

मौलाना आज़ाद राष्ट्रीय प्रौद्योगिकी संस्थान भोपाल
Maulana Azad National Institute of Technology Bhopal
(भारत सरकार, शिक्षा मंत्रालय के अधीन राष्ट्रीय महत्व का संस्थान)
(An Institution of National Importance under MoE, Govt. of India)



सीमित निविदा पूछताछ

LIMITED TENDER ENQUIRY

सामग्री/वस्तु का नाम
Name of Goods/Items

**Circulating Chiller, Temperature Control Chamber,
Universal Data Logger, Temperature bath suitable
for calibration (Dry Block), Phase change
materials, Round Heat Pipes, Flat heat pipes, Low
flow peristaltic pump**

Website

www.manit.ac.in

Fax No:

0755-2670562

Email Address:

info@manit.ac.in

Telephone
No:

0755-4051000, 0755-4052000

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| <i>मौलाना आज़ाद राष्ट्रीय प्रौद्योगिकी संस्थान, भोपाल</i> | |
| <i>Maulana Azad National Institute of Technology Bhopal</i> | |
| (भारत सरकार, शिक्षा मंत्रालय के अधीन राष्ट्रीय महत्व का संस्थान) | |
| (An Institution of National Importance under MoE, Govt. of India) | |
| | |
| No. MANIT/ESE/2025:18 | दिनांक / Date: 25/11/2025 |
| निविदा आमंत्रण सूचना | |
| NOTICE INVITING TENDERS | |
| | |
| सामग्री / वस्तु का नाम Name of Goods/Items | Circulating Chiller, Temperature Control Chamber, Universal Data Logger, Temperature bath suitable for calibration (Dry Block), Phase change materials, Round Heat Pipes, Flat heat pipes, Low flow peristaltic pump |
| <p>उपरोक्त सामग्री / वस्तु के लिए निविदाएँ अमंत्रित की जाती हैं। इच्छुक निर्माता/अधिकृत भागीदार/ एंजिनियरों, अधिक जानकारी के लिए संस्थान के वेबसाइट www.manit.ac.in और CPPP वेबसाइट www.eprocure.gov.in/epublish/app पर लागू-इन कर सकती हैं। निविदा दस्तावेज डाउनलोड कर विधिवत रूप से उप-कुलसचिव (भण्डार एवं क्रय) मौलाना आज़ाद राष्ट्रीय प्रौद्योगिकी संस्थान, भोपाल – 462003 जमा किया जा सकता है।</p> <p>सम्पूर्ण निविदा मय दस्तावेज प्रस्तुत करने की अंतिम तिथि 16 दिसंबर 2025 अपरान्ह 12.00 बजे तक है। संस्थान निदेशक, बिना कोई कारण बताए किसी या संपूर्ण निविदा को पूर्ण या आंशिक रूप से स्वीकार या अस्वीकार करने का अधिकार सुरक्षित है।</p> | |
| कुलसचिव | |
| <p>Tenders are invited for aforesaid Goods/ Items. Interested Manufacturers/ Authorized Partner/Agencies may log on Institute website www.manit.ac.in and CPPP website www.eprocure.gov.in/epublish/app for further details. Tender Document can be downloaded and the duly completed be submitted to the Deputy Registrar (Stores & Purchase) Maulana Azad National Institute of Technology- Bhopal- 462003.</p> <p>Last date of submission of complete tender document is 16 December 2025 up to 12.00 hours. The Director of the Institute reserves the right to accept or reject any or the entire tender in full or in part without assigning any reason whatsoever.</p> | |
| Registrar | |

मौलाना आज़ाद राष्ट्रीय प्रौद्योगिकी संस्थान, भोपाल
Maulana Azad National Institute of Technology Bhopal

