

# Data sheet

## LCR 1705

### Smart tweezer LCR tester

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**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,  $\theta$ , DCR
- Testing Frequency: 100Hz/120Hz/1KHz/10KHz selectable
- Self Calibration
- External USB power operation
- Zeroing Mode
- Low Battery Indication
- Auto Power Off
- USB interface
- Tweezers Easy Testing

**SPECIFICATION:**

- Accuracy is  $\pm$  (% of reading + LSD)
- Ambient temperature: 23°C  $\pm$  5°C (< 80% RH)

**Test Frequency**

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

**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
20.000uH	N/A	N/A	N/A
200.00uH	N/A	N/A	0.5% + 30 <sup>[1]</sup>
2000.0uH	N/A	0.5% + 30 <sup>[1]</sup>	0.5% + 5
20.000mH	0.5% + 30 <sup>[1]</sup>	0.5% + 5	0.5% + 5
200.00mH	0.5% + 5	0.5% + 5	0.5% + 5
2000.0mH	0.5% + 5	0.5% + 5	1.0% + 5 <sup>[2]</sup>

[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
200.00pF	N/A	N/A	2.0% + 1pF <sup>[1]</sup>
2000.0pF	0.5% + 8 <sup>[1]</sup>	0.5% + 8 <sup>[1]</sup>	0.5% + 8 <sup>[1]</sup>
20.000nF	0.5% + 5	0.5% + 5	0.5% + 5
200.00nF	0.5% + 5	0.5% + 5	0.5% + 5
2000.0nF	0.5% + 5	0.5% + 5	1.0% + 5
20.000uF	0.5% + 5	1.0% + 5	N/A
200.00uF	1.0% + 5	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
20.000Ω	N/A	0.5% + 50 <sup>[1]</sup>	0.5% + 50 <sup>[1]</sup>
200.00Ω	0.5% + 8 <sup>[1]</sup>	0.5% + 8 <sup>[1]</sup>	0.5% + 8 <sup>[1]</sup>
2.0000kΩ	0.5% + 5	0.5% + 5	0.5% + 5
20.000kΩ	0.5% + 5	0.5% + 5	0.5% + 5
200.00kΩ	0.5% + 5	0.5% + 5	1.0% + 5 <sup>[2]</sup>
2.0000MΩ	0.5% + 5	1.0% + 5 <sup>[2]</sup>	N/A
20.000MΩ	1.0% + 5 <sup>[2]</sup>	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 <sup>[1]</sup>
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 <sup>[2]</sup>

[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:

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