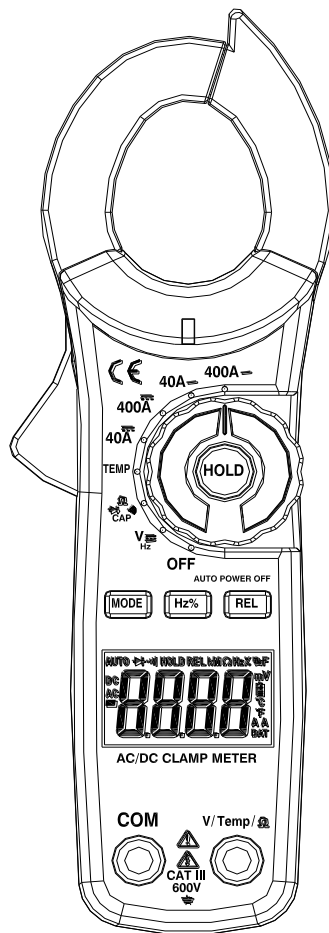


MTP

Instruction Manual

AC/DC Clamp Meter

Model MTP-3094



MTP Instruments

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Introduction

Congratulations on your purchase of our AC/DC Clamp Meter, **Model MTP-3094**. Careful use of this meter will provide years of reliable service.

International Safety Symbols



This symbol, adjacent to another symbol or terminal, indicates that the user must refer to the manual for further information.



This symbol, adjacent to a terminal, indicates that, under normal use, hazardous voltages may be present.



Double insulation.

SAFETY NOTES

- Do not exceed the maximum allowable input range of any function.
- Do not apply voltage to meter when resistance function is selected.
- Set the function switch to **"OFF"** when the meter is not in use.

WARNINGS

- Set function switch to the appropriate position before measuring.
- When measuring volts, do not switch to current/resistance modes.
- When changing ranges using the selector switch, always disconnect the test leads from the circuit under test.
- Do not exceed the maximum rated input limits.

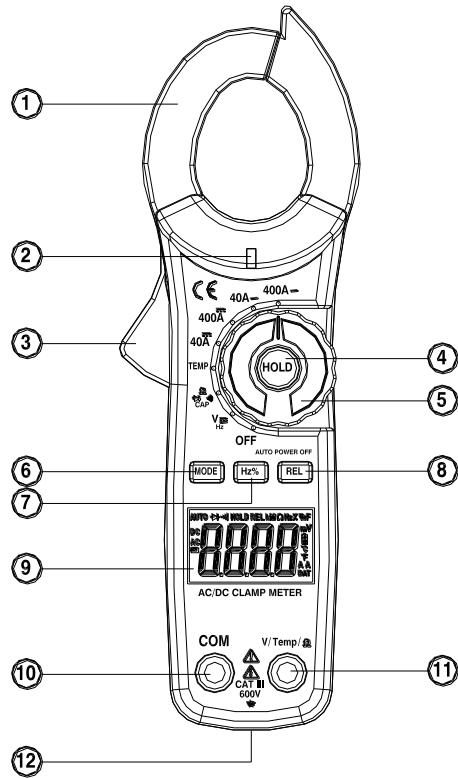
CAUTION

- Improper use of this meter can cause damage, shock, injury or death. Read and understand this user's manual before operating the meter.
- Always remove the test leads before replacing the battery.
- Inspect the condition of the test leads and the meter itself for any damage before operating the meter. Repair or replace any damage before use.
- Use great care when making measurements if the voltages are greater than 25VAC rms or 35VDC. These voltages are considered a shock hazard.
- Remove the battery if the meter is to be stored for long periods.
- Always discharge capacitors and remove power from the device under test before performing Diode, Resistance or Continuity tests.
- Voltage checks on electrical outlets can be difficult and misleading because of the uncertainty of connection to the recessed electrical contacts. Other means should be used to ensure that the terminals are not live.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Input limits	
Function	Maximum input
A AC	400A
V DC, V AC	600V DC/AC
Frequency, Resistance, Diode, Continuity, Capacitance	600V DC/AC
Temperature (°C/°F)	600V DC/AC

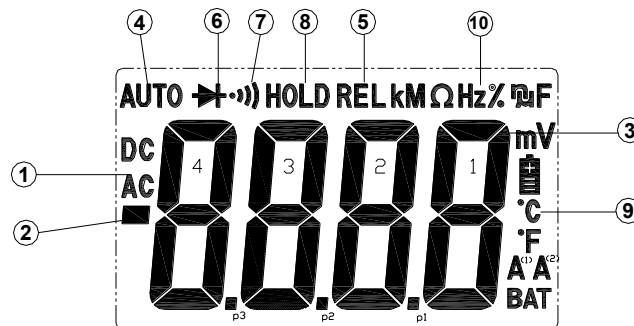
Meter Description

1. Current clamp
2. Non-contact AC voltage indicator light
3. Clamp trigger
4. **Data Hold** button
5. Rotary function switch
6. **MODE** select button
7. **HZ%** Hold button
8. Relative button
9. LCD display
10. COM input jack
11. V, Ω , CAP, Temp., Hz jack
12. Battery cover



