है कि वे बिना कोई कारण बताए किसी भी प्रस्ताव के पूरे या उसके किसी भाग को स्वीकार/अस्वीकार कर सकते हैं।

The Director, Physical Research Laboratory reserves the right to reject/accept any offer either in full or in part without assigning any reason thereof.

रजिस्ट्रार REGISTRAR

General Terms & Conditions.

Terms for Earnest Money Deposit (EMD)

- A) The Demand draft in favour of Physical Research Laboratory, Ahmedabad for Earnest Money Deposit value as stated in first page or equivalent Indian currency, payable at Ahmedabad be enclosed with Technical Bid.
- B) Earnest Money Deposit as stated in point A above must accompany the tender documents. Bids submitted without EMD will stand rejected. No interest shall be payable on EMD.
- C) The EMD will be returned to the bidder(s) whose offer is not accepted by Physical Research Laboratory within one month from the date of the placing of the final order(s) on the selected bidder(s). In case of the bidder(s) whose offer is accepted the EMD will be returned on submission of Performance Security/PBG. However if the return of EMD is delayed for any reason, no interest/ penalty shall be payable to the bidder.
- D) The successful bidder, on award of contract / order, must send the contract/order acceptance in writing, within 7 days of award of contract/order, failing which the EMD shall be forfeited without any notice to successful bidder.
- E) The EMD shall be forfeited:
 - a. If the bidder withdraws the bid during the period of bid validity specified in the tender or
 - b. In case a successful bidder, fails to furnish the Performance Security or
 - c. If bidder fails/refuses to execute purchase order placed by Physical Research Laboratory, where vendor had not furnished along with technical bid, draft contract/MOU intended to be signed with Physical Research Laboratory.
- F) In case of bids in Foreign Currency, the Indian Representatives / distributors can submit the EMD in INR to Physical Research Laboratory without any relaxation.

The Tenderer shall indicate/furnish the following in the offer

- 1. The bid should contain the following information:-
 - a. The FOB value, the C & F Value for import by Sea-Freight/ Air Freight up to and for air parcel post up to PRL, Ahmedabad should be separately indicated.
 - b. Agency Commission: The amount of commission included in the price and payable to the Indian Agents of the Contractor shall be directly to the Indian Agents by the purchaser in equivalent Indian Rupees on the basis of an invoice from him applying T.T. buying rate of exchange ruling on the date of placement of the Purchase Order and which shall not be subject to any further exchange variations. This payment will be released to the Indian Agents within 30 days from the date of acceptance of goods.
 - c. Delivery Schedule – indicating clearly time required to deliver the materials and time required to complete the installation.
 - d. The country of origin of the Stores.
 - e. Banker's name and address of the contractor.
 - f. The approximate net and gross weight and dimensions of packages/cases.
 - g. Recommended spares for satisfactory operation for a minimum period of one year.
 - h. Technical literature/Catalogue.
 - i. Details of any technical service, if required for erection, assembly, commissioning and demonstration.
 - j. Please send your compliance report along with your quote without fail.
 - k. Manufacturer's Name & Address.
Mode of Packing. Net weight and Gross weight. If packing material is of any kind of plant origin, Phytosanitary certificate issued by an authorized officer at the country of origin of the consignment must be provided along with shipping documents.
- 2. The FOB and C & F prices quoted should be inclusive of all taxes, levies, duties arising in the tenderer's country.

