



NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI - 620 015
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

NOTICE INVITING QUOTATIONS

File No.	NITT/R&C/EEE/2562/R/ANRF/EP/2026/03	Date:	31.07.2026
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To

(Supplier Address)

Sealed quotations are invited from reputed Authorized Dealers / manufacturers for the supply of the Items.

Name of the Item : Electronic Load for High-Voltage DC
Power Converter Testing

Specification : (As per enclosed Schedule Annexure – I)

1. Quotation Reference No. : NITT/R&C/EEE/2562/R/ANRF/EP/2026/03
2. Last date and Time for receipt of quotation : 20.08.2026 at 5.00 PM
3. Date & Time of opening of Quotation : 21.08.2026 at 3.00 PM
4. EMD Amount : Rs.12000 / Nil for MSME (Non-Trading)
5. Validity (Days) : 90
6. Address to which quotations are to be sent

The Director,

National Institute of Technology,

Tiruchirappalli – 620 015, Tamil Nadu, India

Kind attention to : Dr. V. Vignesh Kumar

Department of Electrical and Electronics Engineering

Phone : 0431-2503266

E-mail : vvigneshkumar@nitt.edu

7. Quotations should be submitted in the format given in Annexure – I and Annexure-II
8. The envelope should contain the following details:

**“QUOTATION AGAINST ENQUIRY (Electronic Load for High-Voltage
DC Power Converter Testing, NITT/R&C/EEE/2562/R/ANRF/EP/2026/03)**
Kind attention to: Dr. V. Vignesh Kumar
Last date and Time for receipt of quotation : 20.08.2026 at 5.00 PM

Terms and Condition

1.	The quotation must be in the format furnished by NIT Tiruchirappalli and should be free from corrections/erasures. In case there is any unavoidable correction it should be properly attested. If not the quotation will not be considered. Quotation written in pencil and incomplete will be rejected.
2.	Earnest Money Deposit (EMD) is to be submitted by way of Demand Draft drawn on any Nationalized bank in India in favor of "The Director, NIT, Tiruchirappalli" payable at Trichy. The bids submitted without EMD will be treated as non-responsive and will be rejected. EMD shall bear no interest. Bidder must fill the EMD returning Form (Annexure-III) and submit along with the quotation. EMD amount of 2% of estimate value is applicable, however UDYAM & NSIC registered Micro & small enterprises are exempted as per Govt.norms proof to be attached.
3.	You are invited to submit your most competitive quotation for the supply of goods according to the specifications and delivery terms as given. Bank guarantee submitted for EMD shall be valid for 45 days beyond bid validity period.
4.	Bidders may send the quotations in sealed covers with the quotation reference number and last date for receipt of quotations duly superscribed on the cover. Kind Attention to: as mentioned in the point No. 6 NB: Mention the company Contact Number / E-mail id on the cover.
5.	Quotation will be opened on due date at 3.00 PM at the Research and Consultancy Section, NIT, Tiruchirappalli in presence of the tenderers or their representatives who may wish to be present. (Any change in the date, time and venue of the quotation opening will be informed to the bidders through telephone / E-mail)
6.	The National Institute of Technology, Tiruchirappalli reserves the right to accept or reject any quotations, and to cancel the bidding process, and reject all quotations at any time prior to the award of order without assigning any specific reason thereof.
7.	Manufacturer's name and country of origin of materials offered must be clearly specified. Printed brochures, Purchase preference is only for Micro & Small enterprises (MSE's) register in UDYAM Portal or NSIC as per Ministries policy for MSE's . Proof to be attached
8.	Samples must be submitted where specified along with the quotations. Samples must be carefully packed, sealed and labelled clearly with enquiry number, subject and sender's name for easy identification. Rejected samples will be returned at your cost if insisted
9.	All supplies are subject to inspection and approval before acceptance. Manufacturer / supplier warranty certificates and manufacturer / Government approved lab test certificate shall be furnished along with the supply, wherever applicable
10.	National Institute of Technology, Tiruchirappalli reserves the right to modify the quantity specified in this enquiry.
11.	Startup company exempted from prior turnover & prior experience (startup certificate registered with DIPP should be enclosed)
12.	The bidder has to submit the bids in sealed envelope, (separate for each tender). Further Bidder should not send clubbing many tenders in one envelope, in such case all the bids will be rejected.

