

Introduction

This LCR Meter handheld LCR is a portable hand-held measuring instrument for measuring the parameters of inductors, capacitors, resistors and other components. It is small with a 5V lithium battery, suitable for table-type application.

This LCR Meter provides a resolution of four and a half digits for main parameters and a resolution of 0.0001 for secondary parameter. Its highest measurement frequency is 100kHz, and can measure the level of 0.6Vrms, and 0.3Vrms. Its automatic range can display the results in the fast, medium, or slow mode.

It can automatically select the appropriate measurement parameters according to the characteristics of the component. Its measurement accuracy can reach 0.2%. It combines the convenience of a handheld instrument and good performance of a table-type one.

The operation is simple, and users can see the test frequency, parameters, and speed by pressing the corresponding key; it also has the recording mode to take readings; the convenient operation of open and short circuit correction function helps improve the measurement accuracy.

The buzzer, automatic power off and languages can be set on the configuration menu. The standard instrument is equipped with remote communication function. The remote control and data acquisition are achieved by connecting it to the PC through Mini-USB cable for interface with customer's software.

GENERAL SPECIFICATIONS :

- **Testing frequency** : 100Hz-100KHz adjustable, step from 1Hz
- **Basic accuracy** : 0.2%
- **Electrolytic capacitor mode**
- **DCR mode**
- **Bias Voltage** : 0-500mV can be adjustable, step from 1mV
- **Electric level** : 0-0.7 adjustable
- **Display** : 2.8 inches TET LCD
- **Digits display** : Main parameter: 5 digits; auxiliary parameter: 5 digits
- **Measuring parameters** :
 - **Main parameter** : L / C / R / Z
 - **Auxiliary parameter** : X/D/Q/θ/ESR
 - **Measuring Range** : (L) 0-2000H, (C) 0-20mF, (R) 0-20MΩ
 - **Measuring speed** : 1 time/s (slow), 2 times/s (moderate), 4 times/s (fast)
 - **Calibration function** : Open circuit calibration, short circuit calibration
 - **Filtering function** : Limit scope 1%~50% can be set; 1%, 5%, 10%, 20% are the fix points
 - **Errors measurement is use for comparing the percent errors between components and nominal value, meanwhile display**
 - **Others** : Backlight luminance can be adjustable; USB device and auto power off can be set
- **Standard Accessories** : Mini-USB cable; power adapter; short-circuit plate; plug made of red and black rubber; Lithium battery with large capacity



Preliminary Data

All Specifications are subject to change without prior notice.

ELECTRICAL SPECIFICATIONS

Accuracy indicator 2("100k&10k Enhanced Type")

The following accuracy applies to the test level of 0.6Vrms, if the test level is 0.3Vrms, multiply the accuracy by 2; if the test level is 0.1Vrms, multiply the accuracy by 5 ($Z > 0.5\Omega$) or by 8 ($Z \leq 0.5\Omega$);

