



NATIONAL AUTOMOTIVE TEST TRACKS

NOTICE INVITING QUOTATION

FOR

Supply Installation Testing and Commissioning of Data logger
and Acceleration and Gyro Sensor;

AT

NATRAX
PITHAMPUR, DIST. DHAR (Madhya Pradesh)

Tender No. - NATRAX/PROC/T&D/21/11

National Automotive Test Tracks (NATRAX)
NH-52, Old Agra- Mumbai Highway, Near to Pithampur Flyover, Post Khandwa (Near
Pithampur)
Dhar District, Madhya Pradesh-454774
Phone: +919893892310, Fax - 07292-256101
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Tender No. -NATRAX/PROC/T&D/21/11

1. General Instructions:

National Automotive Test Tracks (NATRAX) is an Automotive Testing & Certification Centre under NATRiP Implementation Society (NATIS)/National Automotive Board (NAB) which is an autonomous body constituted by Ministry of Heavy Industries, Government of India. NATRAX has been set up on approx. 3000 acres of land for comprehensive testing and evaluation of all types of automobiles, near Pithampur, Dist. Dhar, (Madhya Pradesh, India).

The National Automotive Test Tracks (NATRAX), invites Password Protected Quotations/Bids from the qualified and experience Bidder(s) who meets the specified eligibility criteria in this document in the prescribed Proforma for performing, executing and implementing the works on the terms and conditions contained in this Bid document. Brief description of works and the timelines for NIQ/tender are summarised in the table below:

| Description of Work | Period of Contract | EMD | Date of start of floating of tender | Last date for submission of Bid | Date & Time of Bid opening |
|--|--|-------------|-------------------------------------|---------------------------------|----------------------------|
| Supply Installation Testing and Commissioning of Data logger and Sensor; after sale service; maintenance support; and training to its key personnel, operators & mechanics at NATRAX-Pithampur | 6months from the date of Issue of Work Order/ Purchase Order | Rs 55,000/- | 14 st Dec 2021 | 07.01.2022 at 1500 Hrs | 07.01.2022 at 1530 Hrs |

The Bidder(s) who meet the minimum eligibility criteria (MEC) as mentioned in the Instruction to Bidder (ITB) may be eligible to become successful in the Bidding process. **The bidder(s) in the form of JV/Consortium is not permitted.**

2. Bid Submission details:

- a. Password protected Bids/Quotations are to be submitted by the Bidder(s) at the following email ID's not later than the aforesaid time & date or as next convenient date & time on pre-intimation. (forpassword protection details please refer Annexure IV of this document).
mail to: a.prabhakar@natrip.in, anuj.kumar@natrip.in,

OR





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Sealed Bids/quotations may also be submitted in the hard copy containing Technical Bid and Financial Bids in TWO different sealed envelopes at NATRAX Hub office in the aforesaid date and time. However, Bidders are encouraged to Bid/quote through electronic mode considering the ongoing Covid pandemic.

- b. No Bids will be accepted after the aforesaid date and time. However, on exceptional cases, NATRAX reserves the right to extend the time/last date of submission of Bid to a next convenient date/time before opening of the Bids.
- c. Bids sent telegraphically or through other means of transmission (telefax, etc.) which are not Password Protected shall be treated as defective, invalid and shall stand rejected.

Please Note: - In case of online Bid submissions Technical Bid and Financial Bid should have different passwords and in case of Bidder who are willing to submit the Bid in Sealed envelop in offline mode are advised to be present while Bid opening at NATRAX HUB.

- d. NATRAX shall not be responsible for any delays for non-receipt /non-delivery/or any technical errors or due to wrong addressee. Bidders may confirm the receipt of their Bids submission from NATRAX

3. Disclaimer:

NATRAX reserves all rights to accept/ reject/modify/split any or all proposals without assigning any reasons. Bidders shall not have any cause of action or claim against NATRAX for any of its decisions.

For NATRAX

Head Procurement & Stores





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ANNEXURE I

INSTRUCTION TO BIDDERS (ITB)

1. Bidders are required to submit their Bids in two parts in a Password Protected PDF format, named as "Bid for Tender No. NATRAX/PROC/T&D/21/11" on the subject of the email, containing two separate Password Protected PDF document, as given below. The Password Protected Bids shall be submitted at the mentioned email ID(s) before the closure of Bid submission date/time.

OR

Sealed Bids/quotations may also be submitted in the hard copy containing Technical Bid and Financial Bids in TWO different sealed envelopes at NATRAX office in the aforesaid date and time. However, Bidders are encouraged to Bid/quote through electronic mode considering the ongoing Covid pandemic.

- a) The first Password Protected document marked as "Technical Bid for Tender No. NATRAX/PROC/T&D/21/11" shall consist of all the technical details eligibility, commercial terms and conditions and documents sought in the NIQ/Tender along with the signed copy the NIQ/Tender document. Further, the Technical Bid must include a copy of the unfilled Financial Bid of the Bidder without any information on the prices

OR

In case of offline Bid submission, the sealed document marked as "Technical Bid for Tender No. NATRAX/PROC/T&D/21/11" shall consist of all the technical details eligibility, commercial, terms and conditions and documents sought in the NIQ/Tender along with the signed copy the NIQ/Tender document. Further, the Technical Bid must include a copy of the unfilled Financial Bid of the Bidder without any information on the prices

- b) The second Password Protected document marked as "Financial Bid for Tender No. NATRAX/PROC/T&D/21/11" should consist of the Financial Bid duly filled and signed by an authorised person from the Bidder's.

