



Directorate of Indigenous
Technical Development (South)
ITD Wing, Naval Research & Development
Institute (NRDI)
at NSSD Area West Wharf Road
KARACHI

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TD/2400/8/STU/24/ 934

On PPRA Website

19 May 25

INVITATION TO TENDER – INDIGENOUS DEVELOPMENT OF SWITCH AND TRANSMIT UNIT (STU) OF OPTICAL GYRO INERTIAL NAVIGATION SYSTEM

1. Pakistan Navy is interested in indigenous development of under mentioned item. Your firm is being invited to forward technical and budgetary proposal for manufacturing of Switch and Transmit Unit (STU). In proposal, involvement/ outsourcing of OEM items must be highlighted with detailed scope of work to be undertaken from the third party. Details of required item to be developed is appended below:

Description of Item	Qty	Specifications
Switch and Transmit Unit (STU) of Optical Gyro Inertial Navigation System	04	Specifications are appended at Annexes A and B

2. You are requested to furnish the under mentioned mandatory information (as applicable) in your quotation. Otherwise, the quotation will not be entertained:

- The firm's Sales Tax Registration Number/ Professional Tax Certificate.
- Development cost including 18% GST.
- Terms & Conditions for payments (whether advance payment, required/ not required).
- Previous experience of developing similar products/ projects.
- Experience of the company with defence organizations and especially PN/ ITD (registration letter to be furnished if registered with defence organizations).

3. The offer is to be submitted in duplicate as under:

- Three 'envelopes' contain Commercial Offer (figures as well as in words), Technical Offer and Tender Fee should be enclosed in one cover/ envelope, properly sealed, bearing the address of this office clearly marked 'Quotation for Indigenous Development of Switch and Transmit Unit (STU) of optical gyro Inertial Navigation System Tender No and date of opening'.

(1) *"The bid shall comprise a single package containing two separate envelopes. Each envelope shall contain separately the financial proposal and the technical proposal".*

- Technical Offer:** The Technical Offer should contain all relevant specifications along with technical literature/ brochure in an envelope and shall be clearly marked as 'TECHNICAL PROPOSAL' without price, tender number and date of opening. Technical proposal is to be made as per the guidelines contained in Annexes A and B to this letter,

while including the following:

- (1) Methodology of Development.
- (2) Warranty period minimum for 12 Months.
- (3) Validity of quotation minimum for 06 months.
- (4) Mutated copy of earnest money Pay Order/ Demand Draft.
- (5) Project plan is to be provided with time lines preferably in MS (Milestones) Project format. Same is to be submitted along with Technical Proposal.
- (6) Availability/ supportability minimum for 25 years.

c. Feasibility Study: A detailed feasibility study of the of Switch and Transmit Unit (STU) of optical gyro Inertial Navigation System to be undertaken by your firm and comprehensive report including but not limited to technical drawings, design & dimensions is to be submitted along with the technical offer/ proposal against IT. Proposals without feasibility study/ design will not be accepted.

d. Commercial Offer: The Commercial Offer should include price quoted in figures as well as in words. The contents 'Commercial Offer' should be clearly marked on the envelope with tender number and date of opening. Separate commercial offer for following is required:

- (1) Tender Fee (non-refundable): Pay Order/ Bank Draft is to be enclosed in a separate envelope clearly marked 'Tender Fee of Switch and Transmit Unit (STU) of optical gyro Inertial Navigation System' in respect of "**Directorate of Indigenous Technical Development Registration and Indexation Account (Account No. 4000039556 NBP, Avari Towers Branch, Karachi)**" amounting on following rates:

S No	Project Cost	Tender fees
(a)	For total estimated project cost under Rs 0.49M	Rs. 2,500/-
(b)	For total estimated project cost from Rs 0.5M upto 0.99M	Rs. 4,500/-
(c)	For total estimated project cost from Rs 1M upto 2.49M	Rs. 7,500/-
(d)	For total estimated project cost from Rs 2.5M upto 4.99M	Rs. 15,000/-
(e)	For total estimated project cost Rs 5M or more	Rs. 23,000/-

- (2) Cheque, Pay-in-Slip and Cash are not acceptable. Tender fee is non-refundable. Offers submitted without tender fee will not be considered in tendering process.