Symbolic Display


- | | |
|--|--|
| 1. AC DC | Alternating current (AC) and direct current (DC) |
| 2. — | Minus sign |
| 3. 8.8.8.8. | 4000 count (0 à 3999) measurement reading |
| 4. AUTO | Auto range mode |
| 5. REL | Relative mode |
| 6. \rightarrow | Diode test mode |
| 7. (()) | Audible continuity |
| 8. "HOLD" | Data Hold mode |
| 9. °C, °F, μ , m, V, A, K, M, Ω | Units of measurement |
| 10. Hz % | Frequency/Duty cycle test mode |



Meter's Specifications

Functions	Range & Resolution	Accuracy (% of reading)
AC Current (50/60Hz)	40.00 A AC	± (2.5% of reading + 8 digits)
	400.0A AC	± (2.8% of reading + 8 digits)
DC Current	40.00A DC	± (2.5% of reading + 5 digits)
	400.0A DC	± (2.8% of reading + 5 digits)
DC Voltage	400.0 mV DC	± (0.8% of reading + 2 digits)
	4.000 V DC	± (1.5% of reading + 2 chiffres)
	40.00 V DC	
	400.0 V DC	
	600.0V DC	± (2% of reading + 2 digits)
AC Voltage (50 – 400Hz)	4.000 V AC	± (1.5% of reading + 8 digits)
	40.00 V AC	
	400.0 V AC	
	600.0V AC	± (2.0% of reading + 5 digits)
Resistance	400.0Ω	± (1.0% of reading + 4 digits)
	4.000kΩ	± (1.5% of reading + 2 digits)
	40.00kΩ	
	400.0kΩ	
	4.000kΩ	± (2.5% of reading + 3 digits)
	40.00MΩ	± (3.5% of reading + 5 digits)
Capacitance	40.00nF	± (4.0% of reading + 20 digits)
	400.0nF	± (3% of reading + 5 digits)
	4.000μF	
	40.00μF	
	100.0μF	± (4.0% of reading + 10 digits)
Frequency Sensitivity : 15Vrms	10 – 10kHz	± (1.5 of reading + 2 digits)
Temperature (type K) (Probe accuracy not included)	-20.0 à 760.0°C	± (3% of reading + 5°C)
	-4.0 à 1400.0°F	± (3% of reading + 9°F)

Meter's Specifications

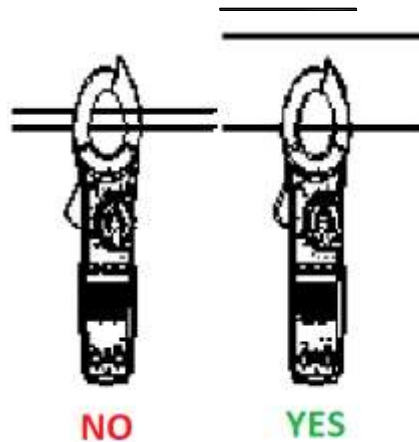
Clamp size :	opening 1.2" (30mm) approx.
Diode test :	test current of 0.3mA typical ; open circuit voltage 1.5V DC typical
Continuity check:	threshold <150 Ω ; test current <0.5mA
Low battery indication:	 is displayed
Over range indication:	"OL" is displayed
Measurement rate:	2 readings per second, nominal
Input impedance :	10M Ω (VDC and VAC)
Display :	4000 counts LCD
AC current :	50-60Hz (AAC)
AC Voltage bandwidth :	50-400Hz (VAC)
Operating temperature:	41 to 104°F (5 to 40°C)
Storage temperature :	-4 to 140°F (-20 to 60°C)
Operating humidity :	max of 80%, up to 87°F (31°C) decreasing linearly to 50% at 104°F (40°C)
Storage humidity :	<80%
Operating altitude :	7000 feet (2000 meters) maximum
Overvoltage :	category III 600V
Battery :	two "AAA" 1.5V batteries
Auto OFF:	after approx. 30 minutes
Dimensions/weight :	200x66x37mm / 205g
Accessories:	test leads, carrying case, alligator clips, temperature probe, 2 "AAA" 1.5V batteries, instruction manual
Safety :	for indoor use and in accordance with Overvoltage Category II, Pollution Degree 2. Category II includes local level, appliances, portable equipment, etc., with transient overvoltages less than Over voltage Cat. III

Operation

Note: Read and understand all **warning** and **precaution** statements listed in the safety section of this instruction manual **prior** to using the meter. Set the function select switch to the **OFF** position when the meter is not in use.

AC/DC Current Measurement

WARNING : Ensure that the test leads are disconnected from the meter before making current clamp measurements.




