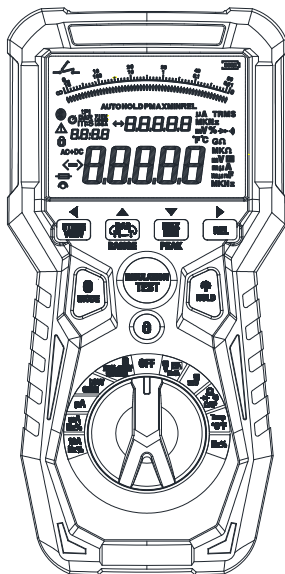


User's Guide

The Industrial Multimeter



Introduction

This meter measures AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Frequency (electrical & electronic), Duty Cycle, Diode Test, Insulation Test, and Continuity plus Thermocouple Temperature. It can store and recall data. It features a waterproof, rugged design for heavy duty use. Proper use and care of this meter will provide many years of reliable service.

Safety



This symbol adjacent to another symbol, terminal or operating device indicates that the operator must refer to an explanation in the Operating Instructions to avoid personal injury or damage to the meter.

WARNING

This WARNING symbol indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury.

CAUTION

This CAUTION symbol indicates a potentially hazardous situation, which if not avoided, may result in damage to the product.



This symbol advises the user that the terminal(s) so marked must not be connected to a circuit point at which the voltage with respect to earth ground exceeds (in this case) 1000 VAC or VDC.



This symbol adjacent to one or more terminals identifies them as being associated with ranges that may, in normal use, be subjected to particularly hazardous voltages. For maximum safety, the meter and its test leads should not be handled when these terminals are energized.



This symbol indicates that a device is protected through out by double insulation or reinforced insulation.

PER IEC1010 OVERVOLTAGE INSTALLATION CATEGORY

OVERVOLTAGE CATEGORY I

Equipment of OVERVOLTAGE CATEGORY I is equipment for connection to circuits in which measures are taken to limit the transient overvoltages to an appropriate low level.

Note – Examples include protected electronic circuits.

OVERVOLTAGE CATEGORY II

Equipment of OVERVOLTAGE CATEGORY II is energy-consuming equipment to be supplied from the fixed installation.

Note – Examples include household, office, and laboratory appliances.

OVERVOLTAGE CATEGORY III

Equipment of OVERVOLTAGE CATEGORY III is equipment in fixed installations.

Note – Examples include switches in the fixed installation and some equipment for industrial use with permanent connection to the fixed installation.

OVERVOLTAGE CATEGORY IV

Equipment of OVERVOLTAGE CATEGORY IV is for use at the origin of the installation.

Note – Examples include electricity meters and primary over-current protection equipment

SAFETY INSTRUCTIONS

This meter has been designed for safe use, but must be operated with caution. The rules listed below must be carefully followed for safe operation.

1. **NEVER** apply voltage or current to the meter that exceeds the specified maximum:

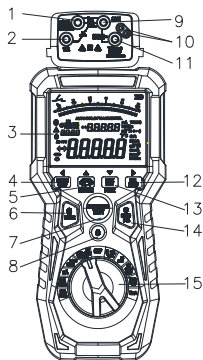
Input Protection Limits	
Function	Maximum Input
V DC or V AC	1000VDC/AC rms
mA AC/DC	500mA 1000V fast acting fuse
A AC/DC	10A 1000V fast acting fuse (20A for 30 seconds max every 15 minutes)
Frequency, Resistance, Capacitance, Duty Cycle, Diode Test, Continuity	1000VDC/AC rms
Temperature	1000VDC/AC rms
Surge Protection: 8kV peak per IEC 61010	

- USE EXTREME CAUTION** when working with high voltages.
- DO NOT** measure voltage if the voltage on the "COM" input jack exceeds 1000V above earth ground.
- NEVER** connect the meter leads across a voltage source while the function switch is in the current, resistance, or diode mode. Doing so can damage the meter.
- ALWAYS** discharge filter capacitors in power supplies and disconnect the power when making resistance or diode tests.
- ALWAYS** turn off the power and disconnect the test leads before opening the covers to replace the fuse or batteries.
- NEVER** operate the meter unless the back cover and the battery and fuse covers are in place and fastened securely.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.