3. The offer should be valid for a minimum period of 120 days from the due date of opening of the tender.
4. Warranty clause and installation and commissioning of the systems.
5. Samples, if called for should be sent free of all charges.
6. Bids will not be entertained after the due date and time.
7. Offers made by Indian Agents on behalf of their Principals, should be supported by the necessary authorization letter from their Principals.
8. The details of Import License will be furnished in the Purchase Order.
9. The Authority of person signing the tender, if called for, shall be produced.
10. Instruction/operation manual containing all assembly details including wiring diagrams should be sent wherever necessary in duplicate. All documents/correspondence should be in English Language only.
11. The Purchaser reserves the right to accept or reject the lowest or any other offer in whole or in part without assigning any reason.
12. The contract shall be governed by and interpreted in all respects in accordance with laws of INDIA.
13. In the event of any date indicated above is declared holiday, the next working day shall become operative for the respective purpose.
14. PRL - reserves the right to accept the offer in full or in parts or reject summarily or partly.
15. It is expressly agreed that the acceptance of the stores contracted for is subject to final approval in writing by the Purchaser.
16. a. Part shipment is not allowed unless specifically agreed to by us.
b. As far as possible, stores should be dispatched by Indian Flagged Vessels/ Air India or through any Agency nominated by us.
17. Inspection/Test Certificates should be provided for the goods after testing it thoroughly at the Contractor's works. If any inspection by Lloyds or any other testing agency is considered necessary, it shall be arranged by Contractors.
18. Where erection or assembly or commissioning is a part of the contract, it should be done immediately on notification. The Contractor shall be responsible for any loss / damages sustained due to delay in fulfilling this responsibility.
19. For items having shelf life / those with maximum shelf should be supplied, if order is placed.
20. PRL do not issue C/D forms.
21. PRL prefers to deal directly with Original Equipment Manufacturers/ Service Provider or their authorized Dealers/Agents.
22. All banking charges inside and outside India to beneficiary account.
23. A confirmation that the price quoted is your lowest export price and is the same as you normally quote to Scientific/ Educational institutions. Only sealed offers are acceptable.
24. No request for extension of due date will be considered.
25. Physical Research Laboratory shall not be responsible for delay/ loss of documents in transit.
26. No Tenderer shall have any cause of action or claim against PRL for rejection of his proposal.

Instructions to Tenderers

1. Definitions:

(a) The term 'Purchaser' shall mean the Director, Physical Research Laboratory, Ahmedabad or his successors or assigns.

(b) The term 'Contractor' shall mean person, firm or company with whom or with which the Order for the supply of stores is placed and shall be deemed to include the Contractor's Successors, representatives, heirs executors and administrators unless excluded by the contract.

(c) The term 'Stores' shall mean what Contractor agrees to supply under the contract as specified in the Purchase Order including the erection of plants and machinery and subsequent testing, should such a condition be included in the Purchase Order.

(d) The term 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an Officer duly authorized intimating the acceptance on behalf of the purchaser on the terms and conditions mentioned or referred to in the said communication accepting the Tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

2. Prices:

Tenders offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotations with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variations.

3. Security Deposit:

On acceptance of tender the contractor shall at the option of the Purchaser and within the period specified by him deposit with him in cash or in any other form as the Purchaser may determine security deposit not exceeding ten percent of the value of the contract as the Purchaser shall specify. If the Contractor is called upon by the Purchaser to deposit 'Security' and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the contract and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores contracted for at the risk of the contractor in terms of Sub-Clause (ii) and (iii) of Clause 10(b) here of and/or to recover from the Contractor damages arising from such cancellation.

4. Guarantee & Replacement:

a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down for material, workmanship and performance.

(b) For a period of twelve months after the acceptance of the stores, if any defects are discovered there in or any defects therein found to have developed under propose use arising from faulty stores design or workmanship Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the Purchaser who shall state in writing in what respect the stores or any part thereof faulty.

(c) If in the opinion of the Purchaser it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the Purchaser provided the notice informing the Contractor of the defect is given by the Purchaser in this regard within the said period of 14 months from the date of acceptance thereof.

(d) Should the Contractor fail to rectify the debtors the Purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.

(e) The decision of the Purchaser, notwithstanding any prior approval or acceptance or inspection thereof on behalf of the Purchaser as to whether or not, the stores supplied by the Contractor or defective or any defect has developed within the said period of 12 months or as to whether the nature of the defects requires renew or replacement shall be final, conclusive and binding on the Contractor.

