

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. NAL/PUR/FMCD/311/20-Y

Dated: 04-Dec-2020

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	Quantity
1	HUD control Panel (HCP) with Power Supply Module for SARAS PT1N Simulator Please refer Annexure for detailed specification.	No	1
Single / Double Bid		Single	
Bid Security (EMD) (in INR)		Bid Security Declaration should be enclosed with quotation	
Performance Security		10% of the purchase order value	

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.
06. The prospective bidders are requested to refer to the Standard Tender Document available on NAL Internet (www.nal.res.in) under the icon Tender-Purchase before formulating and submitting their bids
07. 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
(Section Officer S&P)

पी बी सं. 1779, एचएएल एयरपोर्ट रोड , कोडिहल्ली, बेंगलुरु - 560 017, भारत,
P B No 1779, HAL Airport Road, Kodihalli, Bengaluru - 560 017, INDIA
फोन / Phone : (का./ Off) : +91 - 80 - 2508 6040 - 45, फैक्स / FAX : +91-80-2526 9611



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



purchasek@nal.res.in

Technical Specification of HUD Control Panel with Power Supply

1. Head-Up Guidance (HGS) System

Primary purpose of the HGS system is to display aircraft navigation data on a Head-Up Display. Figure 1 Shows Various components of HGS and their connection. The HGS includes HUD Control Panel (HCP) for controlling the HUD operations. This document gives the details of the specifications, deliverables and acceptance test procedure of HUD control Panel with power supply module.

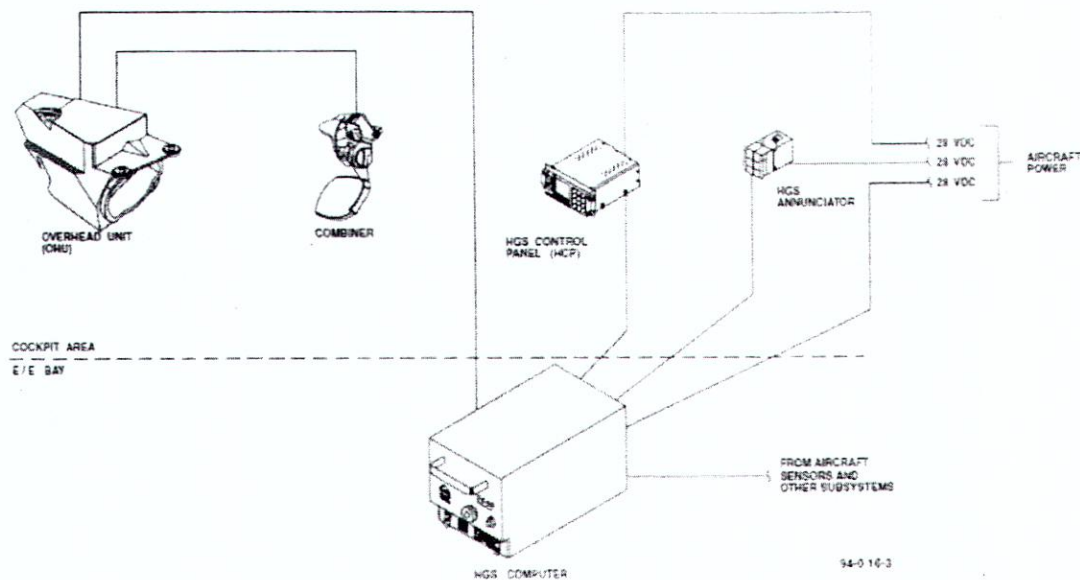


Figure 1: Interconnect Diagram of HUD

Figure 2 shows the front layout of required HUD control panel (HCP).

[Handwritten signature]

