

Domestic Tender Notification for the Procurement of a Gas Analyzer
(Last Date for Submission: 24th July 2023)

This is a Request for quote (RFQ) from domestic (India-based) manufacturers only for procurement of a gas analyzer system at the department of Aerospace Engineering, Indian Institute of Science, Bangalore. With respect to this tender, the rules laid out by the Government of India in order No. P45021/2/2017-pp-BE-II issued by the Public Procurement Section, Department or Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, dated 4th June 2020 will be followed. As per this order, the government has defined a 'Class-I local supplier' as "a supplier or service provider whose goods, services or work offered for procurement, has local content equal to or more than 50%". A 'Class-II local supplier' is "a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%". Only Class-I and Class-II local suppliers are eligible to participate in this open domestic tender. Any "Non-local supplier" i.e., "a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20%" is ineligible to participate in this tender. The tender should be submitted in two separate sealed envelopes: one containing the technical bid and the other containing the commercial bid, both of which should reach us, duly signed on or before 5 PM on 24th July 2023.

The bids should be addressed to:

The Chairman,
Department of Aerospace Engineering
Indian Institute of Science
Bangalore 560012, India.
Kind attention: Dr. Irfan Mulla
email: irfanmulla@iisc.ac.in, chair.aero@iisc.ac.in

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Section 1: Bid Schedule

1.	Tender No	IISc/AE/Tender/2023/Local/Gas Analyzer
2.	Tender date	03 rd July 2023
3.	Instrument	A gas analyzer system
4.	Tender type	i) Technical bid (Part A) ii) Commercial bid (Part B)
5.	Place of tender submission	The Chairman, Department of Aerospace Engineering Indian Institute of Science Bangalore 560012, India. Kind attention: Dr. Irfan Mulla
6.	Last date and time of tender submission	24 th July 2023, 5 PM
7.	Contact for further clarification	Dr. Irfan Mulla Department of Aerospace Engineering Indian Institute of Science Bangalore 560012, India. Ph: +91-80-2293-2875 email: irfanmulla@iisc.ac.in

Section 2: Eligibility Criteria

Prequalification criteria:

1. Quote should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor.
2. The quotations should be on FOR-IISc Bangalore basis in INR only.
3. Bidders offering imported products will fall under the category of non-local suppliers. They cannot claim themselves as Class-1 local suppliers/Class-2 local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training, and other sales service support like AMC/CMC, etc., as local value addition.
4. MSMEs can seek an exemption to some qualification criteria. IISc follows GFR2017 for such details.
5. The Bidder should belong to either Class 1 or Class 2 supplier distinguished by their “local content” as defined by recent edits to GFR. They should mention clearly which class they belong to in the cover letter. Additionally, the bidder should submit – Annexure 6 with details of local contents.
 - a. Class 1 supplier: Goods and services should have local content of equal to or more than 50%.
 - b. Class 2 supplier: Goods and services should have local content of equal to or more than 20 % and less than 50%.
6. Purchase preference as defined by the recent edits to GFR (within the “margin of purchase preference”) will be given to Class-1 supplier.
7. The Bidder’s firm should have existence for a minimum of 3 years (Enclose Company Registration Certificate).
8. The bidder should sign and submit the declaration of Acceptance of Terms and Conditions as per - Annexure 4.
9. The Bidder must be not blacklisted/banned/suspended or have a record of any service-related dispute with any organization in India or elsewhere. A declaration to this effect has to be given as per Annexure 3.

Section 3: Technical Specification for a gas analyzer

Submit a quote for a gas analyzer with the following specifications.

Bidder should respond to each point listed below in Sec. T1 to T6.

T1. A portable gas analyzer system with the following mandatory specifications

Portable gas analyzer with in-built gas conditioning unit. A single analyzer unit should be capable of measuring the following six species: CO, CO₂, NO, NO_x, SO₂, O₂.