13.	Bid Price a. The contract shall be for the full quantity Bidders must quote for entire quantity. Each bidder shall submit only one quotation in Indian Rupee only. b. Post work orders & completion certificate should be submitted, wherever applicable. c. The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account. d. GST, packing, forwarding and delivering other allied items at the destination shall be included in the price. All such price components may be shown in the quotation. If there is no indication regarding above charges. It will be considered as inclusive of all charges. e. If any arithmetic mistake in total / GST calculation is observed, the same shall be corrected by the purchaser with an intimation to bidder f. In case the items in the enquiry are covered by any rate contract or any other state or central Government, it should be specified in your quotation and accepted contract rates should also be mentioned. It should be confirmed whether you could supply at the RC rates outside rate contract g. Quotations containing conditions like “subject to prior sale” may not be considered. h. Delivery period required for supplying the material should be invariably specified in the quotation i. Bids without quoting GST (unless exempted) will be treated as invalid & disqualified. j. If there is a discrepancy between unit price and total price, the unit price will be considered. If there is any mismatch between figure and word, the amount in word shall prevail.
14.	Evaluation of quotations: Quotations will be evaluated item-wise or lump sum basis. The purchase committee will evaluate and compare the quotations determined to be substantially responsive i.e. (i) are properly signed; (ii) Conform to the terms & conditions and specifications; and (iii) price offered are competitive.
15.	Award of contract a. The National Institute of Technology, Tiruchirappalli will award the Order for supply of Goods / Services to the bidder whose quotation has been determined to be substantially responsive, and who has offered the lowest evaluated quotation price. b. The Bidder should furnish the contract agreement and performance security within 15 days from the date of receipt of the order for supply of goods / services, failing which the order will be cancelled without further notice and awarded to next eligible bidder. c. Notwithstanding the above, National Institute of Technology, Tiruchirappalli reserves the right to accept or reject any quotations, and to cancel the bidding process, and reject all quotations at any time prior to the award of order without assigning any specific reason thereof. d. National Institute of Technology, Tiruchirappalli, prior to the expiration of the quotation validity period, will notify the bidder whose bid is accepted for the award of contract. The terms of accepted offer shall be incorporated in the purchase order.
16.	Warranty: (As mentioned in Annexure-I) shall be applicable to the supplied goods and installation work. Bidder should clearly indicate the arrangements for support and maintenance during the period for which the warranty shall be in force.
17.	Performance Security: Security deposit should be 3% of purchase order value in case of Performance Bank Guarantee should be valid for 60 days beyond the guarantee & warranty. The successful bidder need to submit performance

	security (As mentioned in Annexure –I) of purchase order value either in the form of bank guarantee or crossed demand draft drawn on any Nationalized bank in India in favor of “The Director, NIT, Tiruchirappalli” payable at Trichy. The bank guarantee / Demand Draft will be returned to the supplier after 60 days from date of successful completion of supply, installation, and the warranty period.
18.	Payment: 100% will be paid after Installation and satisfactory working/date of completion of service if the documents are in order. The bill should be raised in favor of “The Director, National Institute of Technology, Tiruchirappalli, Tamil Nadu, India.” with institute GST No. 33AAATN5491Q1ZZ.No advance will be provided to the supplier and installer.
19.	Liquidity damages If the bidder / supplier, after accepting the Purchase Order or supply of Goods / Services, fails to deliver any or all of the Goods or to perform Services within the period(s) specified in the Order, The National Institute of Technology, Tiruchirappalli shall impose penalty without assigning any reasons to the bidder / supplier a sum equivalent to 0.50 % of the total cost as indicated in the Purchase Order (which will be deemed as agreed price) for each week or part thereof of delay until actual delivery or performance is completed and such penal charges shall be limited to a maximum of 5% of the agreed price. Once the maximum is reached The National Institute of Technology, Tiruchirappalli, may proceed on its own to consider the termination / cancellation of the Order and may inform the bidder about the cancellation of the said purchase order. unless extension is obtained in writing from the office / Department on valid ground before expiry of delivery period
20.	If the deliveries are not maintained and due to that account Procuring Entity is forced to buy the material at your risk and cost from elsewhere, the loss or damage that may be sustained there by will be recovered from the defaulting supplier
21.	Dispute clause: Any dispute relating to the Enquiring /Tender of the indented item shall be under the Hon’ble Court having its jurisdiction over Tiruchirappalli only
22.	Startup company exempted from Prior Turnover & Prior Experience (Startup certificate registered with DIPP should be enclosed)
23.	NIT Trichy has DSIR, so it’s eligible for 5% in concession of GST and also exempted from Custom’s Duty tax.
24.	Performance Bank guarantee should be valid for 60 days beyond the guarantee & warranty and the BG submitted for EMD shall be valid for 45 days beyond bid validity period.
25.	Bids submitted without EMD (unless exempted) will be treated as disqualified.
26.	The successful bidder should submit Security Deposit/PBG within 15 days from the date of placement of order. The EMD shall be returned only after receipt of SD. If the bidder fails to deliver the material, then the EMD/SD shall be forfeited.
27.	In LTE, bidder has to submit in sealed envelope (separate for each tender). Further Bidder should not send clubbing many tenders in one envelope, in such case all the bids will be rejected.

