

**Technical specifications for the
Impedance Analyzer for functional material
measurements**

**Required mandatory specifications
(all the conditions should be met)**

Technical specifications

S.No.	Parameter	Description
1	Frequency Range	20 Hz to 20 MHz
2	Frequency Resolution	1 mHz
3	Measurement parameters	Z , Y , q, R, X, G, B, L, C, D, Q, Complex Z, Complex Y
4	Level Monitor	Vac, Vdc,
5	Basic impedance accuracy	± 0.05%
6	Impedance range	25 mΩ to 35 MΩ (10% accuracy)
7	Measurement time	10 msec/point at frequency ≥ 100 kHz
8	Measurement type	Four-terminal-pair measurement (standard) Voltage/current signal level 10 mVrms to 1 Vrms /200 μArms to 20 mArms, 1 mV/20 μA resolution
9	DC bias Voltage, Current	0 to ± 40 V/± 100 mA, 1 mV/40 μA resolution
10	Z measurement range	25 mΩ to 35 MΩ
11	Voltage Range & Resolution	minimum 10 mVrms to 1 Vrms with 1 mV resolution
12	Current Range & Resolution	200 μArms to 20 mArms with 20 μA
13	Sweep parameters	Frequency, signal voltage/current, DC bias voltage/current
14	Sweep type	Linear frequency, log frequency, linear signal level, linear DC bias, log DC bias, segment
15	No of measurement points	Min 0.25 to 1600 points
16	Number of Traces/channels	Minimum 3 data trace per channel & 3 memory trace per channel
17	Marker	Minimum 7 independent markers per trace, delta marker, marker search, marker analysis
18	Marker search	Maximum value, minimum value, multi-peak, multi-target, peak, peak left, peak right, target, target left, target right, and width parameters with user defined bandwidth values.
19	DC bias Voltage, Current	0 to ± 40 V/± 100 mA, 1 mV/40 μA resolution
20	Z measurement range	25 mΩ to 35 MΩ
21	Interface	USB, GPIB, LAN
22	Frequency upgradability	System should be upgradable for future applications
23	Display	Minimum 8 inch TFT with touch screen

24	Equivalent Circuit analysis model	3-component model (4 models), 4-component model (with minimum 1 model)
25	Analysis type	Equivalent circuit parameters calculation
26	Optional accessories (Kindly quote separately)	Dielectric Material Fixture, Liquid Fixture
27	Warranty	<ul style="list-style-type: none"> • Minimum warranty for 2 years
28	Inspection, installation, commissioning and training	<ul style="list-style-type: none"> • All the essential requirements ensuring a ready-to-use set up at IIT Madras should be supplied. • Comprehensive training for research fellows/students should be imparted upon installation
29	Spares, consumables, mandatory accessories and standard feedstocks	<ul style="list-style-type: none"> • Bidder should offer a list of essential spare parts and accessories with their part numbers • Bidder should also ensure that the spare parts and accessories should be made available to procure for a smooth operation over at least 15 years from the date of installation.
30	Additional mandatory conditions	<ul style="list-style-type: none"> • A continuous operational support to IIT Madras should be provided without any additional cost during the warranty period • There should be a minimum of two visits per year during the warranty period by the service engineer and application engineer of the equipment supplier (preferably from OEM). • The bidder should have supplied at least five units in the last three years to IITs/NITs/other CFTIs/National laboratories/government organizations. • A global reference list as well as user list in India should be enclosed. • The operational status of all the equipment in India should be provided.
31	Supplier service support	Supplier should have office, service center and application lab in India.
Additional mandatory requirements:		
<ul style="list-style-type: none"> • Proof of technical competency with at least one similar equipment supplied, installed, maintained, within ten years which are currently working elsewhere (IISc/IITs/IISER/NITs/Central Universities/DRDO/CSIR and other government Labs), shall be submitted along with the offer. • The proof that the bidder was not blacklisted previously in any of government institutions and organizations. 		

- A detailed compliance statement, clearly indicating the compliance (or deviation) against each technical specification to above mentioned specifications should be provided along with technical and financial quotes.
- Financial bids should be provided as a modular bid with a list price for each and individual item. Price should be in CIF Chennai.