

Datasheet

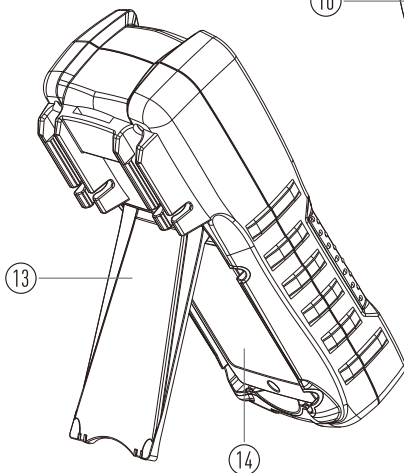
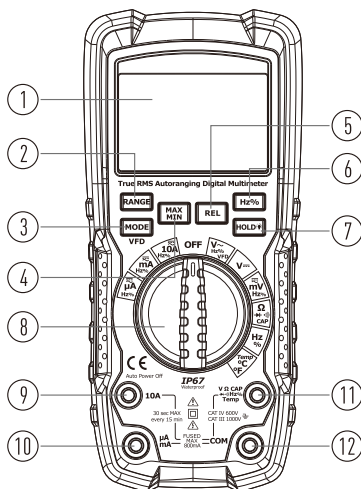
1.Introduction

- This meter measures AC/DC Voltage, AC/DC Current, Resistance, Frequency (electrical & electronic), Diode Test, and Continuity.
- It features a waterproof, rugged design for heavy duty use.
- Proper use and care of this meter will provide many years of reliable service.

2.Description

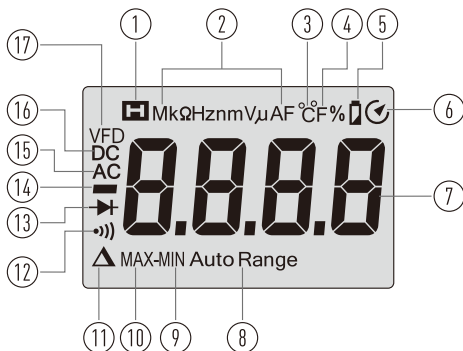
2-1.Meter Description

- 1-6,000 Counts LCD Display
- 2-RANGE Button
- 3-Mode Button
- 4-MAX/MIN Button
- 5-RELATIVE Button
- 6-Hz and % Button
- 7-HOLD and Backlight Button
- 8-Function Switch
- 9-10A Input Jacks
- 10- μ A mA Input Jacks
- 11-Positive Input Jacks
- 12-COM Input Jacks
- 13-Tilt Stand
- 14-Battery Cover



2-2.Symbols Used on LCD Display

- 1-Display Hold
- 2-Units of Measure List
- 3-Degrees Centigrade
- 4-Degrees Fahrenheit
- 5-Battery Status
- 6-Auto Power Off
- 7-Measurement Reading
- 8-Autoranging
- 9-Minimum
- 10-Maximum
- 11-Relative
- 12-Continuity
- 13-Diode Test
- 14-Minus Sign
- 15-Alternating Current
- 16-Direct Current
- 17-Frequency Conversion Measure



3.Specifications

3-1.Specifications

Function	Range	Resolution	Accuracy
DC Voltage	60.00mV	0.01mV	$\pm(0.9\% + 9 \text{ digits})$
	600.0mV	0.1mV	
	6.000V	0.001V	
	60.00V	0.01V	$\pm(0.5\% + 5 \text{ digits})$
	600.0V	0.1V	
	1500V	1V	

AC Voltage 45Hz to 1KHz	60.00mV	0.01mV	$\pm(0.9\% + 9 \text{ digits})$
	600.0mV	0.1mV	
	6.000V	0.001V	
	60.00V	0.01V	$\pm(0.8\% + 3 \text{ digits})$
	600.0V	0.1V	
	1000V	1V	

All AC voltage ranges are specified from 5% of range to 100% of range.

AC voltage bandwidth:45Hz to 1KHz(Sine); 50/60Hz(All wave).

VFD	50.0 to 700V	0.1V/1V	$\pm(4\% + 3 \text{ digits})$
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DC Current	600.0μA	0.1μA	$\pm(1.0\% + 3 \text{ digits})$
	6000μA	1μA	
	60.00mA	0.01mA	
	600.0mA	0.1mA	
	6.000A	0.001A	$\pm(1.5\% + 3 \text{ digits})$
	10.00A	0.01A	

(10A: 30 sec max with reduced accuracy)

Function	Range	Resolution	Accuracy
AC Current 45Hz to 1kHz	600.0μA	0.1μA	±(1.5% + 3 digits)
	6000μA	1μA	
	60.00mA	0.01mA	
	600.0mA	0.1mA	±(2.0% + 3 digits)
	6.000A	0.001A	
	10.00A	0.01A	

10A: 30 sec max with reduced accuracy.