For any details / clarifications regarding could be obtained, Stores and Purchase Section from the National Institute of Technology, Tiruchirappalli on all working days during 10 AM to 5 PM.

For further detail kindly contact : Dr. V. Vignesh Kumar, (Purchase initiator), Department of Electrical and Electronics Engineering, National Institute of Technology Trichy, vvigneshkumar@nitt.edu, 0431-2503266.

(NB: Mention the Contact Number / E-mail on the cover. Any change in the date, time and venue of the tender opening will be informed to the bidders through telephone / E-mail)

Enclosures:

Specifications of the equipment	Annexure - I
Price Format	Annexure - II
Bid Security Declaration form	Annexure – III
Bank Mandate Form	Annexure – IV



NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI - 620 015
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Annexure- I

Specifications of the Equipment

Ref: NITT/R&C/EEE/2562/R/ANRF/EP/2026/03

Date: 31.07.2026

Sl. No.	Specification of NIT-T	Specification of the Supplier	Reasons (if there is difference in specification)
1.	Electronic Load for High-Voltage DC Power Converter Testing Detail specification Programmable DC electronic load suitable for laboratory testing of high-voltage DC power converters, battery chargers, DC-DC converters, battery systems, and renewable energy power electronic systems.		
	Operating Voltage (DC)	Minimum 1000 V	
	Power	Minimum 2000 W	
	Current	Minimum 40 A	
	Input Terminal Insulation Rating	The DC input terminals shall have an insulation rating suitable for safe operation at 1000 V DC or higher and comply with the applicable IEC/EN safety standards for lab electronic test and measurement equipment.	
	Constant Current (CC) Mode Operation:		
	Operating Current Range	0 A to at least 40 A	
	Current Setting Resolution	0.001 A (1 mA) or better	
	Current Setting Accuracy	± (0.2% of setting + 0.1% of rated current) or better	
	Current Setting Accuracy (Parallel Operation)	± (0.4% of setting + 0.2% of rated current) or better	
	Constant Resistance (CR) Mode Operation:		
	Operating Range	H Range: 0 S to 1 S; L Range: 0 S to 10 mS	
	Conductance Setting Resolution	H Range: 0.00002 S or better L Range: 0.0002 mS or better	
	Conductance Setting Accuracy	H Range: ± (0.5% of setting + 0.5% of rated value) or better L Range: ± (0.5% of setting + 0.2% of rated value) or better	
	Conductance Setting Accuracy (Parallel Operation)	H Range: ± (1.0% of setting + 1.0% of rated value) or better L Range: ± (1.0% of setting + 0.4% of rated value) or better	
	Constant Voltage (CV) Mode Operation:		
	Operating Voltage Range	10 V to at least 1000 V DC	
	Voltage Setting Range	0 V to at least 1010 V	
	Voltage Setting Resolution	0.02 V or better	
	Voltage Setting Accuracy	±(0.05% of setting + 0.05% of rated voltage) or better	
	Voltage Setting Accuracy	±(0.1 % of setting + 0.1 % of	