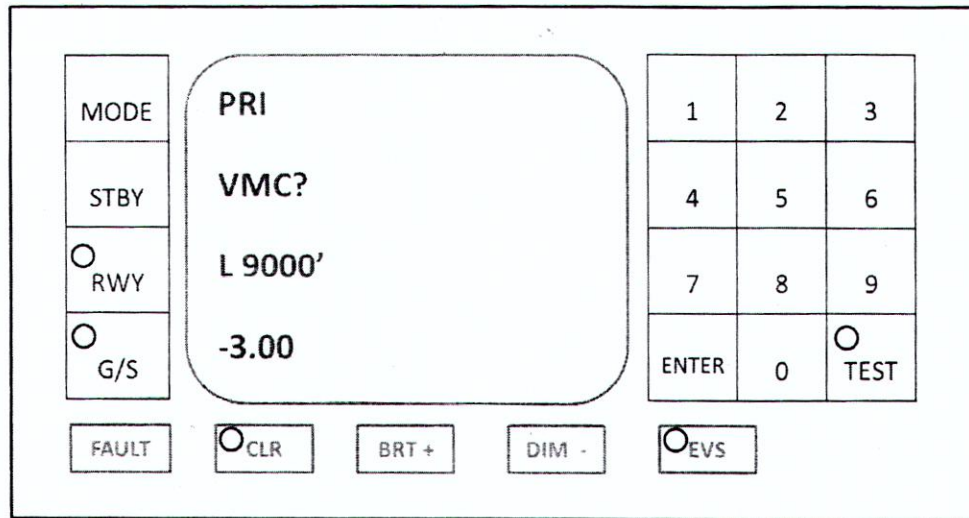


Figure 2: Front Layout of HUD Control Panel (HCP)

2. Internal Wiring for HCP with Power Supply Module

Figure 3 shows the internal and external wiring diagram for HCP.

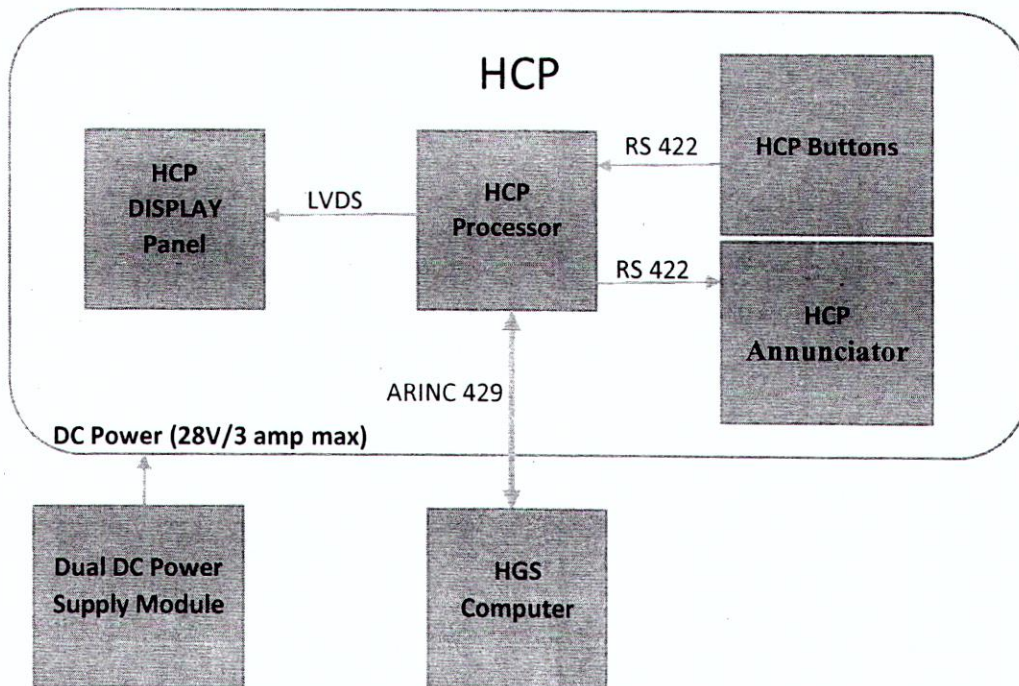


Figure 3: Wiring Diagram for HCP

3. Technical Specification of HCP with Power Supply Module

CSIR-NAL is looking for single unit of HCP for the SARAS simulator. HCP layout is shown in Figure 2. The list of engraved buttons with corresponding labels are given in Table 1.

Table 2: List of Buttons

S.N.	Buttons with Labels	Engraved Annunciator Available (YES/NO)
1	MODE	NO
2	STDBY	NO
3	RWY	YES
4	G/S	YES
5	FAULT	NO
6	CLR	YES
7	BRT+	NO
8	DIM-	NO
9	EVS	YES
10	0	NO
11	1	NO
12	2	NO
13	3	NO
14	4	NO
15	5	NO
16	6	NO
17	7	NO
18	8	NO
19	9	NO
20	ENTER	NO
21	TEST	YES

Table 2 summarizes the technical specification that shall be met for HCP. Table 3 summarizes the technical specification that shall be met for Dual DC Power Supply Module.