All AC Current ranges are specified from 5% of range to 100% of range.

AC Current bandwidth: 45Hz to 1KHz(Sine); 50/60Hz(All wave).

Resistance	600.0Ω	0.1Ω	±(1.0% + 2 digits)
	6.000kΩ	0.001kΩ	±(0.8% + 2 digits)
	60.00kΩ	0.01kΩ	
	600.0kΩ	0.1kΩ	
	6.000MΩ	0.001MΩ	±(1.2% + 2 digits)
	60.00MΩ	0.01MΩ	±(1.0% + 5 digits)

Capacitance	99.99nF*	0.01nF	±(5.0% + 20 digits)
	999.9nF	0.1nF	±(4.0% + 5 digits)
	9.999μF	0.001μF	
	99.99μF	0.01μF	
	999.9μF	0.1μF	
	9.999mF	0.001mF	±10% reading
	99.99mF	0.01mF	

* <99.99nF Not specified

Function	Range	Resolution	Accuracy
Frequency (Electronic)	9.999Hz	0.001Hz	$\pm(0.1\% + 4 \text{ digits})$
	99.99Hz	0.01Hz	
	999.9Hz	0.1Hz	
	9.999kHz	0.001kHz	
	99.99kHz	0.01kHz	
	999.9kHz	0.1kHz	
	9.999MHz	0.001MHz	

Sensitivity: 0.8V RMS min. at 20% to 80% duty cycle and <100kHz;
5Vrms min at 20% to 80% duty cycle and >100kHz.

Frequency (Electrical)	10.00-1KHz	0.01Hz	$\pm 0.5\%$ reading
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Sensitivity: ACmV Range($\geq 100\text{mV}$), ACV Range($\geq 6\%$ Range);
6000 μA /600.0mA/10.00A Range($\geq 6\%$ Range); 600.0 μA /60.00mA/6.000A($\geq 60\%$ Range).

Duty Cycle	0.1 to 99.9%	0.1%	$\pm(1.2\% + 2 \text{ digits})$
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Pulse width: 100 μs - 100ms; Frequency: 5Hz to 150kHz.

Temperature (Type-K)	-40 to 1000°C	1°C	$\pm(3.0\% + 3^\circ\text{C}/5^\circ\text{F} \text{ digits})$
	-40 to 1832°F	1°F	(Probe accuracy not included)

Note: Accuracy specifications consist of two elements:

- (% reading) – This is the accuracy of the measurement circuit.
- (+ digits) – This is the accuracy of the analog to digital converter.

NOTE: Accuracy is stated at 18 to 28°C (65 to 83°F) and less than 75% RH.

3-2. General Specifications

Enclosure	Double Molded, Waterproof.
Shock (Drop Test)	6.5 feet (2 meters).
Diode Test	Test current of 0.9mA maximum, open circuit voltage approx 3.2V DC typical.
Continuity Check	Audible signal will sound if the resistance is less than 50 Ω (approx.), test current <0.35mA.
Input Impedance	>10M Ω VDC & >10M Ω VAC
AC Response	True RMS
ACV Bandwidth	45Hz to 1KHz
Crest Factor	≤ 3 at full scale up to 500V, decreasing linearly to ≤ 1.5 at 1000V.
Display	6,000 Counts backlit liquid crystal.
Overrange indication	"OL" is displayed.
Auto Power Off	15 minutes (Approximately) with disable feature.
Polarity	Automatic (No indication for positive); Minus (-) sign for negative.
Measurement Rate	2 times per second, nominal.
Low Battery Indication	"  " is displayed if battery voltage drops below operating voltage.
Battery	One 9 volt (NEDA 1604) battery.
Fuses	mA, μ A ranges; 0.8A/1000V ceramic fast blow A range; 10A/1000V ceramic fast blow.
Operating Temperature	5 to 40°C (41 to 104°F)
Storage Temperature	-20 to 60°C (-4 to 140°F)
Operating Humidity	Max 80% up to 31°C (87°F) decreasing linearly to 50% at 40°C (104°F).
Storage Humidity	<80%
Operating Altitude	2000 meters (7000 ft) maximum.
Safety	This meter is intended for origin of installation use and protected, against the users, by double insulation per EN61010-1 and IEC61010-1 2 nd Edition (2001) to Category IV 600V and Category III 1000V; Pollution Degree 2. The meter also meets UL 61010-1, 2 nd Edition (2004), CAN/CSA C22.2 No. 61010 -1 2 nd Edition (2004), and UL 61010B-2-031, 1 st Edition (2003).

Accessories: Test leads, 9V battery and gift box with carrying case.