(Parallel Operation)	rated voltage) or better		
Constant Power (CP) Mode Operation:			
Operating Power Range	0 W to at least 2000 W		
Power Setting Range	0 W to at least 2020 W		
Power Setting Resolution	0.05 W or better		
Power Setting Accuracy	$\pm (0.5\% \text{ of rated power} + 0.04 \text{ A} \times \text{Input Voltage})$ or better		
Power Setting Accuracy (Parallel Operation)	$\pm (1.0\% \text{ of rated power} + 0.1\% \text{ of rated current} \times \text{Input Voltage})$ or better		
Arbitrary I-V Characteristics (ARB) Mode			
- The instrument shall support Arbitrary I-V Characteristics (ARB) mode for emulating user-defined nonlinear load characteristics. - The instrument shall allow programming of up to at least 100 user-defined current values corresponding to specified input voltage points. - The instrument shall support linear interpolation between adjacent user-defined set points to generate a continuous I-V characteristic. - Response Speed: User-selectable from 500 μs to 100 ms, including intermediate settings, or equivalent response-time settings providing equal or faster response.			
Measurement Functions			
Voltmeter - Voltage Measurement Range: 0 V to at least 1000 V DC. - Voltage Display Resolution: 10 mV (0.01 V) or better. - Voltage Measurement Accuracy: $\pm (0.05\% \text{ of reading} + 0.05\% \text{ of rated voltage})$ or better. - Voltage Measurement Accuracy (Parallel Operation): $\pm (0.1\% \text{ of reading} + 0.1\% \text{ of rated voltage})$ or better. Ammeter - Current Measurement Range: 0 A to at least 40 A. - Current Display Resolution: 1 mA (0.001 A) or better. - Current Measurement Accuracy: $\pm (0.2\% \text{ of reading} + 0.1\% \text{ of rated current})$ or better. - Current Measurement Accuracy (Parallel Operation): $\pm (0.4\% \text{ of reading} + 0.2\% \text{ of rated current})$ or better. Power Measurement - Power Measurement Range: Up to the rated power of the electronic load. Power Display: Shall display real-time power calculated from the measured voltage and current.			
Measurement Trigger Functions			
- The instrument shall support programmable measurement triggering with multiple trigger sources, including Immediate, Bus, DIGITAL2, MSync, TALink, LoadOff, or equivalent trigger sources providing comparable functionality. - Trigger Count: 1 to at least 65,536. - Trigger Delay: 0 s to at least 100 s, programmable. - Measurement Interval: 10 μs to at least 3600 s, programmable. - Sense Aperture (Measurement Integration Time): 10 μs to at least 1 s, programmable.			
Pulse Function			
The electronic load shall support Pulse Mode operation in both Constant Current (CC) and Constant Resistance (CR)			

operating modes. • Pulse Frequency Range: 1 Hz to at least 10 kHz. • Pulse Frequency Resolution: ▪ 1 Hz to 10 Hz: 0.1 Hz or better ▪ 11 Hz to 100 Hz: 1 Hz or better ▪ 101 Hz to 1 kHz: 10 Hz or better ▪ 1.1 kHz to 10 kHz: 0.1 kHz (100 Hz) or better • Pulse Frequency Accuracy: ▪ 1 Hz to 5 kHz: $\pm 0.5\%$ of setting or better ▪ Above 5 kHz to 10 kHz: $\pm 1.0\%$ of setting or better • Duty Cycle: User programmable from 5% to 95%. • Duty Cycle Resolution: ▪ 0.1% or better for pulse frequencies up to 1 kHz. ▪ 1% or better for pulse frequencies above 1 kHz. The electronic load shall allow independent programming of High and Low load levels during pulse operation.		
Pulse Switching Level		
CC Mode • Switching Current Setting Range: 0 A to at least 40.4 A. CR Mode • H Range: 1.01 S to 0 S. • L Range: 10.1 mS to 0 S. The switching level shall be limited to the programmed current or conductance setting to ensure safe operation.		
Slew Rate (CC Mode)		
The electronic load shall support programmable current slew rate control in Constant Current (CC) mode. • Current Slew Rate Range: 0.002 A/μs to at least 2 A/μs. • Current Slew Rate Resolution: 0.00005 A/μs (50 μA/μs) or better. • Current Slew Rate Setting Accuracy: $\pm$ (10% of setting + 20 μs) or better. • The slew rate shall be specified based on the 10% to 90% current transition for a step change from 0% to 100% of the rated current		
Sine Function		
The electronic load shall support Sine Wave Loading in Constant Current (CC) mode. • Sine Wave Frequency Range: 1 Hz to at least 10 kHz. • Frequency Setting Resolution: ▪ 1 Hz to 10 Hz: 1 Hz or better ▪ 20 Hz to 100 Hz: 10 Hz or better ▪ 200 Hz to 1000 Hz: 100 Hz or better ▪ Above 1000 Hz: Shall support 2 kHz, 5 kHz, and 10 kHz operating frequencies or equivalent. • Frequency Setting Accuracy: ▪ 300 Hz to 900 Hz: $\pm 1.0\%$ of setting or better ▪ Other supported frequencies: $\pm 0.5\%$ of setting or better The electronic load shall allow user-programmable sinusoidal current generation for dynamic loading applications.		
Soft Start Function		
The electronic load shall support a Soft Start function in Constant Current (CC) mode. • The Soft Start Time shall be user programmable. • Soft Start Time Setting Range: User-selectable from 500 μs to 100 ms, including multiple intermediate settings, with provision to disable the function. • The Soft Start function shall provide controlled ramp-up of		

