

# Auto Range D.M.M. + LCR

DE-5003  
DE-5004(True RMS)

## SPECIFICATIONS :

- **LCD Display** : 6000 counts (main) / 2000 counts (sub)
- **Sampling Rate** : 3 times / sec. (DMM mode) / 1 time / sec. (LCR mode)
- **Range** : Automatic & Manual
- **Overload** : "OL" display
- **Low Battery** : display on LCD
- **LCR Measurement (auto range)** :
  - Rs, Rp, Cs, Cp, Ls, Lp, phase angle,
  - Dissipation factor, Quality factor
  - Auto select series or parallel test mode
  - Auto select 100Hz / 1kHz / 10kHz test frequency, 0.5V rms approx.
  - Calibration
- **Battery** : AA battery 1.5V x 2
- **Auto Power Off** : In 15 minutes approx.
- **Safety Standard** : IEC 61010-1 CAT. III 600V  
IEC 61010-1 CAT. II 1000V

## TEMP./HUMIDITY :

- **Operation** : 0°C~ 50°C(32°F~122°F)/<80% R.H.(no condensation)
- **Storage** : -10°C~ 60°C(14°F~140°F)/<70% R.H.(no condensation)

## FEATURES :

- True RMS (DE-5004)
- Integrate Multimeter & L.C.R. Function In One Meter
- Dual Display
- Max./Min. Hold
- Data Hold
- Backlight
- Auto Range & Manual Range
- Auto Power Off Selection



## DIMENSIONS & WEIGHT :

- 181(L) x 92(W) x 57(H) mm (7.12" x 3.58" x 2.24")
- Approx.400g (0.88 lbs.)(Excluding battery)

## ACCESSORIES :

- Instruction Manual.....1
- 1.5V AA Battery.....2
- Test Lead (red+black).....1

## MEASUREMENT RANGES :

(23°C ± 5°C, 80% R.H. MAX.)

Measurement	Range	Resolution	Accuracy (Responding Hz)		Input Impedance	Max. Input Voltage
			DE-5003 (sine wave)	DE-5004*		
$\tilde{V}$ (ACV)	6.000V	0.001V	0.7%+6 (40Hz~1kHz)	0.7%+6 (40Hz~1kHz)	Approx. 11M $\Omega$	1000V rms
	60.00V	0.01V	0.7%+5 (40Hz~1kHz)	0.7%+6 (40Hz~1kHz)	Approx. 10M $\Omega$	
	600.0V	0.1V	0.7%+5 (40Hz~1kHz)	2.0%+6 (1kHz~5kHz)		
	1000V	1V	1.2%+5 (40Hz~1kHz)	2.0%+6 (1kHz~2kHz)		

\*True RMS : valid from 10%~100% of range

Measurement	Range	Resolution	Accuracy		Input Impedance	Max. Input Voltage
			DE-5003	DE-5004		
$\bar{V}$ (DCV)	6.000V	0.001V	0.1%+3		Approx. 11M $\Omega$	1000V rms
	60.00V	0.01V	0.2%+3		Approx. 10M $\Omega$	
	600.0V	0.1V	0.4%+3			
	1000V	1V	0.6%+5			

Measurement	Range	Resolution	Accuracy		Max. Input Voltage
			DE 5003	DE 5004	
V / A Hz (at secondary display)	600.0Hz	0.1Hz			1000V rms
	6.000KHz	0.001KHz			
	60.00KHz	0.01KHz	0.1%+5		

Measurement	Range	Resolution	Accuracy (Responding Hz)		Input Impedance	Max. Input Voltage
			DE-5003 (sine wave)	DE-5004*		
mV (ACmV)	600.0mV	0.1mV	0.7%+5 (40Hz~2KHz)	0.7%+5 (40Hz~10KHz)	Approx. 10M $\Omega$	1000V rms
mV (DCmV)	600.0mV	0.1mV	0.2%+5	0.2%+5		

\*True RMS : valid from 10%~100% of range

Measurement	Range	Resolution	Accuracy		Max. Input Voltage
			DE-5003	DE-5004	
$\Omega$ Resistance	600.0 $\Omega$	0.1 $\Omega$			1000V rms
	6.000K $\Omega$	0.001K $\Omega$			
	60.00K $\Omega$	0.01K $\Omega$	0.5%+5		
	600.0K $\Omega$	0.1K $\Omega$			
	6.000M $\Omega$	0.001M $\Omega$	1.0%+5		
	60.00M $\Omega$	0.01M $\Omega$	2.5%+5		