S.N.	Parameter	Specification
1.	Sample flow rate	0.3 to 1 litre per minute (lpm)
2.	Sample Condition and Application	Combustion gases from an academic burner will be extracted with a probe. Gas sample can be cooled to ambient temperature and if needed moisture can be removed.
3.	Data display, storage, acquisition, and transfer to computer	Gas concentration values should be displayed on the portable unit. Capability to store data on-board through internal memory or installed memory card.
4.	Data acquisition, transfer to computer, and control from computer	Device should have interface for data transfer to computer. Please include accessories to control the device remotely through a computer.
5.	Software	Include the required software for data acquisition and device control
6.	Warm-up time	≤ 2 hours
7.	Power input	AC 240 V, 50 Hz
8.	Size	Length, Width, and Height, each should be within 650 mm or volume should be less than 0.06 m ³ for portability.
9.	Mass	≤ 20 kg
10.	Consumable accessories	Include the following accessories sufficient for 1 year: dust filters, tubes, scrubber, mist filter, etc.
11.	Carrying case	Include a suitable case to carry the gas analyser

T1.2) Carbon-monoxide (CO) sensor specifications

S.N.	Parameter	Specification
1.	Analysis method	Non-dispersive infrared absorption
2.	Measurement range	As described below
2a.	Range	0-5000 parts per million by volume (ppm)
2b.	Range flexibility	Upper limit should be user-adjustable between 200 – 5000 ppm with the same

		hardware
3.	Repeatability	As described below
3a.		$\leq \pm 0.5\%$ of full scale for CO \geq 1000 ppm
3b.		$\leq \pm 1\%$ of full scale for CO < 1000 ppm
4.	Linearity	$\leq \pm 2\%$ of full scale
5.	Drift	$\leq \pm 1\%$ of full scale / day
6.	Response time	\leq 50 seconds for 90% of the value

T1.3) Carbon-dioxide (CO₂) sensor specifications

S.N.	Parameter	Specification
1.	Analysis method	Non-dispersive infrared absorption
2.	Measurement range	As described below
2a.	Range	0-30% by volume
2b.	Range flexibility	Upper limit should be user-adjustable 10-30% with the same hardware
3.	Repeatability	$\leq \pm 1\%$ of full scale
4.	Linearity	$\leq \pm 2\%$ of full scale
5.	Drift	$\leq \pm 1\%$ of full scale / day
6.	Response time	\leq 50 seconds for 90% of the value

T1.3) NO/NO_x sensor specifications

A single sensor capable of measuring both NO and NO_x (not necessarily simultaneously)

S.N.	Parameter	Specification
1.	Analysis method	Chemiluminescence detection
2.	Measurement range	As described below
2a.	Range	0-2500 ppm
2b.	Range flexibility	Upper limit should be user-adjustable between 25-2500 ppm with the same hardware
3.	Repeatability	As described below
3a.		$\leq \pm 0.5\%$ of full scale for NO/NO _x \geq 100 ppm
3b.		$\leq \pm 1\%$ of full scale for NO/NO _x < 100 ppm
4.	Linearity	$\leq \pm 2\%$ of full scale
5.	Drift	$\leq \pm 1\%$ of full scale / day
6.	Response time	\leq 50 seconds for 90% of the value

T1.4) Sulfur dioxide (SO₂) sensor specifications

S.N.	Parameter	Specification
1.	Analysis method	Non-dispersive infrared absorption
2.	Measurement range	As described below
2a.	Range	0-3000 ppm
2b.	Range flexibility	Upper limit should be user-adjustable between 200-3000 ppm with the same hardware
3.	Repeatability	≤ ±1% of full scale
4.	Linearity	≤ ±2% of full scale
5.	Drift	≤ ±2% of full scale / day
6.	Response time	≤ 200 seconds for 90% of the value

T1.5) Oxygen (O₂) sensor specifications

S.N.	Parameter	Specification
1.	Analysis method	Zirconia or Paramagnetic detector
2.	Measurement range	As described below
2a.	Range	0-25% by volume
2b.	Range flexibility	Upper limit should be user-adjustable between 5-25% with the same hardware
3.	Repeatability	≤ ±1% of full scale
4.	Linearity	≤ ±2% of full scale
5.	Drift	≤ ±1% of full scale / day
6.	Response time	≤ 50 seconds for 90% of the value

T1.6) Gas sample pre-conditioning before gas analyzer

In the commercial quote, please quote the following items individually with cost break-up.