एक नजर में महत्वपूर्ण जानकारियाँ

IMPORTANT INFORMATION AT A GLANCE

| | | | |
|---|--|--|--|
| निविदा क्रमांक एवं दिनांक Tender No & Date | | No. MANIT/ ESE/2025:18 Date: 25/11/2025 | |
| निविदा का कार्यक्षेत्र / SCOPE OF TENDER | | | |
| सामग्री/वस्तु का संक्षिप्त विवरण Brief Description of Goods/Items | | संख्या Quantity | टिप्पणी Remarks |
| Circulating Chiller, Temperature Control Chamber, Universal Data Logger, Temperature bath suitable for calibration (Dry Block), Phase change materials, Round Heat Pipes, Flat heat pipes, Low flow peristaltic pump | | As per BoQ | संलग्नक- I पर विस्तृत विवरण Detailed Specification at Annexure-I |
| निविदा की अनुमानित लागत Estimated cost of Tender | | Rs.1135000.00 | |
| आपूर्ति एवं स्थापना का स्थान Location of Supplies & Installation | | ऊर्जा विज्ञान एवं अभियांत्रिकी विभाग Department of Energy Science & Engineering at Institute | |
| निविदा दस्तावेज की उपलब्धता Availability of Tender Document | | www.manit.ac.in www.eprocure.gov.in/epublish/app | |
| निविदा जमा करने के अंतिम दिनांक एवं समय Last Date & Time of Submission of Tender | | 16-12-2025 up to 12:00 hours | |
| निविदा खुलने की दिनांक एवं समय Date & Time of Opening of Bids | | 16-12-2025 at 15:00 hours | |
| निविदा वैधता की अवधि Tender Validity period | | 60 days from the date of opening of the Technical Bid | |
| वितरण/आपूर्ति की अवधि Delivery/ Supply period | | 06 weeks from the date of issue of Supply Order | |
| वारंटी अवधि Warranty Period | | 1 year (s) from the date of successful Installation & Commissioning of equipments/ items | |
| बोली सुरक्षा/बयाना राशि Bid Security/ EMD | | As per slab mentioned in the document. | |
| निष्पादन सुरक्षा राशि Performance Security Amount | | As per slab mentioned in the document | |

बोलीदाता के लिये निर्देश / अनुदेश / INSTRUCTIONS TO BIDDERS

| | | |
|----------|---|--|
| 1 | Scope of Supplies & Work: | |
| a | The Goods/ Items shall be supplied as per the Bill of Quantity and Specifications mentioned in ANNEXURE-I . However higher specification of equipment may be considered subject to their cost economics competitiveness. | |
| b | Bidder should supply illustrated leaflet giving technical details of Goods/ Item and attach the same with the tender to facilitate evaluation. | |
| c | No option(s) regarding price of Goods/ Items shall be entertained in the price bid. Bidder should quote the price of only one best & appropriate model of Good/Item available with them. | |
| d | Purchase Preference will be given to “Make in India products” as defined in Purchase Preference with Local Content (PP-LC) Policy. Accordingly, bidders with Local Content less than or equal to 20% will be treated as “Non Local Supplier”. The prescribed LC shall be applicable on the date of Bid opening. The bidder shall submit an undertaking along with the bid stating the bidder meets the mandatory minimum LC requirement and such undertaking shall become a part of the contract. Local content certificate from practicing Cost Accountant or practicing Chartered Accountant giving the percentage of local content shall be acceptable. The local content certificate shall be submitted along with each invoice raised. | |
| e | Purchase preference will be given to MSEs as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs). If the bidder wants to avail the Purchase preference, the bidder must be the manufacturer of the offered product in case of bid for supply of goods. Traders are excluded from the purview of Public Procurement Policy for Micro and Small Enterprises. In respect of bid for Services, the bidder must be the Service provider of the offered Service. Relevant documentary evidence in this regard shall be uploaded along with the bid in respect of the offered product or service. If L-1 is not an MSE and MSE Seller (s) has/have quoted price within L-1+ 15% (Selected by Buyer) of margin of purchase preference /price band defined in relevant policy, such Seller shall be given opportunity to match L-1 price and contract will be awarded for 25%(selected by Buyer) percentage of total QUANTITY. | |
| f | Bidder may be asked to supply sample of offered product/item before supply in bulk quantities. | |
| g | Where ISI certification marked goods are available in market, procurement should generally be limited to goods with those or equivalent marking only. The warranty/AMC required must be specified | |
| h | After the supply of Goods/ Items & Accessories as mentioned in the ANNEXURE-I , the bidder has to execute its installation at the designated location(s).No extra cost shall be paid for this reason. | |
| 2 | Delivery of Supplies & Installation: | |
| a | The purchaser interested for complete delivery of equipments along with Installation, Testing and Commissioning within the period as mentioned at IMPORTANT INFORMATION AT GLANCE sheet. However, the bidder has an option to submit the best delivery with installation time. | |
| b | The material shall be inspected on receipt at site and bidder shall be responsible for any damage during the transit of Goods/Items. | |
| c | The insurance cover including insuring the goods against the loss or damage incidental to manufacture or acquisition, transportation, storage and delivery/ | |

