

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

Five Level Reconfigurable Inverter

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>	
Maulana Azad National Institute of Technology Bhopal	
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(An Institution of National Importance under MoE, Govt. of India)	
No. MANIT/EE/2025-26/025	दिनांक / Date: 28/11/2025
निविदा आमंत्रण सूचना	
NOTICE INVITING TENDERS	
सामग्री / वस्तु का नाम Name of Goods/Items	Five Level Reconfigurable Inverter
<p>उपरोक्त सामग्री / वस्तु के लिए निविदाएँ अमंत्रित की जाती हैं। इच्छुक निर्माता/अधिकृत भागीदार/ एंजेन्सियाँ, अधिक जानकारी के लिए संस्थान के वेबसाइट www.manit.ac.in और CPPP वेबसाइट www.eprocure.gov.in/epublish/app पर लाग-इन कर सकती हैं। निविदा दस्तावेज डाउनलोड कर विधिवत रूप से सहायक-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 19/12/2025 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 Assistant Registrar (Stores & Purchase) Maulana Azad National Institute of Technology- Bhopal- 462003.</p> <p>Last date of submission of complete tender document is 19/12/2025 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/EE/2025-26/025 Date: 28/11/2025	
निविदा का कार्यक्षेत्र / SCOPE OF TENDER		
सामग्री/वस्तु का संक्षिप्त विवरण Brief Description of Goods/Items	संख्या Quantity	टिप्पणी Remarks
Five Level Reconfigurable Inverter	01	संलग्नक-1 पर विस्तृत विवरण Detailed Specification at Annexure-I
निविदा की अनुमानित लागत Estimated cost of Tender	Rs.1416000.00	
आपूर्ति एवं स्थापना का स्थान Location of Supplies & Installation	Electrical Engineering Department 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	19/12/2025 up to 12:00 hours	
निविदा खुलने की दिनांक एवं समय Date & Time of Opening of Bids	19/12/2025 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	04 to 06 weeks from the date of issue of Supply Order	
वारंटी अवधि Warranty Period	Two 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	Start-ups as recognized by Department for Promotion of Industry and Internal Trade (DPIIT), claiming EMD exemption and relaxation in turnover as prescribed in the certificate / Start Up scheme of DPIIT.
g	Bidder may be asked to supply sample of offered product/item before supply in bulk quantities.
h	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
i	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/ 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	The Bidder must have supplied Goods/ Items in last three years to Central/State government/ Quasi-Government organization/ Public listed company in India. Copies of Purchase Order (PO) shall be attached.		
	c	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.		
	d	The Earnest Money Deposition slip/ proof of payment.		
	e	Bidder should have GST Number & Income PAN both.		
	f	OEM Authorization Letter		
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	
	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.
		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.
	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 of Five Level Reconfigurable Inverter.</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 Assistant 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	Copy of Purchase Order (PO) received from government shall be attached.
	d	Certificate mentioning of Turnover for the last year and OEM authorization letter.
	e	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 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. Giribabu Dyanamina	Dr. T S Bheemraj	
	Designation	Associate Professor	Assistant Professor	
	Tel No	7206519665	8301828656	
	Email	dgiribabu@manit.ac.in	bheemraj@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

S.No.	Name of Product/ Items	Quantity	Remarks
1	<p><u>Three Phase 5 LEVEL RECONFIGURABLE MLI:</u></p> <p>a) 3PH 5 LEVEL RECONFIGURABLE MULTI LEVEL INVERTER:-</p> <ul style="list-style-type: none"> ❖ 24 nos of SEMIKRON IGBT Rating @ 1200 V, 100A, 20 kHz required. ❖ All IGBTs & Diodes are to be mounted on proper COBRA heat sink and cooling fan required ❖ All IGBTs & Diodes Terminals to be provided external, for wiring requirements ❖ 4 nos of 4700mfd/450v capacitor as per requirement of level configuration. Each Capacitor terminal to be provided separately ❖ One no 3ph 1200v/100A DBR will be provided. DBR I/P & O/P terminals to be provided External. ❖ Snubber capacitor provided for dv/dt protection. ❖ 24 NOS SKYPER32R SEMIKRON based Negative turn off with short circuit protection driver circuits used to Isolate and Drive IGBT PWM signals Up to 20Khz. ❖ 4 nos Isolated SMPS power supply rating @+15v/3A Used for IGBT PWM driver circuits. ❖ 6 nos of current sensor required to sense the dc link current & Load current. All sensor I/P & O/P used for current protection and terminated in front panel for measurement purpose. ❖ 4 no Voltage Sensor Used to sense the DC Link Voltage and three phase voltages. ❖ OP-AMP, AND gate & FLIPFLOP based Protection circuit to be used ❖ Necessary Interfacing connectors provided for PWM Input from FPGA controller and analog o/ps to FPGA controller. ❖ All 24 PWM signals terminated in front panel through BS2 connector also can view the PWM pulses through CRO. User can give PWM signals from external controller (5v amplitude) through this connector. ❖ All IGBT I/Ps and O/P s terminated in Front panel through ST12 connector. ❖ Overload trip and indication circuit required. ❖ Overload fuse protection required. ❖ MAXIMUM DC Link voltage 650v dc max ❖ POWER RATING---10KW ❖ All components to be Covered with 6mm Thickness LEM sheet Covered cabinet 	01 No.	