Capacitance C and loss D

Range	Range of display	Accuracy Ce	Accuracy De	Equivalent mode recommended
100Hz/120Hz				
20mF	4.000mF~20.000mF	5.00%+5 digits	0.0500	Series
4mF	400.0μF~3.9999mF	1.00%+3 digits	0.0100	Series
400μF	40.00μF~399.99μF	0.30%+2 digits	0.0030	Series
40μF	4.000μF~39.999μF	0.20%+2 digits	0.0020	Series
4μF	400.0nF~3.9999μF	0.20%+2 digits	0.0020	—
400nF	40.00nF~399.99nF	0.2%+2 digits	0.0020	Parallel
40nF	4.000nF~39.999nF	0.3%+3 digits	0.0030	Parallel
4nF	0pF~3.999nF	1.2%+5 digits	—	Parallel
1kHz				
1000μF	400.0μF~999.9μF	2.00%+5 digits	0.0200	Series
400μF	40.00μF~399.99μF	1.00%+3 digits	0.0100	Series
40μF	4.000μF~39.999μF	0.30%+2 digits	0.0030	Series
4μF	400.0nF~3.9999μF	0.20%+2 digits	0.0020	—
400nF	40.00nF~399.99nF	0.2%+2 digits	0.0020	Parallel
40nF	4.000nF~39.999nF	0.2%+3 digits	0.0030	Parallel
4nF	400.0pF~3.9999nF	0.3%+3 digits	0.0030	Parallel
400pF	0.0pF~399.9nF	1.2%+5 digits	—	Parallel
10kHz				
100μF	40.00μF~100.00μF	3.00%+5 digits	0.0300	Series
40μF	4.000μF~39.999μF	1.0%+3 digits	0.0100	Series
4μF	400.0nF~3.9999μF	0.30%+2 digits	0.0030	Series
400nF	40.00nF~399.99nF	0.2%+2 digits	0.0020	Series
40nF	4.000nF~39.999nF	0.2%+2 digits	0.0020	—
4nF	400.0pF~3.9999nF	0.2%+2 digits	0.0020	Parallel
400pF	40.00pF~399.99pF	0.3%+3 digits	0.0030	Parallel
40pF	0.0pF~39.99pF	1.2%+5 digits	—	Parallel
40kHz				
100μF	40.00μF~100.00μF	4.00%+5 digits	0.0400	Series
40μF	4.000μF~39.999μF	2.0%+3 digits	0.0200	Series
4μF	400.0nF~3.9999μF	0.60%+2 digits	0.0060	Series
400nF	40.00nF~399.99nF	0.3%+2 digits	0.0030	Series
40nF	4.000nF~39.999nF	0.3%+2 digits	0.0030	—
4nF	400.0pF~3.9999nF	0.3%+2 digits	0.0030	Parallel
400pF	40.00pF~399.99pF	0.6%+3 digits	0.0060	Parallel
40pF	0.000pF~39.999pF	1.5%+3 digits	—	Parallel
100kHz				
10μF	4.000μF~10.000μF	6.0%+20 digits	0.0600	Series
4μF	400.0nF~3.9999μF	3.0%+10digits	0.0300	Series
400nF	40.00nF~399.99nF	0.8%+5 digits	0.0080	Series
40nF	4.000nF~39.999nF	0.5%+2 digits	0.0050	Series
4nF	400.0pF~3.9999nF	0.5%+2 digits	0.0050	—
400pF	40.00pF~399.99pF	0.8%+2 digits	0.0080	Parallel
40pF	4.000pF~39.999pF	1.5%+5 digits	0.0150	Parallel
4pF	0.000pF~3.999pF	3%+10 digits	—	Parallel

