

Data sheet

LCR 1703

Hand Held LCR Tester

FEATURE:

- 20,000/2,000 count dual digital display
- 46 segments Bar graph display
- Auto Selection of LCR Testing
- Auto Ranging
- Auto Backlit
- 0.2% basic accuracy Capacitance and Inductance
- Measurement Parameters: L.C.R.D.Q., θ , EsR
- Testing Frequency: 100Hz/120Hz/1KHz/10KHz/100KHz selectable
- Parallel/Serial test mode
- Sorting mode for QC
- Static Recording(Max/Min)
- Data Hold
- Self Calibration
- External DC power operation
- Zeroing Mode
- Low Battery Indication
- Auto Power Off
- 2 Wires Easy Testing
- 5 Wires Accuracy 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	$\pm 0.05\%$
120Hz	
1kHz	
10kHz	
100kHz	

Test Signal

AC Signal Level: 600mVrms

AC Signal Accuracy: $\pm 10\%$

DC Bias Level: 1V

DC Bias Accuracy: $\pm 10\%$



Test Cable

Model	Length	Bandwidth	Type
SMD Test Probe	60cm	1MHz	5-Wire
4-Wire Test Probe	60cm	1MHz	5-Wire
Alligator Clip Set	15cm	1kHz	2-Wire

Accuracy: $\pm (A \times B)$ (% of reading)

A: Basic Accuracy as specified by

B: Test Cable Accuracy

$$B(\%) = 1 + (L \times F \times T)$$

L(m): Cable Length

F(MHz): Test Frequency

T: Cable Type. If the cable is 5-Wire type, the "T" is 40, and the other is 4,000.

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

- Ambient temperature: $23^{\circ}\text{C} \pm 5^{\circ}\text{C} < 80\%\text{RH}$.
- Test cable length: 0 m
- Open and short corrections have been performed.
- $D \leq 0.1$ for C, L measurements; $Q \leq 0.1$ for R measurements.

See the operation manual for additional conditions.

Inductance

Range	100/120Hz	1kHz	10kHz	100kHz
20.000uH	N/A	N/A	N/A	$0.5\% + 5^{[1]}$
200.00uH	N/A	N/A	$0.5\% + 5^{[1]}$	$0.2\% + 5$
2000.0uH	N/A	$0.5\% + 5^{[1]}$	$0.2\% + 5$	$0.2\% + 5$
20.000mH	$0.5\% + 5^{[1]}$	$0.2\% + 5$	$0.2\% + 5$	$2.0\% + 5$
200.00mH	$0.2\% + 5$	$0.2\% + 5$	$0.2\% + 5$	$5.0\% + 5$
2000.0mH	$0.2\% + 5$	$0.2\% + 5$	$2.0\% + 5$	N/A
20.000H	$0.2\% + 5$	$0.2\% + 5$	$5.0\% + 5$	N/A
200.00H	$0.2\% + 5$	$0.5\% + 5$	N/A	N/A
2000.0H	$0.5\% + 5$	$1.0\% + 5^{[1]}$	N/A	N/A
20.000kH	$1.0\% + 5^{[1]}$	N/A	N/A	N/A

[1] The measuring time is 2 seconds.

[2] If $D > 0.1$, the accuracy should be multiplied by $\sqrt{1 + D^2}$.

Input Protection: 30VDC or 30VAC rms

Minimum Resolution: 0.001uH

Measuring Time: 800ms

Capacitance

Range	100/120Hz	1kHz	10kHz	100kHz
20.000pF	N/A	N/A	N/A	0.5% + 20 ^[1]
200.00pF	N/A	N/A	0.5% + 5 ^[1]	0.2% + 5
2000.0pF	0.5% + 5 ^[1]	0.5% + 5 ^[1]	0.2% + 5	0.2% + 5
20.000nF	0.2% + 5	0.2% + 5	0.2% + 5	0.2% + 5
200.00nF	0.2% + 5	0.2% + 5	0.2% + 5	0.5% + 5
2000.0nF	0.2% + 5	0.2% + 5	0.5% + 5	2.0% + 5
20.000uF	0.2% + 5	0.5% + 5	2.0% + 5	5.0% + 5 ^[1]
200.00uF	0.5% + 5	1.0% + 5	5.0% + 5 ^[1]	N/A
2000.0uF	1.0% + 5	2.0% + 5 ^[1]	N/A	N/A
20.000mF	2.0% + 5 ^[1]	N/A	N/A	N/A

