

**GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE  
VIKRAM SARABHAI SPACE CENTRE (VSSC)  
THIRUVANANTHAPURAM**

**Tender for Supply and installation of Data acquisition system**

**Bids to be submitted online**

**Tender No.: VSSC/PURCHASE UNIT II (AVN)/VS202300668701 dated 20-03-2024**

## A. Tender Details

Tender No : **VSSC/PURCHASE UNIT II (AVN)/VS202300668701**

Tender Date : **20-03-2024**

Tender Classification: **WORKS**

Purchase Entity : **PURCHASE UNIT II (AVN)**

Centre : **VIKRAM SARABHAI SPACE CENTRE (VSSC)**

## Supply and installation of Data acquisition system

Supply and installation of Data acquisition system

### A.1 Tender Schedule

Bid Submission Start Date : **22-03-2024 13:30**

Bid Clarification Due Date : **03-04-2024 11:00**

Bid Submission Due Date : **24-04-2024 10:30**

Bid Opening Date : **24-04-2024 11:00**

Price Bid Opening Date : **01-05-2024 11:00**

## **B. Tender Attachments**

NA

### **Instructions To Vendors**

#### **1. PROFORMA FOR INSTRUCTIONS TO TENDERERS AND TERMS AND CONDITIONS OF TENDER**

1. a All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.
  - b Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of nonacceptance of tender, the tenderer will have to remove the samples at his own expense.
  - c Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.
  - d Specifications Stores offered should strictly confirm to our specifications. Deviations, if any, should be clearly indicated by the tenderer in his quotation. The tenderer should also indicate the Make and Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary, along with the quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.
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#### **3. ACCEPTANCE OF STORES**

- a The stores shall be tendered by the Contractor for inspection at such places as may be specified by

the purchaser at the Contractors own risk, expense and cost.

b It is expressly agreed that the acceptance of the stores Contracted for, is subject to final approval by the purchaser, whose decision shall be final.

c If, in the opinion of the purchaser, all or any of the stores do not meet the performance or quality requirements specified in the Purchase Order, they may be either rejected or accepted at a price to be fixed by the purchaser and his decision as to rejection and the prices to be fixed shall be final and binding on the Contractor.

d If the whole or any part of the stores supplied are rejected in accordance with Clause No. c above, the purchaser shall be at liberty, with or without notice to the Contractor, to purchase in the open market at the expense of the Contractor stores meeting the necessary performance and quality Contracted for in place of those rejected, provided that either the purchase, or the agreement to purchase, from another supplier is made within six months from the date of rejection of the stores as aforesaid.

#### 4. Arbitration

In the event of any disputes, differences or claims arising out of or relating to the interpretation and application of the Contract, such disputes or differences or claims shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such disputes, then the unresolved disputes or differences or claims shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Amendment Act 2015 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre Bengaluru, Domestic and International, as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be English only. Work under the Contract shall be continued by the CONTRACTOR during the pendency of arbitration proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the DEPARTMENT or unless the matter is such that the works cannot be possibly continued until the decision whether final or interim of the Arbitrator is obtained.

5. As a Government of India Department, this office is exempted from payment of Octroi and similar local levies. Tenderers shall ensure that necessary Exemption Certificates are obtained by them from the Purchase Officer concerned to avoid any payment of such levies.

6. a Your offer should be valid for 90 days from the date of opening of the tender.

b Prices are required to be quoted according to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.

7. c The term Purchase Order shall mean the communication signed on behalf of the Purchaser by an Officer duly authorised intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

8. DESPATCH The Contractor is responsible for obtaining a clear receipt from the Transport Authorities specifying the goods despatched. The consignment should be despatched with clear Railway Receipt or Lorry Receipt. If sent in any other mode, it shall be at the risk of the Contractor. Purchaser will take no responsibility for short deliveries or wrong supply of goods when the same are booked on said to contain basis. Purchaser shall pay for only such stores as are actually received by them in accordance with the Contract.

#### 9. Force Majeure

Neither the Purchaser nor the Contractor shall be considered default of the performance of their obligations under this contract if such performance is prevented or delayed for any causes beyond the reasonable control of the parties to the contract affected, such as Acts of God, war, riots, civil commotion, illegal strikes, legal lockouts, epidemics, fire accidents, floods, earthquakes, proclamation or regulation or ordinance of any Government thereof, provided notice in writing of any such cause with necessary proof that the obligation under the contract is thereby affected or prevented or delayed, is given within 14 days from the happening of the event. As soon as the cause of force majeure has ceased to exist, the party whose ability to perform his obligation has been affected shall notify the other party of the actual delay that has occurred due to such force majeure conditions.