OR

In case of offline Bid submission, the sealed document marked as "Financial Bid for Tender No. NATRAX/PROC/T&D/21/11" shall consist of Financial Bid duly filled and signed by an authorised person from the Bidder's.

- c) In case of online Bid submission, the password of the documents shall be submitted by the Bidders at the time of the Technical Bid opening and the Financial Bid Opening respectively.

Please Note: - Technical Bid and Financial Bid should have different passwords.

The Meeting link for the Technical Bid Opening is as follows:

TO BE SHARED BEFORE BID OPENING





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2. Technical Bid Opening:

The Technical Bids are opened at the first instance and evaluated. At the second stage, financial Bids of only technically qualified Bidder shall be opened with prior intimation about the date and time for further scrutiny, evaluation, ranking & placement of order.

3. The Bidders are expected to meet the minimum eligibility criteria (MEC) as given in this document. NATRAX will disqualify the Bid(s) those do not meet the minimum eligibility criteria as laid down, based on their submission along with the Tender documents even after the Bid opening process is concluded.
4. The Contract shall be governed by the terms and conditions specified in this tender document including amendments, work order etc.,
5. All Bidders are hereby explicitly informed that "CONDITIONAL OFFERS" or "OFFERS WITH DEVIATIONS" from the conditions of Contract, the quotation not meeting the minimum eligibility criteria, technical specifications, or any other requirements as stipulated in the Tender documents are liable to be "REJECTED".
6. Bidders should give details of their technical soundness and provide list of customers/client of previous works of similar nature in Government Departments/ Undertakings/ Public / Private sectors/Autonomous etc.,

Minimum Eligibility Criteria: -

Documents to be submitted along with the Bid:

The Bidders who's Bid meet the following criteria would only be considered as responsive and evaluated by NATRAX.

i. MEC 1: -

Legal Valid Entity: The Bidder shall necessary be a legal valid entity either in the form of Proprietary/Private Partnership/Private/Govt./ Public/Autonomous. **In form of JV/Consortium is not permitted.**

List of acceptable documents to be submitted with Bid: -

- a) License certificate/Gumasta of the firm or
- b) Details of Owner/partners of the firm
- c) Copies of Income Tax Registration/PAN Card, GST registration, PF registration and any other statutory requirements, etc.,

ii. MEC - 2: Financial Capabilities: The Bidder should have minimum 3 years' experience with Minimum Average Annual Financial turnover during the last three years, ending on 31st March of the previous financial year (2018-19, 2019-20 & 2020-21), should be as Rs. 50 Lakh. Documentary evidence in the form of certified Audited Balance Sheets of relevant periods or a certificate from the Chartered Accountant / Cost Accountant indicating the turnover details for the relevant period shall be submitted with the Bid.

In case the date of constitution / incorporation of the Bidder are less than 3-year-old, the average turnover in respect of the completed financial years after the date





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of constitution shall be taken into account for this criterion. For startups registered firms, no turnover is required.

List of acceptable documents to be submitted with Bid:

- a) Certified balance sheets for relevant period mentioned above
- b) Certificate from chartered accountant / cost accountant indicating turnover details for relevant period mentioned above
- c) The CA certificate must necessarily have UDIN.

iii. **MEC-3 -(A) Experience:** Should have successfully completed minimum 3 similar works during last 3 years for any reputed firm/ Govt./Private institution etc., . Documentary evidence in the form of completion certificate, Work order, Agreement, Purchase Order shall be uploaded with the Bid.

(B) Similar works: The Bidder should have successfully completed **similar works*** component in the last 3 years meeting the following criteria: -

- a. Three similar completed works costing not less than the amount equal to 40 (forty) percent of the estimated cost; or
- b. Two similar completed works costing not less than the amount equal to 50 (fifty) percent of the estimated cost; or
- c. One similar completed work costing not less than the amount equal to 80 (eighty) percent of the estimated cost;

Similar Works:* successfully completed work for Supply of instruments & sensors for automotive testing, for any Govt Dept./Reputed firm Private Institution/Academic Institutions/etc.

List of accepted documents as proof of MEC (iii) above:

- a) Completion certificate along with Purchase Order (PO)/ work order, with value of works, etc.,
- b) In case completion certificate/ (PO) does not clearly mention the value of work executed, then the Bidder shall submit the fresh summary & proof as TDS, CA certificate, Excise, GST returns etc.,
- c) In case PO/Work order/completion certificate issued by any private employer, than form 26AS should be submitted to support the genuineness of the same.

7. Tender Fee & Exemptions: -

- a) This tender is free of cost.