Table 2: Technical Specification for HCP

No of unit to be supplied	One
HCP Outer Dimension	Width : 6.5 inches Height : 4.5 inches Depth : Less than 4 inches
Display Panel	Display size: 4.0 inches' diagonal Resolution: 640x480/720x720 (RGB)
Display Technology	LCD with LED backlight
Luminance (Max)	300 Cd/m2

Contrast ratio	1000:1
Display Interface	VGA/HDMI
Viewing angle	80/80/80/80 Degree
Illuminator	For the buttons: RWY, G/S, CLR, EVS and TEST
Buttons	With LED backlights
Power Supply	28 VDC
ARINC Interface card	PC-104 Plus Based ARINC 429 Card with 2 RX and 2TX Channels, its device driver and API/SDK
Connector	All interface shall be Mil circular connector
Processor	<p><u>PC-104 plus standard mother board</u></p> <p>Intel® Atom™ E3815 on-board SoC (1.46GHz, single core, 512KB cache, TDP=5W) NANO-BT-E38XX1W2-R11 EPIC SBC supports Intel® 22nm single-Core Atom™ E381XX onboard SoC with VGA/HDMI/LVDS, Dual PCIe GbE, Dual PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, mSATA, COM, audio and RoHS, -40~85°C Memory: One 204-pin 1333/1066 MHz single-channel unbuffered DDR3L SDRAM SO-DIMM supports up to 8 GB 1 x VGA :up to 2560x1600@60Hz 1 x HDMI :up to 1920x1080@60Hz 1 x LVDS :18/24-bit dual-channel (up to 1920x1200@60Hz) Ethernet 2 x LAN :LAN1: Intel® I210-IT PCIe controller with NCSI support LAN2: Intel® I210-IT PCIe controller Audio Description: Realtek ALC662 HD Audio codec 1 x Front Audio :2x5 pin I/O Interface 3 x Internal RS-232 :2x5 pin, p=2.0 1 x Internal RS-422/485 :1 x4 pin, p=2.0 1 x External USB 2.0 1 x External USB 3.2 Gen1x1 3 x Internal USB 2.0 :2x4 pin, p=2.0 1 x PS/2 Expansion 1 x PCIe mini Card Slot :Full-size PCIe Mini card slot (support mSATA co-lay SATA port 2) 1 x PC/104 :PCI signal</p>
OS	Pre-loaded Window 7/10 Professional with license
Weight	< 4 Kg
Aesthetic	Aesthetic of HCP shall be equivalent to similar product used in Aircraft

Table 3 Technical specification of Dual DC Power Supply Module.

S.No.	Parameters	Rating
1	Input Line Voltage	230 Volt AC \pm 10%, 50 Hz, 1-Phase
2	Constant Voltage Mode	Output Range
		0-32 V DC
		Regulation
		Line $<0.01\% \pm 3\text{mV}$ for 10% Change in Line Load $<0.01\% \pm 3\text{mV}$ for Load Change From Zero to Full
3	Constant Current Mode	Ripple & Noise
		$<1\text{mV rms max.}$
		Indication
		CV mode LED Green
3	Constant Current Mode	Output Range
		0-10 Amps
		Regulation
		Line $<0.01\% \pm 2\text{mA}$ for 10% Change in Line Load $<0.01\% \pm 4\text{mA}$ for load change in output voltage from zero to max. output voltage
3	Constant Current Mode	Ripple & Noise
		$<1\text{mA rms max.}$
		Indication
		CC mode LED Red
4	Protections	a) Fuse protection is provided at AC Input. b) Unit Output is protected against overloads and short circuits. c) Miniature Circuit Breaker is provided at AC Input.
5	Controls	a) ON/OFF Circuit Breaker at AC Input b) DC Output ON/OFF on each main output c) Coarse and Fine Voltage set potentiometers on front panel. d) Coarse and Fine Current set potentiometers on front panel.
6	Indications	a) LED indications for AC Input, CV and CC Mode of operations. b) $3\frac{1}{2}$ Digit Panel Meters (DPM) for Output voltage and load current on front panel.
7	Mechanical	Suitable with 19" Rack
8	Weight	Less than 10 Kg

4. Deliverables

4.1. HCP (one unit)

- HUD Control Panel with buttons, displays, processor and interfaces as specified in table 2 of section 3.
- Licensed Windows Operating System 7/10 Professional

4.2. DC Power Supply Module (one unit)

- Dual DC Power Supply Module as specified in table 3 of section 3.

5. Acceptance Test Procedure

- Demonstration of working of buttons, displays and annunciators
- Loop back testing of ARINC 429
- Rendering of NAL provided VAPS Page on the HCP display
- Demonstration of working of Power supply module connected to HCP



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
(b)	having been notified of the acceptance of our Bid by the purchaser during the period of bid validity
	(i) fail or refuse 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.