	the load current to minimize inrush current and prevent abrupt loading of the Device Under Test (DUT).		
	Automatic Protection Functions		
	• The electronic load shall provide Over Voltage Detection (OVD) to automatically disable the load when the applied input voltage exceeds 110% of the rated input voltage. • The electronic load shall provide Reverse Polarity/Reverse Connection Protection to protect the instrument against reverse connection of the DC input terminals. • The electronic load shall provide Over Temperature Protection (OTP) with automatic load shutdown in the event of excessive internal temperature. • The electronic load shall provide Input Terminal Overcurrent Protection to prevent excessive current through the DC input terminals. • The electronic load shall support an External Alarm Input for remote fault detection and automatic load shutdown. • During parallel operation, the electronic load shall continuously monitor communication, synchronization, power supply status, temperature, and operating conditions of all connected units. Any abnormal condition shall result in appropriate protective action, including automatic load shutdown.		
	User Programmable Protection Functions		
	Over Current Protection (OCP) • OCP Setting Range: 0 A to at least 44 A. • OCP Setting Resolution: 0.01 A or better. • Protection Action: User selectable between Load OFF and Current Limit modes. Over Power Protection (OPP) • OPP Setting Range: 0 W to at least 2200 W. • OPP Setting Resolution: 0.1 W or better. • Protection Action: User selectable between Load OFF and Power Limit modes. Under Voltage Protection (UVP) • UVP Setting Range: 0 V to at least 1000 V, with provision to disable the protection function. • UVP Setting Resolution: 0.02 V or better. • Protection Action: User selectable between Load OFF and Voltage Limit modes. Watchdog Protection • The electronic load shall provide a Watchdog Protection function. • Watchdog Timer Setting Range: 1 s to at least 3600 s, with provision to disable the watchdog timer. Protection Action: Automatic Load OFF upon watchdog timeout.		
	Sequence Function		
	The electronic load shall support Sequence Operation in Constant Current (CC), Constant Resistance (CR), Constant Voltage (CV), and Constant Power (CP) operating modes. • The instrument shall support storage and execution of at least 30 user-programmable sequence programs. • Each sequence program shall support at least 10,000 programmable steps. • Step Execution Time: 50 μs to at least 1000 hours, user programmable. • Time Resolution: 1 μs or better.		

	- Each sequence step shall allow user programming of the operating mode, set value, execution time, and transition to the subsequent step. - The instrument shall support single-shot, repeat, and continuous sequence execution. - Sequence programs shall be storable in the instrument memory and recallable without requiring reprogramming. The instrument shall support sequence creation, editing, execution, and monitoring through both the front panel and the supplied PC software.		
	Integration Display		
	The electronic load shall provide an Elapsed Time Display to indicate the cumulative operating time from Load ON to Load OFF. - Elapsed Time Range: 0 s to at least 3,600,000 s (1000 hours). - The electronic load shall provide an Ampere-hour (Ah) Meter for displaying the integrated current drawn by the load. - Ampere-hour Measurement Range: 0 Ah to at least 140,000 Ah. - The electronic load shall provide a Watt-hour (Wh) Meter for displaying the integrated energy absorbed by the load. - Watt-hour Measurement Range: 0 Wh to at least 80,000,000 Wh. - The elapsed time, accumulated charge (Ah), and accumulated energy (Wh) measurements shall be displayed on the instrument and shall be resettable by the user. The accumulated measurement values shall be available through the remote communication interface for logging and monitoring.		
	Automatic Cut-off Function		
	The electronic load shall support automatic load termination based on the following user-programmable conditions: Elapsed Time Cut-off - The load shall automatically turn OFF when the programmed elapsed time is reached. - Elapsed Time Setting Range: 0 s to at least 3,600,000 s (1000 hours). - Time Setting Resolution: 1 s or better. Integrated Current (Ampere-hour) Cut-off - The load shall automatically turn OFF when the accumulated discharge reaches the programmed Ampere-hour (Ah) value. - Ampere-hour Setting Range: 0 Ah to at least 140,000 Ah. - Ampere-hour Setting Resolution: 0.001 mAh or better. Integrated Energy (Watt-hour) Cut-off - The load shall automatically turn OFF when the accumulated discharged energy reaches the programmed Watt-hour (Wh) value. - Watt-hour Setting Range: 0 Wh to at least 80,000,000 Wh. - Watt-hour Setting Resolution: 0.001 Wh or better. Voltage Cut-off - The load shall automatically turn OFF when the measured input voltage falls below or is equal to the user-defined cutoff voltage. - Voltage Cutoff Setting Range: 0 V to at least 1000 V.		

