

भारत सरकार/GOVERNMENT OF INDIA
अंतरिक्ष विभाग/DEPARTMENT OF SPACE
क्रय यूनिट-III/PURCHASE UNIT-III
विक्रम साराभाई अंतरिक्ष केंद्र/VIKRAM SARABHAI SPACE CENTRE
तिरुवनंतपुरम/THIRUVANANTHAPURAM - 695 022

विज्ञा. सं. वीएसएससी/एसपीआरई-क्रय/23 दि. 08/12/2023

ADVT. NO. VSSC/SPRE-PUR/23 DT. 08/12/2023

भारतकेराष्ट्रपतिकेलिएतथाउनकीओरसेवरिष्ठ प्रधान, क्रयएवंभंडार, विक्रमसाराभाईअंतरिक्षकेंद्र (वीएसएससी), तिरुवनंतपुरम, निम्नलिखितकेलिएई-प्रापणके माध्यम से (क्रम सं. 1के लिए) निविदाएंआमंत्रित करता है:-

For & on behalf of the President of India, the Sr. Head Purchase & Stores, Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram invites Tenders through e-procurement for Sl. No. 1 for the following :-

क्रम सं. Sl. No.	निविदा सं. Tender No.	वर्णन / Description	मात्रा Qty.	निविदा शुल्क Tender Fee
1	VSSC/PURCHASE UNIT III (SPRE)/VS202300296501 [लोक निविदा – दो भाग/ PUBLIC TENDER-TWO PART]	स्वचालित/ व्यक्तिगत सेल वोल्टता मानीटरन से युक्त दो चैनल बैटरी मॉड्यूल परीक्षण प्रणाली Automatic 2 channel Battery Module testing System with individual cell voltage monitoring	सामग्रियां/ items-1 No	लागून हीं / NA

क्रम सं. Sl. No.	बोली प्रस्तुत करने की समय-सीमा Time limit for submission of Bid	बोली खोलने की तिथि Bid Opening date
1.	दिनांक 31/01/2024[14:00 बजे तक]	दिनांक 31/01/2024 [14.01 बजे]

क्रम सं. 01. के लिए, ब्यौरे इसरो ई-प्रापण पोर्टल <https://eproc.vssc.gov.in> पर उपलब्ध हैं।
For Sl. No. 01 details are available on ISRO e-procurement portal
<https://eproc.vssc.gov.in>.

शुद्धिपत्र, यदि कोई हो तो, हमारे वेबसाइट www.vssc.gov.in / www.isro.gov.in में मात्र प्रकाशित
किया जाएगा।

**Corrigendum, if any will be published in our websites : www.vssc.gov.in /
www.isro.gov.in only.**

हस्ताक्षरित/Sd/-

वरि. प्रधान, क्रय एवं भंडार /Sr. Head, Purchase & Stores

Tenders are invited for procurement of Automatic 2 channel Battery Module testing System with individual cell voltage monitoring(Qty:1 No). The Bids are to be prepared and submitted in specified Templates online, by logging into the portal <https://eproc.vssc.gov.in>. The Vendors are advised to submit the Bids much before the Closing Time to avoid last minute problems. Bid Opening date : 31/01/2024.

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Parties interested to participate in this e-Tender are required to register themselves as vendors, if not already registered, in our e-procurement portal <https://eproc.vssc.gov.in> by downloading plugins and help demos listed on the home page of the e-procurement link mentioned above to complete the vendor registration process. They can seek help from help desk 0471 2565454 also as provided in the home page of e-procurement portal in case of any problem for registration and subsequent process. Vendors may please note that without registering in our e-procurement portal, they will not be able to quote for this e-tender.

This is a two part tender, Technical & Commercial part (Part I) and Price Part (Part II) shall be submitted separately. The tenderers should not attach any documents containing Price information along with Technical & Commercial Bid (Part I). We do not open PART II (Price Bid), if PART-I (Technical & Commercial offer) does not meet with our technical specification requirements. Cost split up, other price details etc. shall be uploaded as a separate document under COMMERCIAL DOCUMENTS FROM VENDOR tab.

THE TECHNICAL DOCUMENTS NEED TO BE ATTACHED ONLINE AS A SINGLE PDF FILE WITHOUT ANY PRICE INFORMATION, TECHNICAL BID CONTAINING PRICE DETAILS WILL BE TREATED AS REJECTED.

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

**Tender for Automatic 2 channel Battery Module Testing System with
Individual Cell Voltage Monitoring**

Bids to be submitted online

Tender No.: VSSC/PURCHASE UNIT III (SPRE)/VS202300296501 dated 05-12-2023

A. Tender Details

Tender No : **VSSC/PURCHASE UNIT III (SPRE)/VS202300296501**

Tender Date : **05-12-2023**

Tender Classification: **GOODS**

Purchase Entity : **PURCHASE UNIT III (SPRE)**

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

Automatic 2 channel Battery Module Testing System with Individual Cell Voltage Monitoring

This is a TWO - PART bid. Price details shall NOT be mentioned in technical Bid, failing which the offer will be considered as invalid. The techno-commercial bid shall only be attached in the 'Supporting Documents' template and Price bid in the 'Commercial Documents' template.

