

## 100KHz Handheld LCR Meter



### Features

- ★ Measurement Parameters : Z, L, C, DCR, ESR, D, Q and  $\theta$
- ★ Test Conditions : 100Hz, 120Hz, 1KHz, 10KHz, 100KHz (MT4080A) 1V rms, 0.25V rms, 0.05V rms
- ★ 0.2% Basic Accuracy
- ★ Dual LCD Display
- ★ Quick Response
- ★ Fully Auto / Manual Selection
- ★ DC Resistance Measurement
- ★ Rechargeable Battery / AC Powered
- ★ User Friendly
- ★ USB Interface

### Application

The MT4080A / MT4080D LCR Meter is the first handheld meter of this type in the market, with a wide range of test frequencies upto 10KHz (MT4080D) or 100KHz (MT4080A), and many measurement parameters including Z, L, C, DCR, ESR, D, Q, and  $\theta$  as well. The MT4080A / MT4080D is designed for both component evaluation on the production line and fundamental impedance testing for bench-top applications. With a built-in direct test fixture you can

test the lead components very easily. The 4-wire test clip can give a convenient connection to larger components and assemblies with the accuracy of 4-wire testing. The LCR meter offers fast, reliable and versatile testing at low cost. Further more, the USB Interface makes it an attractive, cost-effective solution. These features makes MT4080A / 4080D is the most advanced handheld LCR meter available in the market today.

### Specifications

#### MEASUREMENT FUNCTIONS

Measurement Parameters

Z	: Absolute value of impedance.
L	: Inductance.
C	: Capacitance.
DCR	: Direct current resistance.

ESR	: Equivalent series resistance.
D	: Dissipation factor.
Q	: Quality factor.
$\theta$	: Phase angle.

### Combinations

DCR	Z	Ls, Cs	Lp, Cp
	$\emptyset$	D, Q, ESR	D, Q

Ranging : Auto-range and Range-hold.  
 Relative : Relative mode.  
 Cal : Open / Short calibration.  
 Interface : USB.  
 Transmission Signal : Tx and Rx.  
 Flow Control : XON / XOFF.

### TEST SIGNAL

Frequency : 100Hz, 120Hz, 1KHz, 10KHz, 100KHz (MT4080A only).  
 Basic Accuracy :  $\pm 0.2\%$  (MT4080D)  
 $\pm 0.4\%$  (MT4080A).  
 Level : 1V rms, 0.25V rms, 0.05V rms, 1V DC (for DCR).  
 Output Impedance : 100 ohms,  $\pm 3\%$ .

### DISPLAY RANGE

Parameter	Range
Z	0.001 $\Omega$ to 9999M $\Omega$
L	0.001 $\mu$ H to 9999H
C	0.001PF to 9999F
DCR	0.001 $\Omega$ to 9999M $\Omega$
ESR	0.001 $\Omega$ to 9999 $\Omega$
D	0.001 to 9999
Q	0.001 to 9999
$\emptyset$	-180 to 180

### [Z], L, C AND ESR ACCURACY (Ae) :

Range	20M $\Omega$	10M $\Omega$	1M $\Omega$	100K $\Omega$	10 $\Omega$	1 $\Omega$
DCR	-10M $\Omega$	-1M $\Omega$	-100K $\Omega$	-10 $\Omega$	-1 $\Omega$	-0.1 $\Omega$
100/120Hz	2% $\pm 15$	1% $\pm 10$	0.5% $\pm 5$	0.2% $\pm 5$	0.5% $\pm 5$	1% $\pm 10$
1KHz						
10KHz	5% $\pm 15$	2% $\pm 10$				
100KHz (MT4080A only)		5% $\pm 10$	2% $\pm 5$	0.4% $\pm 5$	0.6% $\pm 5$	2% $\pm 10$

When  $Dx > 0.1$ , multiply Ae by  $\sqrt{1+Dx^2}$  for L and C accuracy.  
 When  $Qx > 0.1$ , multiply Ae by  $\sqrt{1+Dx^2}$  for ESR accuracy.

### D ACCURACY

: D accuracy De is given as  
 $De = \pm Ae/100$   
 Accuracy applies when Dx (measured D value)  $\leq 0.1$   
 When  $Dx > 0.1$  multiply De by  $(1+Dx)$ .

### Q ACCURACY

: Q accuracy Qe is given as  
 $Qe = \pm Qx^2.De / 1 \mp Qx.De$   
 Where, Qx is the measure Q value,  
 De is the relative D accuracy.  
 Accuracy applies when  $Qx.De < 1$ .

### $\emptyset$ ACCURACY

:  $\emptyset$  accuracy  $\emptyset e$  is given as  
 $\emptyset e = 180/\pi \cdot Ae/100$  [deg]

### TESTING SIGNAL

Level Accuracy :  $\pm 0.5\%$ .  
 Freq. Accuracy :  $\pm 0.1\%$ .

### OUTPUT IMPEDANCE

: 100 $\Omega$   $\pm 5\%$ .

### MEASURING SPEED

: Fast : 4.5 measurements / sec.  
 Slow : 2.5 measurements / sec.

### GENERAL

Temperature : 0 $^{\circ}$ C to 40 $^{\circ}$ C (operating)  
 -20 $^{\circ}$ C to 70 $^{\circ}$ C (storage).  
 Relative Humidity : Upto 85%.  
 Battery Type : Ni-Mh or Alkaline (2xAA size).  
 Battery Charge : Constant current 150mA approx.  
 Battery Operating Life : 2.5 Hours typical.  
 AC Operation : 110V / 220V AC, 60/50Hz with proper adapter.  
 Low Power Warning : Under 2.1V.  
 Dimensions : 174 (L) x 86 (W) x 48 (H) mm.  
 Weight : 470 g.

### STANDARD ACCESSORIES

1. Shorting bar.
2. DC 6V power adapter.
3. AA-size Ni-Mh rechargeable battery.
4. TL08B 4 wire test clips.

### OPTIONAL TEST FIXTURES / ACCESSORIES

1. TL08A SMD test probe.
2. TL08C 4 wire Kelvin clips.
3. USB Interface Cable.
4. USB Driver CD.

### ORDERING INFORMATION

: MT4080A - 100Hz to 100KHz Handheld LCR Meter  
 MT4080D - 100Hz to 10KHz Handheld LCR Meter

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