#### 10. FOREIGN VENDORS ARE NOT PERMITTED TO QUOTE

a. Only Class I and Class II Local suppliers as per Make in India Policy are eligible to participate in the bid

b. The percentage of local content should be specifically mentioned in the offer, without which it will be summarily rejected.

c. Preference will be given to Class I Local supplier and in their absence, Class II Local supplier will be considered.

#### 11. GUARANTEE AND REPLACEMENT

a The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.

b For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use, arising from faulty stores design or workmanship, the Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the purchaser who shall state in writing in what respect the stores or any part thereof are faulty.

c If, in the opinion of the purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the purchaser,

provided the notice informing the Contractor of the defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.

d Should the Contractor fail to rectify the defects, the purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.

e The decision of the Purchaser notwithstanding any prior approval or acceptance or inspection thereof on behalf of the Purchaser, as to whether or not the Stores supplied by the Contractor are defective or any defect has developed within the said period of 12 months or any other period or as to whether the nature of defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.

f To fulfill guarantee conditions outlined in a to e above, the Contractor shall, at the option of the Purchaser, furnish a Bank Guarantee as prescribed by the Purchaser

## 12. Liquidated Damages

The Delivery Date mentioning in the Contract or Order will be the essence of the Contract. You shall strictly adhere to the delivery schedule mentioned in your quotation. Please confirm acceptance of LD clause and that you will strictly adhere to the delivery schedule.

13. **PACKING FORWARDING AND INSURANCE** The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of packages shall be done by and at the expense of the Contractor. The purchaser will not pay separately for transit insurance, all risks in transit being exclusively of the Contractor and the Purchaser shall pay only for such stores as are actually received in good condition in accordance with the Contract.

14. Preference will be given to those tenders offering supplies from ready stocks and on the basis of FOR destination or delivery at site.

15. **PRICES** Tender offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotation with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variations.

## 16. REJECTED STORES

Rejected stores will remain at destination at the Contractors risk and responsibility. If instructions for their disposal are not received from the Contractor within a period of 14 days from the date of receipt of the advice of rejection, the purchaser or his representative has, at his discretion, the right to scrap or sell or consign the rejected stores to Contractors address at the Contractors entire risk and expense, freight being payable by the Contractor at actuals.

17. Sales Tax and or other duties or levies legally leviable and intended to be claimed should be mentioned in the price bid template. If nothing is mentioned, then it will be presumed that the rate

quoted is inclusive of all taxes and duties.

18. SECURITY DEPOSIT Wherever, the Purchase Order value is Rs. 5.00 Lakhs or more, on acceptance of the tender, the Contractor shall, at the option of the Purchaser and within the period specified by him, deposit with him, in cash or in any other form as the Purchaser may determine, security deposit not exceeding three percent of the value of the Contract as the Purchaser shall specify. If the Contractor is called upon by the Purchaser to deposit, Security and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the repurchase of the stores Contracted at the risk of the Contractor in terms of Sub-Clause ii and iii of clause regarding Delivery. b hereof and or to recover from the Contractor, damages arising from such cancellation.

#### 19. TERMS AND CONDITIONS OF TENDER

20. TEST CERTIFICATE Wherever required, test certificates should be sent along with the despatch documents.

21. The authority of the person signing the tender, if called for, should be produced.

22. The Purchaser reserves the right to place order on the successful tenderer for additional quantity up to 25percent of the quantity offered by them at the rates quoted.

23. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portions of the quantity offered and the tenderers shall supply the same at the rates quoted.

24. The tenderer should supply along with his tender, the name of his bankers as well as the latest Income Tax clearance certificate duly countersigned by the Income Tax Officer of the Circle concerned under the seal of his office, if required by the Purchaser.

25. The term Contractor shall mean, the person, firm or company with whom or with which the order for the supply of Stores is placed and shall be deemed to include the Contractors successors, representative, heirs, executors and administrators unless excluded by the Contract.

26. The term Purchaser shall mean the President of India or his successors or assigns.

27. The term Stores shall mean what the Contractor agrees to supply under the Contract as specified in the Purchase Order including erection of plants & machinery and subsequent testing, should such a condition is included in the Purchase Order.

## 28. GeM Seller Registration:

All vendors shall register themselves in GeM Portal (gem.gov.in) and provide GeM Seller unique ID in the tender documents.

## **2. Conditions for BIDDER FROM A COUNTRY WHICH SHARES LAND BORDER WITH INDIA - Restrictions under Rule 144 (XI) in GFR, 2017.**

1. Any bidder from a country which shares a land border with India will be eligible to bid in this tender, only if the bidder is registered with the Competent Authority.

Competent Authority for the purpose of registration shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).

2. Any false declaration and non-compliance of the above would be a ground for immediate rejection of offer or termination of the contract and further legal action in accordance with the laws.

3. Validity of Registration: Registration should be valid at the time of submission of bids and should be valid at the time of placement of order.