03. Please read our terms and conditions carefully before bid submission.

Last minute clarification on tenders will not be entertained. -This is an E Tender. Hence Postal/Fax/Email tenders will not be accepted. -Technical Bids will be opened at the scheduled due date & time . No further intimation will be sent to you in this regard. Interested parties can attend the Technical Bid Opening to know the details.

A.1 Tender Schedule

Bid Submission Start Date : **06-12-2023 16:50**

Bid Clarification Due Date : **12-12-2023 10:00**

Bid Submission Due Date : **31-01-2024 14:00**

Bid Opening Date : **31-01-2024 14:01**

Price Bid Opening Date : **19-02-2024 14:00**

B. Tender Attachments

Technical Write-up/Drawings

Document : Compliance Matrix

Document : Price Bid Format

Instructions To Vendors

3. PPP Make in India(Non- Divisible Items-All Classes of Suppliers)

1. A committee (with an external expert from a practicing cost accountant or practicing chartered accountant, if required) constituted for independent verification shall verify the self-declarations & auditor's / accountant's certificates on random basis, as per the requirements.

2. a) The subject item falls under Non-divisible category. b) The offers are sought from all classes of suppliers.

3. Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a) Equal to or more than 50% : Class-I local supplier. b) Minimum 20% but less than 50% : Class-II local supplier. c) Less than 20% : Non-local supplier.

4. False declarations will be in breach of code of the integrity for which a bidder or its successor's will not be eligible/debarred for purchase preference from further tenders / pending tenders for two years along with other actions as may be applicable.

5. In case of a complaint received from any local supplier indicating a need for review / verification of Local content of successful vendor / awarded vendor, for accepting a complaint from such complainant (w.r.t the false declaration given by the successful vendor on the local content), a complaint fee of Rs.2Lakhs or 1% of the locally manufactured items being procured (subject to a maximum Rs. 5Lakhs), whichever was higher, to be paid by demand draft by the complainant. In case, the complaint is found to be incorrect, the complaint fee shall be forfeited. In case, the complaint is upheld and found to be substantially correct, deposited fee of the complainant would be refunded without any interest.

6. In cases the quoted price is in excess of Rs.1000 Lakhs (including duties, taxes and freight & Insurance) the 'Class-I & II local supplier shall provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in case of suppliers other than companies) giving the percentage of local content.

7. In line with Public Procurement (Preference to Make in India), Order 2017 & its amendments issued by Govt. of India from time to time with a view to support the Indian industries, ISRO has implemented "Purchase Preference Policy". The "Purchase Preference" is applicable for the "Class-I Local Supplier" for the goods/ services/ works covered in this tender, subject to the following terms & conditions:-

8. 'L1' means the lowest technically accepted tender / bid / quotation (i.e. lowest landed cost including duties, taxes and freight & Insurance).

9. 'Local content' means the amount of value added in India (i.e. indigenous items/services added in the offered products/ services/ works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent.

10. 'Margin of purchase preference' means the maximum extent to which the price quoted by the "Class-I local supplier" above the L1 (landed cost).

11. Purchase Preference Policy:- Goods/Works which are not divisible (ie., required quantity is 1 or as a package) and Services:

a) If L1 is from a 'Class-I local supplier', the contract will be awarded to L1 bidder.

b) If L1 is not from a 'Class-I local supplier', the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price subject to local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price (inclusive of duties, taxes and freight & insurance).

c) In case such lowest eligible 'Class-I local supplier' fails to match the L1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on, and order/contract shall be awarded accordingly. In case where none of the 'Class-I local supplier' within the margin of purchase preference agree to match the L1 price, then the order/contract shall be awarded to the original L1 Bidder.

12. The 'Class-I & II local supplier' should provide a "Self Certification" along with technical offer indicating that the item offered meets the minimum local content [as per Sl. No.(3)] as called for in the tender and provide the percentage of local content along with details of the location(s) at which the local value addition is made. In case of two bid tenders, it is mandatory to indicate compliance to MLC(minimum Local Content) in technical bid zone.

13. The ink-signed certificate shall be provided on vendors letter head along with the offer (in case of online tender, copy of ink-signed certificate shall be uploaded along with your offer under concerned tab. Original in Hard copy shall be produced on request). In case of non-submission of certificate, the purchase preference shall not apply.