S.N.	Requirement
1.	Include a moisture removing unit / drain separator along with the moisture collection unit to remove excess moisture from the gas sample. Please specify the technical details including the extent of moisture removal.
2.	Include thermoelectric gas cooling or chiller unit to remove residual moisture before sample enters the portable gas analyser. This unit will be mounted between drain separator and gas analyzer. The unit should be able to handle a gas sample containing up to 20% water by volume at the inlet. Please specify a typical humidity level at the outlet.

T2. Hydrocarbon detector with the following mandatory specifications

Portable total hydrocarbon analyzer with in-built gas conditioning unit. A single analyzer unit should be capable of measuring the following species: lumped total hydrocarbon (THC), lumped non-methane hydrocarbons (NMHC), and methane (CH₄).

S.N.	Parameter	Specification
1.	Species to be measured	Methane (CH ₄), Total hydrocarbon (THC), Non-methane hydrocarbons (NMHC)
2.	Detection principle	Flame ionization detection (FID) with selective combustion to isolate methane.
3.	Measurement range	As described below
4.	Range	0-100 ppmC or more (e.g., 0-3000 ppmC)
5.	Lower detectable limit (LDL)	0.03 ppmC or 0.03% of full scale
6.	Repeatability	≤ ±1% of full scale
7.	Linearity	≤ ±1 % of full scale
8.	Zero drift	≤ LDL/day at lowest range or ≤ ±0.05 ppmC / week at lowest range
9.	Span drift	≤ LDL/day at lowest range or ≤ ±0.5% full scale / week
10.	Response time	≤ 60 seconds for 90% value
11.	Sample gas flow rate	≤ 1 litre per minute
12.	Calibration gas utility requirement	Span: Methane, Zero: Purified Air
13.	Warnings	Indication/alarm in case of calibration error or ignition failure
14.	Data display, storage, acquisition, and transfer to computer	Gas concentration values should be displayed on the portable unit. Capability to store data on-board through internal memory or installed memory card.
15.	Data acquisition, transfer to computer, and control from computer	Device should have interface for data transfer to computer. Please include accessories to control the device remotely through a computer.
16.	Software	Include the required software for data acquisition and device control
17.	Power input	AC 240 V, 50 Hz
18.	Size	Length, Width, and Height, each should be within 600 mm or volume should be less than 0.06 m ³ for portability.
19.	Mass	≤ 40 kg

T3. Mandatory requirements:

1. The gas analyzers should be installed by a technical expert of either the manufacturer or their authorized Indian technician. Complete training should be given in the operation and maintenance of the gas analyzers. The technical expert of the gas analyzers should demonstrate key specifications during installation.
2. Please specify the utility requirements, for instance, calibration or combustible gases needed for gas analyzer and hydrocarbon analyzer.
3. All the accessories required for the installation and operation of the gas analyzer should be provided. Accessories required for data storage/logging should be provided.
4. A pre-dispatch inspection or quality control report should be shared before shipping the product. The report should also include the calibration details.
5. Delivery: Within 3 to 4 months from the date of purchase order.
6. Product warranty from the date of installation
 - a. At least 12 months.
7. Servicing/repair: If the need arises, local servicing/repairs should be attended to within five business days. It is mandatory to have a skilled gas analyzer technician/engineer located within India. The local technician should have substantial experience in servicing/repairing the gas analyzer. The bidder should provide a letter indicating details of the training received and experience in months. This letter should be endorsed by the manufacturer.