	Voltage Setting Resolution: 0.02 V or better.		
	Remote Sensing		
	- The electronic load shall support Remote Sensing to compensate for voltage drops in the load connection cables and ensure accurate voltage regulation at the Device Under Test (DUT). - Maximum Remote Sense Voltage: Suitable for operation up to 1000 V DC. - The Remote Sense terminals shall have an isolation rating of ± 1000 V or higher with respect to the input terminals and shall comply with applicable safety standards.		
	Parallel Operation		
	- The electronic load shall support parallel operation of at least five identical units for higher current and power applications. - The parallel-connected units shall operate as a coordinated system with appropriate current and power sharing. - The instrument shall provide the necessary synchronization and communication interfaces for reliable master-slave parallel operation. - All hardware, cables, connectors, and accessories required for parallel operation shall be supplied.		
	Mutual Synchronized Operation		
	- The electronic load shall support mutual synchronized operation between multiple units. - The synchronization function shall support: - Simultaneous Load ON/OFF operation. - Synchronized sequence execution and sequence resumption. - Synchronized acquisition and recording of measured data across all connected units. The synchronization interface shall be electrically isolated from the DC input terminals.		
	External Control and Monitoring Interface		
	The electronic load shall provide an external control and monitoring interface with the following minimum features: Control Inputs - Load ON/OFF Control Input for remote enabling and disabling of the electronic load. - Alarm Input for external fault detection and automatic load shutdown. - Alarm Reset/Clear Input for remote clearing of alarm conditions after the fault has been removed. - Trigger Input for externally triggering measurement, sequence execution, or other programmable operations. External Analog Programming - The electronic load shall support external analog programming through 0–10 V analog input with an input impedance of 10 kΩ or higher. - CC Mode: External programming from 0 to 100% of the rated current. - CR Mode: External programming from 0 to 100% of the rated conductance. - CP Mode: External programming from 0 to 100% of the rated power. - CV Mode: External programming from 0 to 100% of the rated voltage.		

▪ Programming Accuracy: $\pm$ (1% of rated value) or better. Current Superposition Function • The electronic load shall support current superposition in CC mode through an external analog control input. • The superimposed current shall be programmable over the range of -100% to $+100\%$ of the rated current. • Programming Accuracy: $\pm$ (1% of rated current) or better. Status Outputs The instrument shall provide isolated digital status outputs for: • Load ON status. • Alarm status. • Protection status (including OCP, OPP, UVP, and Watchdog Protection). Programmable Digital I/O • Minimum three programmable digital input/output (I/O) channels. • The digital I/O shall support sequence control, trigger synchronization, and user-programmable control functions. Isolation The external control and monitoring interface shall be electrically isolated from the high-voltage DC input terminals and comply with applicable safety standards		
Monitoring and Trigger Interfaces		
Trigger Output • The electronic load shall provide an isolated Trigger Output for synchronization with external instruments. • The trigger output shall support pulse generation during sequence execution, pulse operation, and sine-wave operation. • The trigger output shall be compatible with standard digital trigger interfaces. Current Monitor Output • The electronic load shall provide an analog Current Monitor Output proportional to the load current. • Output Voltage: 0 V to 10 V, corresponding to 0% to 100% of the rated current. • Output Impedance: 50 Ω nominal. • Output Accuracy: $\pm$ (1% of rated current) or better. Voltage Monitor Output • The electronic load shall provide an analog Voltage Monitor Output proportional to the measured input voltage. • Output Voltage: 0 V to 10 V, corresponding to the measured input voltage with a 1:100 scaling factor or equivalent. • Output Impedance: 50 Ω nominal. Output Accuracy: $\pm$ (1% of rated voltage) or better.		
Communication Interfaces		
The electronic load shall support remote control, monitoring, programming, and data acquisition through the following communication interfaces: RS-232 Interface • The instrument shall provide an RS-232 communication interface for remote operation. • The interface shall support user-selectable baud rates up		