Measurement	Range	Resolution	Remarks	Open-loop Voltage	Max. Input Voltage
Continuity	600.0 $\Omega$	0.1 $\Omega$	Buzzer emits at around $\leq 10\Omega \pm 3\Omega$	Approx. -3.3V	1000V rms

Measurement	Range	Resolution	Accuracy	Open-loop Voltage	Max. Input Voltage
Diode	6.000V	0.001V	0.5%+5	Approx. 2.8V	1000V rms

Measurement	Range	Resolution	Accuracy	Remarks	Max. Input Voltage

Measurement	Range	Resolution	Accuracy		Overload Protection
			DE-5003	DE-5004	
DC (DC)	600.0 $\mu$ A	0.1 $\mu$ A			630mA / 1000V fuse
	6000 $\mu$ A	1 $\mu$ A			
	60.00mA	0.01mA	0.5%+5		
	600.0mA	0.1mA			
A*	10.00A	0.01A	1.0%+10		10A / 1000V fuse

\*11 ~ 20A stands with 30 sec. max.

Measurement	Range	Resolution	Accuracy ( Responding Hz)		Overload Protection
			DE-5003 (sine wave)	DE-5004*	
$\tilde{I}$ (AC)	600.0 $\mu$ A	0.1 $\mu$ A			630mA / 1000V fuse
	6000 $\mu$ A	1 $\mu$ A	1.0%+10 (40Hz~1kHz)	1.0%+10 (40Hz~1kHz)	
	60.00mA	0.01mA	1.5%+10 (1KHz~2KHz)	1.5%+10 (1KHz~5KHz)	
	600.0mA	0.1mA			
A**	10.00A	0.01A	1.5%+10 (40Hz~2kHz)	1.5%+10 (40Hz~5kHz)	10A / 1000V fuse

\*True RMS : valid from 10%~100% of range \*\*11 ~ 20A stands with 30 sec. max.

LCR Inductance								
Ls / Lp	0.3~60.0 $\mu$ H	60.1~600.0 $\mu$ H	601~6000 $\mu$ H	60.1~600.0mH	60.1~600.0mH	601~6000mH	6.01~60.00H	60.1~100.0H
Resolution	0.1 $\mu$ H	0.1 $\mu$ H	1 $\mu$ H	0.01mH	0.1mH	1mH	0.01H	0.1H
Accuracy	$\pm(3.0\%+20)$	$\pm(1.5\%+5)$	$\pm(1.0\%+5)$	$\pm(1.0\%+5)$	$\pm(1.0\%+5)$	$\pm(1.0\%+5)$	$\pm(1.5\%+5)$	$\pm(3.0\%+10)$

LCR Capacitance								
Cs / Cp	3.0~600.0pF	601~6000pF	6.01~60.0nF	60.1~600.0nF	601~6000nF	6.01~60.00 $\mu$ F	60.1~600.0 $\mu$ F	0.60~6.00mF
Resolution	0.1pF	1pF	0.01nF	0.1nF	1nF	0.01 $\mu$ F	1 $\mu$ F	0.01mF
Accuracy	$\pm(2.0\%+20)$	$\pm(1.0\%+5)$	$\pm(0.3\%+5)$	$\pm(0.3\%+5)$	$\pm(0.5\%+5)$	$\pm(0.8\%+5)$	$\pm(1.5\%+10)$	$\pm(3.0\%+20)$

LCR Resistance								
Rs / Rp	00.1~60.00 $\Omega$	60.1~600.0 $\Omega$	601~6000 $\Omega$	6.01~60.00K $\Omega$	60.1~600.0K $\Omega$	601~6000K $\Omega$	6.01~20.00M $\Omega$	
Resolution	0.01 $\Omega$	0.1 $\Omega$	1 $\Omega$	0.01K $\Omega$	0.1K $\Omega$	1K $\Omega$	0.01M $\Omega$	
Accuracy	$\pm(1.0\%+20)$	$\pm(0.3\%+5)$	$\pm(0.3\%+5)$	$\pm(0.3\%+5)$	$\pm(0.3\%+5)$	$\pm(1.0\%+5)$	$\pm(3.0\%+5)$	

- All accuracy are guaranteed after open/short calibration, and the test leads are shorter than 10cm.
- Some type inductor their inductance value change acutely with test voltage amplitude change.
- The test signal level (Open Circuit) is approx. 0.6Vrms, It's output impedance is approx. 2.2K $\Omega$ . The test voltage on DUT will change with it's own impedance.

Appearance and specification may be revised if needed without notice in prior.



DE-5003



DE-5004

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