T4. Gas diluter unit

One unit of gas diluter with the following mandatory specifications to enhance the range of hydrocarbon detector specified in Sec. T2.

S.N.	Parameter	Specification
1.	Principle	Ejector nozzle type
2.	Material	Stainless steel
3.	Dilution ratio	1:50
4.	Sample inlet flow rate	Up to 7 litres per minute (lpm)
5.	Diluted sample flow rate at outlet	Up to 60 lpm
6.	Dilutor medium	Clean air at 2 bar-g pressure
7.	Size	Diameter \leq 150 mm, Length \leq 400 mm
8.	Mass	\leq 3 kg
9.	Air filter and drier	Include air purification unit to remove dust, oil, and water. Please quote this item separately.

T5. Optional requirements:

In the commercial bid, include the following optional items.

1. An additional one-year warranty
2. Yearly calibration charges
3. Include water vapor and temperature sensor to measure gas sample temperature and moisture content at the inlet of the gas analyzer.

T6. Commercial bid price break-up

In the commercial bid, please provide the price of individual components in the following manner.

1. A portable gas analyzer specified in T1.
2. Moisture removing unit / drain separator specified in T1.6.
3. Thermoelectric gas cooling or chiller unit specified in T1.6.
4. A portable hydrocarbon analyzer specified in T2.
5. A gas dilution unit specified in T4.
6. Consumable accessories listed in T1.9.
7. Optional accessories listed in T5.
8. Installation charges.
9. CIP Charges.

Section 4: Terms and Conditions

1. All documentations in the tender should be in English.
2. Tender should be submitted in two envelopes (two bid system).
 - a) Technical Bid (Part-A) – Technical bid consisting of all technical details and checklist for conformance to technical specifications. The proposal should contain a compliance table. The compliance table should include all the items of the technical specifications in the same order and format. The first additional column should describe product specifications. The next column should indicate compliance in a “Yes” or “No” response.
 - b) Commercial Bid (Part-B) – Indicating item-wise price for the items mentioned in the technical bid, as per the format of quotation provided in tender, and other commercial terms and conditions.
3. The technical bid and price bid should each be placed in separate sealed covers, superscribing on both the envelopes tender no. and the due date. Both these sealed covers are to be placed in a bigger cover which should also be sealed and duly superscribed with the Tender No, Tender Description & Due Date.
4. The SEALED COVER superscribing tender number and due date & should reach the office of the Chairman, Department of Aerospace Engineering Indian Institute of Science Bangalore 560012, India, Kind attention: Dr. Irfan Mulla, on or before the due date mentioned in the tender notice. In case the due date happens to be a holiday, the tender will be accepted and opened on the next working day. If the quotation cover is not sealed, it will be rejected.
5. The covering letter should clearly state whether the vendor is a Class-I or Class-II local supplier. Failing this the bid will be automatically rejected.
6. The Bidder must not be blacklisted/banned/suspended or have a record of any service-related dispute with any organization in India or elsewhere. A declaration to this effect should be provided.
7. Time for the delivery of the equipment should be less than 3 to 4 months from the date of release of the PO. It should be clearly mentioned in the technical and commercial bids.
8. The vendor must provide a compliance statement in a tabular form concerning each technical specification in the tender document duly supported by the manufacturer’s literature and published papers. Any other claim will not be accepted and may lead to the rejection of the bid.
9. Wherever requested, data must be supplied along with technical compliance documents. Technical bids without supporting data will be deemed technically non-compliant.
10. IISc reserves the right to verify the accuracy and seek clarification of submitted specifications after opening the technical bids. Based on such clarification, if specifications are found to be unsuitable, the technical committee reserves the right to disqualify vendors. Any discrepancy between the promised and verified specifications will be deemed as technical non-compliance.
11. The technical bid should also contain warranty details and terms. Further, any periodic maintenance requirements for regular operation should be specified in detail, along with the extent of coverage under warranty for such maintenance activity.
12. The bidder will provide the prerequisite installation requirement of the equipment along with the technical bid. The vendor is responsible for the installation of the system at IISc, along with the training of end-users.
13. In the commercial bid, the price should be inclusive of all discounts. The price quotation should include the cost of installation and training of potential users, if any. Please quote the price of each gas analyzer component, separately.
14. The quotations should be on FOR-IISc Bangalore basis in INR only.

