



Piezo Measurement Setup

Deadline to submit the quotation: 5 pm, 19-07-2026

Technical Specifications:

Sr. No.	Parameter	Minimum Technical Specification
1	Instrument Type	Piezoelectric Measurement System
2	Application	Measurement of piezoelectric coefficients of Bulk: ceramics, single crystals, polymers, composites, and related piezoelectric materials Thin films: Thin films of around 50 to 70 nm on insulating substrates
3	Measurement Parameters	d33, d31, d15, sample polarity, capacitance, $\tan \delta$; Desirable: optional measurement of g33, g31, g15 and dh coefficient
4	d33 Measurement Range	0-10,000 pC/N or better
5	Resolution	≤ 0.01 pC/N
6	Accuracy	$\pm 2\%$ of reading or better
7	Repeatability	$\pm 1\%$ or better
8	Response Time	≤ 5 seconds for d33 measurement
9	Test Frequency	Adjustable from 30-300 Hz or wider
10	Frequency Resolution	1 Hz or better
11	Frequency Accuracy	± 0.1 Hz or better
12	Function Generator	Built-in programmable function generator
13	Oscillating Force	User adjustable between 0.05-0.50 N or better
14	Static Clamping Force	Approximately 10 N
15	Digital Force Display	Real-time force monitoring preferred



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16	Capacitance Measurement	10 pF-0.1 μ F or wider
17	Capacitance Accuracy	<100 pF: $\pm 2\% \pm 0.1$ pF or better >100 pF: $\pm 2\% \pm 1$ pF or better
18	Dielectric Loss ($\tan \delta$)	0 - 0.2 or better
19	Tan δ Accuracy	$\pm 2\% \pm 0.0001$ or better
20	Sample Types	Bulk: ceramics, single crystals, polymers, plates, composites, and related piezoelectric materials Thin films: Thin films of around 50 to 70 nm on insulating substrates
21	Sample size	Bulk: Thin Films: Thickness- 40 nm to 100 nm or better range Size- 3mmx3mm to 2cmx2cm range or better
22	Maximum Sample Size	At least 50 mm (polarization direction), 68 mm (perpendicular direction)
23	Maximum Sample Weight	-
24	Standard Measurement Head	d33 measurement head
25	Additional Adapters	d31 and d15 adapters; optional dh adapter
26	Sample Polarity	Automatic polarity indication
27	Calibration	Factory calibrated with a calibration certificate and reference sample
28	Calibration Verification	User verification using the supplied reference sample
29	Data Storage	Minimum 100 measurements with measurement parameters retained after power OFF
30	Display	LCD display showing d33, capacitance, $\tan \delta$, frequency, polarity and operating mode
31	Software with external PC	Windows-compatible software for complete instrument control, data acquisition, plotting, storage and analysis
32	Software Functions	Real-time data acquisition, graphical display, statistical analysis, report generation, automatic calculation of derived parameters



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33	Data Export	Excel, CSV and TXT formats
34	Communication Interface	USB and RS-232
35	Communication Protocol	ASCII or equivalent standard protocol
36	Operating Mode	Stand-alone and PC-controlled operation
37	Power Supply	100-240 VAC, 50/60 Hz
38	Operating Temperature	10-40 °C
39	Storage Temperature	0-50 °C
40	Optional Temperature Stage	Room temperature to at least 473 K for temperature-dependent measurements
41	Optional Features	Automatic range selection, digital force gauge, pass/fail quality control, statistical analysis, temperature-dependent d33 measurement, simultaneous d33-capacitance-tan δ measurement
42	Accessories	USB/RS-232 cables, software, calibration sample, sample holders, user manual
43	Installation	Complete installation, commissioning, and on-site training
44	Warranty	Minimum 3 years comprehensive onsite warranty
45	Compliance	CE/ISO certification (where applicable)
46	Documentation	Detailed operating manual, calibration certificate, software license, and service manual

Accessories to be Quoted Separately

Sr. No.	Accessory
1	d31 Measurement Adapter
2	d15 Measurement Adapter



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3	dh Pressure Head
4	Digital Force Gauge
5	High Temperature Measurement Stage
6	Reference Calibration Sample
7	Additional Sample Holders for Different Geometries
8	PC Control and Data Analysis Software (if not standard)

Contact Person:

Dr. Naveen +91 78912 03803