14. The margin of Purchase Preference shall be up to 20%.

15. The Public Procurement (Preference to Make in India), Order 2017 issued by Govt. of India indicates that if there are any general or specific restrictive clauses to restrict participation of Indian companies in those countries procurement tenders, reciprocity clause need to be invoked as per the order. Hence, if ISRO or Govt. of India come across that Indian suppliers of an item are not allowed to participate and / or compete in procurement by your government, the bid submitted by you will be not be considered and excluded from eligibility for procurement. Please note this point.

16. Works means all works as per Rule 130 of GFR- 2017, and will also include 'turnkey works'. Works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

4. Specific Terms and Conditions to Tender (GTE Compliant)

1. (I) Please quote applicable GST separately.

2. (II) Our standard delivery term is FOR, VSSC. In case any vendor offers delivery term of Ex-works, Packing and Forwarding charges if any should be indicated separately either as a percentage of the quoted rate or as a Lumpsum amount.

3. (III) Our standard payment term is 100% within 30 days after receipt and acceptance of the items at our site (after installation and commissioning in cases where installation and commissioning is required). In case of Foreign quote standard payment term is 100% Sight Draft with bank charges to respective accounts.

4. (IV) Liquidated Damages: The delivery period quoted should be realistic. The delivery period so quoted and mentioned in the order is the essence of the order/contract. In case of delay in delivery of material as per the delivery schedule, Liquidated Damage @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value shall be levied. Wherever, installation and commissioning is also involved, the supply will be deemed to have been completed only when the entire Stores is supplied, installed and accepted.

5. (V) Performance Bank Guarantee: Wherever products offered carry warranty, the warranty should be for one year or as per manufacturers standard warranty term. Against such cases, please confirm submission of Performance Bank Guarantee. The Performance Bank Guarantee should be for 3% of the order value covering the warranty period obtained from any Scheduled Bank on Rs.200/- Non Judicial Stamp Paper and should be valid beyond 2 months from the completion of the warranty period. Alternately vendors can request for withholding 3% payment till completion of the warranty period.

6. (VI) Security Deposit: Wherever the offer value is Rs. 5.00 Lakhs or above, the successful tenderer should submit Security Deposit @ 3% of the order value by way of Bank Guarantee / FD Receipt. The Bank Guarantee shall be obtained from any Scheduled Bank on Rs.200/- Non Judicial Stamp Paper

and should be valid beyond 2 months from the completion of all contractual obligations. 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 re-purchase of the stores Contracted at the risk of the Contractor. In case if Security Deposit is submitted and the contractor fails to execute the order, then the security deposit will be forfeited.

7. (VII) Note: SD, LD and PBG clauses are mandatory and offers of the vendors who have not agreed for the above conditions will be excluded from the procurement process. Micro and Small Vendors are not exempted from the submission of Security Deposit. Only Govt Departments/PSUs/PSEs can submit Indemnity Bond instead of Bank Guarantee towards SD/PBG.

8. (VIII) Please upload the Technical Details / Catalogue / Data Sheets (wherever applicable)

9. (IX) The offer should be valid for a period of minimum 90 days from the date of opening of Tender and 180 Days for PT Two Part (120 Days for Technical Bid and 60 Days for Price Bid from the date of opening).

10. (X) In order to avail of the benefits extended to by Govt. of India to the Micro and Small Sectors, please submit attested copy of the valid Entrepreneur Memorandum Part-II signed by the General Manager, District Industries Centre / Udyog Adhar / NSIC Registration Certification along with your offer.

11. (XI) If any bidder submits forged / false document along with the tender, offer of such vendors will be summarily rejected and such bidders will be blacklisted for all future tenders.

12. (XII) Wherever samples are required to be submitted along with the quotation, offer without sample will not be considered.

13. (XIII) The other attached forms are our standard terms and conditions, which are to be complied with. If any conflict arise between the specific terms and standard terms, then in those cases, the specific terms will prevail over the standard terms.

14. (XIV) Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.

15. (XV-a) This tender is open for all class of suppliers i. e Class I, Class II and non local suppliers as defined in DPIIT order on Make In India initiative dtd 16/09/2020 and its revisions. Purchase preference as per extant guidelines will be applicable for Class I local suppliers.

16. (XV-b) Foreign OEMs/Agents quoting on behalf of Foreign OEMs are permitted to quote. High Sea

Sales Quotes not preferred generally. The bids shall be in INR/appropriate foreign currency.

17. (XVI) Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a) Equal to or more than 50% : Class-I local supplier. b) Minimum 20% but less than 50% : Class-II local supplier. c) Less than 20% : Non-local supplier.

18. (XVII) Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.

19. (XVIII) The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself.

20. (XIX) 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.

21. (XX) 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.

22. (XXI) 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.