15. Any statutory increase in the taxes and duties subsequent to the bidder's offer, if it takes place within the original contractual delivery date, will be borne by IISc, Bangalore, subject to the claim being supported by documentary evidence. However, if any decrease takes place, the advantage will have to be passed on to IISc, Bangalore. Any information furnished by the bidder found to be incorrect, either immediately or at a later date, would render the bidder liable to be debarred from the bidding process.
16. The vendor must submit a list of all Indian customers (only Government of India organizations) where similar systems have been installed. References from this list can be used to disqualify vendors with a poor track record of service, build quality, system performance, or poor availability of spares. Additionally, IISc shall have the absolute right to take the opinion of other departments/institutes for their opinion/experience about the bidder's services/sales. Based on such input, IISc may decide about the rejection of a bid of such bidder(s).
17. The vendor shall include up to five testimonials from existing users of a similar system indicating performance and maintenance satisfaction.
18. Notwithstanding anything specified in this tender document, IISc Bangalore, in its sole discretion, unconditionally and without having to assign any reason, reserves the rights:
 - a) To accept OR reject the lowest tender or any other tender or all the tenders.
 - b) To accept any tender in full or in part.
 - c) To reject the tender, offer not conforming to the tender terms.
19. IISc reserves the right to relax any or all of the above conditions without assigning any reason.

Annexure 1:

Details of the Bidder: The bidder must provide the following mandatory information & attach supporting documents wherever mentioned:

Sr. No.	Type	Details
1.	Name of the Bidder	
2.	Nature of Bidder (Attach attested copy of Certificate of Incorporation/ Partnership Deed)	
3.	Registration No/ Trade License, (attach attested copy)	
4.	Registered Office Address	
5.	Address for communication	
6.	Contact person- Name and Designation	
7.	Telephone No	
8.	Email ID	
9.	Website	
10.	PAN No. (attach copy)	
11.	GST No. (attach copy)	

(Signature of the Bidder)

Name:

Designation, Seal

Date:

Annexure 2:

Declaration regarding experience

To,

The Chairman,
Department of Aerospace Engineering
Indian Institute of Science
Bangalore 560012, India.
Kind attention: Dr. Irfan Mulla

Ref: Tender No:

Dated:

Sub: Supply and installation of a gas analyzer

I have carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company / firm has ---- years of experience in supplying and installing a gas analyzer.

I also declare that my company / firm has a skilled gas analyzer technician/engineer located within India. The local technician has ---- years/months of experience in servicing/repairing the gas analyzer. The details of the training received are ---. The training details are endorsed by the gas analyzer manufacturer.

(Signature of the Bidder)

Name:

Designation, Seal

Date:

(Signature of the gas analyzer manufacturer)

Name:

Designation, Seal

Date:

Annexure 3:

Declaration of track record

To,
The Chairman,
Department of Aerospace Engineering
Indian Institute of Science
Bangalore 560012, India.
Kind attention: Dr. Irfan Mulla

Ref: Tender No:

Dated:

Sub: Supply and installation of a gas analyzer

Sir,

I have carefully gone through the Terms & Conditions contained in the above referred tender.

I hereby declare that my company / firm is not currently debarred / blacklisted by any Government / Semi-Government organizations / institutions in India or abroad. I further certify that I am competent officer in my company / firm to make this declaration.