Inductance L and quality factor

Range	Range of display	Accuracy Le	Accuracy De	Equivalent mode recommended
100Hz/120Hz				
1000H	400.0H~999.9H	1.00%+3 digits	0.0100	Parallel
400H	40.00H~399.99H	0.30%+2 digits	0.0030	Parallel
40H	4.000H~39.999H	0.20%+2 digits	0.0020	Parallel
4H	400.0mH~3.9999H	0.20%+2 digits	0.0020	—
400mH	40.00mH~399.99mH	0.2%+2 digits	0.0020	Series
40mH	4.000mH~39.999mH	0.3%+3 digits	0.0030	Series
4mH	0uH~3.999mH	1.4%+5 digits	—	Series
1kHz				
100H	40.000H~100.00H	1.0%+3 digits	0.0100	Parallel
40H	4.000H~39.999H	0.30%+2 digits	0.0030	Parallel
4H	400.0mH~3.9999H	0.20%+2 digits	0.0020	Parallel
400mH	40.00mH~399.99mH	0.2%+2 digits	0.0020	—
40mH	4.000mH~39.999mH	0.2%+2 digits	0.0020	Series
4mH	400.0uH~3.9999mH	0.4%+3 digits	0.0040	Series
400uH	0.0uH~399.9uH	1.4%+5 digits	—	Series
10kHz				
1H	400.0mH~999.9mH	0.80%+3 digits	0.0080	Parallel
400mH	40.00mH~399.99mH	0.2%+2 digits	0.0020	Parallel
40mH	4.000mH~39.999mH	0.2%+2 digits	0.0020	—
4mH	400.0uH~3.9999mH	0.2%+2 digits	0.0020	Series
400uH	40.00uH~399.99uH	0.4%+3 digits	0.0040	Series
40uH	0.00uH~39.99uH	1.4%+5 digits	—	Series
40kHz				
1H	400.0mH~999.9mH	1.0%+4 digits	0.0100	Parallel
400mH	40.00mH~399.99mH	0.5%+2 digits	0.0050	Parallel
40mH	4.000mH~39.999mH	0.5%+2 digits	0.0050	—
4mH	400.0uH~3.9999mH	0.5%+2 digits	0.0050	Series
400uH	40.00uH~399.99uH	0.8%+3 digits	0.0080	Series
40uH	0.000uH~39.999uH	2.0%+5 digits	—	Series
100kHz				
100mH	40.00mH~399.99mH	1.2%+2 digits	0.0120	Parallel
40mH	4.000mH~39.999mH	0.8%+2 digits	0.0080	Parallel
4mH	400.0uH~3.9999mH	0.5%+2 digits	0.0050	—
400uH	40.00uH~399.99uH	0.5%+2 digits	0.0050	Series
40uH	4.000uH~39.999uH	0.8%+5 digits	0.0080	Series
4uH	0.000uH~3.999uH	2.5%+10 digits	—	Series

Note*: please calculate the quality factor according to the formula to calculate the accuracy of Q.

All Specifications are subject to change without prior notice.

Impedance Z and phase angle θ

Range	Range of display	Accuracy Ze	Accuracy θ_e	Equivalent mode recommended
100Hz, 120Hz, 1kHz, 10kHz				
20M Ω	4.000M Ω ~20.000M Ω	3.0%+5 digits	1.1°	Parallel
4M Ω	400.0k Ω ~3.9999M Ω	1.2%+3 digits	0.7°	Parallel
400k Ω	40.00k Ω ~399.99k Ω	0.3%+3 digits	0.2°	Parallel
40k Ω	4.000k Ω ~39.999k Ω	0.2%+2 digits	0.1°	—
4k Ω	400.0 Ω ~3.9999k Ω	0.2%+2 digits	0.1°	Series
400 Ω	40.00 Ω ~399.99 Ω	0.2%+2 digits	0.1°	Series
40 Ω	4.000 Ω ~39.999 Ω	0.3%+3 digits	0.2°	Series
4 Ω	0.4000 Ω ~3.9999 Ω	1.2%+3 digits	0.7°	Series
0.4 Ω	0.0000 Ω ~0.3999 Ω	3.0%+3 digits	—	Series
40kHz				
20M Ω	4.000M Ω ~20.000M Ω	5.0%+10 digits	1.4°	Parallel
4M Ω	400.0k Ω ~3.9999M Ω	2.0%+3 digits	1.1°	Parallel
400k Ω	40.00k Ω ~399.99k Ω	0.7%+4 digits	0.4°	Parallel
40k Ω	4.000k Ω ~39.999k Ω	0.7%+4 digits	0.4°	—
4k Ω	400.0 Ω ~3.9999k Ω	0.3%+3 digits	0.2°	Series
400 Ω	40.00 Ω ~399.99 Ω	0.3%+3 digits	0.2°	Series
40 Ω	4.000 Ω ~39.999 Ω	0.5%+4 digits	0.3°	Series
4 Ω	0.4000 Ω ~3.9999 Ω	1.8%+6 digits	1.0°	Series
0.4 Ω	0.0000 Ω ~0.3999 Ω	4.5%+10 digits	—	Series
100kHz				
20M Ω	4.000M Ω ~20.000M Ω	8.0%+20 digits	4.6°	Parallel
4M Ω	400.0k Ω ~3.9999M Ω	3.0%+10 digits	1.7°	Parallel
400k Ω	40.00k Ω ~399.99k Ω	1.2%+4 digits	0.7°	Parallel
40k Ω	4.000k Ω ~39.999k Ω	0.8%+2 digits	0.5°	—
4k Ω	400.0 Ω ~3.9999k Ω	0.5%+2 digits	0.3°	Series
400 Ω	40.00 Ω ~399.99 Ω	0.5%+2 digits	0.3°	Series
40 Ω	4.000 Ω ~39.999 Ω	0.8%+5 digits	0.5°	Series
4 Ω	0.4000 Ω ~3.9999 Ω	2.5%+10 digits	1.4°	Series
0.4 Ω	0.0000 Ω ~0.3999 Ω	6%+20 digits	—	Series