(f) To fulfill guarantee conditions outlined in Clause 4(a) to (e) above the Contractor shall at the option of the Purchaser, furnish a Bank Guarantee (as prescribed by the Purchaser) from a Bank approved by the Purchaser for an amount equivalent to 10% of the value of the contract along with first shipment documents. On the performance and completion of the Contract in all respects the Bank Guarantee will be returned to the Contractor without any interest.

(g) All the replacement stores shall also be guaranteed for a period of 12 months from the date of arrival of stores at Purchaser's site.

(h) Even while the 12 months guarantee applies to all stores in case where a greater period is called forth by our specifications then such a specification shall apply in such cases the period of 14 months referred to in Para 4(b) & (c) shall be asked for guarantee period plus two months.

5. Packing, Forwarding:

The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air, to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of packages shall be done by and at the expense of the Contractor..

6. Dispatches:

The Contractor is responsible for obtaining a clear receipt from the Transport Authorities specifying the goods dispatched. The consignment should be dispatched with clear Airway Bill / Bill of Lading / Railway Receipt / Lorry Receipt. If sent in any other mode it is at the risk of the Contractor. Purchaser will take no responsibility for short deliveries or wrong supply of goods when the same are booked on said to contain basis Purchaser shall pay for only such stores as are actually received by them in accordance with the contract.

7. Test Certificate:

Wherever required test certificates should be sent along with the dispatch documents.

8. Acceptance of Stores:

(a) The stores shall be tendered by the Contractor for inspection at such places as may be specified by the Purchaser at the Contractor's own risk, expenses and cost.

(b) It is expressly agreed that the acceptance of the Stores contracted for is subject to final approval by the Purchaser, whose decision shall be final.

(c) If, in the opinion of the Purchaser all or any of the stores that do not meet the performance or quality requirements specified in the Purchase Order, they may be either rejected or accepted at a price to be fixed by the Purchaser and his decision as to rejecting and the prices to be fixed shall be final and binding on the Contractor.

(d) If the whole or any part of the stores supplied are rejected in accordance with Clause No.8 (c) above, the purchaser shall be at liberty, with or without notice to the Contractor, to Purchase in the open market at the expense of the Contractor, stores meeting the necessary performance and quality contracted for in place of those rejected, provided that either the purchase, or the agreement to purchase, from another supplier is made within six months from the date of rejection of the stores as aforesaid.

9. Rejected stores:

Rejected stores will remain at destination at the Contractor's risk and responsibility. If instructions for their disposal are not received from the Contractor within a period of 14 days from the date of receipt of the advice of rejection, the Purchaser or his representative has, at his discretion the right to scrap or sell or consign the rejected stores to Contractor's address at the Contractor's entire risk and expense, freight being payable by the Contractor at actual.

10. Delivery:

(a) The time for and the date of delivery of the stores stipulated in the Purchase Order shall be deemed to be the essence of the contract and delivery must be completed on or before the specified dates.

(b) Should the Contractor fail to deliver the stores or any consignment there of within the period prescribed for such delivery, the purchaser shall be entitled at his option either;

(i) to recover from the Contractor as agreed liquidated damages and not by way of penalty, a sum of 0.5 % of the total value of purchase order per week of delay in deliveries/ installation /execution of the order successfully, subject to maximum of 10% of the order value. Part of the week shall be considered as full week. PRL reserves the right to cancel the order in case the delay is more than 5 weeks. Transit period will be excluded while calculating the overall period for deriving the applicability of this clause.

(ii) to purchase elsewhere, without notice to the Contractor on the account and at the risk of the Contractor, the stores not delivered or others of a similar description (where others exactly complying with the particulars are not in the opinion of the purchaser readily procurable, such opinion being final) without canceling the contract in respect of the consignment(s) not yet due for delivery or

(iii) to cancel the contract or a portion thereof and if so desired, to purchase or authorize the purchase of stores not so delivered or others of similar description (where others exactly complying with the particulars are not, in the opinion of the purchaser readily procurable such opinion being final) at the risk and cost of the Contractor.