## C. Bid Templates

### C.1 Technical Bid - Supply and installation of Data acquisition system

**1. DATA ACQUISITION SYSTEM : Design, development, supply, installation and commissioning of Portable integrated signal conditioner type data acquisition system. Detailed specifications and scope of works are given in the attached annexure.**

#### Item specifications for DATA ACQUISITION SYSTEM

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Scope of work	End-to-end system engineering, Design, development, integration, wiring and commissioning of Portable and compact data acquisition system with integrated signal conditioner. Above scope of work shall include development and supply of genuine Windows based user friendly software with GUI and necessary computer systems. Considering the limited space availability in the test rig area, portable and modular system with integrated computer and monitor is proposed for the above data acquisition system. Proposed system shall be capable of operating at non-air conditioned environment and IP 67 or better certified for environment conditions.	Yes / No / Explain		

2	Previous experience	Experience of successful execution similar systems to other Govt / PSU organisations or ISRO centers are mandatory and details of the same shall be provided for verification.	Yes / No / Explain		
3	Type of configuration	19" rack mountable integral Chassis to accommodate 8/16 channel ADC cards and processing unit with integral data storage.	Yes / No / Explain		
4	No of channels	64 channels and there shall be provision for future expansion for adding more channels	Yes / No / Explain		
5	Input Power	220-230 VAC, 50-60Hz and support dual power supply with main/redundant configuration	Yes / No / Explain		
6	Power Dissipation	Less than 500W	Yes / No / Explain		
7	Cooling	Suitable cooling for panel/chassis to be provided	Yes / No / Explain		
8	Indications/alarms	Temperature alarm, system failure, power on	Yes / No / Explain		
9	Connectors	Suitable mating connectors to be provided for all channels separately. Preferably LEMO/D-sub with suitable locking/fastening provision	Yes / No / Explain		
10	Operating temperature	10 to 50 °C	Yes / No / Explain		
11	Humidity	50 to 95% non-condensing	Yes / No / Explain		
12	Shock & vibration	EN60068-2-6, EN60721-3-2, EN60068-2-27 equivalent	Yes / No / Explain		
13	EMI/EMC	EN61000-3-2, EN61000-3-3 or equivalent	Yes / No / Explain		
14	Protection from ambient conditions	IP67 or better	Yes / No / Explain		

15	Controller	Integral Embedded controller holding the ADC cards with built-in storage.	Yes / No / Explain		
16	Processor	latest Intel Core i7 or better processor - 64 bit	Yes / No / Explain		
17	RAM	16 GB RAM or higher for embedded controller and for general purpose processor.	Yes / No / Explain		
18	Secondary memory	SSD (min 1TB)	Yes / No / Explain		
19	Processor speed	2.5GHz or better	Yes / No / Explain		
20	Communication interface	Ethernet / LAN.	Yes / No / Explain		
21	Data Interface	USB 2.0/3.0	Yes / No / Explain		
22	Operating system	Windows 11 or higher (64 bit)	Yes / No / Explain		
23	Digital data interface	Dual Ethernet data outputs for main and redundant network	Yes / No / Explain		
24	Ethercat interface	Each controller should have dedicated ethercat interface for external hardware/control unit interface	Yes / No / Explain		
25	Display	17" or higher Integral LED touch display for the ease of operation	Yes / No / Explain		
26	Additional features	There shall be a provision for connecting parallel displays (Min.2 Nos.) and also provision for connecting external mouse and keyboard.	Yes / No / Explain		
27	Digital bus	PXI/ PXI Express /VXI /LXI/	Yes / No / Explain		
28	Digital bus latency time	≤1μs	Yes / No / Explain		
29	Bus throughput rate	≥ 100MBytes /second	Yes / No / Explain		
30	Synchronization clock	≥10MHz between all input cards/Chassis.	Yes / No / Explain		

31	Input Modes	Voltage, 120Ω & 350Ω Quarter Bridge Strain Gauge, 350Ω Half Bridge Strain Gauge, Full Bridge, Potentiometric Sensors, Current (direct or using shunt), IEPE interface, Charge interface, LVDT interface (AC Ratio metric LVDT), RTD interface (Sensors: Pt100, Pt200, Pt500, Pt1000, and Pt2000,)	Yes / No / Explain		
32	Bridge completion	Quarter Bridge 120Ω & 350Ω internal completion must be supported and there should not be any external bridge completion network.	Yes / No / Explain		
33	Voltage input	±10V, ±1V, ±100mV, ±10mV	Yes / No / Explain		
34	Number of channels	8/16/32 channels per card	Yes / No / Explain		
35	Input configuration	Differential or Single-Ended. Should be selectable in the hardware and software	Yes / No / Explain		
36	Common Mode Rejection	≥112 dB	Yes / No / Explain		
37	Input Impedance	≥10MΩ	Yes / No / Explain		
38	Channel Cross Talk	Better than -120 dB @ 10kHz	Yes / No / Explain		
39	Noise Floor	Better than -105 dB @ 10kS in ±10V Range	Yes / No / Explain		
40	Dynamic Range	Better than -137 dB @ 10kS in ±10V Range	Yes / No / Explain		
41	Gain Accuracy	Better than ±0.05% of reading	Yes / No / Explain		
42	Offset Accuracy	Better than ±2mV in ±10V Range	Yes / No / Explain		
43	Anti-Aliasing Filter	Analog Anti-Aliasing Filter is required for individual channels.	Yes / No / Explain		