to 115200 bps. - The communication parameters shall support 8-bit data length, 1 stop bit, and selectable parity settings. USB Device Interface - The instrument shall provide a USB Device interface compliant with USB 2.0 High-Speed (480 Mbps) or higher. - The USB interface shall support USBTMC or an equivalent standard for instrument communication. USB Host Interface - The instrument shall provide a USB Host interface compliant with USB 2.0 High-Speed (480 Mbps) or higher for external storage devices and firmware updates. Ethernet Interface - The instrument shall provide a LAN/Ethernet interface compliant with IEEE 802.3 100Base-TX/10Base-T, with IPv4 support and an RJ-45 connector. - The LAN interface shall comply with LXI 1.4 Core Specification 2011 or later equivalent. Remote Communication Protocols The instrument shall support remote communication using VXI-11, HiSLIP, SCPI-RAW, and SCPI-Telnet protocols for remote control, configuration, monitoring, programming, and data acquisition.			
Sequence Creation and Control Software			
- Dedicated PC-based sequence creation and control software shall be supplied for programming, editing, executing, and monitoring user-defined test sequences for the electronic load. - The software shall provide an easy-to-use graphical interface for creating and editing sequence programs without requiring programming knowledge. - The software shall provide visual indication of the sequence execution status/position during sequence operation. - The software shall support real-time monitoring of voltage and current, with the capability to display monitored data graphically and save/export measurement data to files for further analysis. The software shall support remote control and operation of the electronic load, including sequence execution and monitoring.			
AC Input Supply			
Input Voltage	100 V AC to 240 V AC, single-phase		
Input Frequency	47 Hz to 63 Hz		
Maximum Power Consumption	90 VA or less under normal operating conditions		
Maximum Inrush Current	30 A (peak) or less at 100 V AC 80 A (peak) or less at 230 V AC		
Leakage Current	0.6 mA or less		
Environmental Conditions			
- Operating Temperature: 0°C to 40°C. - Operating Relative Humidity: 20% to 85% RH, non-condensing. - Storage Temperature: -25°C to +60°C. - Storage Relative Humidity: 90% RH or less, non-condensing. - Installation: Indoor use, altitude up to 2000 m, Overvoltage			

	Category II.		
	Electrical Insulation		
	- Insulation Resistance: - Between primary circuit and chassis/monitor terminals: $\geq 30 \text{ M}\Omega$ at 1000 V DC. - Between input terminals and chassis/monitor terminals: $\geq 3 \text{ M}\Omega$ at 1000 V DC. - Dielectric Withstand Voltage: - The instrument shall withstand 1500 V AC for 2 seconds between primary circuits and accessible conductive parts without breakdown or abnormal operation.		
	Electromagnetic Compatibility (EMC)		
	The instrument shall comply with the applicable EMC Directive and shall conform to EN 61326-1 or equivalent international standards for laboratory electrical equipment.		
	Electrical Safety		
	The instrument shall comply with the applicable Low Voltage Directive and IEC/EN 61010-1 safety standards for laboratory electrical equipment.		
	Dedicated Equipment Mounting and Test Support Structure		
	- A dedicated, heavy-duty equipment mounting and test support structure shall be provided for the safe installation and operation of the supplied electronic load and associated testing setup. - The structure shall provide adequate mechanical strength, stability, working space, and ventilation clearance for the secure mounting and positioning of the electronic load and the Device Under Test (DUT) during power converter testing. - The structure shall provide suitable space and provisions for the safe placement and operation of necessary measurement instruments, along with convenient access for electrical and measurement connections. - Suitable provisions shall be provided for organized routing and management of high-voltage DC power cables, sensing cables, control cables, communication cables, and measurement connections. - The bidder shall submit the proposed dimensional drawing, equipment placement arrangement, construction details, and load-bearing capacity of the structure along with the technical bid.		
	Accessories		
	The following accessories shall be supplied along with the electronic load: - AC power cord suitable for operation with Indian power supply outlets. - User Manual, Programming/Communication Manual, and Quick Start Guide shall be supplied in both hard copy and electronic format. - Calibration Certificate traceable to national/international standards. - All necessary communication, remote sensing, external control, triggering, and synchronization cables required for operation of all specified functions. - All necessary software, device drivers, utilities, and installation media/download access required for configuration, programming, monitoring, data		

