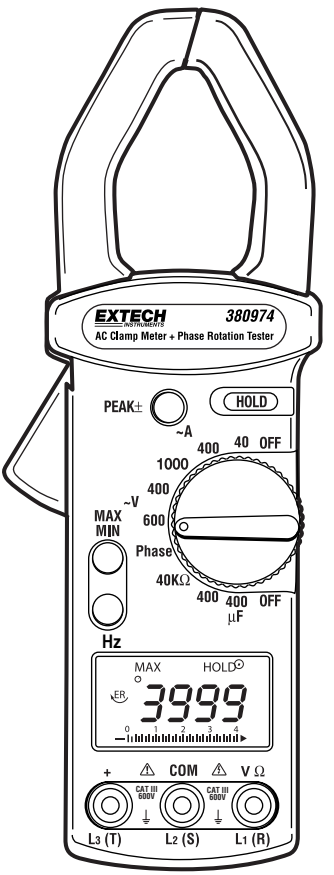
User's Manual

EXTECH INSTRUMENTS

AC Clamp Meter + Phase Rotation Tester

Model 380974



Introduction

Congratulations on your purchase of the Extech 380974 AC Clamp Meter + Phase Rotation Tester. This professional 1000A Clamp meter also provides phase rotation testing where motor direction (clockwise or counter-clockwise) and phase sequences (L1, L2, & L3) can be displayed. Careful use of this meter will provide years of reliable service.

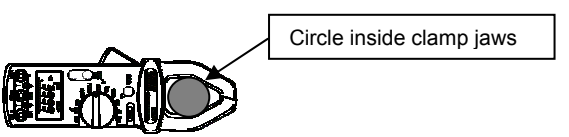
Specifications

Clamp jaw size	1.6" (40mm)
Battery type	9V
Range Selection	Manual
Display	3 ¾ digit (4000 count) multi-function LCD with 40-segment bargraph indication
Overload Indication	'OL' displays on LCD
Power	9V battery (200 hour life typical)
Low Battery Indication	Battery icon displays on LCD
Auto Power Off	After 30 minutes (feature can be disabled)
Display update rate	1.3 updates/second (digital display); 13.3 updates/second (bargraph)
Operating Temperature / RH	32 to 122°F (0°C to 50°C) / <80%
Storage Temperature / RH	14 to 140°F (-10°C to 60°C) / <70%
Dimensions/Weight	9 x 3 x 1.5" (228 x 76 x 39mm) / 13 oz. (370g)

Function	**Range**	**Resolution**	**Accuracy** (% of reading + digits)
AC Current	40A	0.01	±(2.0% + 5d)
	400A	0.1A	Freq. range: 40 to 400Hz
	1000A	1A	
AC Voltage	400V	0.1V	±(1.2% + 5d) (40 to 400Hz)
	600V	1V	±(3.0% + 5d) (40 to 400Hz)
3-Phase sequence	80V to 480V	Frequency Response 40Hz to 400Hz	
Resistance	40KΩ	10Ω	±(1.0% + 5d)
Frequency	4KHz	1Hz	±(0.5%rdg + 5d) Sensitivity: 10A (clamp), 30V (leads)
Capacitance	400uF	1uF	±(3% + 5d)
Continuity	Audible alert <40 ohms (open circuit < 3V, short circuit: 0.8mA)		
PEAK HOLD (Capture time: 100ms)	**AC Voltage**	**Resolution**	**Accuracy (of reading)**
	400V	0.1	±(2.5% + 10d)
	600V	1V	
	AC Current		
	40A	0.01A	±(2.5% + 10d)
	400A	0.1A	
	1000A	1A	

Overload Protection	
AC Current, Frequency (clamp)	1100A
AC Voltage, Sequence, Resistance, Capacitance, Frequency (leads)	600V rms

Specification notes: Accuracy is % of reading + number of digits at 64 to 82°F (18 to 28°C) <80% RH. The accuracy specs apply to measurements taken in the largest circle inside the clamp jaw (see diagram).

