

INVITATION FOR TENDERS

Tender No. CAD/PUR/2K20/129

Dated: 08/03/2022

CSIR - National Aerospace Laboratories (NAL), Bengaluru, Republic of India, is one of the premier research laboratories under aegis of Council of Scientific and Industrial Research (CSIR), an autonomous body under the Department of Scientific and Industrial Research, Government of India, New Delhi. CSIR-NAL is a Science and Knowledge based Research, Development and Consulting Organisation. It is internationally known for its excellence in Scientific Research in Aerospace Engineering.

The Director, CSIR-NAL invites online quotation for procurement of the following item(s) for day to day research work.

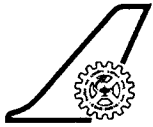
Sl. No.	Description of Item(s)	Unit	Qty
1	Supply of Smoke Detector for SARAS MK II Aircraft (Details as per Annexure – I)	Nos	4

Single / Double Bid	Single	Tender Type	Global Tender
Bid Security (EMD) (in INR)	Bid Security Declaration should be enclosed with quotation	Bid submission end date	04-April-2022 10.00 Hrs
Performance Security	Nil	Bid opening date	05-April-2022 11.00 Hrs

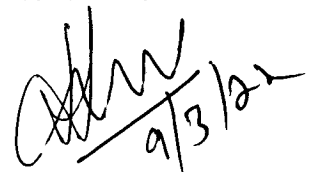
01. Tender Documents may be downloaded from Central Public Procurement Portal <https://www.etenders.gov.in>. Aspiring Bidders' who have not registered in e- procurement can register free of cost before participating through the website <https://www.etenders.gov.in>. Bidders are advised to go through instructions provided at 'Instructions for Online Bid Submission'.

पी बी सं. 1779, एचएएल एयरपोर्ट रोड, बेंगलूर- 560 017, भारत,
P B No 1779, HAL Airport Road, Bengaluru - 560 017, INDIA
फोन / Phone : (का./ Off) : +91 - 80 - 2508 6097 / 6710, फैक्स / FAX : +91-80-2526 9611





02. Tenderers can access tender documents on the website (for searching in the NIC site <https://www.etenders.gov.in>, kindly go to Tender Search option, select tender type and select 'Council of Scientific and Industrial Research', in organisation tab and select NAL-Bengaluru-CSIR in department type. Thereafter, Click on "Search" button to view all CSIR-NAL, Bengaluru tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website <https://www.etenders.gov.in> as per the schedule given in the next page.
03. Either the Indian Agent on behalf of the Foreign principal or the Foreign principal can bid directly in a tender but **not** both. However, the offer of the Indian Agent should also accompany the authorisation letter from their principal. To maintain sanctity of tendering system, one Indian Agent **cannot** represent two different Foreign principals in one tender.
04. Unsolicited / conditional / unsigned Quotations/Quotations received after the due date and time shall be summarily rejected. The Bidder shall comply the terms and conditions of the tender, failing which, the offer shall be liable for rejection.
05. The bids failing to comply with the following clauses will be summarily rejected.
 - a. The Bidders proposing to supply finished products directly/indirectly from vendors' of countries sharing the land border with India should submit A copy of registration done with DPIIT.
 - b. If the products supplied are not from vendors of countries sharing land border with India, the Bidders' have to enclose a declaration to that effect.
06. Bidders are requested to refer to the instructions regarding Procurement Policies for "Make in India", issued by Ministry of Commerce and Industry, Department of Industrial Policy and Promotion dated. 28-May-2018, and 4-Jun-2020 and guidelines as and when issued.
07. Kindly, note CSIR-NAL **GST No.29AAATC2716R1ZB**. And the bidders are requested to furnish their GST No. in their invoice failing which we will **not** be able to make timely payment.


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08. The prospective bidders are requested to refer to the Standard Terms and Conditions available on NAL Internet (www.nal.res.in) under the icon Tender-Purchase before formulating and submitting their bids
09. The Director, CSIR- National Aerospace Laboratories, Bengaluru reserves the right to accept any or all the tenders either in part or in full or to split the order without assigning any reasons there for.
10. Participation in this tender is by invitation only and is limited to the selected bidders. Unsolicited offers are liable to be ignored. However, bidders who desire to participate in such tenders in future may bring it to the notice of Procuring Entity and apply for registration.

