

## INTRODUCTION


This is a 3 3/4 digital multimeter with high stability and performance. It uses a LCD with 20mm high figure, which makes the reading clearer and the operation more convenient. It can test DCV, ACV, DCA, ACA, resistance, capacitance, frequency, NCV, duty cycle, temperature, diode, and continuity.

This meter is also designed with functions including unit symbol display, data hold, lighting, auto range, auto power off and warning functions. To assure high accuracy and resolution, it adopts integrated circuit 8-bit microprocessor and a dual integral A/D conversion as LCD driver, giving high resolution and high accuracy. It is an ideal tool for labs, factories and radio-technology.

The instrument is designed in compliance with IEC1010 standard (safety standard issued by International Electro technical Committee).



## GENERAL SPECIFICATIONS

- Display : LCD
- Max Display : 4000 (3 3/4 digits, automatic polarity, and unit symbol display)
- Measurement Method : Analog to digital converter (in micro processor ADC+MCU)
- Sampling rate : Approx.3 times/sec.
- Over-Range Display : "OL" displayed
- Low Battery Indicator: "  "
- Non Contact Voltage Detection
- MAX / MIN record function
- Relative Measurement
- Data Hold to freeze the displayed data
- Transistor Test Facility
- Working Environment : (0~40)°C
- Relative Humidity : <80%
- Storage Condition : (-10~50)°C, relative humidity: <80%
- Battery : 2 pieces 1.5V battery ("AAA" 7# battery);
- Dimension : 185×93×35mm (length x width x height)
- Weight : Approx. 290g (including battery);
- Accessories : Test Leads, Temperature Probe, User Manual, Holster, Gift Box, and 2\*1.5V Batteries.

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**TECHNICAL SPECIFICATIONS**

Accuracy:  $\pm$  (a%  $\times$  reading + digits). To assure accuracy, the ambient temperature should be (23 $\pm$ 5) °C, relative humidity <75%. One year accuracy is guaranteed since production date.

**DC Voltage (DCV)**

Range	Accuracy	Resolution
400mV	$\pm$ (0.5%+5d)	0.1mV
4V		1mV
40V		10mV
400V		100mV
1000V	$\pm$ (1.0%+5d)	1V

**Input impedance** : at 400mV range >40M $\Omega$ , at other ranges is 10M $\Omega$ .

**Overload protection** : 1000VDC or 750VAC peak value.

**AC Voltage (ACV)(True RMS)**

Range	Accuracy	Resolution
400mV	$\pm$ (1.5%+10d)	0.1mV
4V	$\pm$ (0.8%+10d)	1mV
40V		10mV
400V		100mV
750V	$\pm$ (1.0%+10d)	1V

**Input impedance** : at 400mV range >40M $\Omega$ , at other ranges is 10M $\Omega$ .

**Overload protection** : 1000VDC or 750VAC peak value.

**Frequency response** : at 750V range: (40~1000)Hz, at other ranges: (40~2000)Hz

**Displaying** : True RMS response (calibration based on sine wave RMS)

**Resistance ( $\Omega$ )**

Range	Accuracy	Resolution
400 $\Omega$	$\pm$ (0.8%+5)	0.1 $\Omega$
4k $\Omega$	$\pm$ (0.8%+2)	1 $\Omega$
40k $\Omega$		10 $\Omega$
400k $\Omega$		100 $\Omega$
4M $\Omega$		1k $\Omega$
40M $\Omega$	$\pm$ (1.2%+5)	10k $\Omega$

**Open circuit voltage** : > 500mV

**Overload protection** : 250V DC/AC peak value

**DC Current (DCA)**

Range	Accuracy	Resolution
400uA	$\pm$ ( 1.0%+5)	0.1 $\mu$ A
4000uA		1 $\mu$ A
40mA		10 $\mu$ A
400mA		100 $\mu$ A
4A		1mA
20A	$\pm$ (2.0%+5)	10mA

**Maximum voltage drop** : 400 mV for full mA range, 200 mV for full A range.

**Maximum input current** : 20A (within 10 seconds).

**Overload protection** : 0.5/250V fuse and 13A/250V fuse.

**AC Current (ACA)**

Range	Accuracy	Resolution
400uA	$\pm$ ( 1.2%+10)	0.1 $\mu$ A
4000uA		1 $\mu$ A
40mA		10 $\mu$ A
400mA		100 $\mu$ A
4A		1mA
20A	$\pm$ (2.0%+10)	10mA

**Maximum voltage drop** : 400 mV for full mA range, 200 mV for full A range.

**Maximum input current** : 20A (within 10 seconds).

**Overload protection** : 0.5/250V fuse and 13A/250V fuse.

**Frequency response**: at 20A range: (40- 100)Hz, at other ranges: (40-400)Hz.

**Capacitance (C)**

Range	Accuracy	Resolution
40nF	$\pm$ (2.5%+6)	10pF
400nF	$\pm$ (2.5%+5)	100pF
4uF		1nF
40uF		10nF
400uF	$\pm$ (5.0%+8)	100nF
4mF		1uF
40mF		10uF

**Overload protection** : 250V DC/AC peak value

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**TECHNICAL SPECIFICATIONS**

**Frequency (F)**

Range	Accuracy	Resolution
10Hz	±(0.5%+4)	0.001Hz
100Hz		0.01Hz
1000Hz		0.1Hz
10kHz		1Hz
100kHz		10Hz
1MHz		100Hz
30MHz		1kHz


**Input sensitivity :** 0.7V RMS

**Overload protection :** 250V DC/AC peak value

**Transistor (hFE)**

Measurement	Display Range	Test Conditions
hFE NPN or PNP	0 ~1000	Base current is approx 15uA, Vce is about 4.5V

**Diode and Continuity Test**

Range	Description	Test Conditions
	Diode forward voltage drop	Forward DC current is approx 0.8mA, reverse voltage is approx 2.2V.
	When the resistance under test is less than 50Ω, buzzer sounds continuously.	Open circuit voltage: 2V

**Overload protection :** 250V DC/AC peak value

**Temperature (°C)**

Range	Accuracy	Resolution
-40°C~1000°C	<400°C ±(1.0%+5)	1°C
	≥400°C ±(1.5%+ 15)	
0°F~1832°F	<750°F ±(1.0%+5)	1°F
	≥750°F ±(1.5%+ 15)	

**Thermocouple:** K type



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