OR

I declare the following:

Sr. No.	Country in which the company is debarred/ blacklisted / having pending case	Blacklisted / debarred by Government / Semi Government Organizations or Institutions / having pending case	Reason	Time Period

(Note: In case the company / firm was blacklisted previously, please provide the details regarding period for which the company / firm was blacklisted and the reason/s for the same).

(Signature of the Bidder)

Name:

Designation, Seal

Date:

Annexure 4:

Declaration of acceptance of terms and conditions

To,
The Chairman,
Department of Aerospace Engineering
Indian Institute of Science
Bangalore 560012, India.
Kind attention: Dr. Irfan Mulla

Ref: Tender No:

Dated:

Sub: Supply and installation of a gas analyzer

Sir,

I have carefully gone through the Terms & Conditions contained in the above referred tender document. I declare that all the provisions of this tender document are acceptable to my company. I further certify that I am an authorized signatory of my company and am, therefore, competent to make this declaration.

(Signature of the Bidder)

Name:

Designation, Seal

Date:

Annexure 5:

Details of items quoted:

- a. Company Name
- b. Product Name
- c. Part / Catalogue number
- d. Product description / main features
- e. Detailed technical specifications
- f. Remarks, if applicable

Instructions to bidders:

1. Bidder should provide technical specifications of the quoted product/s in detail.
2. Bidder should attach product brochures along with technical bid.
3. Bidders should clearly indicate compliance or non-compliance of the technical specifications provided in the tender document.

Annexure 6:

Declaration regarding Class-I or Class-II local supplier

To,
The Chairman,
Department of Aerospace Engineering
Indian Institute of Science
Bangalore 560012, India.
Kind attention: Dr. Irfan Mulla

Ref: Tender No:

Dated:

Sub: Class-I or Class-II local supplier declaration

Local content details: The bidder should provide the following details of the local contents. Please indicate the extent of local content in terms of percentage of the total price. Do not disclose the absolute total or local content price in this letter. Only the percentage of local content by price is sufficient. Please describe clearly how your bid satisfies the Class-I or Class-II supplier conditions, in terms of locally manufactured items.

(Signature of the Bidder)

Name:

Designation, Seal

Date:

Section 5 – Commercial Bid

The commercial bid should be furnished with all requirements of the tender with supporting documents as mentioned below:

Please provide the price of individual components, preferably in the following manner.

1. A portable gas analyzer specified in T1.
2. Moisture removing unit / drain separator specified in T1.6.
3. Thermoelectric gas cooling or chiller unit specified in T1.6.
4. A portable hydrocarbon analyzer specified in T2.
5. A gas dilution unit specified in T4.
6. Consumable accessories listed in T1.9.
7. Any other accessories.
8. Installation charges.
9. CIP Charges.

Items requested in the mandatory specification section

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total
1.	Essential items noted in the technical specification				
2	... (details of essential items)				
3.	Warranty (years)				
4.	FOR-IISc Bangalore only				

Items requested in the optional specification section

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total
1.	Optional items noted in the technical specification				
2	... (details of Optional items)				
3.	Warranty (years)				
4.	FOR-IISc Bangalore only				

Section 6 - Checklist

The following items must be checked before the bid is submitted.

1. Sealed Envelope “A”: Technical Bid

Technical bid (signed by the authorized signatory and sealed) with the below documents:

- a. Annexure 1: Bidders details
- b. Annexure 2: Declaration regarding experience
- c. Annexure 3: Declaration of track record
- d. Annexure 4: Declaration of acceptance of terms and conditions
- e. Annexure 5: Details of item quoted
- f. Annexure 6: Class-I or Class-II supplier declaration

2. Sealed Envelope “B”: Commercial Bid

Your quotation must be submitted in two separate sealed envelopes: Technical Bid (Envelope A) and Commercial Bid (Envelope B) super scribing on both the envelopes with Tender No. and due date. These envelopes should be put in a bigger cover which should also be sealed and duly superscribed with Tender No., Tender description & Due Date.