Controls and Jacks

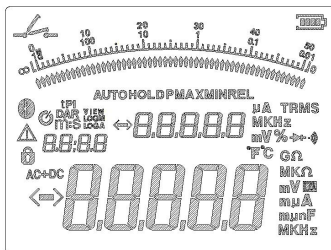
1. mA, μ A , temp ,INS and Rlow input jacks
2. 10A input jacks
3. 50,000 count LCD display
4. STORE(VIEW) button
5. TIME/PI/DAR(RANGE/DOWN) button
6. MODE(BLUE) button
7. INSULATION TEST button
8. INSULATION LOCK button
9. COM input jack
10. Input Terminal to operate the switched probe
11. Positive input jack
12. REL button
13. MAX/MIN(PEAK/DOWN) button
14. HOLD/Backlight/DEL button
15. Function switch



Note: Tilt stand and battery compartment are on rear of unit.

Symbols and Annunciators

•)))	Continuity
	Diode test
	Battery status
n	nano (10^{-9})
(capacitance)	
μ	micro (10^{-6}) (amps,
cap)	
m	milli (10^{-3}) (volts,
amps)	
A	Amps
k	kilo (10^3) (ohms)
F	Farads (capacitance)
M	mega (10^6) (ohms)
Ω	Ohms
Hz	Hertz (frequency)
%	Percent (duty ratio)
AC	Alternating current
DC	Direct current
$^{\circ}\text{F}$	Degrees Fahrenheit
MAX	Maximum
AC +DC	Alternating current + Direct current
TRMS	Ture RMS
LOG	Store
VIEW	Recall
AUTO	Auto Range
	Resistance low operator indication
	Bluetooth
	Low pass filtering
	Timing symbol
	Backlight
	bargraph



PEAK	Peak Hold
V	Volts
REL	Relative
AUTO	Autoranging
HOLD	Display hold
$^{\circ}\text{C}$	Degrees Centigrade
MIN	Minimum


Operating Instructions

WARNING: Risk of electrocution. High-voltage circuits, both AC and DC, are very dangerous and should be measured with great care.

1. ALWAYS turn the function switch to the **OFF** position when the meter is not in use.
2. If “OL” appears in the display during a measurement, the value exceeds the range you have selected. Change to a higher range.

DC VOLTAGE MEASUREMENTS

CAUTION: Do not measure DC voltages if a motor on the circuit is being switched ON or OFF. Large voltage surges may occur that can damage the meter.

1. Set the function switch to the  position.
2. Press the **MODE** button to indicate “DC”.
3. Insert the black test lead banana plug into the negative **COM** jack.

Insert the red test lead banana plug into the positive **V** jack.

4. Touch the black test probe tip to the negative side of the circuit.

Touch the red test probe tip to the positive side of the circuit.


5. Read the voltage in the display.



AC VOLTAGE (FREQUENCY, DUTY CYCLE) MEASUREMENTS

WARNING: Risk of Electrocution. The probe tips may not be long enough to contact the live parts inside some 240V outlets for appliances because the contacts are recessed deep in the outlets. As a result, the reading may show 0 volts when the outlet actually has voltage on it. Make sure the probe tips are touching the metal contacts inside the outlet before assuming that no voltage is present.

CAUTION: Do not measure AC voltages if a motor on the circuit is being switched ON or OFF. Large voltage surges may occur that can damage the meter.

1. Set the function switch to the  position.
2. Press the **MODE** button to indicate “AC”.
3. Insert the black test lead banana plug into the negative **COM** jack.
Insert red test lead banana plug into the positive **V** jack.
4. Touch the black test probe tip to the neutral side of the circuit.
Touch the red test probe tip to the “hot” side of the circuit.
5. Read the voltage in the display.
6. Press the **MODE** button to indicate “Hz(%)”.
7. Read the frequency in the main display and the duty in the auxiliary display .



MV VOLTAGE MEASUREMENTS

CAUTION: Do not measure mV voltages if a motor on the circuit is being switched ON or OFF. Large voltage surges may occur that can damage the meter.

1. Set the function switch to the mV position.
2. Press the **MODE** button to indicate “DC” or “AC”.

3. Insert the black test lead banana plug into the negative **COM** jack.

Insert the red test lead banana plug into the positive **V** jack.

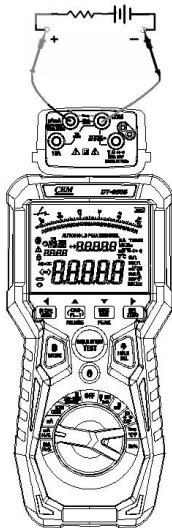
4. Touch the black test probe tip to the negative side of the circuit.
Touch the red test probe tip to the positive side of the circuit.
5. Read the mV voltage in the display.



