



LT-4123 Liquid Dielectric Test Cell Specifications and User's Guide



Figure 1
LT-4123 Liquid Dielectric Test Cell

DESCRIPTION

The LT-4123 Liquid Dielectric Test Cell is designed for measuring the AC loss characteristics and permittivity of liquids and implements the preferred guarded electrode (three terminal) measurement.

Optimum sample volume is 52-53 ml. The LT-4123 has a spout that allows excess liquid to overflow into a cup or other receptacle. Overflow volume is 65 ml.

The center sense electrode is 7.62 cm (3") in diameter. The separation between the sense and excitation electrodes is approximately 3 mm (0.118"). For accurate measurement of test cell capacitance, a guard electrode eliminates fringing electric fields around the sense electrode. The test cell has a grounded frame which acts as a Faraday cage to reduce pickup of external electrical noise.

All metal components of the LT-4123 are aluminum. Other parts are either PTFE, silicone, nylon or polycarbonate. Maximum operating temperature of the LT-4123 is 60 °C, allowing measurement of dielectric properties at moderately elevated temperatures. The LT-4123 is not intended for use with corrosive or highly alkaline liquids.

The LT-4123 Liquid Dielectric Test Cell may be used with either the Lambient Technologies LT-451 Dielectric Cure Monitor or generic LCR meters.

SPECIFICATIONS

Dimensions:

Overall (length x width x height)	: 16.5 cm x 12.0 cm x 12.0 cm (6.50" x 4.75" x 4.75")
Diameter, excitation electrode cup	: 8.22 cm (3.236")
Diameter, sense electrode	: 7.62 cm (3.00")
Height, guard electrode	: 2.0 cm (0.80")
Excitation-response electrode separation	: ~3.0 mm

Weight: : 2.7 kg (6 lbs)

Composition:

Electrodes	: Aluminum
Body	: Aluminum
Other components	: PTFE, silicone, nylon, polycarbonate

Operational temperature : Ambient to 60 °C (140 °F)

Connections:

Excitation electrode	: BNC
Sense electrode	: Triax

Recommended sample volume : 52-53 ml

Maximum sample volume : 65 ml

Overflow volume : >65 ml

Test Cell Parameters:

A/D ratio	: 500 cm ² nominal
Base (parasitic) capacitance	: ~0 pF (actual value may vary)
Capacitance with air dielectric	: ~45 pF nominal



Lambient Technologies L.L.C.
649 Massachusetts Ave., Cambridge, MA 02139, USA
(857) 242-3963
<http://www.lambient.com>
info@lambient.com