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- b) If registered under Startups and "Micro & Medium Small Enterprises" (MSME's), supporting documents need to be submitted to avail exemption from Earnest Money, subject to verification of certificate.
 - c) If registered under Start-ups and MSME's, shall be exempted from the prior experience and turnover as per the guidelines issued by Govt., subject to submission of valid certificate. **In-case of 'Start-ups' a detailed report on the technical skill& capability of the company may be submitted.**
 - d) For Startups and MSME, price benefit shall be given as per the guideline, subject to submission of valid certificate.
 - e) The Bids accompanied **without EMD/ MSME certificate shall be deemed as unresponsive and shall not be evaluated further.**
8. The Bidders are expected to carefully examine all the contents of the Tender documents/NIQ including instructions, conditions, terms, specifications, drawings (if any), shall inspect the Site with prior notice to NATRAX and at Bidders own cost, acquaint himself with all local conditions, means of access to the work, nature of the work and all matters pertaining thereto & take them fully into account before submitting their offer. Failure to comply with the requirements as detailed in these documents shall be at the Bidder's own risk. Bids which are not responsive to the requirements of the Tender will be rejected.
 9. While all efforts have been made to avoid errors in drafting of the Tender documents, the Bidder is advised to check the same carefully. No claim on account of any errors detected in the Tender documents shall be entertained.
 10. The Bidder shall carry out all the work strictly in accordance with Specification, Standard Practices and instructions of NATRAX or NATRAX's representative and deviation on any account will not be permitted. If in the opinion of NATRAX, changes have to be made and it desires the Bidder to carry out the same. The decision of NATRAX in such cases shall be final and shall not be open to arbitration.
 11. The successful Bidder is bound to carry out associated work necessary for the completion of the job even though such items are not included in the quantities to achieve end results and deemed to be priced in the other items. No claim on this account shall be entertained.
 12. Addendum / Corrigendum (if required) to the Tender may be issued prior to the date of opening of the Bid to clarify or to intimate any changes/modifications etc. All such addendum / corrigendum shall be treated as an integral part of the Tender.
 13. Any effort by a Bidder to influence NATRAX or any of its functionaries in the process of examination, clarification, evaluation and comparison of tenders and in decisions concerning award of contract, may result in rejection of the Bid.
 14. In order to afford prospective bidders, reasonable time for preparing their Quotes after taking into account such amendments, NATRAX may, at its discretion, extend the deadline for submission of Bids.





15. Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations concerning the award of Contract shall not be disclosed to Bidders or other persons not officially concerned with such process.
16. NATRAX reserves the right to accept / reject or modify any Bids, and to annul the Tender process and reject all Bid(s)/quotation(s), at any time prior to award of Contract, or to divide the Contract between/amongst Bidders without thereby incurring any liability to the affected Bidder or Bidders or any obligations to inform the affected Bidder or Bidders of the grounds for NATRAX's action. Any Bidder not following ITB stands rejected.

17. TECHNICAL BID EVALUATION

- a) NATRAX shall follow the **Segregated Bid evaluation** system (No bearing of technical score in the financial Bid evaluation and L-1 in the financial Bid shall be deemed as successful Bidder) to determine the successful Bidder. (Bidders may also refer the SCC)
- b) The Bidder must qualify the all three MEC's.
- c) The Bidder is requested to specify what particular value he is offering for each particular requirement, rather than just stating he is fulfilling the Minimum Requirement.
- d) During the technical Bid evaluation process, NATRAX may ask clarifications to the Bidder through E-mail for confirming and consolidating their technical offers.
- e) All such clarifications are required to be answered by the bidders by E-mail, within the time specified by NATRAX.
- f) Only the technically qualified bidders shall be intimated for financial bid opening in writing.
- g) The Financial Bids of the Technically qualified Bidders shall be opened through online mode and the Financial Bids received through off-line mode shall also be opened on the same day and time at NATRAX Hub.

18. FINANCIAL BID EVALUATION:

- a) For the evaluation of the Financial Bids, the eventual Bid prices shall be ascertained after considering all the terms and conditions associated with the Bid price specified in the Financial Bid document and after detailed scrutiny of the financial bid.
- b) No Bidder shall be allowed to propose/carry out any revision / correction / modification in his Price Bid offer.





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- c) If there is a discrepancy between the sub total/s and the total price that is obtained by multiplying the unit price and quantity/adding the sub total/s, the sub total/s shall prevail and the total price shall be corrected, unless in the opinion of the Employer that there is an obvious misplacement of the decimal point in the sub total price, in which case the total price as quoted shall govern and the sub total/s shall be corrected;
- d) If there is an error in a total, corresponding to the addition or subtraction of sub totals, the subtotal/s shall prevail and the total shall be corrected; and
- e) The Bidder needs to fill the rates against each item in word as well as in figures as mentioned in BOQ (Financial Bid). In case of any discrepancy, the rate provided in word shall prevail and correct the amount against the item. **All the prices should be inclusive of all taxes and GST.**
- f) The amount stated in the Letter to Bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, shall be considered as binding upon the bidder. If the Bidder does not accept the corrected amount of Bid, the bid will be rejected.
- g) Contract negotiations, if any, will be held before the issuance of Letter of Acceptance/ Notification of Award. The negotiation shall conclude with a revised offer letter from the successful bidder, affecting the discounts if any and accepted by NATRAX.

19. Award of Work:

- a) Prior to the expiry of the period of Bid validity prescribed, NATIS will issue to the Successful Bidder, the Work Order. The Successful Bidder shall return one copy of the Work Order to NATRAX duly acknowledged and signed by the authorized signatory, within two [2] days of receipt of the same by him.
- b) NATRAX shall notify all the unsuccessful Bidders and discharge/ return their Earnest Money Deposit. No correspondence will be entertained by NATRAX from the unsuccessful Bidders.

20. Validity of bids:

The rate quoted should be valid for a **minimum period of 90 days** from the last date of Submission of Quotation. No claim for escalation of rate will be considered at any point of time.

- 21. Prospective bidders requiring any clarification of the Tender may write to a.prabhakar@natrip.in; anuj.kumar@natrip.in,
- 22. The Bids / related correspondences shall be made in English language.