| | | | | | |
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| | | installation shall be obtained by bidder in his own name and not in the name of purchases. | | | |
| 3 | Warranty & After Sales Services: | | | | |
| | a | The bidder shall offer on-site comprehensive warranty of equipments as mentioned at IMPORTANT INFORMATION AT GLANCE sheet at the designated location & shall cover each and every part of the equipments including parts having limited life etc. The purchaser is not liable to pay any extra charges on any account during warranty period. | | | |
| | b | The bidder shall ensure to render after sales services during the warranty period to the satisfaction of purchaser. | | | |
| 4 | Eligibility Criteria: | | | | |
| | a | Bidder should be a Company/Partnership firm/ Proprietary firm/ Agency and operational from at least 03 years (Three) as on close date of tender. Copy of registration shall be attached. | | | |
| | b | Bidder should have minimum annual turnover (Double value of estimated cost of tender) in last year .CA certification in this regard is to be submitted. | | | |
| | c | The Earnest Money Deposition slip/ proof of payment. | | | |
| | d | Bidder should have GST Number & Income PAN both. | | | |
| | E | Please submit the MAF for at least item no. 1, 2,3 4 | | | |
| | F | Datasheet of all the offered products must be enclosed | | | |
| 5 | Earnest Money Deposit: | | | | |
| | The bidder is instructed to submit EMD in the form of DD/FDR/RTGS/NEFT/BG/Bank deposition slip along with bid to prove the transfer of payment to the purchaser's Account as per EMD slab mentioned below: | | | | |
| | Tender Value | | EMD Rate | | Remarks |
| | Less than 2.50 Lakhs | | NIL | | |
| | Between 2.50 lakhs to 25.00 Lakhs | | 2% of Tender Value rounded off in nearest in 100 rupees. | | |
| | a | Purchaser's Bank Account details: | | | |
| | | Account Name | Bank Name | Bank A/c No. | Bank IFS Code |
| | | Director MANIT Bhopal | State Bank of India | 10020150107 | SBIN0001608 |
| | b | The EMD will be returned to the unsuccessful bidders soon after placement of order and successful bidder shall get its EMD after supply of material. | | | |
| | c | The bidder seeking EMD exemption, must submit the valid supporting document for the relevant category. Manufacturers for goods and service providers for services are eligible for exemption from EMD under MSE Category. Traders are excluded from the purview of this policy. | | | |
| 6 | Amendment of Tender Document: | | | | |
| | a | At any time prior to the date submission of bids, the purchaser may, for any reason, whether at its own initiative or in response to a clarification sought by a prospective bidder, amend bid document by issuing corrigendum. The corrigendum will be notified/ published in e-tendering website www.eprocure.gov.in/epublish/app and Institute website only. | | | |
| 7 | Price Bid | | | | |
| | a | The Prices should be quoted in Indian Rupees only. | | | |
| | b | Purchaser (being a research Institution) is registered with the Department of Scientific & Industrial Research (DSIR) for the purpose of availing custom duty exemption in terms of GoI Notification No. 51/96-Customs dated 23 July 1996. The bidder should quote their prices considering the exemption certificate. If any certification needed by bidder, may be given to avail this benefit. | | | |