In the event of action being taken under sub-clause (ii) & (iii) of clause 10 above the Contractor shall be liable for any loss which the Purchaser may sustain on that account, provided that the re-purchase or if there is an agreement to re-purchase then such agreement is made within six months from the date of such failure. But the Contractor shall not be entitled to any gain on such repurchase made against default. The manner and method of such repurchase shall be at the discretion of the Purchaser, whose decision shall be final. It shall not be necessary for the Purchaser to serve a notice of such repurchase on the defaulting contractor. This right shall be without prejudice to the right of the Purchaser to recover damages for breach of contract by the Contractor.

11. Extension time:

As soon as it is apparent that contract dated cannot be adhered to an application shall be sent by the Contractor to the purchaser if failure on the part of the Contractor to deliver the stores in proper time shall have arisen from any clause which the purchaser may admit as reasonable ground for an extension of the time (and his decision shall be final) he may allow such additional time as he considers it to be justified by circumstances of the case without prejudice to the Purchasers rights to recover liquidated damages under clause 10 hereof.

12. Erection of Plant & Machinery:

Wherever erection of a plant or machinery is the responsibility of the Contractor as per the terms of the Contract and in case the Contractor fails to carry out the erection as and when called upon to do so within the period specified by the Purchaser, the Purchaser shall have the right to get the erection done through any source of his choice. In such an even the contractor shall be liable to bear any additional expenditure that the Purchaser is liable to incur towards erection. The Contractor shall, however not be entitled to any gain due to such an action by the Purchaser.

13. Payment:

We do not make advance payment.

14. Recovers of sums due:

Whenever any claim for the payment of whether liquidated or not, moneys arises out of or under this contract against the Contractor, the Purchaser shall be entitled to recover such sum by appropriating in part or whole, the security deposited by the Contractor, if a security is taken against the Contract. In the event of the security being insufficient or if no security has been taken from the contractor, then the balance or the total sum recoverable, as the case may be shall be deducted from any sum then due or which at any time thereafter may become due to the Contractor under this or any other contract with the Purchaser. Should this sum be not sufficient to cover the full amount recoverable, the Contractor shall pay to the Purchaser on demand the remaining balance due. Similarly, if the Purchaser has or makes any claim whether liquidated or not, against the Contractor under any other contract with the Purchaser, the payment of all moneys payable under the contract to the Contractor including the security deposit shall be withheld till such claims of the Purchaser are finally adjudicated upon and paid by the Contractor.

15. Indemnity:

The Contractor shall warrant and be deemed to have warranted that all stores supplied against this contract are free and clean of infringement of any patent copy right or trade mark and shall at all times indemnify the Purchaser against all claims which may be made in respect of the stores for infringement of any right protected by Patent, Registration of design or Trade Mark and shall take all risk of accidents of damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfillment of the contract.

16. Arbitration:

In the event of any question dispute or difference arising under these conditions or any conditions contained in the Purchase Order or in connection with this contract (except as to any matters the decision of which is specially provided for by these conditions) the same shall be referred to the sole arbitration of the Head of the Purchase Office or of some other person appointed by him. It will be not objection that the arbitrator is a Government Servant that he had to deal with matter to which the contract relates or that in the course of his duties as a Government Servant he has expressed views on all or any of the matters in dispute or difference. The award of the arbitrator shall be final and binding on the parties of this contract, it is a term of this contract.