- (3) Earnest Money (Refundable): Earnest money in shape of Pay Order/ Demand Draft in favour of '**The Controller of Naval Accounts, 14 Liaquat Barracks, Karachi**' must be submitted along with the commercial offer without which no tender will be accepted. The amount of earnest money is given as under:

(a) The firms registered with DITD/ PN will submit 2% of the quoted value subject to maximum ceiling of Rs. 0.500 Million.

(b) The firms non-registered with DITD/ PN will submit 5% of the quoted value subject to maximum ceiling of Rs. 1.000 Million.

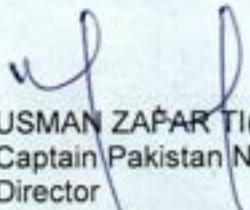
Note: Mutated photocopy of earnest money (price may not be visible) is to be provided in technical offer envelope.

4. Offers are to be dropped (not later than 1100 hours on **05 Jun 2025** in the Tender Box placed at ITD Wing (NRDI) or alternatively be send on mail address as follows:

Directorate of Indigenous Technical Development (South)
ITD Wing, Naval Research & Development Institute (NRDI)
at NSSD Area, West Wharf Road
KARACHI
Contact No: 021-48508410, 021-48509402

5. Technical offer i.e. without price will be opened on **05 Jun 2025** at 1130 hours. Commercial offers will be opened exclusively for firms that are found technically suitable after thorough scrutiny.
6. Firm will be required to develop required items as per specifications mentioned at Annexes A and B. Developing firm is to arrange inspections to be undertaken by ITD Wing & reps of end user during development process.
7. The Development Contract for local development will be awarded after approval of the case by the Competent Financial Authority.
8. Point of contact for subject project in case of any query or further correspondence is Lt Cdr M Afzaal PN (Tel No: 021-48509402).
9. Special Instructions are as under:
 - a. Developer is to clearly mention against each clause his reply regarding conformance or otherwise of that clause in 'Developer Remarks' column. The general remarks that 'all technical or contractual clauses are acceptable' will not be considered sufficient for technical scrutiny. The offers not conforming to the given format will be technically knocked out. The developer is to provide relevant details of all items being imported for development of project clearly mentioning the origin of items/ parts.
 - b. Tender document and its conditions may please be read point by point and understood properly before quoting. All tender conditions should be responded clearly. In case of any deviation due to non-acceptance of tender conditions, the same should be highlighted along with your changed offer/ conditions.
 - c. Tender may however, be liable to rejection due to non-acceptance of any one or more conditions outlined by Purchaser in this IT.
 - d. Tender opening date will not be extended.

Annexes:


USMAN ZAFAR TI(M)
Captain Pakistan Navy
Director

- A. Technical Specifications and General Requirements of Switch and Transmit Unit (STU)
- B. User Requirement Document (URD) of Switch and Transmit Unit (STU)

SPECIFICATIONS AND GENERAL REQUIREMENTS – SWITCH AND TRANSMIT UNIT (STU) OF OPTICAL GYRO INERTIAL NAVIGATION SYSTEM

Introduction. Switch and Transmit Unit (STU) is used for collecting, processing of data from onboard Gyro compasses and distribution of gyro data to all weapons/ sensors and navigational systems onboard.