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23. Special Terms & Conditions:

| | | |
|----|---|---|
| a. | Scope of work | Supply Installation Testing and Commissioning of Data logger and Sensor; after sale service; maintenance support; and training to its key personnel, operators & mechanics at NATRAX-Pithampur |
| b. | Contract Period | Sixmonths from the date of Issue of Work Order/PO |
| c. | Engineer Incharge (EIC) | Shall be notified during award of work |
| d. | Rate Firmness | The charges/rate quoted by supplier must be firm throughout the Contract period and no escalation of any kind is permissible, even incase of time extension. |
| e. | Warranty Period | Two years from the date of acceptance by EIC. |
| f. | Payment, Mode and Retention | <p>i. 70% payment, after satisfactory supply & acceptance, on submission of invoice along with supporting document and certified by Engineer In-charge.</p> <p>ii. Balance 30% after successful completion of Installation & Commissioning and Acceptance by EIC.</p> <p>iii. Payment shall be made after statutory deduction as applicable.</p> <p>iv. The payment shall be released within 15 working days from the date of certification by EIC.</p> <p>v. Advance payment: maximum 10% of contract value may be paid after receiving request from contractor and submission of bank guarantee of 110% of the requisite amount. An interest 10% per annum shall be charged on the outstanding advance payment. The said advance payment shall be released in minimum two instalments. Contractor has to submit an utilization certificate for the said advance payment.</p> <p>vi. The GST/Taxes & duties of Govt. will be reimbursed on actual basis upon the submission of original receipt/ documentary evidence.</p> <p>All the payments shall be made through RTGS only.</p> |
| g. | Liquidated Damages | 0.1% of the Contract Price per day to a maximum of 10% of the Contract Price. |
| h. | Project Facility / Place of Installation/delivery | NATRAX Site NH-52, Old Agra- Mumbai Highway, Near to Pithampur Flyover, Post Khandwa (Near Pithampur), Dhar District, Madhya Pradesh-454774 |
| i. | Tender Document Fee | Free of Cost |
| j. | Bid Security/EMD | Rs 55,000/- |
| k. | Performance | 3% (Three) of the Contract value should be submitted as |





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| | Security | Performance Security by the Successful Bidder on award of Contract. Performance Security may be furnished in the form of an A/C Payee Demand Draft, Fixed Deposit Receipt or Bank Guarantee from a Scheduled Commercial Bank favoring "National Automotive Test Tracks" & payable at Pithampur and should remain valid for a period of ninety days beyond the date of completion of all Contractual Obligations. The performance security shall be returned after completion of all Contractual obligations and recommendations of NATRAX officials. Bid Security/EMD will be returned to the successful bidder on receipt of Performance Security. |
| m. | Termination of Contract | If the work/service is found to be not satisfactory or not found as per the specification indicated in this document, the Service Contract will be terminated with short notice. Downtime penalty will be considered as one of the factors for gauging service efficiency. |

24. The bidder should give the following, duly signed and sealed, failing to which the bids will be summarily rejected:

25. DECLARATION:

(To be executed on Bidder's letter head)

I/We having acquainted with the content & requirement of this Tender No. NATRAX/-----, dated _____ and do hereby accept to furnish the same in compliance with all terms & conditions. I/we have not tampered/modified the tender in any manner and breach of any such, will result in rejection of Tender and / or prosecuted.

I / We hereby declare that the firm/company has not been blacklisted or debarred in the past by any other Government organization from taking part in Government tenders.

In case the above information found false or in case of breach of any of terms and conditions at any stage of Tender or Contract, I/We are fully aware that the Tender/ Contract will be rejected / cancelled by NATRAX and Payments (for completed/partially completed), Retention, Bid Security (EMD), Performance Security, etc., shall be forfeited.

Signature of the Bidder:

Name and Designation:

Address:





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Contact details:

Place:

Date:

Seal of the Bidder's Firm





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ANNEXURE - II

a) Introduction- NATRAX- Pithampur

NATRAX-Pithampur is located on Mumbai Highway near Pithampur Industrial area at a distance of about 40 kms from Indore city on National Highway 3. The land is predominately flat is spread over an area of 3000 acres. NATRAX serves as a comprehensive test facility and comprises of Proving Ground (Test Tracks) and Vehicle Dynamics Lab (Centre of Excellence).

TECHNICAL CONDITIONS

Data logger and Acceleration & Gyro Sensor

1. Application/Usage Note

We tests road side barriers by crashing a test vehicle into barrier around 100-110 Kmph. During this crash we need to measure vehicle accelerations and gyro. The data from accelerometer and gyro is very important to calculate certain parameters as mentioned in the European standard EN1317.

For the same we need suitable data logger and accelerometer & gyro sensor. As per the test we performed earlier we used to fix data logger at the back seat of the car and tie logger firmly using ratchet belt with the seat. We install/fix accelerometer & gyro sensor at location of center of gravity of test vehicle by using instant adhesives. Then we installs GPS sensor on vehicle to record speed data. Further we connects sensors to logger and configure to record data. We then look at the data by maneuvering vehicle by accelerating, braking and turning. Once we ensure the accelerometer and gyro data is correct we remove laptop from the vehicle and leave logger in recording mode.

Further test vehicle toe vehicle pulls test vehicle and just before the impact, toe vehicle releases the test vehicle. Test vehicle then continue and hit the barrier at 15 degree or 20 degree as per standard.(During crash no one seats into vehicle, vehicle is in ignition and neutral condition with loggers and sensors in recording mode)

Usually vehicle contained by the barrier for few milliseconds and exits from barrier, further redirect towards road and stops. These impacts generate g levels of 50gs and some times more.