a) If the arbitrator be the Head of the Purchase Office

i) in the event of his being transferred or vacating his office by resignation or otherwise, it shall be lawful for his successor-in-office either to proceed with the reference himself, or to appoint another person as arbitrator or

ii) in the event of his being unwilling or unable to act for any reason, it shall be lawful for the Head of the Purchase Office to appoint another person as arbitrator or

b) If the arbitrator be a person appointed by the Head of the Purchase Officer in the event of his dying neglecting or refusing to act, or resigning or being unable to act for any reason it shall be lawful for the Head of the Purchase Office either to proceed with the reference himself or to appoint another person as arbitrator in place of the outgoing arbitrator. Subject as aforesaid, the Arbitration & Conciliation Act 1996 and the rules there under and any statutory modification there of for the time being in force shall be deemed to apply to the Arbitration proceedings under this Clause. The Arbitrator shall have the power to extend with the consent of the Purchaser and Contractor the time of making and publishing the award. The venue of arbitration shall be the place as the Purchaser in his absolute discretion may determine. Work under the Contract shall, if reasonably possible, continue during Arbitration, Proceedings.

17. Counter Terms and Conditions of Suppliers:

Where counter terms and conditions / printed or cyclostyled conditions have been offered by the supplier the same shall not be deemed to have been accepted by the Purchaser, unless specific written acceptance thereof is obtained.

18. Security for Purchaser's Materials:

Successful Tenderer will have to furnish 10% of Contract value in the form of a Bank Guarantee or in any other form as called for by the Purchaser towards adequate security for the materials/property provided by the Purchaser for the due execution of the contract.

End of General Terms & Conditions

Details / Specifications of above Items.

Item No 1: Nutrient Auto Analyzer

(1 UNIT)

Details / Specifications along with compliance statement

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Technical specifications for procurement and installation of a continuous flow Auto Analyzer for nutrients at the Physical Research Laboratory

Physical Research Laboratory, Ahmedabad, India is planning to set up a nutrient analysis laboratory. This facility will be used extensively for nutrient measurements in marine, freshwater and terrestrial ecosystems.

The Auto Analyzer should be a compact/bench-top model and should come with all its peripherals such as sampler, module holder, data acquisition interface with software, digital detector, modules with flow cell and filters, and other accessories. It should be supported by advanced software that is capable of unattended operation and monitoring of all important instrumental parameters. Different parts of the instrument should have following specifications:

1. Sampler

- PC controlled with random access.
- More than 130 sampling positions.
- Removable racks with sample positions for sample cups or 10ml sample tubes.
- Around 140 sample cups.
- XYZ full random access capabilities.
- Containers for supply of calibrates, QCS.
- Separate positions for 10 ml tubes for working standards.
- Built-in-rinsing pump.
- User selectable pump tube sizes for required rinsing liquid volume.
- Supply of rinsing liquid.
- Glass rinsing vessel with continues liquid level and waste outlets for self-cleaning.
- Sample uptake with single sample needle.
- Separate position for standards and check samples.
- Automatic built-in dilutor optional.

2. Module Holder

The module holder must be capable to hold 5 chemistry channels. However, at this time please offer with 3 chemistry channel.

- One multi speed proportioning pump.
- Digital display of temperature.
- Proportioning pump 1 x 16 channel with single pump deck.
- 1x 10 stainless steel pump rollers.
- High precision 24 v DC motor.
- Multi speed pump function with standby / analyze / fast rinse positions.
- Built-in high precision air injector.
- Built-in air supply pump.

- Pressure regulator for air segmentation.
- Inlet for supply of external inert segmentation gas.
- 2 positions for dual channel temperature control included in chemistry module.
- Separate glass waste receptacles.
- Separated compartments for electronics, chemistry and detector heads.
- Digital display of temperature to be provided, wherever needed.
- One pump should provide 16 tubing's for reagent transportation to the analytical module.
- The multi speed pump should have speed adjustments for normal (analysis), fast (washing) and slow (stand by position, to save reagents).
- The pump tubings used should have 3 cuffs to enhance life of the pump tubings.

3. Chemistry modules

- Each parameter should have separate module and each module to have its own filter and flow cell. All components of analysis like dialyser, reactor etc (wherever applicable) should be provided within each module.
- Parameter for analysis: Ammonical Nitrogen / Total Nitrogen, Urea, Nitrate+Nitrite / Nitrite.
- The analysis module should have its own flow cell and filter.
- Flow cell should be made of "black glass" to avoid interference of external light in the analysis.
- Flow cell is to be part of the chemistry module.