44	Configurable Digital Filter	10 pole digital filters with programmable cut-off frequency up to 50kHz and configurable filter prototype (Bessel, Butterworth, and Chebyshev) should be available.	Yes / No / Explain		
45	Isolation	Channel to Channel and Channel to Ground. Isolation should be integral part of the card.	Yes / No / Explain		
46	Isolation voltage	≥1000 V	Yes / No / Explain		
47	Common Mode Voltage	≥500 V	Yes / No / Explain		
48	ADC	Individual ADC for each channel. The ADC shall be part of signal conditioner module.	Yes / No / Explain		
49	Type	Delta-Sigma or SAR	Yes / No / Explain		
50	Sampling rate	DC-2000K samples/second selectable.	Yes / No / Explain		
51	Resolution	≥ 24-bit	Yes / No / Explain		
52	Excitation Voltage Levels	Programmable from 0 thru 12 VDC.	Yes / No / Explain		
53	Excitation Voltage Accuracy	Better than ±0.05%	Yes / No / Explain		
54	Excitation Current Limit	≥45mA	Yes / No / Explain		
55	Excitation isolation	Should isolated by ≥500 V	Yes / No / Explain		
56	Excitation Protection	Continuous short to ground	Yes / No / Explain		
57	Remote Sense	Remote sense for individual channels.	Yes / No / Explain		
58	Protection	Short circuit & short to ground detection and isolation of the affected channel.	Yes / No / Explain		
59	Excitation Stability	±0.02% (for a period of 48 hours)	Yes / No / Explain		

60	Bridge configuration -Input Types	Quarter (3-Wire), Half Bridge (3-Wire & 5-Wire), Full Bridge (4-Wire & 6-Wire).	Yes / No / Explain		
61	Bridge Range	Up to 1000 mV/V free programmable. Full Scale Range: $\pm 2000000\mu\epsilon$ .	Yes / No / Explain		
62	Bridge Completion Accuracy	0.05%	Yes / No / Explain		
63	Internal Shunt Calibration	To be done using software for all channels together or on individual channel basis. The internal shunt calibration resistors shall be provided equivalent to 10,000 micro strain for each channel. Both Internal and External Shunt Calibration should be supported. During shunt calibration, percentage of deviation should be monitored.	Yes / No / Explain		
64	Shunt Calibration Accuracy	0.05%	Yes / No / Explain		
65	Lead Wire Compensation	Lead Wire Compensation should be supported. Lead Resistance before and after compensation should be monitored and adjusted.	Yes / No / Explain		
66	Zero Balancing with an accuracy of $\pm 0.1\%$	100 % balancing, to be done for all channels together or on individual channel basis.	Yes / No / Explain		
67	Transducer Electronic Data Sheet (TEDS)	Should be supported for all channels.	Yes / No / Explain		
68	Parameters to be acquired	as given below	Yes / No / Explain		
69	Pressure transducer output	0-20 mV @10 V excitation - 5 Nos	Yes / No / Explain		
70	Load cell output	Tri-axial load cell – 6 Nos. (Sensitivity : 1.5 mV/V) - 20 Nos.	Yes / No / Explain		

71	(Model : HBK MCS10 – BG3 200)	Excitation voltage :1-12V	Yes / No / Explain		
72	Displacement (Ratio metric AC LVDT ) +/- 125 mm	V rms (sensitivity : 5.5 mV/V/mm) - 2 nos	Yes / No / Explain		
73	Meggitt/Sensorex		-		
74	Temperature sensor - RTD	Std Sensors: Pt100 / Pt200 - 6 nos	Yes / No / Explain		
75	High speed video camera and audio interface	High speed video camera - 1 no	Yes / No / Explain		
76	Strain gauge (350Ω)	Double element rosette strain gauge - 350 Ω - 10nos	Yes / No / Explain		
77	Solenoid valve powering	Automated powering (ON/OFF) of solenoid valves (28V supply/1.5 A) - 5 nos	Yes / No / Explain		
78	Accelerometer	Std IEPE type - 6 nos	Yes / No / Explain		
79	Limit switch status monitoring	Acquisition provision for limit switch status ( NO/NC) - 9 nos	Yes / No / Explain		
80	Digital input/output & counter module	TTL type	Yes / No / Explain		
81	No of channels for Digital input/output	8DIO+2 counter	Yes / No / Explain		
82	Time base accuracy	50 ns	Yes / No / Explain		
83	Output current-Digital input/output & counter module	20 mA continuously	Yes / No / Explain		