S No	Specifications/ Requirements	Manufacturer's Remarks (Complied/ Not Complied)
1.	<u>Development Requirements/ Technical Specifications</u> STU is used to collect and process gyro data from onboard 03 x Gyros for onward sending to all weapons, sensors, communication and navigation systems. Detailed user requirements and technical data/ specifications for the indigenous development of Switch and Transmit Unit (STU) of optical gyro Inertial Navigation System is attached at Annex B.	
2.	<u>Maintainability Requirement</u> This system should contain the following: <ul style="list-style-type: none"> a. Accessories/ wiring/ components shall be made using appropriate standards as needed by R & D team of the firm with mutual concurrence of user. b. Switch and Transmit Unit (STU) should be easy to maintain (software/ hardware). c. Maintenance support and up gradation should be assured till at least 25 years of life. d. Training/ technical assistance in maintenance/ usage of Switch and Transmit Unit (STU) is to be provided by the developer. e. Continued spare supportability is to be ensured for sustained operational availability of the system. Moreover, complete documentation of the system including technical and operation manuals are to be provided in CDs as well. f. Fault diagnosis sheets and electrical drawings are also considered necessary along with the system. g. Through life supportability (maintenances/ spares support) for satisfactory operation of the system for at least 25 years is to be ensured by the firm. h. Installed components should be easily accessible for removal/ installation of Switch and Transmit Unit (STU) 	
3.	<u>Operating Parameters.</u> Operating parameters of Switch and Transmit Unit (STU) should be as per Annex B.	
4.	<u>Material Specification.</u> As per attached specifications at Annex B.	
5.	<u>Design Requirement/ Criteria for Indigenous development.</u> Design details are to be proposed by the offering firm in technical offer based on information provided at Annex B.	

6.	<p><u>Documents/ Drawings:</u> Following documentations should be provided by the developer. Moreover, template for the operator, maintenance manuals and IPC will be provided prior finalization of the contract:</p> <p>a. <u>Operation & Maintenance Manual.</u> This should include technical data/ specifications, standards used, structure and working principle, operation, preventive maintenance and corrective maintenance guidelines.</p> <p>b. <u>Illustrated Part Catalogue (IPC).</u> Detailed view of assemblies and sub-assemblies alongwith identification of all accessories/ wiring/ components should be provided for future use.</p> <p>c. <u>Standards.</u> The developer is to provide the copies of all standards (in English) referred to or used for development of the equipment and its accessories.</p> <p>d. <u>Critical Spares List.</u> Firm will provide critical spares parts list for onboard and Depot level at the time of product delivery (if applicable).</p>	
7.	<u>Environmental Condition.</u> Corrosion resistant material is to be used for complete structure. All other equipment should be installed having low maintenance requirement and high reliability. IP rating of the equipment/ parts is to be clearly mentioned (if applicable). Moreover, IP standards for PCB should comply IP55.	
8.	<u>Feasibility Study.</u> A detailed feasibility study report of the project along with technical offer indicating details pertaining to the proposed solution (as desired each component) in light of user requirements. Proposals without feasibility study/ design will not be accepted.	
9.	<u>Delivery Schedule.</u> Developer will deliver all stores/ equipment/ items preferable within 10 months of Contract Effective Date (CED) i.a.w contractual specifications/ requirements. Extension of delivery schedule shall remain the exclusive discretion of DITD (S).	
10.	<u>Stage Inspections.</u> The firm will allow PAC committee/ end user or nominated member by PN to carry out stage inspections to monitor the progress of the work, on 'As & When Required' basis, to verify materials and quality of components being used. Schedule for stage inspections will be formulated at later stages and will form part of the contract.	
11.	<p><u>Packing Standard.</u></p> <p>a. The equipment shall be packed as per standard trade packing worthy for transportation by rail/ road or by air so as to ensure free from loss or damages on arrival at the ultimate destination.</p> <p>b. A packing note, showing the following details, should be placed on package:</p> <ol style="list-style-type: none"> (1) Manufacturer Part No. (2) Serial Number of Transportation Container. (3) Full nomenclature/ description. (4) Contract number. 	