DC CURRENT MEASUREMENTS

CAUTION: Do not make 20A current measurements for longer than 30 seconds. Exceeding 30 seconds may cause damage to the meter and/or the test leads.

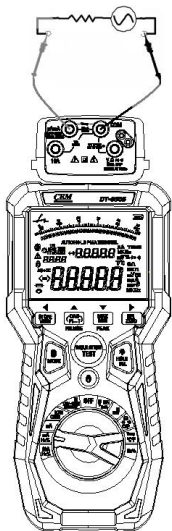
1. Insert the black test lead banana plug into the negative **COM** jack.
2. For current measurements up to 5000 μ A DC, set the function switch to the **μ A** position and insert the red test lead banana plug into the **μ A/mA** jack.
3. For current measurements up to 400mA DC, set the function switch to the **mA** position and insert the red test lead banana plug into the **μ A/mA** jack.
4. For current measurements up to 20A DC, set the function switch to the **10A/HZ/%** position and insert the red test lead banana plug into the **10A** jack.
5. Press the **MODE** button to indicate "**DC**" on the display.
6. Remove power from the circuit under test, then open up the circuit at the point where you wish to measure current.
7. Touch the black test probe tip to the negative side of the circuit. Touch the red test probe tip to the positive side of the circuit.
8. Apply power to the circuit.
9. Read the current in the display.



AC CURRENT (FREQUENCY, DUTY CYCLE) MEASUREMENTS

CAUTION: Do not make 20A current measurements for longer than 30 seconds. Exceeding 30 seconds may cause damage to the meter and/or the test leads.

1. Insert the black test lead banana plug into the negative **COM** jack.
2. For current measurements up to 5000 μ A AC, set the function switch to the yellow **μ A** position and insert the red test lead banana plug into the **μ A/mA** jack.
3. For current measurements up to 500mA AC, set the function switch to the **mA** position and insert the red test lead banana plug into the **μ A/mA** jack.
4. For current measurements up to 20A AC, set the function switch to the yellow **10A/HZ/%** position and insert the red test lead banana plug into the **10A** jack.
5. Press the **MODE** button to indicate "**AC**" on the display.
6. Remove power from the circuit under test, then open up the circuit at the point where you wish to measure current.
7. Touch the black test probe tip to the neutral side of the circuit.
Touch the red test probe tip to the "hot" side of the circuit.
8. Apply power to the circuit.
9. Read the current in the display.
10. In the 10A and mA function ,press the **MODE** button to indicate "**Hz(%)**".
11. Read the frequency in the main display and the duty in the auxiliary display .



RESISTANCE MEASUREMENTS

WARNING: To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking any resistance measurements. Remove the batteries and unplug the line cords.

1. Set the function switch to the Ω position.
2. Insert the black test lead banana plug into the negative **COM** jack.
Insert the red test lead banana plug into the positive Ω jack.
3. Press the **MODE** button to indicate “ Ω ” on the display.
4. Touch the test probe tips across the circuit or part under test. It is best to disconnect one side of the part under test so the rest of the circuit will not interfere with the resistance reading.
5. Read the resistance in the display.




CONTINUITY CHECK

WARNING: To avoid electric shock, never measure continuity on circuits or wires that have voltage on them.

1. Set the function switch to the Ω position.
2. Insert the black lead banana plug into the negative **COM** jack.
Insert the red test lead banana plug into the positive Ω jack.
3. Press the **MODE** button to indicate “ Ω ” and “ Ω ” on the display.
4. Touch the test probe tips to the circuit or wire you wish to check.
5. If the resistance is less than approximately 50Ω , the audible signal will sound. If the circuit is open, the display will indicate “OL”.


DIODE TEST

1. Set the function switch to the green **Ω CAP** position.
2. Insert the black test lead banana plug into the negative **COM** jack and the red test lead banana plug into the positive **V** jack.
3. Press the **MODE** button to indicate “” and “**V**” on the display.
4. Touch the test probes to the diode under test.
Forward voltage will typically indicate 0.400 to 0.700V. Reverse voltage will indicate “**OL**”.
Shorted devices will indicate near 0V and an open device will indicate “**OL**” in both polarities.