Note 1: When the resistance value is less than 0.100 Ω , please use the relative function.

Accuracy indicator 3("100k&10k Basic Type")

Capacitance C and loss D

Range	Range of display	Accuracy Ce	Accuracy De	Equivalent mode recommended
100Hz/120Hz				
20mF	4.000mF~20.000mF	8.00%+5 digits	0.0800	Series
4mF	400.0 μ F~3.9999mF	2.00%+3 digits	0.0200	Series
400 μ F	40.00 μ F~399.99 μ F	0.60%+2 digits	0.0060	Series
40 μ F	4.000 μ F~39.999 μ F	0.40%+2 digits	0.0040	Series
4 μ F	400.0nF~3.9999 μ F	0.40%+2 digits	0.0040	—
400nF	40.00nF~399.99nF	0.4%+2 digits	0.0040	Parallel
40nF	4.000nF~39.999nF	0.5%+3 digits	0.0050	Parallel
4nF	0pF~3.999nF	1.5%+5 digits	—	Parallel
1kHz				
1000 μ F	400.0 μ F~999.9 μ F	3.00%+5 digits	0.0300	Series
400 μ F	40.00 μ F~399.99 μ F	1.50%+3 digits	0.0150	Series
40 μ F	4.000 μ F~39.999 μ F	0.60%+2 digits	0.0060	Series
4 μ F	400.0nF~3.9999 μ F	0.40%+2 digits	0.0040	—
400nF	40.00nF~399.99nF	0.4%+2 digits	0.0040	Parallel
40nF	4.000nF~39.999nF	0.6%+3 digits	0.0060	Parallel
4nF	400.0pF~3.9999nF	0.6%+3 digits	0.0060	Parallel
400pF	0.0pF~399.9pF	3%+5 digits	—	Parallel
10kHz				
100 μ F	40.00 μ F~100.00 μ F	4.00%+5 digits	0.0400	Series
40 μ F	4.000 μ F~39.999 μ F	2.0%+3 digits	0.0200	Series
4 μ F	400.0nF~3.9999 μ F	0.60%+2 digits	0.0060	Series
400nF	40.00nF~399.99nF	0.4%+2 digits	0.0040	Series
40nF	4.000nF~39.999nF	0.4%+2 digits	0.0040	—
4nF	400.0pF~3.9999nF	0.4%+2 digits	0.0040	Parallel
400pF	40.00pF~399.99pF	0.6%+3 digits	0.0060	Parallel
40pF	0.00pF~39.99pF	2.5%+5 digits	—	Parallel
40kHz				
100 μ F	40.00 μ F~100.00 μ F	6.00%+5 digits	0.0600	Series
40 μ F	4.000 μ F~39.999 μ F	4.0%+3 digits	0.0400	Series
4 μ F	400.0nF~3.9999 μ F	1.0%+2 digits	0.0100	Series
400nF	40.00nF~399.99nF	0.6%+2 digits	0.0060	Series
40nF	4.000nF~39.999nF	0.6%+2 digits	0.0060	—
4nF	400.0pF~3.9999nF	0.6%+2 digits	0.0060	Parallel
400pF	40.00pF~399.99pF	1%+3 digits	0.0100	Parallel
40pF	0.000pF~39.999pF	3%+5 digits	—	Parallel
100kHz				
10 μ F	4.000 μ F~10.000 μ F	8.0%+20 digits	0.0800	Series
4 μ F	400.0nF~3.9999 μ F	5.0%+10digits	0.050	Series
400nF	40.00nF~399.99nF	1.5%+5 digits	0.0150	Series
40nF	4.000nF~39.999nF	1%+2 digits	0.0100	Series
4nF	400.0pF~3.999nF	1%+2 digits	0.0100	—
400pF	40.00pF~399.99pF	1.5%+2 digits	0.0150	Parallel
40pF	4.000pF~39.999pF	2%+5 digits	0.0200	Parallel
4pF	0.000pF~3.999pF	5%+10 digits	—	Parallel