4. Detector

Detector should be purely digital.

Dual channel Digital detector should have high degree of accuracy and wide dynamic range (as mentioned below); capable of measuring two parameters simultaneously.

The photometer detector head is to have an insert board and cable.

- Wavelength selection by insert of interference filters.
- Wavelength range 340-1050 nm.
- Accommodation for 2 flow cells of 5 upto 50 mm path length each
- Software controlled automatic baseline and peak height settings.
- Software controlled lamp switching on / off
- 32 bits high resolution absorption recording
- Detecting range up to 6.5 AU
- Signal / noise ratio <0.0003 AU

5. Interface with data acquisition

- Interface for automatic data acquisition and control of Continuous Flow Analyzers.
- Handling Software to operate.
- Upgradable in future by USB memory stick.

6. Accessories

- Installation and initial operation.
- pump tubing, sleeves, sampler cups, tool kit and spare part kit.

7. Additional requirements:

- The quotation should include all the supporting systems which are not mentioned here but are essential for the basic running of Auto Analyzer. Apart from these any other items which may help in enhancing the performance of the Auto Analyzer should be quoted separately.
- A complete set of accessories/consumables/spares should be quoted separately for 3 years of operation.
- A complete set of operation-maintenance modules and circuit diagrams should be provided in hard copy as well as on CD along with the instrument.
- Three years warranty for the instrument, support sub-systems and the computer systems from the date of acceptance of the instrument. Response should be 'within 48 hours' after lodging a warranty call for troubleshooting. Machine down-time during warranty period should be allowed for extended warranty. Separate quote for annual comprehensive maintenance of the instrument and subsystems for five years post warranty must be given.
- Training: Comprehensive hands-on training for laboratory personnel in preventive maintenance, operations and application software of the instrument after installation must be given.

Onsite testing and performance demonstration of the following upon installation

- Demonstration of overall analytical reproducibility of concentration in seawater for all the chemical species mentioned above (1- 100 ppb level). The range and minimum detection limit should be at par with any state of the art machine used for seawater analysis in the world (MDL ~ 1 ppb).

Technical Compliance Statement for bidders

Sr. No.	Description	Compliance (Yes/No)
1	PC controlled with random access.	
2	More than 130 sampling positions.	
3	Removable racks with sample positions for sample cups or 10ml sample tubes.	
4	Around 140 sample cups.	
5	XYZ full random access capabilities.	
6	Containers for supply of calibrates, QCS.	
7	Separate positions for 10 ml tubes for working standards.	
8	Built-in-rinsing pump.	
9	User selectable pump tube sizes for required rinsing liquid volume.	
10	Supply of rinsing liquid.	
11	Glass rinsing vessel with continues liquid level and waste outlets for self-cleaning.	

Sr. No.	Description	Compliance (Yes/No)
12	Sample uptake with single sample needle.	
13	Separate position for standards and check samples.	
14	Automatic built-in dilutor	
15	The module holder should be capable to hold 5 chemistry channels. However, at this time please offer with 3 chemistry channel.	
16	One multi speed proportioning pumps with digital display of temperature and high precision DC motor.	
17	Proportioning pump 1x 16 channel with single pump deck.	
18	1x 10 stainless steel pump rollers.	
19	Multi speed pump function with standby / analyze / fast rinse positions.	
20	Built-in high precision air injector.	
21	Built-in air supply pump.	
22	Pressure regulator for air segmentation.	
23	Inlet for supply of external inert segmentation gas.	
24	2 positions for dual channel temperature control included in chemistry module.	
25	Separate glass waste receptacles.	
26	Separated compartments for electronics, chemistry and detector heads.	
27	Digital display of temperature to be provided, wherever needed.	
28	One pump should provide 16 tubings for reagent transportation to the analytical module.	
29	The multi speed pump should have speed adjustments for normal (analysis), fast (washing) and slow (stand by position, to save reagents).	
30	The pump tubings used should have 3 cuffs, to enhance life of the pump tubings.	
31	Each parameter should have separate module and each module to have its own filter and flow cell. All components of analysis like dialyser, reactor etc (wherever applicable) should be provided within each module.	
32	Parameter for analysis: Ammonical Nitrogen / Total Nitrogen, Urea, Nitrate+Nitrite/Nitrite.	
33	The analysis module should have its own flow cell and filter.	
34	Flow cell should be made of "black glass" to avoid interference of external light in the analysis.	
35	Flow cell is to be part of the chemistry module.	
36	Detector should be purely digital with high degree of accuracy and wide dynamic range (as mentioned in technical specification sheet); capable of measuring two parameters simultaneously.	
37	The photometer detector head is to have an insert board and cable.	
38	Wavelength selection by insert of interference filters	
39	Wavelength range 340-1050 nm.	