CAPACITANCE MEASUREMENTS

WARNING: To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking any capacitance measurements. Remove the batteries and unplug the line cords.

1. Set the rotary function switch to the green **Ω CAP**  position.
2. Insert the black test lead banana plug into the negative **COM** jack.
3. Insert the red test lead banana plug into the positive **V** jack.
4. Press the **MODE** button to indicate “**F**”
5. Touch the test leads to the capacitor to be tested.
Read the capacitance value in the Display



TEMPERATURE MEASUREMENTS

1. Set the function switch to the green Temp position.
2. Insert the Temperature Probe into the input jacks, making sure to observe the correct polarity.
3. Press the MODE button to indicate "°F" or "°C".
4. Touch the Temperature Probe head to the part whose temperature you wish to measure. Keep the probe touching the part under test until the reading stabilizes (about 30 seconds).
5. Read the temperature in the display.

Note: The temperature probe is fitted with a type K mini connector.
A mini connector to banana connector adaptor is supplied for connection to the input banana jacks.




FREQUENCY (DUTY CYCLE) MEASUREMENTS (ELECTRONIC)

1. Set the rotary function switch to the green **Hz/%** position.
2. Insert the black lead banana plug into the negative **COM** jack and the red test lead banana plug into the positive **Hz** jack.
3. Touch the test probe tips to the circuit under test.
4. Read the frequency on the display.
5. Press the **MODE** button to indicate "%".
6. Read the % duty cycle in the display.



INSULATION RESISTANCE MEASUREMENTS

- a) Set the rotary function switch to the **INSULATION** position, and Press the **RANGE** button to choose one of the voltage which display on the left .
- b) Connect two testing lines to the tested;
- c) Push down and hold the “TEST” button /or press the “ LOCK” key stroke first and then the “TEST” button, if the tested is electriferous and its voltage (AC/DC) is over 30V, it will refuse work and no high-voltage test occurs, if the tested is diselectriferous or its voltage is lower than 30V, it will enter into the formal testing process and brings the high-voltage. on the primary display, the insulation resistance in MΩ is indicated in-phase with analog bar; on the auxiliary display, the tested insulation voltage in V (DC) is indicated, the symbol “  ” flashes and the buzzer warns frequently
- d) Being free from the “TEST” button or pushing down the “TEST” button in the “LOCK “ status can exit from the “LOCK” status and shutoff the high-voltage, synchronously, the resistance values is indicated in the primary display will be held, and the auxiliary display still be in the status of monitoring the insulation voltage for the tested .
- e) Subsequently, discharge the balance insulation voltage of the tested through the inner switch of the meter.

POWER TOOLS AND SMALL APPLIANCES

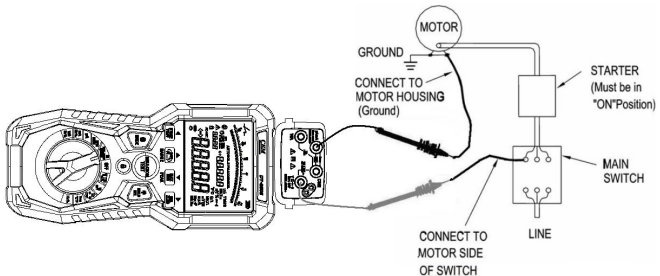
This test would also apply to other similar equipment that has a line cord. For double insulated power tools, the megohmmeter lead shown connected to the housing would be connected to some metal part of the tool(e.g chuck, blade).

Note: The switch of the device must be in the “ON” position and the main power should be disconnected.

MOTORS

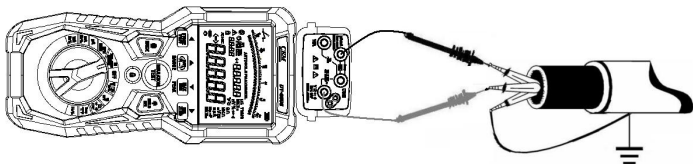
AC-Disconnect the motor from the line by disconnecting the wires at the motor terminals or by opening the main switch. If the main switch is used and the motor also has a starter then the starter must be held, by some means, in the "ON" position. In the latter case, the measured resistance will include the resistance of the motor, wire and all other components between the motor and the main switch. If a weakness is indicated, the motor and other components should be checked individually. If the motor is disconnected at the motor terminals, connect one megohmmeter lead to the grounded motor housing and the other lead to one of the motor leads.