	<p>(5) Date of packing.</p> <p>(6) Special storage environment/ conditions, if any.</p> <p>c. All stores should be marked with broad arrow pointing upwards, by stamping, painting or tallying. Each individual item of stores must bear the pattern number to facilitate identification.</p>	
12.	<p><u>Terms & Conditions for Payments.</u></p> <p>a. Standard payment terms; 90% payment will be made on successful completion of the project and 10% upon completion of warranty period.</p> <p style="text-align: center;">Or</p> <p>Payment terms may be mutually agreed between firm and PN at the time of contract negotiations</p> <p>b. The developer has the provision to receive 10% final payment on completion of the project against submission of BG for equivalent amount which will be released upon completion of warranty period.</p>	
13.	<p><u>Warranty/ Guarantee.</u> Warranty/ Guaranty 01 x Year of Hardware and 03 year for software after final acceptance of the equipment/ items.</p>	
14.	<p><u>Validity of Quotation.</u> The validity of quotation should not be less than 06 months.</p>	
15.	<p><u>Miscellaneous Requirements.</u> The firm will furnish the under mentioned information along with the Technical Offer:</p> <p>a. The firm's Sales Tax Registration Number (including Filer/ Non Filer Status).</p> <p>b. Valid National Tax Number (NTN).</p> <p>c. Professional Tax Certificate (held/ not held).</p> <p>d. Terms & Conditions for payments (whether advance payment, required/ not required).</p> <p>e. The developer is to provide cost breakdown of financial aspects of the entire project including but not limited to following as part of Commercial offer:</p> <p>(1) Cost of complete documentation including operation/ maintenance manuals etc.</p> <p>(2) Cost of onboard spares, if any.</p> <p>(3) Cost of maintenance tools/ equipment etc, if any.</p> <p>(4) Any other cost.</p>	

USER REQUIREMENT DOCUMENT (URD) – SWITCH AND TRANSMIT UNIT (STU) OF OPTICAL GYRO INERTIAL NAVIGATION SYSTEM

S No	User Requirements/ Specifications	Manufacturer's Remarks (Complied/ Not Complied)
1.	<u>Introduction:</u> Switch and Transmit Unit (STU) is used for collecting, processing of data from onboard Gyro compasses and distribution of gyro data to all weapon/ sensors and navigational systems.	
2.	<p><u>Background and Shortcomings:</u></p> <p>a. STU is a interactive control device that provides data to onboard installed systems (Nav Radars, 17 x Gyro repeaters. FCS, DVBS and NIMS-III). It is of a cuboid shape and adopts wall mounted structure. Present configuration of STU is as follows:</p> <p>(1) Analogue and digital feed from 02 x Optical Gyrocompasses is sent to the STU.</p> <p>(2) Digital feed (RS-422A) from 01 x Electric Gyro is sent to STU.</p> <p>(3) STU receives and processes gyro data received from onboard gyros for sending out the same to onboard systems.</p> <p>(4) STU selects data of one of the three gyros as per user selection and outputs data to all other systems.</p>	
3.	<u>Aim:</u> Indigenous development of Switch and Transmit Unit (STU) through STRAT organizations/ local firms	
4.	<p><u>Requisite Functionalities</u></p> <p>STU should consist of appropriate hardware and interface arrangements consisting following main components/ sub-assemblies for functions mentioned against each:</p> <p>a. <u>Power Module:</u> Power Module is responsible for provisioning of power supply to the system and for conversion of ship's power supply to required voltage levels for different PCBs/ modules of STU.</p> <p>b. <u>Signal Processing Board:</u> The main function of the Signal Processing Board is to receive the digital information of all 03 x Gyrocompasses, monitor and receive the instructions of the main control computer and external manual switching instructions in real time, comprehensively process all kinds of information and transmit the processing results to the external equipment and relay switching board.</p>	