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| | c | Bidder shall take into account all costs including unloading at the location of purchaser, cartage etc. for giving delivery of material at site(s) before quoting the rates. In this regard no claim what so ever shall be entertained. |
| | d | The bidders are advised not to indicate any separate discount. Discount, if any, should be merged with the quoted unit prices. |
| | e | The price quoted in price bid shall be firm but subject to change in rate of applicable taxes if any. |
| | f | The Bidder should avoid the use of vague term such as “Extra as applicable”. Such offers shall be treated as non-responsive. |
| | g | No extra payment shall be paid on account of any discrepancy in nomenclature of items. The bidder shall seek clarifications if any before submitting the tender. |
| 8 | Bid Submission: | |
| | | The bidder is instructed to give their offline offer through Single bid system for this tender. The tender must be placed in a properly sealed envelope super-scribed “ <i>Tender for the Supply and installation of Equipment.</i> ” with tender inquiry number and its due date addressed to The Director, Maulana Azad National Institute of Technology- Bhopal- 462003 and must reach the office of The Deputy Registrar- Stores & Purchase, Maulana Azad National Institute of Technology, Bhopal on or before as mentioned at IMPORTANT INFORMATION AT GLANCE sheet. The sealed Envelop should be consisting of followings: |
| | a | Copy of Certificate of Registration of firm, GST Number and Income Tax PAN. |
| | b | Proof of submission of EMD amount |
| | c | Certificate mentioning of Turnover for the last year and OEM authorization letter. |
| | d | BOQ Annexure-I and Price Bid Annexure-II duly filled and signed. |
| 9 | Evaluation of Bids: | |
| | | The Institute may evaluate all the required Goods/Items in this tender together or independent depending upon nature of items & compatibility and compare the quotations determined to be substantially responsive i.e. which |
| | a | are properly signed; |
| | b | Confirm to the eligibility criteria of the vendor; and |
| | c | Confirm to the terms & conditions, and technical specifications. |
| | d | In case, required goods/items in this tender are independent and complete in nature. Institute may evaluate independently as far as price is concerned for placing order(s). |
| 10 | Validity of Tender: | |
| | a | The tender shall be valid as mentioned at IMPORTANT INFORMATION AT GLANCE sheet. Terms and financial details submitted in the bid shall be treated as firm during the validity period. |
| | b | In exceptional circumstances, prior to the expiry of the bid validity period, the purchaser may request bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. |
| 11 | Notification of Award: | |
| | a | Prior to the expiry of the period of bid validity, the purchaser shall notify the successful bidder, in writing, that its bid has been accepted. The notification letter shall specify the sum that the purchaser will pay to the bidder in consideration of the <i>Supply of Goods/ Items</i> with the details of selected location. |
| | b | Purchase/ Contract order shall preferably be issued in favour of bidder. Bidder may request in advance for issuance of Purchase/ Contract order in favour of |

| | | | |
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| | OEM of product. In this case billing and payment shall be made to OEM only. | | |
| 12 | Performance Security Deposit: The bidder is required to submit Performance Security in the form of DD/FDR/RTGS/NEFT/BG/Bank Deposit after installation of material along with the bill to the Institute as per slab mentioned below: | | |
| | Order/ Contract Value | PSD Rate | PSD Period |
| | Less than 2.50 Lakhs | NIL | Warranty period plus two month extra |
| | Between 2.50 lakhs to 25.00 Lakhs | 5% of Tender Value rounded off in nearest in 100 rupees. | |
| a | Purchaser's Bank Account details: | | |
| | Account Name | Bank Name | Bank A/c No. |
| | Director MANIT Bhopal | State Bank of India | 10020150107 |
| b | In case of breach of contract, performance security shall be forfeited and the bidder shall be blacklisted for such period as decided by the competent authority in addition to cancellation of order. | | |
| c | Performance Security shall be returned to the bidder without any interest, whatsoever, after completion warranty period as specified in the tender. | | |
| 13 | Penalty Clause: | | |
| a | The bidder shall indicate the period within which the ordered quantity will be supplied along with Installation & Commissioning of Goods/ Items. The bidder shall note that in case bidder fails to do so within the period of delivery indicated by the bidder in price bid of this tender, penalty @ 0.50 % on total value of the PO per week of delay would be levied subject to maximum 20 weeks. It means, the bidder shall have the liability of delayed supply to the maximum of 20 weeks after expiry of scheduled delivery date. | | |
| 14 | Terms of Payment: | | |
| a | The Payment shall be made within 30 days by purchaser after supply and installation of Goods/ Items. | | |
| 15 | Jurisdiction: | | |
| a | In the event of any dispute the legal matter shall be subjected to the jurisdiction of Bhopal court only. | | |
| 16 | Details of Contact Persons for Query if any | | |
| Name | Dr. Ravindra Jilte | Rakesh Singh Parihar | |
| Designation | Associate Professor | Technical Assistant | |
| Tel No | 91155 11973 | 9179840676 | |
| Email | | Rakesh.singh@manit.ac.in | |

