

वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्
Council of Scientific & Industrial Research
राष्ट्रीय वांतरिक्ष प्रयोगशालाएं
National Aerospace Laboratories



CSIR - NAL Estd. 1959
ISO 9001 : 2015
Certified Organization

INVITATION FOR BIDS/NIT

Tender No: CAD/PUR/2K20/009

CSIR- National Aerospace Laboratories (NAL), Bengaluru, India is one of the premier laboratories under Council of Scientific and Industrial Research (CSIR), an autonomous body under Department of Scientific and Industrial Research, Government of India, New Delhi. CSIR-NAL is a Science and Knowledge based Research, Development and Consulting Organization. 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 Items	Unit	Qty
1	Engine Management Unit Systems for HANSA Aircraft (As per attached details)	Set	1

Single / Double Bid	Single	Tender Type	Open
Bid Security (EMD) (in INR)	Bid Securing Declaration Form to be submitted.	Bid submission end date	04-Mar-2021 10.00Hrs
Performance Security	3% of the Purchase Order Value	Bid opening date	05-Mar-2021 11.00Hrs

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

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 organization 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 authorization 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 tenders (Quotations) **shall not** be considered. Quotations received after the due date and time **shall be summarily rejected**.

05.The Bidder shall comply the terms and conditions of the tender, failing which; the offer shall be liable for rejection.

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



<http://www.nal.res.in>



purchaseccadd@nal.res.in

06. Self-certification that the item offered meets the minimum local content in terms of percentage and shall give 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)

07. The prospective bidders are requested to refer to the Standard Terms and Conditions available on NAL Website(www.nal.res.in) under the icon Tender- Purchase before formulating and submitting their bids.

08. 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.



Raman Kumar
Stores & Purchase Officer
For & Behalf of CSIR-NAL

Engine Management System Specifications

Items	Quantity
Engine Management Display Unit	2 Nos.
Connection Harness EMU	4 Nos.
Auxiliary Connector	4 Nos.
Customized Software CSIR-NAL EMU 912iS for HANSA requirements (As per Statement of Work in this specification)	1 No.
Documentation (Declaration of Design and Performance manual, Operating manual, Installation Manual, Pilots Guide, Maintenance Manual (if any), etc.)	1 sets



Statement of Work
EMU Software Customization

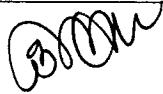
1 Scope of Work

Scope of the work is to customize the EMU application software as per NAL's requirements.

1.1 Deliverables & its Scope:

The main objective is to customize the EMU Software design as per NAL's requirements for HANSA identified in this document. Scope of work defined in Section 2.

Deliverables	
<ul style="list-style-type: none">• Customized EMU application Software (software image) as per NAL's requirements• Exclusive User/Operational/DDP document for NAL as per new software updates• Installation of customized software version on all serial EMU units for HANSA aircraft	



2 Color band or Range requirements for EMU parameters

The color band requirements are indicated in Table 1.

Sl. No.	Parameters	Proposed changes (if any from existing software version)
1	Engine Speed	0 to 1400 rpm: RED 1400 to 1800 rpm : AMBER 1800 to 5500 rpm : GREEN 5500 to 5800 rpm : AMBER > 5800 rpm : RED PROPOSED CHANGES REQUIRED
2	Fuel Flow Rate	0 to 20 L/hr : GREEN 20 to 32 L/hr : AMBER >32 L/hr : RED PROPOSED CHANGES REQUIRED
3	Manifold Air Pressure	0 to 200 hPa : AMBER 200 to 1100 hPa : GREEN 1100 to 1150 hPa : AMBER >1150 hPa : RED RETAIN initial Manual Values
4	Coolant Temperature	<50 DegC : AMBER 50 DegC to 110 DegC : GREEN 110 DegC to 120 DegC : AMBER >120 DegC : RED RETAIN initial Manual Values
5	EGT Cylinder 1	minus 65 to 900 DegC : GREEN 900 to 950 DegC : AMBER >950 DegC : RED RETAIN initial Manual Values
6	EGT Cylinder 2	
7	EGT Cylinder 3	
8	EGT Cylinder 4	
9	Manifold Air Temperature	< 60 Deg C: GREEN > 60 DegC: RED ACCEPTED as per new manual 2020

Sl. No.	Parameters	Proposed changes (if any from existing software version)
10	Engine Ambient Temperature	< -25 DegC : RED -25 to 50 DegC : GREEN > 50 DegC : RED PROPOSED CHANGES REQUIRED
11	Throttle Position	0 to 12% : AMBER 12 to 100% : GREEN >100% : RED RETAIN initial Manual Values
12	Engine Ambient Pressure	All Green ACCEPTED as per new manual 2020
13	ECU Bus Voltage	<9VDC : RED 9 to 12.7VDC : AMBER 12.7 to 14.8VDC : GREEN > 14.8 VDC : RED ACCEPTED as per new manual
14	Oil Pressure, Absolute	<0.8 Bar : RED 0.8 to 2.0 Bar : AMBER 2.0 to 5.0 Bar : GREEN 5.0 to 7.0 Bar : AMBER > 7.0 Bar : RED ACCEPTED as per new manual 2020
15	Oil Temperature	<50 : RED 50 to 120 : GREEN 120 to 130 : AMBER > 130 : RED PROPOSED CHANGES REQUIRED
16	Fuel Pressure	< 2.5 bar: RED 2.5 to 2.8 bar: Amber 2.8 to 3.2 bar: GREEN 3.2 to 3.5 bar: AMBER > 3.5 bar: RED ACCEPTED as per new manual 2020

Table 1: Color Band Requirements

Software Updates:

- Color band/ranges indicated in **Table 1** shall be implemented in MAIN page as well as in INFO pages without conflict across.
- Trigger Warnings & Cautions based on updated color ranges indicated in this document.
- Rectification of errors or bugs identified in existing EMU software version & communicated for correction.

3 ATP

Updated customized software will be tested at CSIR-NAL as per requirements indicated in Section 2.

4 Warranty

One Years

A handwritten signature in black ink, consisting of several loops and a trailing flourish, positioned in the center of the page.

Terms & Condition

Delivery Term	FOR- NAL
Delivery Schedule	Within 60 days from the date of PO
GST (Goods)	Extra @ 5% against Concessional GST Exemption Certificate
Payment Term	NAL Term (Payment would be made within 30 days, only after receipt of material in good conditions, inspection and acceptance by end user).
Warranty Certificate (if any)	
Any other Certificates (if any)	
Country of Origin (In case of Import)	
Local Content (in terms of percentage)	

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 the 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.