## Document : Specifications

### 2. Additional cost if any (Optional accessories, installation charges etc.)

#### Common Specifications (Applicable for all items)

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Details 1	Data Acquisition System with Integrated Signal Conditioning shall be a single standalone configuration.	Yes / No / Explain		

2	Details 2	Data acquisition start/stop automation shall be possible.	Yes / No / Explain		
3	Details 3	All hardware & software shall be of the latest state-of-art technology, field proven models/versions.	Yes / No / Explain		
4	Details 4	Sampling rate shall be selectable among DC-2000 Ks/Sec, Programmable	Yes / No / Explain		
5	Details 5	All hardware used shall be modular, expandable and easily stackable.	Yes / No / Explain		
6	Details 6	Each channel shall have individual Analog to Digital Converter (ADC) for digitizing the analog output signal of field sensors and ADC shall be a part of Signal Conditioning Module.	Yes / No / Explain		
7	Details 7	TEDS Support shall be available for all channels.	Yes / No / Explain		
8	Details 8	Digital Input/output module for commanding of Flow Control Valve. Counter with time base accuracy of 50ns shall be used for command generation.	Yes / No / Explain		
9	Details 9	LEMO/D-sub connector with suitable locking mechanism shall be provided for DAS input card connector. Mating connector also to be supplied.	Yes / No / Explain		
10	Details 10	The digitized data shall be stored in DAS controller hard disk as well as in data processing and display node.	Yes / No / Explain		



11	Details 11	Customized Application software shall be developed & installed in the data processing and display node. Source code for application program shall be provided to VSSC.	Yes / No / Explain		
12	Details 12	The system configuration and capacity should be able to acquire and store the required channels in the maximum sampling rate for the continuous duration of at least 24hours, with multiple files for quick processing and retrieval.	Yes / No / Explain		
13	Details 13	The data acquisition software shall have provision for on-line processing and monitoring of parameters (mV/Engineering Unit), on line trend graph display, off line processing, analysis and archival.	Yes / No / Explain		
14	Details 14	DAQ should support transient acquisition and analysis.	Yes / No / Explain		
15	Details 15	Real time high speed camera interface should be provided in synchronous with data acquisition.	Yes / No / Explain		
16	Details 16	Software shall be developed as user friendly with state-of-art GUI and shall be free to use in different computers along with DAQ modules.	Yes / No / Explain		
17	Scope 1	Procurement of all items related to ISC-DAS (Integrated Signal conditioner-Data Acquisition System) and realization	Yes / No / Explain		
18	Scope 2	Integration of hardware & Installation of all required software.	Yes / No / Explain		

19	Scope 3	Provide necessary Excitation voltage (Programmable) for all the above sensors.	Yes / No / Explain		
20	Scope 4	Installation, commissioning, testing of the system at VSSC	Yes / No / Explain		
21	Scope 5	Providing required documentation and impart training.	Yes / No / Explain		
22	Scope 6	All the sensors and load cells along with connectors (sensor side) shall be provided by VSSC and wiring from sensor to DAQ shall be done by the party. Approximate 35m cable length may be considered for wiring requirement.	Yes / No / Explain		
23	High speed video and audio recording1	DAQ should support synchronous high speed video recording during acquisition. The frames rate should support 1000 FPS or higher	Yes / No / Explain		
24	High speed video and audio recording2	Hardware support for video recording shall be provided.	Yes / No / Explain		
25	High speed video and audio recording3	Audio recording transducer and playback provision along with input data should be possible. Audio and video shall be fully synchronized with other channels.	Yes / No / Explain		
26	High speed video and audio recording4	Both low speed and High speed Camera recording provision should be supported and hardware /Software should support the feature of multi channel acquisition during recording and play back with different frames rate starting from 1frames/sec to 1000FPS.	Yes / No / Explain		