मौलाना आज़ाद राष्ट्रीय प्रौद्योगिकी संस्थान, भोपाल
Maulana Azad National Institute of Technology Bhopal

सामग्री की मात्रा एवं विवरण
BILL OF QUANTITY AND SPECIFICATION

| SN | Name of Product/ Items | Quantity | Remarks |
|----|--|----------|---------|
| 1 | Circulating chiller (Specification as per Annexure-1) | 01 no. | |
| 2 | Temperature control chamber (Specification as per Annexure-1) | 01 nos. | |
| 3 | Universal Data Logger with Graphics LED Display, accuracy 0.05% fs, Number of Analog Input 16 (Specification as per Annexure-1) | 01 nos. | |
| 4 | Temperature Bath suitable for calibration (Dry block) (Specification as per Annexure-1) | 01 nos. | |
| 5 | Phase change materials (Specification as per Annexure-1) | 01 no. | |
| 6 | Round heat pipes (Specification as per Annexure-1) | 10 nos. | |
| 7 | Flat heat pipes (Specification as per Annexure-1) | 10 nos. | |
| 8 | Low Flow Peristaltic Pump (Specification as per Annexure-1) | 02 nos. | |

NB: Drawing/ Design is enclosed herewith.

We confirm with our acceptance to the technical specifications given above.

Date:

BIDDER'S NAME &
SIGNATURE WITH SEAL

| | | | | ANNEXURE- II | | |
|---|--|--|-----|--------------|-----|-------------|
| FORMAT FOR SUBMISSION OF BID PRICE | | | | | | |
| To, | | | | | | |
| The Director | | | | | | |
| MANIT- Bhopal- 462 003 | | | | | | |
| Sub: Tender Document dated . | | | | | | |
| SN | Product Description with make & Model | Discounted unit price | Qty | Qty Price | GST | Total Price |
| 1 | 2 | 3 | 4 | 5 | 6 | 7(5+6) |
| 1 | | | | | | |
| 2 | | | | | | |
| Total offered Price | | | | | | |
| Total (In Words): | | | | | | |
| Delivery Period required: | | | | | | |
| The followings things are confirmed and undertake by us that: | | | | | | |
| a | The price quoted above are inclusive of statutory Levies & Taxes, Duties, Transportation and other charges (Insurance, Loading/ unloading, Packing & Forwarding charges, Installation etc.) at site. | | | | | |
| b | Taxes are subject to change/ revision. | | | | | |
| c | We agree with the terms and conditions specified in “Instructions to Bidders” and if selected, the execution of supplies would be made as per bill of Quantity & Specification. | | | | | |
| Date: | | Signature of Authorized Bidder with proper rubber stamp | | | | |
| | | Name: | | | | |
| | | Designation: | | | | |
| | | Mobile No: | | | | |