23. (XXII) Purchase Preference Policy:- Goods/Works which are divisible in nature (required quantity is greater than 1 or not a package basis): i. If L1 is 'Class-1 local supplier', the order/contract for full quantity shall be awarded to L1 bidder. ii. If L1 bid is not from a 'Class-I local supplier', 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to the Class-I local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and contract for that quantity shall be awarded to such Class-I local supplier subject to matching the L1 price (inclusive of

duties, taxes and freight & insurance). iii. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher 'Class-I local supplier' within the margin of purchase preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In cases where none of the 'Class-I local supplier' within the margin of purchase agree to match L1 price, in such cases 100% quantity shall be ordered on original L1 bidder. iv. In case no offers are received from 'Class-I local supplier' or none of the 'Class-I local supplier' falls within the margin of purchase preference of 20%, the order shall be processed on L1 vendor. v. In case L1 bidder (not a 'Class-I local supplier') is not accepting splitting of order on 50:50 basis, in that case the order/contract shall be awarded to such 'Class-I local supplier' for full quantity subject to matching the L1 price. vi. Regarding MSEs (Indian vendors): a) The following additional aspect as indicated below would be applicable for procurement which are falls under divisible category (i.e., not applicable for indivisible category), in case of participation of MSEs in the tendering who are also complying to the Minimum Local Content (MLC) stipulated in the tender. b) If any Indian vendor satisfies the requirement of MSEs stipulation and also falls within the purchase preference margin as called for in MSME policy (in case of matching L1 price) will be considered for ordering 25% of tendered quantity, the balance quantity / works will be considered for distribution amongst all bidders (including MSEs) as per the purchase preference policy. c) In case no MSEs qualifies for purchase preference or do not match with L1 price then the total tendered quantity will be distributed amongst all bidders as per the purchase preference policy.

24. Purchase Preference Policy:- Goods/Works which are not divisible in nature (required quantity is 1 or on a package basis):

i. If L1 is 'Class-1 local supplier', the order/contract for full quantity shall be awarded to L1 bidder. ii. If L1 bid is not from a 'Class-I local supplier', then, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price subject to the Class-I local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and contract for that quantity shall be awarded to such Class-I local supplier subject to matching the L1 price (inclusive of duties, taxes and freight & insurance). iii. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price , the next higher 'Class-I local supplier' within the margin of purchase preference shall be invited to match the L1 price and so on, and contract shall be awarded accordingly. In cases where none of the 'Class-I local supplier' within the margin of purchase agree to match L1 price, in such cases the contract shall be placed on original L1 bidder. iv. In case no offers are received from 'Class-I local supplier' or none of the 'Class-I local supplier' falls within the margin of purchase preference of 20%, the order shall be processed on L1 vendor.

5. Conditions for BIDDER FROM A COUNTRY WHICH SHARES LAND BORDER WITH INDIA

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.

6. Instructions to Vendors

1. Last minute clarification on tenders will not be entertained.

2. This is an E Tender. Hence Postal/Fax/Email tenders will not be accepted.

C. Bid Templates

C.1 Technical Bid - Automatic 2 channel Battery Module Testing System with Individual Cell Voltage Monitoring

1. Automatic 2 channel Battery Module Testing System with Individual Cell Voltage Monitoring

Item specifications for Automatic 2 channel Battery Module Testing System with Individual Cell Voltage Monitoring

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Scope of the system	The system shall be capable of testing different type of batteries made from various chemistry cells like Li-ion cells, Advanced chemistry cells, Supercapacitors & Supercapatteries.	Yes / No / Explain		
2	No of channels	2	Yes / No / Explain		
3	Parameters to be monitored per channel	Battery Voltage, Battery current, Voltage of 16 cells, Temperature of 16 cells.	Yes / No / Explain		
4	Total parameters to be monitored	2 channels * 34 monitoring per channels = 68	Yes / No / Explain		
5	Battery Current Range	Two ranges -10 A to 10 A and -100 to 100 A. -200 to 200A current range when 2 channels paralleled.	Yes / No / Explain		
6	Current Rise time	100mS or better	Yes / No / Explain		
7	Battery Current Accuracy	0.1% or better	Yes / No / Explain		
8	Battery Current Resolution	Resolution: 10mA or better for 10A range, 100 mA or better for 100A range	Yes / No / Explain		
9	Battery Voltage range	5V (or lower) to 70V (or higher)	Yes / No / Explain		