Thanking you,

Yours faithfully



Controller of Stores and Purchase
For and on behalf of CSIR

Specifications of Smoke Detector for SARAS MK II Aircraft**1. Detailed Specifications****1.1 Specification of Smoke Detector:**

1.	The Smoke Detectors should meet FAR-23 amendment 23-64 performance-based regulations. The prescriptive provisions within previous amendment 63 of FAR-23, where applicable, may be used at aircraft ambient air temperatures from -55°C to +70°C.
2.	The Smoke Detectors shall be Brand new/Factory new, Commercially of the shelf (COTS) components.
3.	a) The Smoke Detectors shall be of optical type and shall operate at lower than 5% of smoke in air. b) Signal output from the smoke detector shall compatible to ARINC 429/ Discrete communication protocol.
4.	Smoke Detector Characteristics: Type: Ambient Air Protection/Finishing: Black Anodized Electrical Power Supply: 28 Vdc Consumption: 75 mA max. Smoke Threshold Operation: From 89 up to 93 % of Light Transmission (Factory Setting) Weight: 250g \pm 3%
5.	Mechanical interfaces/connections details of all component should be provided. Electrical receptacle of component details should be supplied. Electrical details like voltage and power consumption along with electrical wiring diagram should be provided.

1.2 Certification Requirements

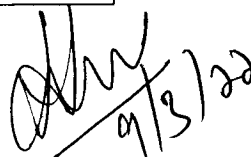
The component/LRU shall be supplied with proper TSO'd Certificates with Valid Certificate of Origin and Certificate of Conformance obtained from Civil Airworthiness Authorities of the Country.

1.3 Qualification Requirements

Qualification tests of the smoke detectors to conform to RTCA DO-160D or above upto RTCA DO-160G / Equivalent are detailed in Table 1.

Table 1: Environmental Qualification Map of Smoke detectors

Requirement	RTCA DO-160	Smoke Detectors
Location	Inside the fuselage (Controlled Pressure and Controlled Temperature)	
Temperature and Altitude	Section 4	Category A4: Operating Low Temp (OLT): -15 degC; Operating High Temp (OHT): +55 degC; Altitude: 15000 feet; Decompression Test: lowest pressure at operating altitude of 30,000 feet; Overpressure Test: 170kPa (-15,000 feet).
Temperature Variation	Section 5	Category C: Rate of change of Temperature: 2 degC per minute



		Operating Low Temp (OLT): -15 degC; Operating High Temp (OHT): +55 degC; Number of Cycles: 2 minimum.
Humidity	Section 6	Category A: Temperature: 38±2 to 50±2 degC; Humidity (% RH): 85±4 to 95±4; Number of Cycles: 2 (48 Hours of exposure).
Operating Shock and Crash Safety	Section 7	Category B: OS:6g and 11ms; CS:20g and 11ms; Crash Safety Sustained (Structural linear acceleration): 18g in all direction for Random orientation.
Vibration Endurance	Section 8	Cat. S, Test Curve L: Standard Sinusoidal Vibration Test is DESIRABLE; Dwell time of 15 minutes is DESIRABLE at each severe frequency selected from the critical frequencies.
Explosive Proofing	Section 9	NA
Water-proofing	Section 10	Category Y: Equipment OFF; Low Temp: -10 degC & 85% RH, stabilize for 3 hours. Operating at High Temp: +40 degC & 85% RH, for 10 minutes.
Fluids Susceptibility	Section 11	NA
Sand and Dust	Section 12	NA
Fungus Resistance	Section 13	Category F: Incubation at 30 degC and 97±2% RH, for 28 days after satisfactory fungus growth.
Salt Spray	Section 14	NA
Magnetic Effect	Section 15	Category C: D > 3.0m
Power Input	Section 16	Category B: Normal Operating Tests at 30.3 V, 22.0 V & 18.0 V; Momentary Power Interruption Test: Interruption 50 ms.
Voltage Spike	Section 17	Category A: Minimum of 50 positive polarity transients within a period of one minute; Repeat the application with 50 negative polarity transients within a one minute period.
Audio Frequency Conducted Susceptibility - Power Input	Section 18	Category B
Induced Signal Susceptibility	Section 19	Category ZCE: Magnetic Fields Induced into the Equipment: 20 A rms at 400 Hz; Magnetic Fields Induced into Interconnecting Cables: I _{xL} =30 A-m at 400Hz reducing to 0.8 A-m at 15kHz; Electric Fields Induced into Interconnecting Cables: V _{xL} =1800 V-m from 380 to 420Hz; Spikes Induced into Interconnecting Cables: Cable length: 3m/ 3m/ 1.2m Amplitude 600V p-p Duration: 50- 1000µs Repetition rate 0.2 to 10µs.
Radio Frequency Susceptibility (Radiated and Conducted)	Section 20	Category RR: Conducted Susceptibility: Conducted: 30 mA; Radiated Susceptibility: Electric Field: 100 V/m.