DC-Disconnect the motor from the line. To test the brush rigging, field coils and armature connect one megohmmeter lead to the grounded motor housing and the other lead to the brush on the commutator. If the resistance measurement indicates a weakness, raise the brushes off the commutator and separately test the armature, field coils and brush rigging by connecting one megohmmeter lead to each of them individually, leaving the other connected to the grounded motor housing. The above also applies to DC Generators.



CABLES

Disconnect the cable from the line. Also disconnect opposite end to avoid errors due to leakage from other equipment. Check each conductor to ground and /or lead sheath by connecting one megohmmeter lead to a ground and /or lead sheather and the other megohmmeter lead to each of the conductors in turn. Check insulation resistance between conductors by connecting megohmmeter leads to conductors in pairs.



AUTORANGING/MANUAL RANGE SELECTION

When the meter is first turned on, it automatically goes into AutoRanging. This automatically selects the best range for the measurements being made and is generally the best mode for most measurements. For measurement situations requiring that a range be manually selected, perform the following:

1. Press the **RANGE** key. The "**AUTO**" display indicator will turn off.
2. Press the **RANGE** key to step through the available ranges until you select the range you want.
3. To exit the Manual Ranging mode and return to Autoranging, press and hold RANGE button.

MAX/MIN


1. Press the **MAX/MIN** key to activate the MAX/MIN recording mode. The display icon "**MAX**" will appear. The meter auxiliary display will display and hold the maximum reading and will update only when a new "max" occurs. at the same time the minimum values are calculated as well, press the **MAX/MIN** button to alternately display the maximum or minimum values.
2. To exit MAX/MIN mode press **and hold** the **MAX/MIN** button about two seconds.


RELATIVE MODE

The relative measurement feature allows you to make measurements relative to a stored reference value. A reference voltage, current, etc. can be stored and measurements made in comparison to that value. The displayed value is the difference between the reference value and the measured value. **Note:** Relative mode operate in the Rlow function is zero.

1. Perform the measurement as described in the operating instructions.
2. Press the **REL** button to store the reading in the display and the "**REL**" indicator will appear on the display.
3. the auxiliary display show REL TEST value and Main display show the current value.
4. Press the **REL** button to exit the relative mode.

Display Backlight

Press the  button to turn the backlight on or off. The backlight

will automatically turn off after 30 SECONDS. Press and hold the  button to switch backlight mode.

HOLD

The hold function freezes the reading in the display. Press the **HOLD** key momentarily to activate or to exit the **HOLD** function.

PEAK HOLD

The Peak Hold function captures the peak voltage or current.

The meter can capture negative or positive peaks as fast as 1 millisecond in duration. Press and hold about two seconds the **PEAK** button, "**PEAK**" and "**MAX**" will display. Press it again, "**MIN**" will display but "**MAX**" will disappear. The meter will update the display each time a lower negative peak and a higher positive **voltage** occurs.

Press and hold the button to exit the PEAK HOLD mode. Auto Power Off feature will be disabled automatically in this mode.

Data record (STORE/RECALL)

1、 LOG/VIEW function


In the normal testing mode, press and hold STORE/VIEW button about two seconds into STORE OR VIEW function sequence, such as, manual LOG->TIME SET FOR auto LOG->auto LOG->VIEW

IN manual LOG function, press the STORE/VIEW button once can store


one data.

IN TIME SET function, press the ▲ button once can increase the recording interval, press the ▼ button once can decrease the recording interval.

IN auto LOG function, press the STORE/VIEW button once can active auto LOG function, at the same time, "LOG A" flashes, press it once again to stop auto log.

IN VIEW function, press the ▲ button once can view next data, press the ▼ button once can view last data. press the button  once can delete all the log data.

LOW BATTERY INDICATION

When the  icon flashes in the display, the battery should be replaced.

Maintenance

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before removing the back cover or the battery or fuse covers.

WARNING: To avoid electric shock, do not operate your meter until the battery and fuse covers are in place and fastened securely.

This MultiMeter is designed to provide years of dependable service, if the following care instructions are performed:

1. **KEEP THE METER DRY.** If it gets wet, wipe it off.
2. **USE AND STORE THE METER IN NORMAL TEMPERATURES.**
Temperature extremes can shorten the life of the electronic parts and distort or melt plastic parts.
3. **HANDLE THE METER GENTLY AND CAREFULLY.** Dropping it can damage the electronic parts or the case.
4. **KEEP THE METER CLEAN.** Wipe the case occasionally with a damp cloth. DO NOT use chemicals, cleaning solvents, or detergents.