27	High speed video and audio recording5	The functionality for the above shall be demonstrated by existing camera available at VSSC. Both recording and play back shall be synchronous.	Yes / No / Explain		
28	Features for Software1	Provision for entering CALIBRATION CONSTANT (up to 4th Order Polynomial)in the configuration window.	Yes / No / Explain		
29	Features for Software2	Software shall have the provision for piece wise linearization (20 points) for temperature measurement channels.	Yes / No / Explain		
30	Features for Software3	The configuration file shall be saved in retrieval format for further reference.	Yes / No / Explain		
31	Features for Software4	Separate screen shall be made for displaying the health/ status of controller, servers, input modules, network switches and other systems.	Yes / No / Explain		
32	Features for Software5	The acquisition software shall be capable of scanning the selected user required channels at user required sampling rate.	Yes / No / Explain		
33	Features for Software6	Channel legend, description, gain and filter settings, type of voltage Input ranges, excitation, first & fourth order constants for engineering unit conversion and other programmable feature shall be user selectable.	Yes / No / Explain		
34	Features for Software7	Logging of set configurations in notepad or in spreadsheet format.	Yes / No / Explain		
35	Features for Software8	All configuration setting shall be done through system Controller and remotely at control room through programming node.	Yes / No / Explain		

36	Features for Software9	Configuration update shall be done during start-up.	Yes / No / Explain		
37	Features for Software10	Up on power failure or system restart, the last set configuration shall be retained.	Yes / No / Explain		
38	Features for Software11	For strain measurements, software-based temperature compensation (using fourth order constants) and material compensation shall be possible.	Yes / No / Explain		
39	Features for Software12	The software should acquire and synchronize high-speed video data with analog input data.	Yes / No / Explain		
40	Features for Software13	The software should be capable of importing 3D models and the geometry and each input channels should be mapped to a point in the 3D model.	Yes / No / Explain		
41	Features for Software14	The orientation of the visualization shall be movable and rotatable with options to automate rotation.	Yes / No / Explain		
42	Features for Software15	The acquisition software shall be capable of being operated with acquisition ON/OFF and file writing ON/OFF features. Acquisition and recording/file writing shall start manually from controller and remotely from control room through data processing node.	Yes / No / Explain		
43	Features for Software16	Data shall be stored in controller hard disk/PC and in servers (Multiple file creation based on size and manual selection)	Yes / No / Explain		
44	Features for Software17	The controller shall transmit the data to Servers through TCP/IP.	Yes / No / Explain		

45	Features for Software18	The time stamped data shall be sent to servers.	Yes / No / Explain		
46	Features for Software19	Linux/Windows operating system environment.	Yes / No / Explain		
47	Features for Software20	The software should have capability to calculate Sound Pressure Level (dBSPL) from raw Sound Pressure (Pa) data.	Yes / No / Explain		
48	Features for Software21	The custom weighting options for Frequency (Linear, A, B, C, D), and Time should be available and selectable from the software.	Yes / No / Explain		
49	Features for Software22	Calibration of microphones should be possible from the software using sound calibrator.	Yes / No / Explain		
50	Features for Software23	Percentile calculations of the sound pressure level should be possible.	Yes / No / Explain		
51	Features for Software24	Audio recording and replay at different speed levels should be possible.	Yes / No / Explain		
52	Online Display 1	The online display shall be provided to all display nodes.	Yes / No / Explain		
53	Online Display 2	The online display shall be of graphical and numerical form (user selectable).	Yes / No / Explain		
54	Online Display 3	Each display node shall have the provision to display data from main and redundant servers.	Yes / No / Explain		
55	Online Display 4	Field parameter values to be displayed in the display node with 500ms update for data display and with 100ms update for trend display.	Yes / No / Explain		
56	Online Display 5	Online FFT tool for online analysis.	Yes / No / Explain		

57	Online Display 6	The engineering Unit (EU) or Voltage selection shall be made available in the numerical display and graphical display.	Yes / No / Explain		
58	Online Display 7	The graphical display shall start manually (keyboard control) or based on countdown clock/synch signal or time based.	Yes / No / Explain		
59	Online Display 8	The graphical display shall have different scales for each parameter and shall have four parameters per screen.	Yes / No / Explain		
60	Online Display 9	The graphical change over to different screen shall be by timing reference or manually (keyboard control).	Yes / No / Explain		
61	Online Display 10	The numerical and graphical display shall have the option for colour change when threshold limits are reached.	Yes / No / Explain		
62	Online Display 11	Graphical display with predicted graph at background (Lower and upper boundary values shall be accepted as input from excel file format).	Yes / No / Explain		
63	Online Display 12	Online graphical and numerical display of parameters at 100ms/1s/2s/5s time interval with averaging.	Yes / No / Explain		
64	Offline processing 1	Offline processing of selected channels in Engineering unit or Voltage with selectable averaging, printing intervals and time offset correction based on count down time/synch signal shall be possible.	Yes / No / Explain		
65	Offline processing 2	Offline processing shall be possible in numerical and graphical format.	Yes / No / Explain		