Sr. No.	Description	Compliance (Yes/No)
40	Accommodation for 2 flow cells of 5 upto 50 mm path length each.	
41	Software controlled automatic baseline and peak height settings.	
42	Software controlled lamp switching on / off	
43	32 bits high resolution absorption recording	
44	Detecting range up to 6.5 AU	
45	Signal / noise ratio <0.0003 AU	
46	Interface for automatic data acquisition and control of Continuous Flow Analyzers.	
47	Handling Software to operate.	
48	Upgradable in future by USB memory stick.	
49	Installation and initial operation.	
50	Pump tubing, sleeves, sampler cups, tool kit and spare part kit.	
51	Range and minimum detection limit at par with any state-of- -the-art machine used for sea water analysis (MLD ~ 1ppb)	
52	Additional requirements mentioned in technical specification section (attached here) should be satisfied.	

End of Item No. 1

Details / Specifications along with compliance statement[<<back>>](#)

Sr. No.	Parameter	Specifications
1	Mode of operation	Semi-continuous
2	Detection method	Non-dispersive IR
3	Sensitivity for Organic Carbon	0.5µgC/m ³ for 30 min sample at 8 LPM or better
4	Sensitivity for Elemental Carbon	0.5µgC/m ³ for 30 min sample at 8 LPM or better
5	Laser correction	Using temperature stabilized diode laser
6	Organic Carbon denuder	Parallel plate denuder
7	Cyclone at 8 LPM	2.5 micron
8	Power	220VAC @ 50Hz
9	To be supplied with necessary cable, accessories, mounting kits, quartz filter papers, necessary spares, computer interface, data acquisition and control software's media, and calibration certificate.	
10	Instrument to be installed at PRL, Ahmedabad and required training to be given for its operation and routine maintenance.	

Technical Compliance Sheet

Sr. No.	Parameter	Specifications	Compliance Yes/No
1	Mode of operation	Semi-continuous	
2	Detection method	Non-dispersive IR	
3	Sensitivity for Organic Carbon	0.5µgC/m ³ for 30 min sample at 8 LPM or better	
4	Sensitivity for Elemental Carbon	0.5µgC/m ³ for 30 min sample at 8 LPM or better	
5	Laser correction	Using temperature stabilized diode laser	
6	Organic Carbon denuder	Parallel plate denuder	
7	Cyclone at 8 LPM	2.5 micron	
8	Power	220VAC @ 50Hz	
9	To be supplied with necessary cable, accessories, mounting kits, quartz filter papers, necessary spares, computer interface, data acquisition and control software's media, and calibration certificate.		
10	Instrument to be installed at PRL, Ahmedabad and required training to be given for its operation and routine maintenance.		

Item No 3: Analyzer System for the measurement of CO, CO₂, CH₄ & H₂O in ambient air. (1 NOS.)