- c. Relay Switch Board: The Relay Switch Board mainly selects the analog output of the 02 x Optical Gyrocompasses according to the requirements of users thus ensuring the synchronization of the digital and analog outputs of the INS.
- d. INS Transfer Switch: The "INS transfer switch" has three positions, among which Position 1 indicates the manual mode, in which STU outputs data of INS A; Position 2 indicates the manual mode, in which STU outputs data of INS B; Position 3 indicates the automatic mode, in which STU will select an effective INS output according to the effective identification of data. If both sets of INSs are effective, the data of INS A will be output by default.
- e. Heading Selection Switch: The "heading selection switch" has three positions among which Position 1 indicates the manual mode in which STU outputs the heading of INS. Position 2 indicates the manual mode in which STU outputs the heading of the gyrocompass. Position 3 indicates the automatic mode in which STU will select an effective heading output according to the effective identification of data. If both INS and gyrocompass are effective, the heading of INS will be output by default.
- f. Moreover, further technical and material requirements are appended below:
- (1) Compatible with all weapons, sensors, communication and navigational systems.
 - (2) In-country supportability of the developed system.
 - (3) High system reliability.
 - (4) IP-55 rating for electronic assemblies.
 - (5) All cables and wires shall be properly screened for EMC/ EMI as per (IEC EN55015, IEC 60092-306 and IEC 60092).
 - (6) Mounting/ body of STU shall be robust design able to withstand severe atmospheric conditions at sea including shock/ vibration.
 - (7) Modular design with provisioning for future enhancement.
 - (8) Provision of up-gradation of system
 - (9) Detailed documentation of all hardware/ software to be provided.
 - (10) Power supply requirement for STU should be as follows:
 - (a) Voltage AC: $220 \pm 10\%$ 50Hz $\pm 5\%$
 - (b) DC: $24V \pm 20\%$

	<p>(c) Power < 300W</p> <p>(11) Layout diagram/ sketch of STU is at Appendix-1</p> <p>(12) A number of cable sockets should be arranged on the upper and lower end surfaces of the STU. All cable sockets should be of Y27 series marine sockets with anti-reverse inserting function of cables.</p>										
5.	<p><u>Standards:</u> National standards related to maintenance related manufacturing and performance testing (as per technical manual) are appended below:</p> <table border="1"> <thead> <tr> <th>S No</th><th>Standard Name</th><th>Standard No</th></tr> </thead> <tbody> <tr> <td>a.</td><td>Maintainability design technique handbook</td><td>GJB TZ 91-1997</td></tr> <tr> <td>b.</td><td>General requirement for material maintainability program</td><td>GJB 3688-2009</td></tr> </tbody> </table>	S No	Standard Name	Standard No	a.	Maintainability design technique handbook	GJB TZ 91-1997	b.	General requirement for material maintainability program	GJB 3688-2009	
S No	Standard Name	Standard No									
a.	Maintainability design technique handbook	GJB TZ 91-1997									
b.	General requirement for material maintainability program	GJB 3688-2009									
6.	<p><u>Technical Assistance:</u> Available reference documentation, specifications, layout, drawings and relevant operational/ technical details of STU being used in PN can be obtained through onsite visit of ships installed with said systems.</p>										
7.	<p><u>Acceptance Trials Criteria:</u></p> <p>a. Acceptance Test Procedure (ATPs) for Factory Acceptance Trials (FATs), Setting to work (STW), Harbour Acceptance Trials (HATs), and Sea Acceptance Trials (SATs) must be provided three months in advance for study and vetting. The acceptance procedures will be made by OEM and same will be finalized by PN based upon experience of PN in the related field. Integration requirements will be part of FATs/ HATs/ SATs and system should be able to demonstrate integrated capability.</p> <p>b. All claimed technical capabilities should be demonstrated during FATs. Acceptance tests will consists of FATs, HATs and SATs including but not limited to following:</p> <ol style="list-style-type: none"> (1) Ability of STU to correctly receive analogue and digital data from onboard gyros. (2) Ability of STU to output data in required formats. (3) Ability of STU to receive and output data in real time with fast processing rates. (4) Ability of STU to automatically switch between gyros in case of failure in the selected gyro. (5) Ability of STU to allow manual switching of gyros upon selection by user. (6) Ability of STU to maintain data integrity during processing and sending out. 										