	acquisition, and remote operation of the instrument. • All necessary connectors, adapters, termination accessories, and other accessories required for complete installation, connection, and operation of the equipment. Any additional hardware, software, cables, connectors, accessories, or interface components required for the complete and functional operation of all the specified features and functions shall be supplied along with the equipment.		
	Terms and Conditions		
	• The bidder shall submit the complete technical specifications and manufacturer's datasheet/catalogue of the exact model offered. • The bidder shall submit a point-by-point technical compliance statement against every individual specification, clearly indicating the actual offered value/specification and the corresponding reference in the submitted manufacturer documentation. • Mere copying or reproduction of the tender specifications without indicating the actual offered specifications and providing supporting manufacturer documentation shall not be accepted as proof of compliance. • Incomplete, ambiguous, or unsupported technical claims shall not be accepted as proof of compliance.		
2.	Installation (Yes)		
3.	Warranty (12 Months)		
4.	Comprehensive AMC Charge per year (Nil)		
5.	Delivery Period (6-Weeks)		
6.	Shipment terms	At NIT-T	
7.	Performance Security in 3 %		

Signature & Seal of Vendor with Date



NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI - 620 015
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Annexure- II

PRICE BID FORMAT FOR BIDDERS

Tender No. & Date : NITT/R&C/EEE/2562/R/ANRF/EP/2026/03 & 31.07.2026

Bidder's Offer No. & Date :

S. No.	Description of item	Unit (Set / No)	QTY	Rate / Qty in Rs. (excluding GST)	GST in Rs.			Total Value + GST in Rs.
					SGST	CGST	IGST	
1.	Supply portion (The price indicated shall be exclusive of all accessories, spares etc. as given in the scope of supply)							
2.	Other accessories / spares etc. as given in scope of supply (Individual item-wise break-up price shall be attached as an annexure to this price bid format.)							
3.	Installation and Commissioning (extra, if any)							
4.	Packing & Forwarding charges (extra, if any)							
5.	Freight & Transit insurance charges, extra, if any							
6.	Total price (delivery, installation and commissioning at NIT-T)							
7.	Value of Annual Maintenance Contract							
8.	Net cost to be paid by NIT-T							

Signature & Seal of Vendor

Note: The price bid should be submitted only as per the above format. No row shall be left blank. Please indicate NA, in case the item is "Not Applicable". If this format is not used or any column is left blank, then the bid will be rejected.

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI - 620 015
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

(TO BE PRINTED IN LETTER PAD OF THE FIRM)

EMD Returning Form

To
The Director
National Institute of Technology,
Tiruchirappalli – 620 015

Sub: Returning EMD amount

Sir / Madam,

Our firm has participated in the tender / quotation enquiry No mentioned below and produced the EMD amount through DD, details of the DD are given below.

Tender / Quotation Reference No	
EMD amount	
DD Number	
DD issued Bank	
Date of DD	

It is requested to return the EMD amount to our firm after completion of the purchase to the below mentioned Bank account.

Account Name	
Bank Account Number	
IFSC code	
Bank	

Signature with Seal and Date

MANDATE FORM FOR ELECTRONIC FUND TRANSFER/RTGS TRANSFER

Date: / /

To

The Director,
National Institute of Technology,
Tiruchirappalli – 620 015, Tamil Nadu

Sub	:	Authorization for release of payment / dues from National Institute of Technology, Tiruchirappalli through Electronic Fund Transfer/RTGS Transfer.
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1. Name of the Party / Firm / Company / Institute :
2. Address of the Party :
3. City_____Pin Code_____
4. E-Mail_____Mobile No:_____
5. Permanent Account Number_____
6. Particulars of Bank:

Bank Name:		Branch Name:	
PIN Code:		Branch Code:	
IFS Code:(11 digit alpha numeric code)			
Account Type	Savings	Current	Cash Credit
Account Number:			

DECLARATION

I hereby declare that the particulars given above are correct and complete. If any transaction delayed and not effected for reasons of incomplete or incorrect information I shall not hold Director, National Institute of Technology Tiruchirappalli responsible. I also undertake to advise any change in the particulars of my account to facilitate updating of records for purpose of credit of amount through NEFT/RTGS Transfer.

Place:_____ Date: _____

Signature & Seal of the Authorized Signatory of the Party