10	Battery Voltage Accuracy	0.1% or better	Yes / No / Explain		
11	Battery Voltage Resolution	10mV or better	Yes / No / Explain		
12	Cell voltage range	0 to 5 V	Yes / No / Explain		
13	Cell voltage Accuracy	0.1% or better	Yes / No / Explain		
14	Cell Voltage resolution	Resolution: 1 mV or better	Yes / No / Explain		
15	Power	0 to 7000 watts or higher per channel	Yes / No / Explain		
16	Measurement Temperature range	-40 °C to +80 °C	Yes / No / Explain		
17	Temperature Accuracy	0.1% or better	Yes / No / Explain		
18	Temperature Resolution	0.1 °C or better	Yes / No / Explain		
19	Charging method	Constant Current(CC), Constant Current & Constant Voltage(CC-CV) and Constant power (CP)	Yes / No / Explain		
20	Discharging method	Constant Current (CC), Constant voltage (CV) and Constant power(CP)	Yes / No / Explain		
21	Charging termination	User selectable based on end voltage or end current or end time	Yes / No / Explain		
22	Discharging termination	User selectable based on end voltage or end time	Yes / No / Explain		
23	Max Cycles per programme	≥ 30000	Yes / No / Explain		
24	Max Steps per programme	≥ 99	Yes / No / Explain		

25	Data acquisition and storage interval	10ms to 200 hrs user selectable with step time based settable multiple sampling interval in a step (For example 10ms sampling for 10s, then 1 s sampling for 1 minute, then 30s for 5 min, and so on in a step)	Yes / No / Explain		
26	Operating Temperature	18°C to 50°C	Yes / No / Explain		
27	Storage Temperature	18°C to 40°C	Yes / No / Explain		
28	Operating Humidity	≤70% RH	Yes / No / Explain		
29	Storage Humidity	≤80% RH	Yes / No / Explain		
30	Channel to channel isolation & isolation among cell voltage monitoring line	Minimum 100 MΩ	Yes / No / Explain		
31	Channel related	The system should have 2 individual charge/discharge channels, each channel should be independent and separately programmable, should be isolated from each other (channel-to-channel isolation >100 MΩ in all lines including return lines).	Yes / No / Explain		
32	Channel Voltage Range	Each channel should be capable of charging /discharging batteries of nominal voltage 5 to 70V	Yes / No / Explain		
33	Channel Current Range	Each channel should be capable of charging/discharging from -100 to 100A.	Yes / No / Explain		

34	Channel Paralleling	Configuration should allow paralleling of 2 channels to obtain maximum current of 200A. This has to be carried out by paralleling the cables and setting the configuration menu without any hardware change. System should display and record the total current when channels are paralleled.	Yes / No / Explain		
35	Channel Accuracy	Battery Voltage & Cell Voltage should have a minimum accuracy of 0.1% of the range or better and Battery current range should have a minimum accuracy of 0.1% of the range or better in the operating range.	Yes / No / Explain		
36	Channel Resolution	Battery Voltage shall have a resolution of 10mV or better. Cell Voltage should have a resolution of 1mV or better. Battery current shall have a resolution of 10mA or better for 10A range and 100mA or better for 100A range	Yes / No / Explain		
37	Temperature monitoring	16 temperature monitoring lines per channel should be available. The measurement temperature range should be -40 to +80 deg C with an accuracy of 0.1% or better. Thermistor of 10 KΩ @25°C will be used. Party has to provide 32 channel signal conditioner with suitable filtering. 34 Thermistors shall be supplied by the party.	Yes / No / Explain		

38	Charging	Charging mode should be user selectable. Following modes should be available-	Yes / No / Explain		
39	CC Charge	a) Constant Current (CC) charging with termination based on end voltage/time.	Yes / No / Explain		
40	CP Charge	b) Constant power (CP) charging with termination based on end voltage/time/current.	Yes / No / Explain		
41	CC-CV Charge	c) Constant Current-Constant Voltage (CC-CV) mode with termination based on end current/end time.	Yes / No / Explain		
42	Discharging	Discharging mode should be user selectable. Following modes should be available-	Yes / No / Explain		
43	CC Discharge	a) Constant Current (CC) discharging with termination based on end voltage/time.	Yes / No / Explain		
44	CP Discharge	b) Constant voltage (CV) discharging with termination based on end current/ time.	Yes / No / Explain		
45	CC-CV Discharge	c) Constant power (CP) charging with termination based on end voltage/time/current.	Yes / No / Explain		
46	CC-CV termination	For CC-CV mode charging, constant current charging should be carried out till pre-set battery voltage and taper charging (CV mode) should continue till battery reaches full charge as specified by end of taper current or time. CC to CV mode transfer to be bump less/smooth.	Yes / No / Explain		
47	Steps related	Step : Each of the Charge, Discharge, or Idling process is called a step.	Yes / No / Explain		

48	Cycles related	Cycle : Charge followed by a discharge (with or without idling) is called cycle.	Yes / No / Explain		
49	Life Test related	The system should have capability for life cycle test of cells. The system has to continuously charge and discharge the battery for a particular settable number of cycles (with/without idling between charge/discharge).	Yes / No / Explain		
50	Test Starting & Stopping	The equipment must be able to start from any step and stop at any step over the entire operating range of voltage, current, time and temperature .i.e the first step of the cycle can be any of the steps and similarly the last step also can be any of the three steps	Yes / No / Explain		
51	Test Pausing & Resuming	Provision should be available to pause and resume the cycling at any point. During cycling the provision to change any parameter of configuration file should be available.	Yes / No / Explain		
52	Lines related	Power and monitoring lines from system to batteries should be independent. i.e four wire method should be used. Proper isolation resistance of >100MΩ among all the four lines across the 2 channels & all cell monitoring shall be available.	Yes / No / Explain		