1. Set the function switch to **400A DC, 40A DC, 400A AC or 40A AC**.
2. If the range of the measured current is not known, select the higher range first than move to the lower range, if necessary.
3. Press the trigger to open the jaw. Fully enclose one conductor to be measured.
4. Read the current measurement value on LCD display.



AC/DC Voltage Measurement

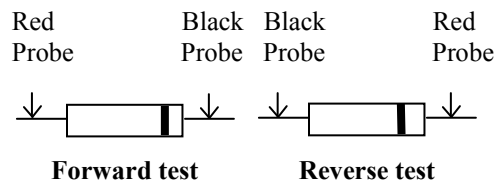
1. Insert the black test lead into the negative (**COM**) terminal and the red test lead into the positive (**V/Ω/Temp**) terminal.
2. Set the function switch to the "**V**" position.
3. Select AC or DC with the **MODE** button.
4. Connect the test leads **in parallel** to the circuit under test.
5. Read the voltage measurement on the LCD display.

Resistance Measurement

1. Insert the black test lead into the negative (**COM**) terminal and the red test lead into the positive (**V/Ω/Temp**) terminal.
2. Set the function switch to the "**Ω**  **CAP**" position.
3. Touch the test probe tips across the circuit or component under test. It is best to disconnect one side of the device under test so the rest of the circuit will not interfere with the resistance reading.
4. For resistance test, read the resistance on the LCD display.

Diode and Continuity Test

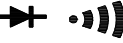
1. Insert the black test lead banana plug into the negative (**COM**) jack and the red test lead banana plug into the positive diode jack.
2. Turn the rotary switch to the "**Ω**  **CAP**" position.
3. Press the "**MODE**" button until  symbol appears on the display.
4. Touch the test probes to the diode under test. Forward voltage will indicate 0.4V to 0.7V. Reverse voltage will indicate "**OL**". Shorted devices will indicate near 0 mV and an open device will indicate "**OL**" in both polarities.



For continuity test: if the resistance is $<150\Omega$, a tone will sound.

Capacitance Measurement

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. Switch the rotary function switch to the " **Ω  CAP**" position.
2. Insert the black test lead banana plug into the negative (**COM**) jack. Insert the red test lead banana plug into the positive (**V/ Ω /Temp**) jack.
3. Touch the test leads to the capacitor to be tested.
4. Read the capacitance value on the display.

Frequency or % Duty Cycle Measurement

1. Set the rotary function switch to the "**VCC/AC, Hz**" position.
2. Insert the black lead banana plug into the negative (**COM**) jack and the red test lead banana plug into the positive (**V**) jack.
3. Select "**Hz or % Duty**" with the **Hz/%** button.
4. Touch the test probe tips to the circuit under test.
5. Read the frequency on the display.

Temperature Measurement

WARNING: To avoid electric shock, disconnect both test probes from any source of voltage before making a temperature measurement.

1. Set the function switch to "**Temp**" position.
2. Insert the temperature probe into the negative (**COM**) and the positive (**V/ Ω /TEMP**) jacks, making sure to observe the correct polarity.
3. 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)
4. Read the temperature on the display. The digital reading will indicate the proper decimal point and value

WARNING: To avoid electric shock, be sure the thermocouple has been removed before changing to another measurement function.

Non-Contact AC Voltage Measurement

WARNING: Risk of electrocution. Before use, always test the voltage detector on a known live circuit to verify proper operation.

1. Touch the probe tip to the hot conductor or insert into the hot side of the electrical outlet.
2. If **AC** voltage is present, the detector light will illuminate.

Note

The conductors in electrical cord sets are often twisted. For best results, rub the probe tip along a length of the cord to assure placing the tip in close proximity to the live conductor.

Note

The detector is designed with high sensitivity. Static electricity or other sources of energy may randomly trip the sensor. This is normal operation.

MODE Button

To select DC/ACV, Ohm/Diode/Continuity/CAP functions.

DATA HOLD Button

To freeze the LCD meter reading, press the "**Data Hold**" button. The "**Data Hold**" button is located in the center of the rotary function switch. While data hold is active, the "**HOLD**" display icon appears on the LCD. Press the "**Data Hold**" button again to return to normal operation.

REL Button

For DCA and Capacitance Zero and Offset adjustment.

Hz% Duty Button

Press on the "**Hz% Duty**" button to choose frequency or duty cycle in the range of frequency. Press "**Hz% Duty**" button to measure frequency or duty cycle while measuring voltage. Press on "**Hz% Duty**" button to return to measurement of voltage.

Battery Replacement

1. Remove the one rear Phillips head screw.
2. Open the battery compartment.
3. Replace the required two "AAA" 1.5V batteries (UM4 R03)
4. Re-assemble the meter.

Warranty

MTP Instruments warrants this instrument to be free of defects in parts and workmanship for one (1) year from date of shipment. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. **MTP Instruments** specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be held liable for any direct, indirect, incidental or consequential damages. **MTP Instruments** total liability is limited to repair or replacement of the product.

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