Technical Specifications

| Item No.1: Circulating chiller | | |
|---------------------------------------|---|------------------------|
| S.No | Specifications | Compliance (Yes/No) |
| | <p>The circulating chiller is required for controlled heating and cooling of battery modules in thermal management and performance evaluation studies. The unit must be capable of providing precise temperature control and fluid circulation over a wide operating range. The system shall be integrated with a low-flow variable-speed pump to allow tailored control of the coolant flow to match specific thermal requirements.</p> <p>1. Application: Designed for cooling and heating of battery modules in battery thermal management systems (BTMS). Supports experimental testing involving temperature variation and precise thermal conditioning. Compatible with various test loops using external fluid circulation via tubing connections.</p> <p>2. Integrated Circulation Pump Pump Type: Integrated Low Flow Peristaltic pump for external loop applications. Flow Rate Range: 10 mL/min (or low) to 80 mL/min (or high). Speed Control: The pump must include a variable-speed drive or electronic speed regulator to enable fine control of the flow rate. Back Pressure Compatibility: Pump must be capable of operating under moderate back pressure conditions upto 10 bar. Display: Pump should have digital display showing RPM & flow rate Construction: Corrosion-resistant materials suitable for use with water, glycol-water mixtures, or other non-corrosive coolants. Tubing Compatibility: Should include or support connection via silicone tubing to external devices.</p> <p>3. General features of circulating chiller: Operating Range: At least -30°C to $+60^{\circ}\text{C}$ Fluid tank capacity: 10 litre Control Method: Microprocessor-based PID controller with auto-tuning functionality. Sensor Type: RTD Pt-100. Display: $3\frac{1}{2}$ digit digital LED display for temperature monitoring. Chamber: Double- walled chamber with high-efficiency PUF insulation (minimum 3"). Material: Stainless steel internal tank (mirror finish); powder-coated or stainless steel outer casing. Top Cover: Stainless steel insulated lid with gasket seal. Mobility: Mounted on castor wheels with front lockable brakes</p> <p>4. Cooling and Heating Mechanism Cooling: CFC-free refrigeration system with eco-friendly refrigerant; includes compressor, condenser, and motor relay. Heating: Integrated electric heating elements controlled via PID loop. Cooling Time: Efficient cooling from ambient to sub-zero range. Heating Time: Rapid heating to maximum set temperature with safety cutoffs.</p> <p>5. Control C Connectivity Controller Features: Microprocessor PID controller with real-time feedback, setpoint adjustment, and stability lock. Alarms: Over-temperature, compressor overload, time-delay protection for compressor.</p> | |

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|---|--|
| Item No.2: Temperature control chamber | |
| | <p>1. Application & Purpose The environmental chamber is designed for precise thermal and humidity control to simulate various environmental conditions for Nickel-ion battery module testing, with a focus on:</p> <ul style="list-style-type: none"> • Evaluating performance and safety under climatic stress. • Investigating thermal behavior and supporting Battery Thermal Management System (BTMS) research. <p>2. General Description</p> <p>3. Type : High-Precision Environmental Stability Chamber Usable Internal Volume : 90 litres Internal Dimensions Approx. 450 mm × 450 mm × 450 mm Inner Chamber SS-304 (GMP grade, corrosion-resistant) Outer Body Powder-coated Mild Steel (MS) Insulation High-density PU Insulated door.</p> <p>3. Temperature control Parameter : Specification Operating Range : -25°C to + 60°C @20°C Temperature Accuracy : ±0.5°C Temperature Uniformity : ±1.0°C Temperature Stability : ±0.5°C</p> <p>4. Humidity Control Parameter Specification Humidity Range : 40% RH to 95% RH Humidity Accuracy : ±3% RH</p> <p>5. Specialized Features for Battery Testing</p> <ul style="list-style-type: none"> • Feedthrough Ports: Four custom 30 mm ports, Silicone sealing caps included, suitable for: High-current battery cables, Thermocouples, Liquid coolant pipes, Optical/fiber sensor lines. Port Sealing: High-temperature silicone gaskets for pressure and thermal integrity. • Digital PID Controller for precise control of Humidity C Temperature. • Calibration: NABL Accredited Calibration Certificate for Temperature controller • Manufacturing Certification: ISO 9001:2015 <p>6. Safety Features Over-temperature protection, Electrical overload protection, door-open warning</p> |
| Item No.3: Universal Data Logger with Graphics LED Display, accuracy 0.05% fs, Number of Analog Input 16 | |
| | <p>The data logger shall be a versatile 16-channel device designed for precise monitoring and recording of various analog and temperature process parameters in laboratory and industrial environments. It shall feature a 7-inch color touch screen with high resolution and an intuitive user interface for easy configuration and real-time data visualization. The system must support multiple universal input types, including thermocouples (types J, K, T, R, S, B, N), 3-wire RTD Pt100 sensors, DC millivolt inputs (±80 mV), DC voltage inputs (±1.25 V, ±5 V, ±1 to ±5 V, ±10 V), and DC current inputs (0 to 20 mA, 4 to 20 mA).</p> <p>Accuracy shall be within ±0.25% of reading. Compensation features for cold junction (thermocouples) and lead resistance (RTDs) must be included to ensure accurate measurement.</p> <p>The device shall be available with modular input channels, configurable per channel without jumpers, in 16-channel versions.</p> |