5. **USE ONLY FRESH BATTERIES OF THE RECOMMENDED SIZE AND TYPE.** Remove old or weak batteries so they do not leak and damage the unit.
6. **IF THE METER IS TO BE STORED FOR A LONG PERIOD OF TIME,** the batteries should be removed to prevent damage to the unit.

BATTERY INSTALLATION

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before removing the battery cover.

1. Turn power off and disconnect the test leads from the meter.
2. Open the rear battery cover by removing two screws (B) using a Phillips head screwdriver.
3. Insert the battery into battery holder, observing the correct polarity.
4. Put the battery cover back in place. Secure with the screws.

WARNING: To avoid electric shock, do not operate the meter until the battery cover is in place and fastened securely.

NOTE: If your meter does not work properly, check the fuses and batteries to make sure that they are still good and that they are properly inserted.

REPLACING THE FUSES

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before removing the meter cover.

1. Disconnect the test leads from the meter.
2. Remove the protective rubber holster.
3. Remove the battery cover (two “B” screws) and the battery.
4. Remove the six “A” screws securing the rear cover.
5. Gently remove the old fuse and install the new fuse into the holder.
6. Always use a fuse of the proper size and value (0.5A/1000V fast blow for the 400mA range [SIBA 70-172-40], 10A/1000V fast blow for the 20A range [SIBA 50-199-06]).
7. Replace and secure the rear cover, battery and battery cover.

WARNING: To avoid electric shock, do not operate your meter until the fuse cover is in place and fastened securely.

Specifications

Function	Range	Resolution	Accuracy
DC Voltage	500mV	0.01mV	± (0.1% reading + 4digits)
	5V	0.0001V	
	50V	0.001V	
	500V	0.01V	
	1000V	0.1V	
AC Voltage (50 to1000Hz)	500mV	0.01mV	± (1.0% reading + 5digits)
	5V	0.0001V	
	50V	0.001V	
	500V	0.01V	
	1000V	0.1V	
	All AC voltage ranges are specified from 5% of range to 100% of range		
DC Current	500μA	0.01μA	± (1.0% reading + 3 digits)
	5000μA	0.1μA	
	50mA	0.001mA	
	500mA	0.01mA	
	10A	0.001A	
AC Current	500μA	0.01μA	± (1.5% reading + 3digits) (50 to1000Hz)
	5000μA	0.1μA	
	50mA	0.001mA	
	500mA	0.01mA	
	10A	0.001A	
	All AC current ranges are specified from 5% of range to 100% of range		

NOTE: All AC current ranges are specified from 5% of range to 100% of range

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

AC switch according to the calibration of sine wave. It generally increase $\pm(2\% \text{ reading} + 2\% \text{ full scale})$ if non sine wave in the wave crest less than 3.0.

Function	Range	Resolution	Accuracy
Resistance	500Ω	0.01Ω	± (1% reading + 9 digits)
	5kΩ	0.0001kΩ	± (1% reading + 4 digits)
	50kΩ	0.001kΩ	
	500kΩ	0.01kΩ	
	5MΩ	0.001MΩ	± (2.0% reading + 9 digits)
	50MΩ	0.001MΩ	± (3.0% reading + 9 digits)
Capacitance	500nF	0.01nF	± (3.5% reading + 40 digits)
	5μF	0.0001μF	± (3.5% reading + 9 digits)
	50μF	0.001μF	
	500μF	0.01μF	
	5.000mF	0.0001mF	± (5% reading + 9 digits)
Frequency (electronic)	50Hz	0.001Hz	± (0.3% reading + 2 digits)
	500Hz	0.01Hz	
	5kHz	0.0001kHz	
	50kHz	0.001kHz	
	500kHz	0.01kHz	
	5MHz	0.0001MHz	
	50MHz	0.001MHz	
	Sensitivity: 0.8V rms min. @ 20% to 80% duty cycle and <100kHz; 5Vrms min @ 20% to 80% duty cycle and > 100kHz.		
Frequency (electrical)	40.00Hz-10KHz	0.01Hz - 0.001KHz	± (0.5% reading)
	Sensitivity:1Vrms		
Duty Cycle	5 to 95%	0.01%	± (1% reading + 2 digits)
	Pulse width: 100μs - 100ms, Frequency: 5Hz to 150kHz		
Temp	-50 to 1200°C	0.1°C	±(1.0% reading + 2.5°C)