	<p>(7) Testing of weapons/ sensors stabilization accuracy after installation of indigenously developed STU.</p> <p>(8) Testing of alignment operations of Local Reference INS after installation of indigenously developed STU.</p> <p>(9) Testing minimum continuous operation time of 04 hours to check reliability and stability of system.</p> <p>(10) Testing of STU after firing to check effects of sudden shock on performance of STU.</p>	
8.	<p><u>Integrated Logistics Support:</u></p> <p>a. OEM is to guarantee the supply of necessary spares including their consequent upgradation (hardware) for 25 years. A certificate to this effect is to be provided by the seller along with the proposal.</p> <p>b. The spares shall cater for the requirement of maintenance up to level 4. Following information is to be provided by OEM in Microsoft Excel format for patternization:</p> <ol style="list-style-type: none"> (1) OEM Complete Address. (2) Part Number. (3) Description/ Nomenclature of item/ Part/ Assembly. (4) Denomination. (5) Shelf Life. (6) Equipment Name. (7) Equipment Model No. (8) Equipment Serial No. (9) Population of items in Equipment. (10) Repairable/ Non-Repairable Source of Availability. (11) Units/ Price in US \$/ Pak rupees (12) NATO Stock Number (if held). 	
9.	<p><u>Documentation:</u> Following categories of documents/ manuals shall be provided by OEM. Contents of all the manuals and other related documents including specifications, drawings, parts catalogues and other lists should be standardized:</p> <p>a. OEM shall provide requisite documentation in English language both as a hard copy and soft copy as under:</p> <ol style="list-style-type: none"> (1) <u>Operating manual:</u> This document should provide detailed operating procedures of systems and use of the accompanied accessories. (2) <u>Installation Manual:</u> This document should cover in detail pre-installation checks, detailed installation procedure along with drawings and post installation checks, should also cover set to work & commissioning procedure along with relevant settings and performance data sheet. This should also provide installation specifications and test & trial procedures along with test forms. (3) <u>Maintenance Manual:</u> This document should include: 	

(a) Technical data specifications & general technical description of the equipment system including all sub- assemblies/ sub systems.

(b) Preventive maintenance routines along with detailed procedure to complete maintenance jobs, Engineering Procedure, Technical Repair Standard i.e. maintenance procedure in detail, tool/ test equipment required and list of spares/ stores divided into following categories:

- i. Mandatory items.
- ii. High probability items i.e. > 50% usage.
- iii. Low probability items i.e. > 25% usage.
- iv. Occasional items i.e. > 5% usage.
- v. Consumable items.

(c) Fault diagnostic procedures/ flow charts.

(d) Overhaul procedures (if applicable).

(e) Technical data sheet.

(f) This document shall include following:

(4) Technical data & general technical description of system

(5) Technical description of all sub-assemblies & sub system

(6) Level 3 & 4 maintenance routines along with detailed procedure supported by information contained in Job Information Cards, Engineering Procedure, Technical Repair Standard i.e. Maintenance procedure in detail, tool/test equipment required and list of spares/stores divided into following categories:

- (a) Mandatory items.
- (b) High probability items i.e. > 50% usage.
- (c) Low probability items i.e. > 25% usage.
- (d) Occasional items i.e. > 5% usage.
- (f) Consumable items.

(7) Complete circuit diagrams of all customized PCBs, modules & subassemblies of equipment.

(8) Fault diagnostic up to component level.

(9) FATs record.

(10) Major overhaul detailed procedure.