53	Sampling Time	Data acquisition and storage shall be at interval of 10milli seconds or better. Data storage interval should be programmable by user for each step. Multiple settable sampling interval shall be possible within a single step to capture transience.	Yes / No / Explain		
54	Power failure restart	In the event of power failure and resumption, the programme should continue from the phase and time of the phase at which power went off. Duration of power failure and occurrence time should be recorded. UPS power will be provided for the PC.	Yes / No / Explain		
55	Computer	The PC, monitor and printer should have the following specification and should be from a standard manufacturer like Advantech, Datasol, Kontron, HP etc.	Yes / No / Explain		

56	Computer specification	The PC should be Industrial grade 19” rack mountable, with redundant power supply and push pull fans for sufficient cooling. Processor: i7, latest generation 3.4GHz or advanced, RAM: 16GB or higher, SSD: 1TB, HDD: 1TB, or better, 2 Ethernet ports, 4 USB ports and 1HDMI port shall be available. 27 inch colour LED monitor, A4 Colour Laser printer (HP colour laser jet CP154A or equivalent) and cabling (power cables, HDMI cable etc) should be provided. Windows 11 OS or latest with license and driver to be given in installation CDs.	Yes / No / Explain		
57	System Housing	The system shall be assembled in an instrument rack with earthing point and castor wheels. Sufficient air-cooling should be provided. The controller in the system should acquire all the data, control all actions and should communicate with the host PC with Ethernet interface.	Yes / No / Explain		
58	Noise	The noise level of system shall be less than 65dbA.	Yes / No / Explain		

59	Cabling related	<p>The distance from system to cell under test is minimum 5 meters and the distance from Control computer to the system is 100 meters. Ethernet cable (100 meters) with minimum four port switch to be provided. Connectors/terminal blocks are to be provided in the system for power and monitoring lines for the easy removal. The party should provide the cables from system to battery under test for Power, voltage monitoring lines and temperature monitoring lines. Cables should be of FRLS (Fire Retardant Low Smoke) type. Ring type of terminal lugs suitable to connect with M6 bolt to be provided.</p>	Yes / No / Explain		
60	Power Supply	<p>Input Power: 3 phase 415VAC $\pm 10\%$, 50Hz . MCB and Spike arrester to be provided at the mains input.</p>	Yes / No / Explain		

61	Protections-1	In case of any anomaly related to a particular channel, cell Voltage or Cell Temperature, the system should isolate the corresponding battery without disturbing the other channel. In case of any anomaly which affects the whole system, both the channels should get isolated. In case of PC failure (like PC crash, PC hanging, OS crash, Communication failure), system shall be able detect it, stop all the tests and isolate the batteries safely.	Yes / No / Explain		
62	Protections-2	System should take care of mains supply failure, PC hanging, file writing errors, interface errors, memory overflows and sub system errors. User alert to be generated for the errors. After resuming the power, system should continue the operation from where it failed.	Yes / No / Explain		
63	Protections-3	System should have protections to prevent the discharging of cells through charge/discharge source in case of mains power failure or source failure.	Yes / No / Explain		
64	Protections-4	System should detect and notify user in case of battery terminal reversal by giving a change in colour in the display. Proper protection shall be given in the system for reverse polarity connection.	Yes / No / Explain		

65	Protections-5	Limit check should be done on cell & battery voltage, current, cell & battery temperature and capacity. On crossing first limit value, the user should be notified by changing display colour and on crossing second limit, the cell should be isolated. A visible & audible alarm feature on crossing the safety limit conditions shall be available.	Yes / No / Explain		
66	Protections-6	During CV mode charging, the charge termination is based on current dropping to a threshold value (user defined). Also provision for keeping a time based CV charging should be available so that in case the current is not dropping within user specified time, charging should terminate.	Yes / No / Explain		
67	Protections-7	Provision for enabling/disabling any software protection feature should be available	Yes / No / Explain		
68	Software related-1	Software should be interactive and based on Windows 11 OS. System configuration should be editable on the screen. All the parameters for configuration file like charging/discharging current, end voltage, end time etc should be programmable. Minimum Two level administrative controls with password protection shall be provided for creating & editing programs and starting tests.	Yes / No / Explain		

