

Data sheet

LCR 1707

Smart tweezer LCR tester

FEATURE:

- 20000 count digital display
- Auto Selection of LCR Testing
- Auto Ranging
- 0.5% basic accuracy Capacitance and Inductance
- Measurement Parameters: L, C, R, D, Q, θ , DCR
- Testing Frequency: 100Hz/120Hz/1KHz/10KHz/100KHz selectable
- Self Calibration
- External USB power operation
- Zeroing Mode
- Low Battery Indication
- Auto Power Off
- USB interface
- Tweezers Easy Testing
- Full accessories included

SPECIFICATION:

- Accuracy is \pm (% of reading + LSD)
- Ambient temperature: $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ (< 80% RH)

Test Frequency

Frequency	Accuracy
100Hz	$\pm 0.2\%$
120Hz	
1kHz	
10kHz	
100kHz	

Test Signal

AC Signal Level: 600mVrms

AC Signal Accuracy: $\pm 20\%$

DC Bias Level: 800mV

DC Bias Accuracy: $\pm 10\%$

When measuring by basic accuracy that following conditions must be met:

- Ambient temperature: $23^{\circ}\text{C} \pm 5^{\circ}\text{C} < 80\%\text{RH}$.
- Open and short corrections have been performed.
- $D \leq 0.1$ for C, L measurements; $Q \leq 0.1$ for R measurements.
- Do not measure when charge by AC adaptor. It may cause the reading rolling.
- See the operation manual for additional conditions.

Inductance

Range	100/120Hz	1kHz	10kHz	100kHz
20.000uH	N/A	N/A	N/A	0.5% + 30 ^[1]
200.00uH	N/A	N/A	0.5% + 30 ^[1]	0.5% + 5
2000.0uH	N/A	0.5% + 30 ^[1]	0.5% + 5	0.5% + 5
20.000mH	0.5% + 30 ^[1]	0.5% + 5	0.5% + 5	1.0% + 5
200.00mH	0.5% + 5	0.5% + 5	0.5% + 5	N/A
2000.0mH	0.5% + 5	0.5% + 5	1.0% + 5 ^[2]	N/A

[1] Accuracy is specified after subtract of the offset inductance.
 [2] < 50dgt rolling.
 [3] If $D > 0.1$, the accuracy should be multiplied by $\sqrt{1 + D^2}$.

Capacitance

Range	100/120Hz	1kHz	10kHz	100kHz
200.00pF	N/A	N/A	2.0% + 1pF ^[1]	2.0% + 1pF ^{[1] [2]}
2000.0pF	0.5% + 8 ^[1]	0.5% + 8 ^[1]	0.5% + 8 ^[1]	0.5% + 8 ^[1]
20.000nF	0.5% + 5	0.5% + 5	0.5% + 5	0.5% + 5
200.00nF	0.5% + 5	0.5% + 5	0.5% + 5	1.0% + 5
2000.0nF	0.5% + 5	0.5% + 5	1.0% + 5	N/A
20.000uF	0.5% + 5	1.0% + 5	N/A	N/A
200.00uF	1.0% + 5	N/A	N/A	N/A

[1] Accuracy is specified after subtract of the stray capacitances for test leads.
 [2] < 50dgt rolling.
 [3] If $D > 0.1$, the accuracy should be multiplied by $\sqrt{1 + D^2}$.

Resistance

Range	100/120Hz	1kHz	10kHz	100kHz
20.000Ω	N/A	0.5% + 50 ^[1]	0.5% + 50 ^[1]	0.5% + 50 ^[1]
200.00Ω	0.5% + 8 ^[1]	0.5% + 8 ^[1]	0.5% + 8 ^[1]	0.5% + 8 ^[1]
2.0000kΩ	0.5% + 5	0.5% + 5	0.5% + 5	0.5% + 5
20.000kΩ	0.5% + 5	0.5% + 5	0.5% + 5	1.0% + 5 ^[2]
200.00kΩ	0.5% + 5	0.5% + 5	1.0% + 5 ^[2]	N/A
2.0000MΩ	0.5% + 5	1.0% + 5 ^[2]	N/A	N/A
20.000MΩ	1.0% + 5 ^[2]	N/A	N/A	N/A

[1] Accuracy is specified after subtract of the offset resistance.
 [2] < 50dgt rolling.
 [3] If $Q > 0.1$, the accuracy should be multiplied by $\sqrt{1+Q^2}$.

DC Resistance

Range	Resolution	Accuracy
200.00Ω	10mΩ	0.5% + 8 ^[1]
2.0000kΩ	100mΩ	0.5% + 5
20.000kΩ	1Ω	0.5% + 5
200.00kΩ	10Ω	0.5% + 5
2.0000MΩ	100Ω	0.5% + 5
20.000MΩ	1kΩ	1.0% + 5
200.00MΩ	10kΩ	2.0% + 5 ^[2]

[1] Accuracy is specified after subtract of the offset resistance.
 [2] < 50dgt rolling.

D & Q

Definition: $Q = 1/D = \tan\theta$

Range: 2.000 to 2000

Minimum Resolution: 0.001

Accuracy: $\pm (0.5\% + 5) \times (1+D)$, when $D < 1$ or $Q > 1$

θ


Definition: $\theta = \tan^{-1}Q$

Range: -90.0° to 90.0°

Minimum Resolution: 0.1°

Accuracy: $\pm (0.5\% + 5)$

General:

Sampling Rate:	2.5 times/sec
Overload Indication:	"OL"
Low Battery Indication:	
Auto Power Off:	Default 10 minutes
Operating Temperature:	0°C ~ 30 °C (<85% RH) 30 °C ~ 40 °C (<75% RH) 40 °C ~ 50 °C (<45%RH)
Storage Temperature:	-20°C to 60°C, 0% RH to 80% RH (batteries not fitted)
Temperature Coefficient:	0.1 x (Specified accuracy) / °C, < 18°C, > 28°C .
Safety:	Complies with EN 61326-1, EN 61326-2, EN 61000-4
Power Requirement:	3.7V / 400mAh Li-ion Battery
External Power requirement:	USB plug or AC adapter
Battery Life:	20 hours typical (no backlight)
Size(H x W x L):	23 x 38 x 168(mm)
Weight:	Approx. 70g
Accessories:	Li-ion battery(installed), Flat tip, Bend Tip, AC Adapter, USB cable, CD-ROM software, Carrying pouch and Manual