(11) Technical data sheet (Reference/datum level data).

	<p>(12) Component layout of PCBs/ modules.</p> <p>(13) List of customized ICs.</p> <p>(14) List of all programmable devices along with copy of software/ firmware.</p> <p>(15) Values along with limits of all safeties and detailed procedures of setting/ adjustment.</p> <p>(16) Performance chart.</p> <p>(17) List of standard test equipment.</p> <p>(18) List of special to type test equipment.</p> <p>(19) Parts list.</p> <p>(20) <u>List of Onboard Spares:</u> List of onboard spares to support Level 1 & 2 maintenance along with consumable stock up to 02 years.</p> <p>(21) <u>List of Depot Spares:</u> List of depot stores to support Level 1-4 maintenance for one complete maintenance cycle of three years.</p> <p>b. <u>Drawing:</u></p> <p>(1) Installation drawings.</p> <p>(2) Circuit diagrams.</p> <p>(3) Component layout diagrams of PCBs, schematic diagrams for track verifications and details of physical connections.</p>	
10.	<p><u>Maintenance Spare Supportability:</u></p> <p>a. OEM shall also provide backup of Operating & System software for the systems.</p> <p>b. Maintenance and spares support should be provided free of cost by the OEM during the warranty period.</p> <p>c. All PCBs are to be properly marked and labeled. The corrosion preventive coating is to be applied on all PCBs, modules, components and materials.</p> <p>d. Modules/ PCBs installed in the system are to have sufficient number of test points to facilitate fault finding/ diagnostics when required.</p> <p>e. To be installed with suitable Anti Condensation Heaters (ACHs) so as to ensure optimum operation/ maintenance standards.</p>	

	<p>f. To be interfaced with Main Supply generators with UPS as secondary power source.</p> <p>g. Should have input power quality monitoring mechanism and surge/ transient protection devices.</p> <p>h. Should have easy access to components, assembly and modules/ wiring for ease of maintenance.</p>	
11.	<p><u>Training:</u> Following training should be arranged by OEM:</p> <p>a. <u>Maintainer Training:</u> To enable maintainers (02 x officers and 10 x CPOs/ Sailors/ Navy Civilians) in defect diagnosis and rectification in accordance with system manuals.</p> <p>b. Training i.r.o 10 CPOs/ Sailors/ Navy Civilians may be distributed as under:</p> <p>(1) 04 x CPOs/ Sailors from SS.</p> <p>(2) 04 x Civilians from PND.</p> <p>(3) 02 x Personnel from FMG WE.</p> <p>c. <u>installation and integration Training:</u> To enable PN to carryout installation and integration of supplied system with onboard systems in accordance with system manuals. Number of trainees will be finalized by PN at the time of installation.</p> <p>d. <u>Provision of Training Manual:</u> Relevant documents/ training material are to be provided to PN for self-study by trainees at-least two months prior commencement of formal training.</p>	
12.	<p><u>Warranty/ Guarantee:</u></p> <p>a. The complete hardware is to be warranted by OEM for 01 year and software for 03 years for all defects from the date of acceptance. Any modification required in software during the warranty will be incorporated free of cost.</p> <p>b. The software defect(s) occurring during warranty period are to be rectified by OEM within maximum of 02 weeks of reporting of the defect. During complete warranty period, OEM support is to remain available for defect rectification, troubleshooting and ensuring operational availability of the system.</p> <p>c. OEM should guarantee that all articles delivered are brand new, of latest version and all modification (where required) have been done. OEM is to guarantee that the stores produced are in accordance with the agreed specifications and standards. Upon expiry of warranty period, OEM will arrange hardware / software technical support at PN expense if so desired by PN.</p>	