These equipment should be able to sustain impacts during trails and should be capable of recording data correctly without disruption hence equipment must with stand 100g forces minimum. Logger must have internal batteries to provide sufficient power to logger and Acceleration & Gyro Sensor. During crash into barrier if/unfortunately logger disconnects from external power source it continues to record and save data. This will ensure that we will get good data of crash test without losing it.

2. Dimensions and main characteristics.





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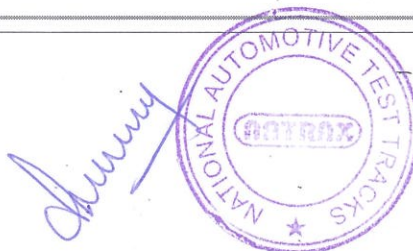
The characteristics listed below shall be considered minimum requirements apart from any other characteristic required for the compliance with the standards and/or feasibility to perform the test in the described manner.

This equipment is intended to be used for more than one test.

Please refer table-1 and table-2 for technical requirements for data logger and accelerometer-gyro sensor respectively.

Table-1

| S.No. | Parameters | Min.Requirement |
|-------|--|--|
| 1. | Power Supply | 10-32 V DC, there should be AC/DC power adaptor to power logger |
| 2. | Self Start(Automatic data acquisition operation) | Timer based, absolute time, when power supply is available |
| 3. | Auto data-saving upon power outage | Auto-stop of measurement, data storage and automatic shutdown. |
| 4. | Buffer power internal | The system should have internal power storage for at while so that during power outage there is enough power to store data and stopping of measurement properly. |
| 5 | Aggregate Sampling rate | 400kS/s |
| 6 | Multiple Trigger Function | Logical combination of multiple channel events (threshold, transition) to create triggers that start and stop acquisition of assigned channels. |
| 7 | Real time calculation | There should be extensive set of instructions configurable to create derived channels from the actual physical channel which is measured by the logger, there should be comparative, arithmetic, integration, differentiation, mode etc should be there. |
| 8 | GPS | There should be feasibility to connect GPS receiver to record all GPS parameters e.g. latitude, longitude, altitude, Speed, time etc. |
| 9 | WAN | There should be wifi connectivity to software to configure and recording of data. |
| 10 | Internal Memory | There should be fixed or removable internal storage memory to log data and retrieve as required. With suitable connectivity to copy data to laptop/PC. |
| 11 | Time base without external synchronization | +/-50 ppm |
| 12 | Time base individual device with external synchronization signal | Should support GPS, DCF77, IRIG-B and NTP |





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| 13 | Synchronization | Synchronization of multiple devices via DCF(Master/slave) |
| 14 | Channels, Measurement modes | 8 Channels, Voltage, current, bridge sensor, strain gauges, current-fed sensors(IEPE/ICP) |
| 15 | Sampling rate | Upto 100kHz per channel |
| 16 | bandwidth | 0 to 5 kHz(-3dB) |
| 17 | Digital Filters | 1 Hz to 2 kHz, Butter worth, Bessel, low pass, high pass filter band pass, LP 4 th and HP 4 th order Anti-aliasing filter: Cauer 8 order with fcutoff= 0.4 fs |
| 18 | Over voltage protection | +/-40V permanent |
| 19 | Input coupling, configuration, input impedance | DC, differential, 20Mohm, |
| 20 | Voltage Input Range | ±10v, ±5V, ±2.5V, ±1V....±5mV |
| 21 | Current Measurement with shunt plug, Input range | ±50mA, ±20mA, ±10mA, ± 5mA, ±2mA, ±1mA With overload protection ±60mA |
| 22 | Bridge Measurement Mode: Input Ranges: Bridge Supply: Min. Bridge impedance: Max. Bridge Impedance: | Full, half, quarter bridge ±1000mV/V, ±500mV/V, ±200mV/V, ±100mV/V 1V, 2.5V, 5V, 10V 120 ohm full bridge |
| 23 | Internal quarter bridge completion | 120ohm, 350 ohm internal switchable by software. |
| 24 | Automatic shunt calibration | 0.5mV/V within ±0.2% |





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|----|---|---|
| 25 | Output Voltage | 5V, 10V, 12V, 15V, 24V to power up sensors connected. Should have short circuit protection. |
| 26 | Digital Input Number of Channels: Configuration Options: Sampling rate: Isolation Strength: Switching Threshold: | 8 TTL or 24 V Input voltage range Upto 10kHz $\pm 50V$ 1.5V for 5V Level 8V for 24V level |
| 27 | Digital Output Channels Channels/ Bits: Isolation: Output level : | 8 Bit $\pm 50V$ TTL |
| 28 | Pulse counter for incremental encoder Measurement Mode: Sampling rate: Time resolution of measurement: Data Resolution : Overvoltage strength: | 4 To measure from various sensors which gives encoder pulse output e.g. Displacement, Angle, velocity, fuel flow, events, frequency, RPMs 50kHz per channel Counter frequency of minimum 32MHz Minimum 16 bit, 24 bit would be preferable. Should be able to withstand high voltage peaks from input power Supply. Logger should not |
| 29 | Sensor Supply: | Damage due to these high peaks and transients. Sensor must supply power to different connected sensors, The output voltage must be changeable from logger configuration software and should supply various voltages e.g. 5V, 10V, 15V, 20V, 25V |
| 30 | Analog Outputs Channels: Output Level: Load Current: Max. Output frequency: Analog Bandwidth: | 4 $\pm 10V$ Max. $\pm 10mA$ /Cannel 50kHz 50kHz |