All Specifications are subject to change without prior notice.

Inductance L and quality factor

Range	Range of display	Accuracy Le	Accuracy De	Equivalent mode recommended
100Hz/120Hz				
1000H	400.0H~999.9H	2.00%+3 digits	0.0200	Parallel
400H	40.000H~399.99H	0.60%+2 digits	0.0060	Parallel
40H	4.000H~39.999H	0.40%+2 digits	0.0040	Parallel
4H	400.0mH~3.9999H	0.40%+2 digits	0.0040	—
400mH	40.00mH~399.99mH	0.4%+2 digits	0.0040	Series
40mH	4.000mH~39.999mH	0.6%+3 digits	0.0060	Series
4mH	0uH~3.999mH	3.0%+5 digits	—	Series
1kHz				
100H	40.00H~100.00H	2.0%+3 digits	0.0200	Parallel
40H	4.000H~39.999H	0.60%+2 digits	0.0060	Parallel
4H	400.0mH~3.9999H	0.40%+2 digits	0.0040	Parallel
400mH	40.00mH~399.99mH	0.4%+2 digits	0.0040	—
40mH	4.000mH~39.999mH	0.4%+2 digits	0.0040	Series
4mH	400.0uH~3.9999mH	1%+3 digits	0.0100	Series
400uH	0.0uH~399.9uH	3.0%+5 digits	—	Series
10kHz				
1H	400.0mH~999.9mH	1.50%+3 digits	0.0150	Parallel
400mH	40.00mH~399.99mH	0.4%+2 digits	0.0040	Parallel
40mH	4.000mH~39.999mH	0.4%+2 digits	0.0040	—
4mH	400.0uH~3.9999mH	0.4%+2 digits	0.0040	Series
400uH	40.00uH~399.99uH	0.8%+3 digits	0.0080	Series
40uH	0.00uH~39.99uH	3.0%+5 digits	—	Series
40kHz				
1H	400.0mH~999.9mH	2.0%+4 digits	0.0200	Parallel
400mH	40.00mH~399.99mH	0.8%+2 digits	0.0080	Parallel
40mH	4.000mH~39.999mH	0.8%+2 digits	0.0080	—
4mH	400.0uH~3.9999mH	0.8%+2 digits	0.0080	Series
400uH	40.00uH~399.99uH	1.5%+3 digits	0.0150	Series
40uH	0.000uH~39.999uH	4.0%+5 digits	—	Series
Note*: please calculate the quality factor according to the formula to calculate the accuracy of Q.				
100kHz				
100mH	40.00mH~399.99mH	2.5%+2 digits	0.0250	Parallel
40mH	4.000mH~39.999mH	1.5%+2 digits	0.0150	Parallel
4mH	400.0uH~3.9999mH	1.0%+2 digits	0.0100	—
400uH	40.00uH~399.99uH	1.0%+2 digits	0.0100	Series
40uH	4.000uH~39.999uH	1.5%+5 digits	0.0150	Series
4uH	0.000uH~3.999uH	4%+10 digits	—	Series