66	Offline processing 3	The file shall have optional header and stored in *.dat format.	Yes / No / Explain		
67	Offline processing 4	Parameters constants (1st order and 4th order) for engineering unit conversion shall be accepted from separate input file (data base).	Yes / No / Explain		
68	Offline processing 5	Offline plotting of selected channels in EU or Voltage with optional headers.	Yes / No / Explain		
69	Offline processing 6	Each plot and data files with optional header & footer.	Yes / No / Explain		
70	Offline processing 7	Mathematical and statistic analysis tools (like FFT analysis, RMS plot, Time Domain plot, Average, Min, Max, and Curve Fitting) shall be available for analyzing offline processed data.	Yes / No / Explain		
71	Offline processing 8	Ambient processing for selected parameters shall also be provided.	Yes / No / Explain		
72	General terms and Conditions 1	Full system engineering with respect to the specifications given by VSSC is the responsibility of the vendor.	Yes / No / Explain		
73	General terms and Conditions 2	During execution of Purchase Order, Detailed design document shall be provided to VSSC and approval shall be obtained before processing. Design document shall include detailed technical specifications of the modules, features, overall architecture etc.,	Yes / No / Explain		

74	General terms and Conditions 3	Complete wiring diagram and set of documents which includes, data sheets for the accessories or modules used, user manual, warranty certificate, calibration certificate etc., shall be provided to VSSC, upon completion of installation and commissioning.	Yes / No / Explain		
75	General terms and Conditions 4	Entire features mentioned in the specifications shall be demonstrated during commissioning and necessary training shall be provided to VSSC team.	Yes / No / Explain		
76	General terms and Conditions 5	All the sensors, solenoid valves, limit switches etc. shall be provided by VSSC and necessary wiring for the above is the responsibility of the vendor.	Yes / No / Explain		
77	General terms and Conditions 6	Calibration of the entire system after connecting with the sensors and accessories is the responsibility of the vendor and duly approved calibration certificate shall be provided to VSSC, if applicable.	Yes / No / Explain		
78	General terms and Conditions 7	Minimum 3 year onsite warranty shall be provided for the entire system. OEM warranty shall be applicable for all the modules/computer accessories used.	Yes / No / Explain		
79	General terms and Conditions 8	Technical support for maintenance/repair of the modules/accessories used shall be available in India and supplier has to ensure the same.	Yes / No / Explain		



80	General terms and Conditions 9	All the modules and accessories shall be of latest model at the time of supply, obsolete/out dated models are not acceptable. Vendors shall ensure the availability of spare parts or similar model modules/accessories in the market for minimum period of 5 years from the date of supply, if required for maintenance. Vendors should take the responsibility to arrange equivalent model items for replacement or up-gradation, in future.	Yes / No / Explain		
81	General terms and Conditions 10	Standard off the shelf items which is closely matching with the VSSC specifications shall also be considered for evaluation.	Yes / No / Explain		
82	General terms and Conditions 11	Technical Support for annual maintenance of the entire system shall be provided by the vendor. Charges for AMC (Annual Maintenance Contract) for minimum 5 years, shall be quoted separately along with price bid, which shall be mentioned in the purchase order and separate order for AMC shall be released after warranty period, if required. AMC Charges shall not be considered for price bid evaluation.	Yes / No / Explain		

**Supporting Documents required from Vendor**

**1. Detailed break up costs (Price Bid Related)**

**2. Detailed configuration of proposed system**

**3. Detailed Compliance matrix against attached Specifications document**

**4. Details of previous orders executed to other government/PSU establishments**

**5. Quote for AMC Charges (Price Bid Related)**

**6. Any other documents**

**7. Details of proposed software**

**8. Data sheets of modules proposed**

**9. Catalog of offered items**

5 additional documents can be uploaded by the vendor

## C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Minimum 3 year onsite warranty shall be applicable.	Yes / No / Explain	
2	Installation and commissioning shall be carried out at VSSC site Thiruvananthapuram.	Yes / No / Explain	
3	This tender is proposed as a DOMESTIC PUBLIC TENDER. This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote. Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted.	Yes / No / Explain	
4	This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno-Commercial Bid while price shall be indicated only in the Price Bid. Uploading price details anywhere else other than the price-bid shall lead to unconditional rejection of the tender. Please make note of the same. Tenderers are advised NOT TO UPLOAD any documents revealing the price of the main equipment, accessories, spares or AMC in technical & Commercial bid. They are however, requested to upload UNPRICED BIDS (i.e. Price details masked) showing appropriate breakup of components of main equipment, individual accessories and spares as desired.	Yes / No / Explain	
5	The vendor has to compulsorily submit the compliance statement online otherwise their offer will not be considered for further evaluation. Before entering the compliance statement, vendors are advised to refer the detailed specification provided.	Yes / No / Explain	