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|----|---|--|
| 31 | CAN FD Bus Interface Number of Nodes: Terminal Connections: Transfer Protocol: CAN FD: CAN High speed: CAN Low Speed: | Min. 2 nos 2x DSUB-9 Configurable by software: (Max. 9MBaud) as per current standard according ISO 11898-1:2015 Max. 1 MB and, according ISO 11898 Max. 125KBaud, according ISO 11519 |
| 32 | Termination: Isolation strength: | 120 Ohm, switchable by software for each node 60V |
| 33 | IEPE/ICP: | Should be capable of connect, configure, measure IEPE/ICP sensors. |
| 34 | Software: | Software for configuration of data logger. The software should be capable to measure and display data in various format like, graphical, numerical, bar etc. There should be good data manager so that the recorded previous run data can be visualised by individual channels or all together. Basic functions like changing name of runs, individual channels from software itself. Deletion of data/runs from the software itself. There should be data converter which can convert data format in excel, csv and other basic file formats. |
| 35 | Mechanical and Strength properties | The logger and it's accessories must be robust, and internal electronics and structure must be so that it exerts and with stand impact forces, accelerations generated during the barrier crash test. All equipment must sustain 100g accelerations and 200g shock. |





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Table-2

| SN | Parameters | Min. Requirements |
|----|---|---|
| 1 | Standards | Should comply minimum SAE J211 and ISO6487 Compliant NHTSA FMVSS 202a Compliant |
| 2 | 6-DOF | The sensor should be compact and single piece should cable of measure three axis gyroscope/rate and three accelerometers |
| 3 | Accelerometer: Range(g) FrequencyResponse(Hz): Natural Frequency(Hz): Non-Linearity(%FSO): Transverse Sensitivity (%): Shock Limit(g): | ± 200 g 0-1200 6000 or gartear ± 1 or less <3 Minimum 5000g |
| 4 | Gyroscope/Rate: Range(deg/sec) FrequencyResponse(Hz): Non-Linearity(%FSO): Transverse Sensitivity (%): Shock Limit(g): | ± 500 0-1000 ± 0.5 or less <1 10000g |
| 5 | Supply Voltage | 9-20 V minimum |
| 6 | Signal Cable Length | Minimum 20feet |
| 7 | Necessary items to be supplied with sensor | To work with sensor and for proper installation and commissioning of sensor to various surfaces all necessary tools, screw etc. should be included in delivery. |
| 8 | Mechanical and Strength properties | The accelerometer and gyro sensor and it's accessories must be robust, and internal electronics and structure must be so that it exerts and with stand impact forces, accelerations generated during the barrier crash test. |

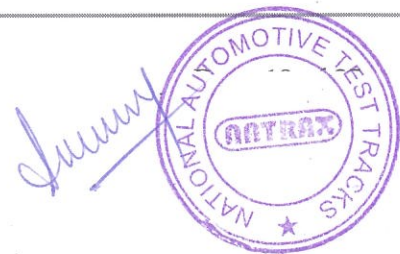




Tender No. -NATRAX/PROC/T&D/21/11

1. General and Test Procedure

| | |
|---|---|
| a | Installation, training and trials to demonstrate proper functioning of the system will be the responsibility of the supplier. |
| b | Preference shall be given to the supplier who have their local service agents in India |





Tender No. -NATRAX/PROC/T&D/21/11

Form for the submission of Financial Bid

Financial Proposal Submission Form
(To be Executed on Letterhead of the Bidder)

FINANCIAL PROPOSAL SUBMISSION FORM

[Location, Date]

To:
The Head Procurement
NH-52, Old Agra- Mumbai Highway,
Near to Pithampur Flyover,
Post Khandwa (Near Pithampur)
Dhar District, Madhya Pradesh-454774

Dear Sir,

We, the undersigned, offer to provide the equipment & services in accordance with your Tender No. _____, dated _____ and our Technical Bid. Our attached Financial Bid includes the price in the format for financial bid provide as part of tender documents. The total price of our offer is _____ (in figures and words) and includes all the deliverables under this tender as per our Technical Bid.

We hereby declare that all the information and statements made in this Bid is true and complete in all respects and is as per the guidelines and terms & conditions laid down in the tender document. We further understand that any information which is found false or is not as per the guidelines and terms & conditions of the tender document may lead to our disqualification.

Our Financial Bid shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Bid.

We understand NATRAX has right to accept or reject our Bid as per its discretion.

Yours sincerely,

Authorized Signature [In full]: _____

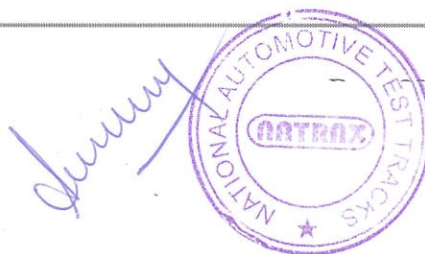
Authorized Signature [In initials]: _____

Name and Title of Signatory: _____

Name of Firm: _____

Address: _____

[Note : To be signed in blue ink]





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ANNEXURE-III

Bill of Quantities (BOQ)/Financial Bid

| Sr. No. | Particular | Qty | Rates (including shipping charges, Taxes & Duties, loading & unloading etc) |
|---------|--|-----|---|
| 1 | Supply Installation Testing and Commissioning of Data logger and Sensor; after sale service; maintenance support; and training to its key personnel, operators & mechanics at NATRAX-Pithampur | 1 | |

Amount in words:

For reference only: detailed breakup of above cost

| Sr.No. | Particular | Qty | Rates |
|--------|---|-----|-------|
| 1 | Supply Installation Testing and Commissioning of Data logger and Sensor at NATRAX-Pithampur | 1 | |
| 2 | Five days training to NATRAX official after I&C. | lot | |
| 3 | Per year AMC cost after warrantee period | lot | |

Signature of bidder





Tender No. -NATRAX/PROC/T&D/21/11

ANNEXURE -IV

NATRAX Bank details to be used for submission of EMD/Tender Fee (if any) & procedure for passwords protection

Bank of Baroda
Payee:
Rupees
Amount: ₹
Account No: 57730100011758
FOR NATIONAL AUTOMOTIVE TEST TRACKS, NATRAX DIVISION
CANCELLED
Can Canceled

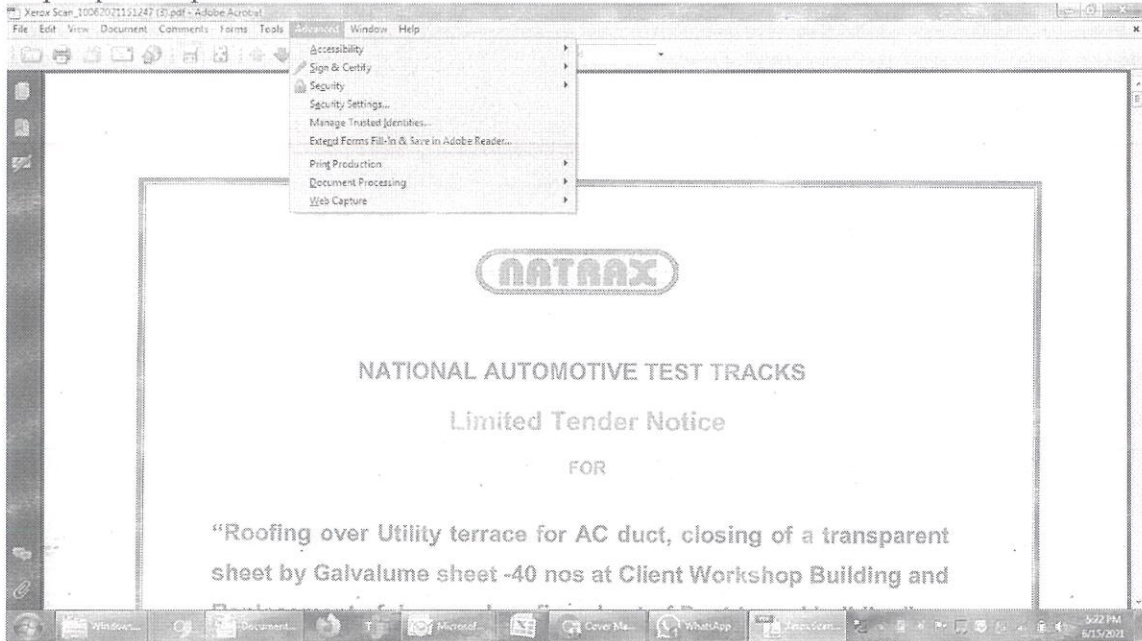




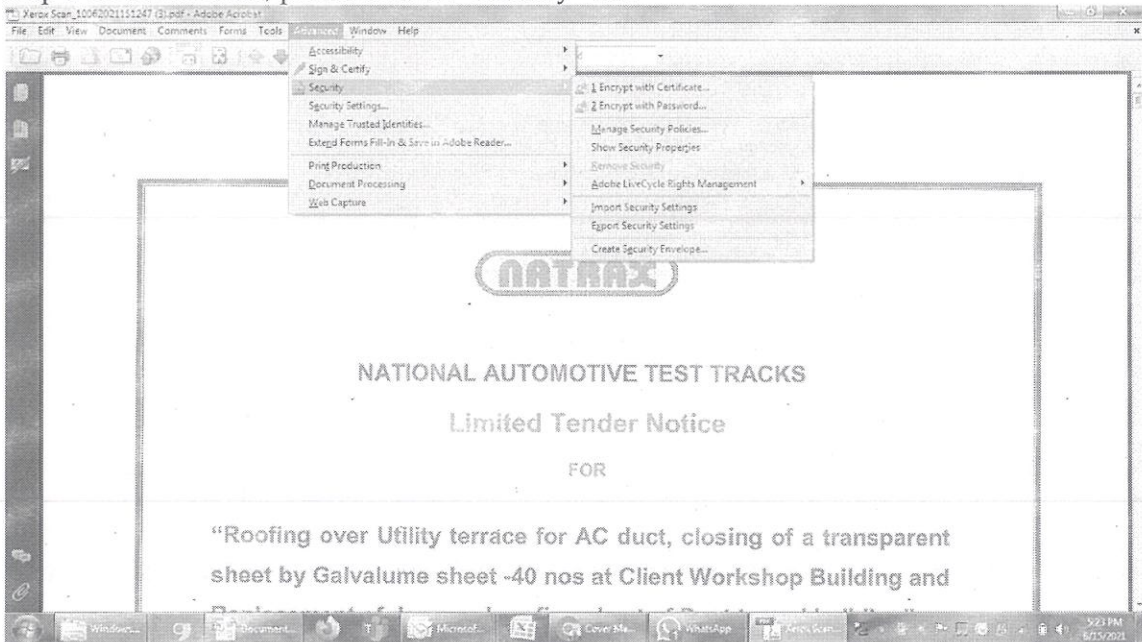
Tender No. -NATRAX/PROC/T&D/21/11

Steps for loading passwords in PDF Files-Method I

Step 1- please open PDF file and click on "Advance" tab.