Emission of Radio Frequency Energy	Section 21	Category M: Conducted RF Emissions: 150 KHz to 152 MHz; Radiated RF Emission: 100 MHz to 6000 MHz.
Lightning Induced Transient Susceptibility	Section 22	A3XX as per DO-160D OR A3E3L3 or A3XXXX as per DO-160G A3E3L3: Pin Injection test: Peak Open Circuit voltage : 600 V, Peak Open Circuit Current 60Amp.
Lightning Direct Effects	Section 23	NA
Icing	Section 24	NA
Electrostatic Discharge Requirements	Section 25	Category A: ESD pulses at a test level of 15000 volts.
Fire, Flammability	Section 26	Category C: Testing is not necessary.

1.4 Maintainability, Reliability and Product Support

- Shelf life, Time Between Overall (TBO), and Total Technical life (TTL) should be commensurate with industry standards and should be as high as possible. Values of Shelf life, Time Between Overall (TBO), and Total Technical life (TTL) for the Components/LRUs shall be specified by the bidder based upon technology maturity level.
- The item shall have high MTBF to meet system safety and reliability requirements for the proposed system architecture as per FAR 23.1309 amendment 23-64.
- Bidder should ensure all quoted Smoke detectors should be available for 30 years

1.5 List of Deliverables:

Sl. No.	Item Description	Unit	Quantity
1	Supply of Smoke Detector for Saras Mk II Aircraft	nos	4
2	Documents mentioned in para 1.6	Set	1

1.6 List of Documentation:

"Bidder shall supply all signed documents mentioned below in 2 sets of hard copies and soft copy of the same"

Sl. No.	Item Description
1.	Design Specification
2.	Installation and interface drawing (Mechanical and Electrical)
3.	Acceptance test procedure (ATP)
4.	Acceptance test reports (ATR)
5.	Qualification test procedures (QTP)
6.	Qualification test report (QTR)
7.	Component Life document: Shelf life, TBO, Service Life and Storage Condition etc.
8.	COC/EASA Form One or Equivalent
9.	Declaration of Design and Performance (DDP)

[Signature]
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1.7 Responsibilities:**CSIR-NAL Responsibilities:**

1. Component Level Specifications and Requirements.
2. Aircraft System level performance tests on ground and in flight.

Bidders Responsibilities:

1. Supply of 4 Nos shipment of Smoke Detector for Saras Mk II.
2. Provide list of documents mentioned in para 1.6

1.8 Installation, Commissioning and Acceptance Test

The acceptance test will be conducted by the Purchaser, their consultant or other such person nominated by the Purchaser at its option after the equipment is installed at Purchaser's site in the presence of supplier's representatives. The acceptance will involve trouble free operation. **There shall not be any additional charges for carrying out acceptance test.** No malfunction, partial or complete failure of any part of the equipment is expected to occur. The Supplier shall maintain necessary log in respect of the result of the test to establish to the entire satisfaction of the Purchaser, the successful completion of the test specified.

On the event of the ordered item failing to pass the acceptance test, a period not exceeding two weeks will be given to rectify the defects and clear the acceptance test, failing which, the Purchaser reserve the right to get the equipment replaced by the Supplier at no extra cost to the Purchaser.

Successful conduct and conclusion of the acceptance test for the installed goods and equipment shall also be the responsibility and at the cost of the Supplier.