69	Software related-2	Limit checking should be done on the input data entered by user for channel configuration for any out of bound entry value. The system should not accept any value from user which is out of system limit.	Yes / No / Explain		
70	Software related-3	The status of 2 channels including individual cell voltages & temperature monitoring should be displayed in a single screen like whether the channel is in charging, discharging, idling state, not connected or isolated due to failure.	Yes / No / Explain		
71	Software related-4	The following data should be displayed in real time in graphical form for each channel- a) Battery Voltage Vs Time b) Battery Current Vs Time c) Battery Temperature Vs Time d) Battery Ah Vs Time e) Battery Voltage Vs Battery AH f) Cell Voltage Vs Capacity	Yes / No / Explain		
72	Software related-5	All the tabular data and graphical data mentioned should be stored with time stamp (real time and elapsed time) in any format which latter can be taken to text format and excel sheet format. During offline analysis, user should be able to select any parameters for comparison.	Yes / No / Explain		

73	Software related-6	It is desirable that a summary file may be generated containing Battery voltage and Battery temperature at beginning of charge (BOC), end of charge (EOC), beginning of discharge (BOD) and end of discharge (EOD) for each cycle. Also it should contain the AH in, AH out and efficiency for each cycle.	Yes / No / Explain		
74	Software related-7	Provision to access and display/print the stored data for future applications/analysis	Yes / No / Explain		
75	Software related-8	The system status should be logged periodically (every 100 ms) so that cycling can be resumed from the same point after any failure.	Yes / No / Explain		
76	Software related-9	Two levels of password protection should be available for operating and configuring the system.	Yes / No / Explain		
77	Software related-10	The option for pausing and resuming the battery cycling should be available. On resuming, the system should restart from the same point where it was paused	Yes / No / Explain		
78	Software related-11	System software and application software backup should be given in CD's with license. Any software and firmware upgradation shall be provided at free of cost during warranty & AMC.	Yes / No / Explain		

79	Software related-12	Calibration software with correction facility to be provided. Detailed manuals about how to carry out calibration procedure should also be provided. Report generation facility shall be available. Parameters like Battery Voltage, Battery Current, cell Voltage & Temperature shall be calibrated.	Yes / No / Explain		
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Common Specifications (Applicable for all items)

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Mode of Tender	Offer shall be submitted in two parts. Techno commercial bid in part-1 and price bid in part-2. Revealing price details in techno-commercial bid will lead to disqualification of the offer. Price bids of technically qualified vendors only will be opened for evaluation	Yes / No / Explain		
2	System Heritage	Since the item is required for testing space quality batteries, only companies having proven track record in the manufacturing of battery cycling unit for testing of space quality batteries will be considered.	Yes / No / Explain		
3	List of Customers	List of customers to whom similar units were supplied during last seven years including date of installation and number of units, shall be given along with the offer. Contact details of customers in India have to be provided.	Yes / No / Explain		

4	Service Network	Party should have service facility to attend breakdowns within 3 working days excluding holidays.	Yes / No / Explain		
5	Warranty	Party should give minimum one-year comprehensive warranty for trouble free operation of the system. Any rework or repair arising during the warranty shall be done at the party's expense.	Yes / No / Explain		
6	AMC	Party should be willing to take AMC (non-comprehensive) for minimum five years after expiry of warranty. Offer should contain the rates for AMC also. Offer without AMC rate will not be considered for the evaluation. AMC cost will be considered for evaluating the vendor. The actual cost shall not be indicated in part-1“ of the bid. AMC shall contain any number of breakdown visits & at least 2 preventive visits per year. However, the rights to place AMC PO rests with VSSC and don't have any obligation for placing the AMC order.	Yes / No / Explain		
7	Spares	Essential spares required shall be quoted separately, along with the offer, with part number, item description and cost. Spares should include control modules, control power supply, monitoring modules, cooling fans, cables, thermistors, etc.	Yes / No / Explain		

8	Compliance matrix	Party should enclose a compliance /deviation matrix with respect to each of the specification & commercial terms along with their offer for easy comparison. Offers without detailed compliance statement will be summarily rejected.	Yes / No / Explain		
9	Operation & Service Manuals	Operation, maintenance & software manual, consisting of circuit diagram and calibration procedure shall be supplied along with the equipment. Calibration certificate shall be given along with the equipment.	Yes / No / Explain		
10	Power Requirement	Party should give the power requirement of the total system. Mains supply points to all subsystems to be routed through the instrument rack. VSSC will provide UPS power for PC.	Yes / No / Explain		
11	Factory Acceptance Test	Factory acceptance test: Party shall submit internal QC reports, calibration reports and test certificates as a proof of Factory Acceptance Report.	Yes / No / Explain		
12	Payment Terms	Payment Terms: 1. On completion of supply of system and acceptance by VSSC 70 % 2. After installation, commissioning and acceptance by VSSC 30%	Yes / No / Explain		
13	Installation, Commissioning & Training	Party should install and commission the item at our site, demonstrate the performance and give training to our personnel. Installation shall be completed within two weeks from the intimation of site readiness.	Yes / No / Explain		