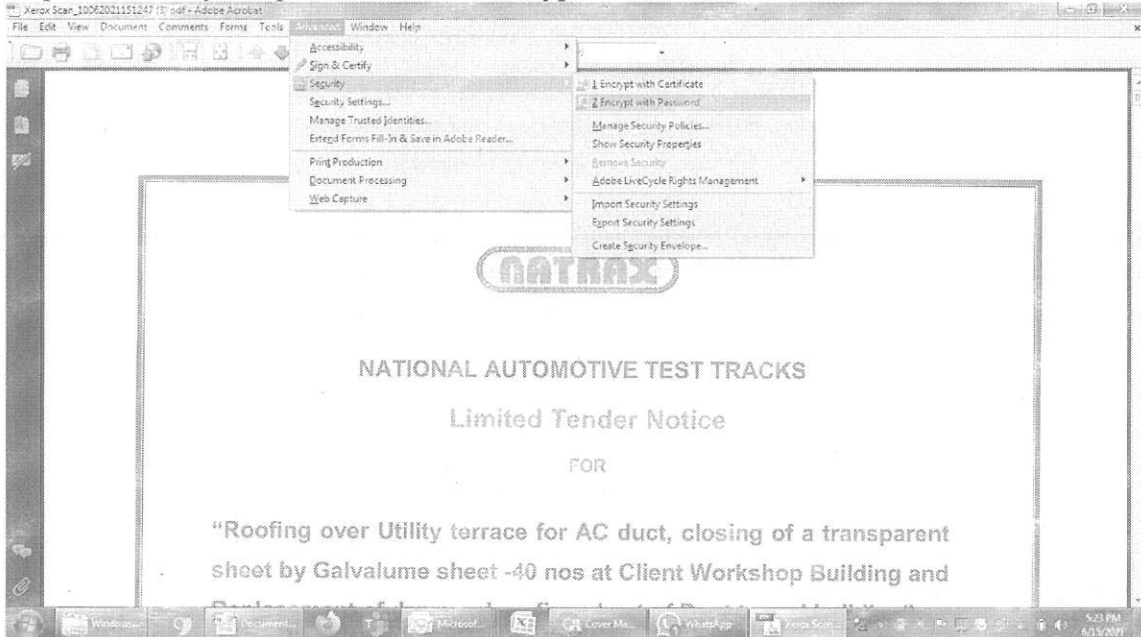
Step 2- in advance tab, please click on "Security" tab.



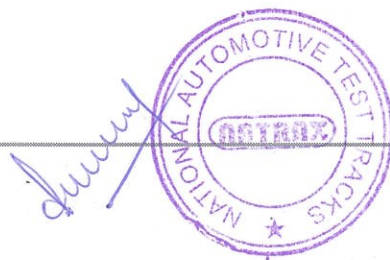
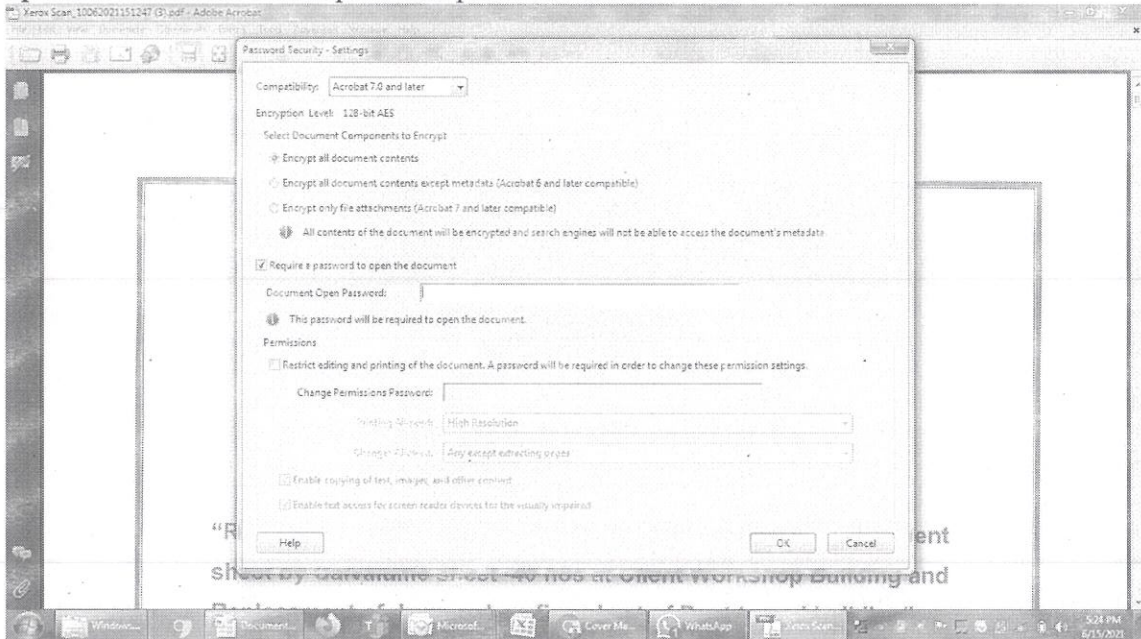


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Step 3- in security tab, please click on "2 Encrypt with Password".



Step 4- after that below window will open, please check in option "Required a password to open the document". Then please fill password and click "ok":





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Step 5- after that below window will be open, please fill same password again, and click "ok".