Impedance Z and phase angle θ

Range	Range of display	Accuracy Ze	Accuracy θ_e	Equivalent mode recommended
100Hz, 120Hz, 1kHz, 10kHz				
20M Ω	4.000M Ω ~20.000M Ω	3.0%+10 digits	3.4°	Parallel
4M Ω	400.0k Ω ~3.9999M Ω	1.2%+3 digits	0.7°	Parallel
400k Ω	40.00k Ω ~399.99k Ω	0.3%+3 digits	0.2°	Parallel
40k Ω	4.000k Ω ~39.999k Ω	0.25%+2 digits	0.1°	—
4k Ω	400.0 Ω ~3.9999k Ω	0.25%+2 digits	0.1°	Series
400 Ω	40.00 Ω ~399.99 Ω	0.25%+2 digits	0.1°	Series
40 Ω	4.000 Ω ~39.999 Ω	0.5%+3 digits	0.3°	Series
4 Ω	0.4000 Ω ~3.9999 Ω	2.0%+3 digits	1.1°	Series
0.4 Ω	0.0000 Ω ~0.3999 Ω	4.0%+3 digits	—	Series
40kHz				
20M Ω	4.000M Ω ~20.000M Ω	7.0%+41 digits	4.0°	Parallel
4M Ω	400.0k Ω ~3.9999M Ω	2.5%+3 digits	1.4°	Parallel
400k Ω	40.00k Ω ~399.99k Ω	1.0%+4 digits	0.6°	Parallel
40k Ω	4.000k Ω ~39.999k Ω	1.0%+4 digits	0.6°	—
4k Ω	400.0 Ω ~3.9999k Ω	0.5%+3 digits	0.3°	Series
400 Ω	40.00 Ω ~399.99 Ω	0.5%+3 digits	0.3°	Series
40 Ω	4.000 Ω ~39.999 Ω	0.7%+4 digits	0.4°	Series
4 Ω	0.4000 Ω ~3.9999 Ω	2.0%+6 digits	1.1°	Series
0.4 Ω	0.0000 Ω ~0.3999 Ω	5.0%+10 digits	—	Series
100kHz				
20M Ω	4.000M Ω ~20.000M Ω	9.0%+20 digits	5.2°	Parallel
4M Ω	400.0k Ω ~3.9999M Ω	4.0%+10 digits	2.3°	Parallel
400k Ω	40.00k Ω ~399.99k Ω	1.5%+4 digits	0.9°	Parallel
40k Ω	4.000k Ω ~39.999k Ω	1.0%+2 digits	0.6°	—
4k Ω	400.0 Ω ~3.9999k Ω	0.7%+2 digits	0.4°	Series
400 Ω	40.00 Ω ~399.99 Ω	0.7%+2 digits	0.4°	Series
40 Ω	4.000 Ω ~39.999 Ω	1.0%+5 digits	0.6°	Series
4 Ω	0.4000 Ω ~3.9999 Ω	3.0%+10 digits	1.7°	Series
0.4 Ω	0.0000 Ω ~0.3999 Ω	7%+20 digits	—	Series

Accuracy indicator θ (DCR)

Range	Range of display	Accuracy Re
20M Ω	10.00M Ω ~20.00M Ω	5.0%+10 digits
10M Ω	4.000M Ω ~9.999M Ω	2.0%+5 digits
4M Ω	400.0k Ω ~3.9999M Ω	1.2%+3 digits
400k Ω	40.00k Ω ~399.99k Ω	0.3%+3 digits
40k Ω	4.000k Ω ~39.999k Ω	0.2%+2 digits
4k Ω	400.0 Ω ~3.9999k Ω	0.2%+2 digits
400 Ω	40.00 Ω ~399.99 Ω	0.2%+2 digits
40 Ω	4.000 Ω ~39.999 Ω	0.3%+3 digits
4 Ω	0.400 Ω ~3.999 Ω	1.0%+3 digits
0.4 Ω	0.000 Ω ~0.399 Ω	3.0%+3 digits

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