6	The Technical Specification/ Drawing/ Product Catalogues/ Works Carried by vendor/ Make offered etc. as a PDF file without any financial details has to be uploaded online mode by the vendor.	Yes / No / Explain	
7	Technical Bids will be opened at the scheduled due date & time. No further intimation will be sent in this regard. The schedule for price bid opening shown is only indicative. Price bids will only be opened in the case of parties who have been techno-commercially accepted, the details of which will be communicated at a later stage.	Yes / No / Explain	
8	Foreign vendors are not permitted to quote 1. Only Class -I and Class-II Local suppliers as per make in India policy are eligible to participate in the bid. 2. The percentage of local content should be specifically mentioned in the offer, without which will be summarily rejected 3. Preference will be given to Class-I Local Supplier and in their absence, class-II Local supplier will be considered.	Yes / No / Explain	
9	Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India. The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.	Yes / No / Explain	

10	In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content. False Declarations will be in breach of the Code of Integrity under Rule 175 (1) (i) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.	Yes / No / Explain	
11	Taxes and other costs, if any. VSSC is eligible for concessional rate of tax under Sl.No.243B of Notification No.24/2018 Central Tax (Rate) dated 31.12.2018. & IGST in terms of Notf No.01/2017-IGST dt 28.06.2017 as amended by Notn No.07/2018- IGST dt 25.01.2018 and Notfn No.25/2018-IGST dt 31.12.2018.Applicable Rate is 5%. Necessary IGST/ CGST/ SGST concession certificate shall be issued by us. [Please Specify the rates with HSN Code].	Yes / No / Explain	
12	Delivery Terms [Normal delivery terms - FOR VSSC]	Yes / No / Explain	
13	Delivery Period [Please Specify the period, LD shall be applicable in case of delayed delivery]. Mention the time required for supply and installation wherever applicable.	Yes / No / Explain	
14	Payment [Within 30 days after receipt and acceptance of Item at our Stores].	Yes / No / Explain	
15	Liquidated Damages @ 0.5% per week subject to maximum of 10% of order value is applicable beyond the promised delivery schedule.	Yes / No / Explain	
16	Warranty [Minimum 3 year required.]	Yes / No / Explain	
17	Performance Bank Guarantee for 3% of order value valid 2 months beyond the Warranty Period to be provided.	Yes / No / Explain	

18	<p>Security Deposit: In case order value exceeds Rs. 5 lakhs Successful Tenderer shall submit Security Deposit equivalent to 3% of the order value valid for a period of 60 days beyond the date for completion of the Purchase Order. This security deposit is collected towards the performance of the Contract. The said Security Deposit shall be submitted either in the form of Bank Guarantee or Fixed Deposit receipts from Nationalised/Scheduled Banks. No exemption is applicable for MSE vendors from submission of Security Deposit. In case PSU/Autonomous bodies/Central Government organizations, Indemnity Bond shall be accepted. Wherever SD and PBG are involved, the same can be submitted in consolidated SD cum PBG, valid till completion of warranty obligations under the contract. Necessary formats will be issued to the successful tenderer along with Purchase order.</p>	Yes / No / Explain	
19	Country of Origin	Yes / No / Explain	
20	GeM Seller Unique ID	Yes / No / Explain	
21	Quote Validity: Minimum 180 days from the date of Tender opening.	Yes / No / Explain	
22	PO ordering address in full with Contact Persons Name, E-mail id, Phone No. [also attach your Quotation in PDF format ].	Yes / No / Explain	
23	Confirm the percentage of local content in the item and attach documentary proof for the same.	Yes / No / Explain	
24	<p>As per the provisions of Office Memorandum No. F. No. 6/18/2019-PPD dtd. 23.07.2020 (i.e., Rule No. 144 (xi) of GFR) and its Amendments, issued by Department of Expenditure, Ministry of Finance. I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered.</p>	Yes / No / Explain	

25	If any of the bidders submit any forged or false documents along with the Tender, such tenders will be summarily rejected and such bidders will be blacklisted for all future tenders.	Yes / No / Explain	
26	Any other terms.	Yes / No / Explain	

### C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Packing & Forwarding	Freight	Other costs	Remark
1	DATA ACQUISITION SYSTEM : Design, development, supply, installation and commissioning of Portable integrated signal conditioner type data acquisition system. Detailed specifications and scope of works are given in the attached annexure.	1.00 Lot		-					
2	Additional cost if any (Optional accessories, installation charges etc.)	1.00 Lot		-					

### Common charges (Applicable for all items)

<b>AMC Charges for 1st Year after warranty period</b>	
<b>AMC Charges for 2nd Year after warranty period</b>	
<b>AMC Charges for 3rd Year after warranty period</b>	
<b>AMC Charges for 4th Year after warranty period</b>	
<b>AMC Charges for 5th Year after warranty period</b>	
<b>Optional Accessories-Lumpsum</b>	
<b>Optional Spares Cost (lumpsum)</b>	