Details / Specifications along with compliance statement

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Analyzer system for the measurement of CO, CO₂, CH₄ & H₂O in ambient air:

Sr. No.	Item	Specification
1	Measurement mode	Simultaneous
2	Gases	CO, CO ₂ , CH ₄ & H ₂ O
3	Sample	For ambient air a) at GROUND and b) in AIRCRAFT campaigns (from ground to around 500 mbar pressure level)
4	Measurement system	All the four gases should be measured by single/two units
5	Power requirement	230 VAC / 50 Hz
6	Principle of operation	Laser based system
7	Mounting	19" rack mounting
8	Measurement Range	CO ---- 0 - 1 ppm CO ₂ ---- 300 - 500 ppm CH ₄ ---- 1 - 3 ppm H ₂ O ---- 0 - 3 % V
9	Precision (5 sec)	CO ---- 30 ppb or better CO ₂ ---- 150 ppb or better CH ₄ ---- 1 ppb or better H ₂ O ---- 200 ppm or better
10	Maximum Drift (in 24Hrs)	CO ---- 15 ppb or less CO ₂ ---- 200 ppb or less CH ₄ ---- 1.5 ppb or less H ₂ O ---- 100 ppm or less
11	WMO Specification	Compliance with WMO specifications for greenhouse gases measurements
12	Necessary hardware	Necessary cards and other accessories to be supplied (please mention)
13	Ports	RS232, USB, TCP/IP
14	Pump	For air sampling required for the above instruments
15	Input filter	Teflon filter holder with Teflon filter suitable for the flow
16	Warranty	1 year (in case of transporting the instrument to the principal or local office, PRL will do the necessary formalities and the cost, insurance, etc. should be borne by the supplier during the warranty period)
17	Consumables	Needed for 3 years
18	Optional	1. Analog outputs of the gas concentrations 2. Software (WIN XP/WIN 7) for data acquisition and control if not included 3. LCD display 4. 8/16 port inlet system for calibration – operated by the instrument 5. Moisture removal system for the inlet air sample if needed (permapure based) 6. Extended warranty for two more years

Technical Compliance Sheet

Sr. No.	Item	Specification	(YES/NO)
1	Measurement mode	Simultaneous	
2	Gases	CO, CO ₂ , CH ₄ & H ₂ O	
3	Sample	For ambient air a) at GROUND and b) in AIRCRAFT campaigns (from ground to around 500 mbar pressure level)	
4	Measurement system	All the four gases should be measured by single/two units	
5	Power requirement	230 VAC / 50 Hz	
6	Principle of operation	Laser based system	
7	Mounting	19" rack mounting	
8	Measurement Range	CO ---- 0 - 1 ppm CO ₂ ---- 300 - 500 ppm CH ₄ ---- 1 - 3 ppm H ₂ O ---- 0 - 3 % V	
9	Precision (5 sec)	CO ---- 30 ppb or better CO ₂ ---- 150 ppb or better CH ₄ ---- 1 ppb or better H ₂ O ---- 200 ppm or better	
10	Maximum Drift (in 24Hrs)	CO ---- 15 ppb or less CO ₂ ---- 200 ppb or less CH ₄ ---- 1.5 ppb or less H ₂ O ---- 100 ppm or less	
11	WMO Specification	Compliance with WMO specifications for greenhouse gases measurements	
12	Necessary hardware	Necessary cards and other accessories to be supplied (please mention)	
13	Ports	RS232, USB, TCP/IP	
14	Pump	For air sampling required for the above instruments	
15	Input filter	Teflon filter holder with Teflon filter suitable for the flow	
16	Warranty	1 year (in case of transporting the instrument to the principal or local office, PRL will do the necessary formalities and the cost, insurance, etc. should be borne by the supplier during the warranty period)	
17	Consumables	Needed for 3 years	
18	Optional	1. Analog outputs of the gas concentrations 2. Software (WIN XP/WIN 7) for data acquisition and control if not included 3. LCD display 4. 8/16 port inlet system for calibration – operated by the instrument 5. Moisture removal system for the inlet air sample if needed (permapure based) 6. Extended warranty for two more years	