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| | <p>Sampling time should be around 250 milliseconds per channel. The unit shall provide strong common-mode noise rejection greater than 100 dB at 50/60 Hz, and robust input protections against electrostatic discharge, electrical fast transients, and surge voltages.</p> <p>Physically, the device should support panel mounting with secure clamps and comply with typical laboratory power supply standards (e.g., 24 VDC input). Dimensions and mounting details shall be compatible with standard industrial panels and instrument enclosures.</p> <p>It should come with Included software, it shall be a comprehensive PC-based software suite for data management and analysis. The software should support multi-logger setup, real-time and historical data display in graphical and tabular formats, user access control with multi-level passwords, alarm and event management with notifications (e.g., email/SMS), automatic and manual data backup with archiving functions, and report generation in PDF and Excel formats (including audit trails). The software must also comply with relevant regulatory requirements for data security and traceability.</p> <p>Temperature measurement ranges for supported sensors shall cover from approximately -200°C up to +1800°C depending on sensor type, meeting broad application needs.</p> <p>The product and software solution shall be industrial grade, reliable, and suitable for critical laboratory and process control applications requiring high-accuracy, multi-channel data acquisition and long-term data integrity.</p> | |
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Item No.4: Temperature Bath suitable for calibration (Dry block)

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| | <p>A temperature calibration bath (dry block type) for precision calibration of temperature measuring devices such as RTDs (Resistance Temperature Detectors), thermocouples, Liquid-in-Glass (LiG) thermometers, PRTs, and SPRTs. The equipment shall support calibration over a wide temperature range of (-) 30°C to +120°C, with high stability, accuracy, and rapid thermal response. It should be suitable for laboratory and quality control applications that demand precise thermal control and repeatability.</p> <p>General Features</p> <ul style="list-style-type: none"> • Temperature Range: -30°C (or less) to +120°C (or high) • Temperature Control: PID (Proportional- Integral-Derivative) controller with digital display showing both setpoint and actual block temperature. • Heating & Cooling: Integrated air-based cooling system with optional provision for faster cooling using methanol or equivalent fluid. • Operation: Electric powered, capable of both heating and cooling using a dry-block thermal system. • User Interface: LED display with simple interface for temperature setting and monitoring. • Cooling Fan: Manually controlled fan switch for initiating cooling cycle. • Stability: ±0.1°C • Accuracy: ±0.5% of the reading • Heating Time: From ambient to +120°C in 10- 15 minutes • Cooling Time: From ambient to -30°C in 30 minutes • Interchangeable Thermowells Multi-hole insert to suit 4mm, 6mm and 8mm Sensors • Power Supply: 230 V AC, 50 Hz <p>Standard Scope of supply should include followings: Dry Block Temperature Calibrator, Mains Cable, Insertion Tube, Spare Fuses, Instruction Manual, Carrying Case and Tools for Insertion Tubes removal. NABL accredited Calibration Certificate</p> | |
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Item No.5: Phase change materials**Material Type:****Organic Phase Change Material (Quantity 20kg)**

Melting Temperature: 38 °C,

Freezing Temperatures: 36 °C

Latent Heat of melting: 186 kJ/kg, Latent Heat of Freezing: 196 kJ/kg

Density of Liquid State: 860 kg/m³,Density of Solid State: 973 kg/m³

Specific Heat Capacity of Liquid: 2.63 kJ/kg·K Specific Heat Capacity of Solid: 2.55

kJ/kg·K Thermal Conductivity of Liquid: 0.13 W/m·K Thermal Conductivity

of Solid: 0.16 W/m·K Maximum Operating Temperature: 90 °C Material Type:

HydraTed salt,

Phase Change Material (Quantity 10 kg)