The acceptance tests at the final destination include the following:

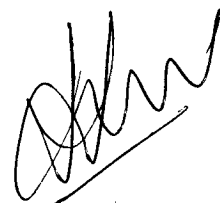
a)	Visual Inspection
c)	Room Temperature Functional/Performance Tests
d)	Bonding & Insulation Tests

1.9 Incidental Services**(i) On site Comprehensive Warranty:**

- 1 Year from Installation & Commissioning and date of acceptance
- In case the Equipment / System remains non-operational for more than **30 days** then warranty period will be extended for the equivalent period for which Equipment / System remained non-operational. Warranty extension in such case shall be done without prejudice to any other Term & condition of the contract

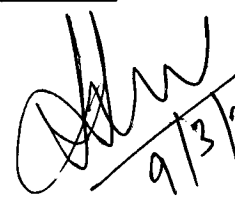
1.10 Delivery Schedule

- Delivery Schedule-6 months from date of Purchase Order

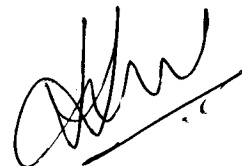


TERMS & CONDITIONS

Tender No.	NAL/PUR/	
Sr. No.	Approximate weight of the Consignment	Approximate dimensions of the consignment
1		
2	Indian Customs Tariff No. and HSN No. (ICT & HSN No.)	
3	Country of Origin	
4	Percentage of Local Content	
5	Annual Turnover	
6	Type of Supplier	
7	Mode of Shipment By Air / SEA / Road / e-download	
8	Port of Destination	Final Destination
9	Delivery Term (INCO Term)	
10	Delivery Schedule including Supply, Installation, Commissioning, Training & Acceptance	
a)	Delivery of the Item as per Chapter-4/BoQ [In weeks / Days / Months] from the date of PO / LC / ILC / Advance [Mention the appropriate term]	
b)	Installation & Commissioning from the date of Delivery of item [In weeks/Days/Months]	
c)	Training from the date of Installation & Commissioning of item [In weeks/Days/Months]	
d)	Acceptance from the date of Training [In weeks/Days/Months]	
11	Installation & Commissioning (if any) Quoted Price inclusive or exclusive	
12	Training (if any) Quoted Price inclusive or exclusive	


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13	Payment Term	
14	Currency of Bid/Quotation	
15	Statutory Levies [GST/IGST or any other taxes, duties] % of tax to be mentioned.	
16	Bidder GST No.	
17	Bidder Bank Details along with Cancelled cheque	
18	Insurance Coverage as per GCC/SCC Clause No.2.17.1	
19	Warranty	
20	Agree to submit Performance Security as per GCC/SCC Clause No.2.13.1	
21	Integrity Pact as per GCC/SCC Clause No.2.43.1 to be signed and stamped on Organization's Letterhead, if applicable	
22	Validity of offer as per Tender document	
23	Order to be placed [Full address, Tel #, Fax #, Email Id, Contact Person]	
24	Any other	
25	Total Price quoted as per BoQ/Price Schedule/List of Deliverables exclusive of tax	
26	Total Price quoted as per BoQ/Price Schedule/List of Deliverables inclusive of tax	
27	<p>If country of Origin is Foreign, Bidders may provide the following details, as per GOI Procurement Policies (DIPP Order No.P-45021/2/2017-PP (BE-II).</p> <p>"Self-Certification that the item offered meets the minimum local content (in terms of percentage) giving details of the location(s) at which the local value addition is made in case the bidder wishes to avail the benefits under the Make in India Policy, if applicable".</p>	
Note:	Unit Price Indicating currency FOB (named port of shipment or FCA (named place of delivery)	



Bid-Securing Declaration Form

Date: _____

Bid No. _____

To (insert complete name and address of the purchaser)

I/We, The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of one year from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

a)	have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or
	Having been notified of the acceptance of our Bid by the purchaser during the period of bid validity
b)	I.fail or reuse to execute the contract, if required, or II.fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown) in the capacity of (insert legal capacity of person signing the Bid Securing Declaration).

Name: (insert complete name of person signing he Bid Securing Declaration)

Duly authorized to sign the bid for an on behalf of: (insert complete name of Bidder) Dated

on _____ day of _____ (insert date of signing)

Corporate Seal (where appropriate)

Note:

1. In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid)
2. Bid Security declaration must be signed in by the Proprietor/CEO/MD or equivalent level of Officer of the company.