(type-K)	-58 to 2192°F	0.1°F	±(1.0% reading +4.5°F) (probe accuracy not included)
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Meg OHMS


Terminal Voltage	Range	Resolution	Accuracy	Test Current
50V (0%~+10%)	0.050~5.000 MΩ	0.001MΩ	±(2%+10)	1mA @load50 kΩ
	5.000~50.00 MΩ	0.01MΩ	±(2%+10)	
	50.00~500.0 MΩ	0.1MΩ	±(4%+5)	
	500~2000 MΩ	1MΩ	±(5%+5)	
100V (0%~+10%)	0.100~5.000 MΩ	0.001MΩ	±(2%+10)	1mA @load1 00kΩ
	5.000~50.00 MΩ	0.01MΩ	±(2%+10)	
	50.00~500.0 MΩ	0.1MΩ	±(4%+5)	
	500~5000 MΩ	1MΩ	±(5%+5)	
250V (0%~+10%)	0.250~5.000 MΩ	0.001MΩ	±(2%+10)	1mA @load25 0kΩ
	5.000~50.00 MΩ	0.01MΩ	±(2%+10)	
	50.00~500.0 MΩ	0.1MΩ	±(3%+5)	
	500~5000 MΩ	1MΩ	±(4%+5)	
500V (0%~+10%)	0.500~5.000 MΩ	0.001MΩ	±(2%+10)	1mA @load50 0kΩ
	5.000~50.00 MΩ	0.01MΩ	±(2%+10)	
	50.00~500.0 MΩ	0.1MΩ	±(2%+5)	
	500~5000 MΩ	1MΩ	±(4%+5)	
1000V (0%~+10%)	1.000~5.000 MΩ	0.001MΩ	±(3%+10)	1mA @load1M Ω
	5.000~50.00 MΩ	0.01MΩ	±(2%+10)	
	50.00~500.0 MΩ	0.1MΩ	±(2%+5)	
	500~5000 MΩ	1MΩ	±(4%+5)	

LOW OHM

测量范围	分辨率	精确度	开路电压	过载保护
0.000~5.000Ω	0.001Ω	$\pm(1.5\%+30)$	5.0±1V	250Vrms
5.00~50.00Ω	0.01Ω	$\pm(2.0\%+5)$		
50.0 ~500.0Ω	0.1Ω	$\pm(2.5\%+5)$		
500 ~2000Ω	1Ω	$\pm(3.0\%+5)$		

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.

Enclosure	Double molded, waterproof
Shock (Drop Test)	3.2 feet (1 meters)
Diode Test	Test current of 0.9mA maximum, open circuit voltage 2.8V DC typical
Continuity Check	Audible signal will sound if the resistance is less than 50Ω (approx.), test current $<0.35\text{mA}$
PEAK	Captures peaks $>1\text{ms}$
Temperature Sensor	Requires type K thermocouple
Input Impedance	$>10\text{M}\Omega$ VDC & $>9\text{M}\Omega$ VAC
AC Response	True rms
AC True RMS:	The term stands for "Root-Mean-Square," which represents the method of calculation of the voltage or current value. Average responding multimeters are calibrated to read correctly only on sine waves and they will read inaccurately on non-sine wave or distorted signals. True rms meters read accurately on either type of signal.
ACV Bandwidth	50Hz to 1000Hz
Crest Factor	≤ 3 at full scale up to 500V, decreasing linearly to ≤ 1.5 at 1000V
Display	50,000 count backlit liquid crystal with bargraph
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	3 times per second, nominal
Low Battery Indication	"  " is flashes if battery voltage drops below operating voltage
Battery	6 x AA NEDA 15A IEC LR6

Fuses	mA, μ A ranges; 0.5A/1000V ceramic fast blow A range; 10A/1000V ceramic fast blow
Operating Temperature	41°F to 104°F (5°C to 40°C)
Storage Temperature	-4°F to 140°F (-20°C to 60°C)
Operating Humidity	Max 80% up to 87°F (31°C) decreasing linearly to 50% at 104°F (40°C)
Storage Humidity	<80%
Operating Altitude	7000ft. (2000meters) 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)