14	Price breakup	Party has to give breakup of the offer. The cost of standard configuration, options. The cost of PC and peripherals, system, software, spares etc.	Yes / No / Explain		
15	Delivery Schedule	Party should clearly specify the shortest possible schedule of supply and they have to strictly stick to the schedule.	Yes / No / Explain		
16	Bill of Materials	Quotation should consist of bill of materials of the supply	Yes / No / Explain		
17	Dimension & Weight	The overall dimension & weight of the system shall be specified by the party. It shall be within our passage dimension restrictions of 0.9m width x 1.9m height.	Yes / No / Explain		
18	Vendor Related	a) Vendor shall be an original equipment manufacturer (OEM) or the representative or the dealer. b) If vendor is a foreign OEM, the foreign OEM shall have authorised dealers/representatives in India for installation, commissioning and after sales service c) If the offer is from an authorised dealer or representative, should furnish the authorisation letter from the OEM along with the offer. d) Certificate of undertaking from the original equipment manufacturer for 1 year (warranty period) + 5 years' service (AMC) and spares support.	Yes / No / Explain		

Supporting Documents required from Vendor

1. List of spares with price and part number details (Price Bid Related)

2. Dealer Authorisation Certificate

3. Compliance matrix

4. Product brochure/leaflet

5. List of customers with contact details

6. AMC cost for 5 years (Price Bid Related)

7. Price bid for the item (Price Bid Related)

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Detailed Operation & Service manual shall be supplied along with the system including all parts details, wiring and circuit details	Yes / No / Explain	
2	Installation shall be done by the party at our lab in INSTEF/TERLS area and training shall be given to VSSC engineers	Yes / No / Explain	
3	Calibration & Warranty certificate shall be supplied along with the system	Yes / No / Explain	
4	Proper hoist location & CG marking shall be done on the packing	Yes / No / Explain	
5	The item shall be supplied in a properly crated & packed condition.	Yes / No / Explain	
6	Taxes and other costs,	Yes / No / Explain	
7	Security Deposit (Applicable if Offer Value is Rs. 5 Lakhs or above. MSME/NSIC Units are NOT EXEMPTED from the payment of SD. Bank Guarantee @ 3% of Order Value valid till 60 days from the date of supply to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indentity Bond in lieu of BG. In the event of non-performance of contractual obligations, SD will be forfeited).	Yes / No / Explain	
8	Delivery Terms.	Yes / No / Explain	
9	Delivery Period	Yes / No / Explain	
10	Liquidated Damages (Applicable beyond the delivery period mentioned in this tender @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value. Mandatory compliance required).	Yes / No / Explain	
11	Warranty(min 1 year)	Yes / No / Explain	

12	Performance Bank Guarantee (PBG) Bank Guarantee @ 3% of Order Value valid till the completion of warranty period plus 2 months claim period to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indemnity Bond in lieu of BG. In the event of non-performance of warranty obligations, PBG will be forfeited).	Yes / No / Explain	
13	Payment Term: (Our Default payment term: For indigenous orders: 100% within 30 days after receipt and acceptance of item at our site. NOTE: CONSEQUENT TO COVID 19 PANDEMIC AND AS PER EXTANT GUIDELINES FROM DEPARTMENT OF SPACE, NO ADVANCE PAYMENT IS PAYABLE TO THIS TENDER).	Yes / No / Explain	
14	Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a) Equal to or more than 50% : Class-I local supplier. b) More than 20% but less than 50% : Class-II local supplier. c) Less than or equal to 20% : Non-local supplier. Mention your category.	Yes / No / Explain	
15	Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.	Yes / No / Explain	

16	The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC(minimum local content) in technical bid itself. Confirm attachment of Self declaration along with the offer.	Yes / No / Explain	
17	PO Placement Address (with Name and Contact Details of sales person concerned).	Yes / No / Explain	
18	Any Other Terms	Yes / No / Explain	
19	Offer Validity	Yes / No / Explain	
20	You shall quote for Non-comprehensive AMC for 5 years. Scope of AMC should be specified clearly	Yes / No / Explain	
21	You shall do installation at our lab and training shall be given to our engineers	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	Automatic 2 channel Battery Module Testing System with Individual Cell Voltage Monitoring	1.00 Nos.		-		

Common charges (Applicable for all items)

P&F Charges	
Freight charge	
AMC Charges for 1st Year after warranty period	

AMC Charges for 2nd Year after warranty period	
AMC Charges for 3rd Year after warranty period	
AMC Charges for 4th Year after warranty period	
AMC Charges for 5th Year after warranty period	
Essential Spares Cost (lumpsum)	
Installation & Commissioning Charges	
Any Other Charges (Amount)	
Documentation & Hadnling charges	