



LT-451™ Dielectric Cure Monitor Specifications



The LT-451 Dielectric Cure Monitor is a compact, versatile instrument designed for Research & Development, Quality Assurance/Quality Control, and Production applications involving thermoset materials—resins, composites, paints and coatings.

The wide 0.001 Hz – 100 KHz frequency range of the LT-451 enables frequency sweeping for studies of dielectric properties, and sensitivity to very high resistivity and ion viscosity (very low conductivity and loss factor). The associated thermocouple input allows correlation of temperature with cure rate and material properties.

The LT451 is available with one, two, four or eight channels. Each channel consists of one dielectric sensor input and one thermocouple input.

CureView Data Acquisition software, included with the LT-451, has functions for defining cure monitoring parameters; data acquisition, analysis and recall; plotting and printing.

When used with either disposable or reusable dielectric sensors, also available from Lambient Technologies, or the user's own sensors, the LT-451 Dielectric Cure Monitor and CureView data acquisition software form a complete measurement system for studying dielectric material properties in all processing environments.

Specifications

Physical:

Dimensions: 17" W x 16" L x 3.25" H (43.2 cm W x 40.6 cm L x 8.3 cm H)
 Weight: 15 lbs (6.8 Kg)

Electrical:

Power: 100 VAC – 240 VAC, 50/60 Hz autoswitching universal input, 3 A max

Measurement:

Excitation frequency range: 0.001 Hz to 100 KHz

Available excitation frequencies (Hz):

0.001	0.0015	0.002	0.0025	0.003	0.0035	0.004	0.0045	0.005	0.006	0.007	0.008	0.009
0.01	0.015	0.02	0.025	0.03	0.035	0.04	0.045	0.05	0.06	0.07	0.08	0.09
0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.6	0.7	0.8	0.9
1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0	7.0	8.0	9.0
10	15	20	25	30	35	40	45	50	60	70	80	90
100	150	200	250	300	350	400	450	500	600	700	800	900
1.0 K	1.5 K	2.0 K	2.5 K	3.0 K	3.5 K	4.0 K	4.5 K	5.0 K	6.0 K	7.0 K	8.0 K	9.0 K
10 K	15 K	20 K	25 k	30 K	35 K	40 K	45 K	50 K	60 K	70 K	80 K	90 K
100 K												

Excitation amplitude: Sine wave, 2.0 V nominal (4.0 V peak-to-peak)

Measurement speed: <1 Hz: ~ (3 / freq) sec
 1 Hz – 9 Hz: <=4.0 sec
 10 Hz – 90 Hz: <=1.0 sec
 100 Hz – 100 kHz: 0.5 sec

Base instrument accuracy (without dielectric interface):
 0.001 Hz to 10 KHz: 0.1 dB gain, 0.5 deg phase
 15 KHz to 100 KHz: 0.5 dB gain, 2.0 deg phase

Inputs: 1-dielectric sensor, 1 thermocouple / channel
 2-start/trigger
 4-general analog input (±10 V range)

Outputs: 2-TTL/digital outputs

Dielectric sensor type: Interdigitated, parallel plate or single electrode

Thermocouple type: J standard, K by special order

Models: LT-451A: 1 channel
 LT-451B: 2 channels
 LT-451C: 4 channels (with external multiplexer interface)
 LT-451D: 8 channels (with external multiplexer interface)

Communications: USB (RS-232C with adapter)



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