NOTE:

- **The Following Inverters Can be Reconfigurable**
- **2Level VSI, 3 & 5 Level F-Type, 3 & 5 Level NPC (I-type), 3 & 5 Level Active NPC & 3 & 5 Level T-type**

b) 3PH 5HP IPMSM MOTOR COUPLED WITH 7.5HP DC SHUNT GENERATOR WITH ENCODER:

5PH IPMSM MOTOR:

- ❖ POWER -5HP
- ❖ VOLTAGE -415V
- ❖ SPEED -1500RPM
- ❖ NO OF PHASE -5PH

DC SHUNT MACHINE:

- ❖ TYPE -SEPERATELY EXCITED
- ❖ POWER -7.5HP
- ❖ ARMATURE VOLT -220V
- ❖ FIELD VOL -220V
- ❖ SPEED -1500RPM

BOTH MACHINES ARE COUPLED & MOUNTED IN COMMON BASE PLATE

512PPR ENCODER USED TO SENSE THE ROTOR POSITION & SPEED

ONE NO ENCODER ITERFACE CARD WILL BE PROVIDED.

1PH 5KW LOADING RHEOSTAT:

- ❖ POWER -5KW
- ❖ VOLTAGE -220V
- ❖ 5NOS SELECTOR SWITCH WILL BE PROVIDED
- ❖ OVERLOAD FUSE PROTECTION
- ❖ MOVING WHEEL AVAILABLE

c) ARTIX7 BASED FPGA CONTROLLER:

FPGA ARTIX_A7_100T_ADB is an easy to use FPGA Development board featuring Xilinx 7 series of FPGA. It is specially designed for experimenting and research system design with FPGAs.

On-Board Features:

· **Programming & Memory section**

- Processor speed 20 MHZ.
- 100 Individually Programmable GPIO Pins.
- SPI PROM for standalone program execution memory.
- 1,01,440 logic cells, 15,850 slices, 126,800 flip-flops.
- 1188kb distributed RAM, 4860kb block RAM.
- 240 nos DSP48 slices for computing DSP algorithms
- 6 clock management block for PLL and DCM.

· **Interfaces**

- **100** GPIO for input or output with range 3.3V and 5V Level.
- Isolated serial communication interface through USB connector.

	<ul style="list-style-type: none"> • 8 pin dip switch for user input selection and 8 LEDs for user output selection. • 2 no of input push switches. • 20x4 (or 16x2) LCD interface header. • On-Board JTAG programmer used to user downloads and executes the programs • through FPGA or SPI PROM.External JTAG header for programming <p>ADC</p> <ul style="list-style-type: none"> • No of ADC input : 16 Channels • Resolution : 16 bit • Sampling rate : 500 KSPS • Analog input range : $\pm 10V$(*BIPOLAR) <p>• DAC</p> <ul style="list-style-type: none"> • No of DAC output : 4 Channels • Resolution : 12 bit • Settling time : 6μs • Analog output range : 0 to +5V <p>• Connectors</p> <ul style="list-style-type: none"> • 20 pin header for ADC input. • 40 pin header for PWM Outputs and Capture Inputs. • 2 no's of 40 pin headers for GPIO line termination. <p>External Programming header</p> <p>Warrenty – minimum two year.</p>		
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NB: Drawing/ Design is enclosed herewith.

We confirm with our acceptance to the technical specification as given above.

Date:		BIDDER'S NAME & SIGNATURE WITH SEAL
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				ANNEXURE- II		
FORMAT FOR SUBMISSION OF BID PRICE						
To,						
The Director						
MANIT- Bhopal- 462 003						
Sub:		Tender Document dated __/__/2025.				
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	Five Level Reconfigurable Inverter		01 No.			
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:				