13. Interface Relationship of STU

INTERFACE RELATIONSHIP OF STU

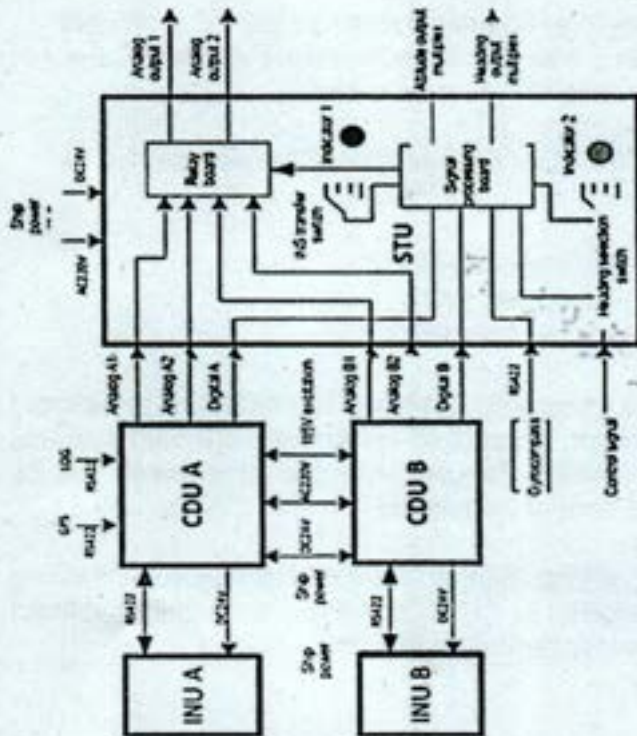


Figure 2.3 Interrelation between main components of OGINS003 INS

HBL**HABIB BANK****حیب بینک**

Please use separate Deposit Slips for deposits through Cash & Cheque

Deposit Slip
Customer Copy

کیش و چیک کے ذریعے واپس کے لیے ایک الگ الگ ڈپازٹ سلیپ استعمال کریں۔

D D M M Y Y Y Y

Branch: <u>لاہور</u>		Date: <u>19/05/2025</u>	
Account Title: <u>PPRA</u>			
<input type="checkbox"/> RAST ID/Account RAST			
IBAN: <u>P K H A B B O O 04540013100701</u>			
Currency: <input type="checkbox"/> PKR <input type="checkbox"/> USD <input type="checkbox"/> EURO <input type="checkbox"/> GBP <input type="checkbox"/> JPY <input type="checkbox"/> Others <input type="checkbox"/> Intercity <input type="checkbox"/> Within City <input type="checkbox"/> Same Branch			
Credit Card No. <u>-</u>			
<input type="checkbox"/> Self (HBL A/c Holder) <u>یہ گاہک خود (HBL اکاؤنٹ ہولڈر)</u>		<input type="checkbox"/> Walk-in Customer <u>(گاہک)</u>	
<input type="checkbox"/> Cash <u>کیش</u>		(Enter Notes Denominations on Reverse) <u>(نوٹوں کی قیمتیں پیچھے)</u>	
BANK/BRANCH <u>لاہور</u>		AMOUNT <u>15000/-</u>	
		CHEQUE/INSTRUMENT NO. <u>15000/-</u>	
TOTAL AMOUNT <u>15000/-</u>			
Total Amount in Words: <u>Fifteen Thousand only</u>			
Commission (if any): <u>0312-5060119</u>		Purpose of Transaction: <u>Online Cash Deposit</u>	
Depositor's Name: <u>SAD AHMED</u>		Contact No. <u>0312-5060119</u>	
Depositor's CNIC No. <u>42401-874967</u>		Branch: <u>0040-WEST WHARF, KARACHI</u>	
Depositor's Account No. <u>PK17HAB80004540013100701</u>		Amount: <u>*****15,000.00 PKR</u>	
(For HBL Customers/Account Holders) <u>PS *****719.00</u>		Teller <u>514/173</u> Time <u>15.27.56.289000</u>	
Received By: <u>48885404</u>		Depositor's Signature <u>48885404</u>	

48885404