Melting Temperature: 35 °C,

Freezing Temperatures: 36 °C

Latent Heat of melting: 163 kJ/kg,

Latent Heat of Freezing: 163 kJ/kg

Density of Liquid State: 1850 kg/m³,Density of Solid State: 1967 kg/m³ Specific Heat Capacity of Liquid: 2.32 kJ/kg·K

Specific Heat Capacity of Solid: 1.98 kJ/kg·K Thermal Conductivity of

Liquid: 0.47 W/m·K Thermal Conductivity of Solid: 0.50 W/m·K

Maximum Operating Temperature: 90 °C

Copper Oxide Nanoparticle Enhanced PCM (Quantity: 1.5kg)

PCM enhanced with copper oxide (CuO) nanoparticles to enhance thermal performance in thermal management applications. The base PCM should be bio-based or paraffin with a melting point typically between 35 °C and 38 °C.

Suppliers must detail the exact wt% of CuO nanoparticles added, along with comprehensive thermal properties—thermal conductivity, latent heat, specific heat capacity, and melting/solidification temperature range. Physical attributes such as density, molten viscosity, and any stability changes versus base PCM must be included. The nanoparticle dispersion process, long- term cycling stability, safety, environmental impact, material compatibility, and recommended handling procedures should be documented. Technical datasheets, safety documentation, compliance certificates, and supporting data are required.

Aluminum Oxide Nanoparticle Enhanced PCM (Quantity 1.5 kg)

We invite quotations for a phase change material (PCM) enhanced with aluminum oxide (Al₂O₃) nanoparticles, designed to improve thermal conductivity for thermal management and energy storage. The base PCM should be bio-based or paraffin with a melting point between 35 °C and 38 °C. Bidders must specify the exact mass percentage of Al₂O₃ nanoparticles incorporated and provide full thermal properties including thermal conductivity, latent heat of fusion, specific heat capacity, and melting/solidification range. Physical characteristics such as density, molten viscosity, and stability compared to the base PCM must be reported. Details on nanoparticle dispersion methods and long- term thermal cycling stability are required, along with safety, toxicity, environmental compatibility, and handling guidelines. Technical datasheets, safety documentation, compliance certificates, and supporting data are required.

Item No.6: Round heat pipes**Product Type: Miniature Round Heat Pipe (Quantity: 4)**

Outer Diameter: 6 mm

Length: 200 mm Shape: Straight, Round, Material: Copper C1020

Wick Type: Sintered wick (capable of operating in any orientation)

Working Fluid: De-ionised water

End Dimensions: Head End Width: 18 mm, Tail End Width: 11.5 mm

Core Radius (Rc): 18 mm

Thermal Performance

Maximum Heat Transport Capacity (Q): 36 W Thermal Resistance (Rc): 18 mm

Operating Temperature Range: Ambient to 250 °C (fail-safe temperature without

cooling) Orientation Capability: Suitable for horizontal and vertical operation

Application Suitability: Medium-to-high heat load management in Battery Thermal Management Systems (BTMS), electronics cooling, and high-density modules

| Item No.7: Flat heat pipes | |
|---|---|
| | <p>Device Type: Flat Heat Pipe, Application: Suitable for thermal regulation in battery modules during BTMS lab testing. Material C Structure Container Material: Aluminium 1070, Wick Structure: Groove type, Working Fluid:Acetone. Dimensions (Quantity: 5) Length: 250.0 mm, Width: 40.0 mm, Thickness: 2.0 mm. Maximum Heat Transport Capacity (Qmax): 175.0 W Dimensions (Quantity: 5) Length: 250.0 mm, Width: 30.0 mm, Thickness: 1.6 mm. Maximum Heat Transport Capacity (Qmax):50.0 W</p> |
| Item No.8: Low Flow Peristaltic Pump | |
| | <p>Pump Type: Peristaltic pump Display: LCD Flow Rate Range: 0.1 mL/min (or low) to 1000 mL/min (or high) Motor Type: Microcontroller-controlled Stepping motor Tubing Material : Silicone tubing Maximum Accuracy: $\pm 2\%$ Supply: 230 V AC / 50 Hz Operating Temperature: Up to 40°C Operating Humidity: Up to 80% RH Housing Material: Stainless Steel / MS</p> |