[1] The measuring time is 2 seconds.

[2] If $D > 0.1$, the accuracy should be multiplied by $\sqrt{1 + D^2}$.

Input Protection: 30VDC or 30VAC rms

Minimum Resolution: 0.001pF

Measuring Time: 800ms

Resistance

Range	100/120Hz	1kHz	10kHz	100kHz
20.000Ω	N/A	0.5% + 5 ^[3]	0.5% + 5 ^[1]	0.5% + 5 ^[1]
200.00Ω	0.2% + 5	0.2% + 5	0.2% + 5	0.2% + 5
2.0000kΩ	0.2% + 5	0.2% + 5	0.2% + 5	0.2% + 5
20.000kΩ	0.2% + 5	0.2% + 5	0.2% + 5	0.2% + 5
200.00kΩ	0.2% + 5	0.2% + 5	0.2% + 5	2.0% + 5
2.0000MΩ	0.2% + 5	0.2% + 5	2.0% + 5	5.0% + 5
20.000MΩ	0.5% + 5	2.0% + 5	5.0% + 5	N/A
200.00MΩ	1.0% + 5 ^[1]	5.0% + 5 ^[1]	N/A	N/A

[1] The measuring time is 2 seconds.

[2] If $D > 0.1$, the accuracy should be multiplied by $\sqrt{1 + D^2}$.

Input Protection: 30VDC or 30VAC rms
Minimum Resolution: 0.001Ω
Measuring Time: 800ms

DCR

Range	Resolution	Accuracy
200.00Ω	10mΩ	0.2% + 5
2.0000kΩ	100mΩ	0.2% + 5
20.000kΩ	1Ω	0.2% + 5
200.00kΩ	10Ω	0.2% + 5
2.0000MΩ	100Ω	0.2% + 5
20.000MΩ	1kΩ	0.5% + 5
200.00MΩ	10kΩ	1.0% + 5 ^[1]

[1] < 50dgt rolling.

Input Protection: 30VDC or 30VAC rms
Minimum Resolution: 0.01Ω
Measuring Time: 2 seconds

D & Q

Definition: $Q = 1/D = \tan\theta$
Range: 2.000 to 2000
Minimum Resolution: 0.001
Accuracy: Basic Accuracy x (1+D)


ESR

The specification of ESR is same as Resistance.

θ

Definition: $\theta = \tan^{-1}Q$
Range: -90.0° to 90.0°
Minimum Resolution: 0.1°

General:

Sampling Rate:	1.25 times/sec
Overload Indication:	"OL" or "-OL"
Low Battery Indication:	
Auto Power Off:	Approx. 10 minutes after last operation
Operating Temperature:	Non-condensing < 10°C 11 °C ~ 30 °C (<80% 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:	0.15 x (Specified accuracy) / °C, < 18°C, > 28°C .
Safety:	Complies with EN 61010-1, IEC 61010-1, EN 61326-1
Power Requirement:	4 x 1.5V IEC LR6 or AA size
External Power requirement:	DC 5V (USB or AC adapter)
Battery Life:	80 hours
Size:	95mm(W) x 207mm(L) x 52mm(D)
Weight:	Approx. 630g (with battery)
Accessories:	Alligator Clips, Shorting bar, Magnetic Hanging Kit, 4Wires SMD clip, DC Power Cord, USB Cable, Software CD, Battery (installed) and Manual