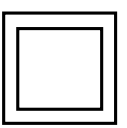


Safety Information

- Read the following safety information carefully before attempting to operate or service the meter
- To avoid meter damage, do not exceed the maximum specified input limits
- Do not use the meter if the test leads appear damaged
- Use caution when working near bare conductors or bus bars
- Accidental contact with a conductor may cause electrical shock
- Use this meter only as specified in this manual, otherwise the protection provided by the meter may become impaired
- Read the operation manual before use and follow all safety instructions
- Use caution when working with voltages that exceed 60VDC or 30VAC, such signals pose a shock hazard
- Disconnect circuits under test from the main power supply and disconnect all loads before taking resistance, capacitance, and continuity measurements
- Environmental Conditions:
  1. Installation Category III
  2. Pollution Degree 2
  3. Altitude 2000 meters max.
  4. Indoor use only
- International Safety Symbols:

CAUTION: Refer to documentation

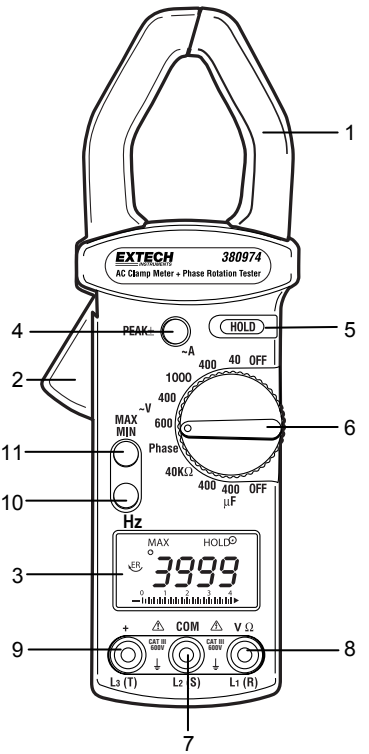
CAUTION: Risk of Electrical Shock



Double Insulation

Meter Description

1. Transformer jaws
2. Jaw opening trigger
3. LCD Display
4. PEAK HOLD button
5. DATA HOLD button
6. Rotary select switch
7. COM or L2 (S) Input
8. VOLT/OHM or L1 (R) input
9. Positive, L3 (T), and CAP input
10. Frequency (Hz) button
11. MAX/MIN button



Automatic Shut-Off Feature

The meter shuts off automatically after 30 minutes to conserve energy. To defeat this feature:

1. Turn the meter off.
2. Hold down the PEAK or the MAX/MIN button while turning the meter on.
3. The Auto Power Off feature will now be disabled.
4. Note that when the meter is turned off the Auto Power Off feature is enabled again.

Meter Operation

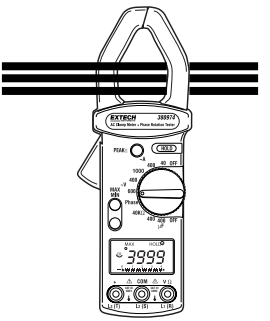
Measurement Preparation

1. Use the rotary selector switch to choose the appropriate range and function. Ensure that the selected range matches the measurement to be taken.
2. If the measured current is higher than the selected range for long periods of time, overheating can result which may damage the meter.
3. Do not measure current on high voltage conductors (> 600V).

AC Current Measurements

Warning: Ensure that all test leads are disconnected from the meter's terminals before proceeding.

1. Set the Rotary selector switch to the 40, 400 or 1000 Amps AC (~ A) range.
2. Open the jaw via the trigger and clamp around one of the conductors (see diagram). Close clamp completely around the conductor.
3. Read the displayed measurement value.



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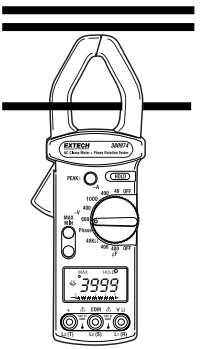

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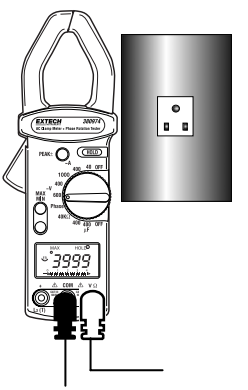
AC Voltage Measurements

Warning: Maximum AC input voltage is 600V. To avoid electrical shock or damage to the instrument, do not attempt to measure any voltage exceeding this limit.

1. Set the rotary selector switch to AC Volts (~ V).
2. Connect the black test lead to the COM terminal and the red test lead to the V/Ω terminal.
3. Connect the other ends of the test leads to the circuit, component, or other device under test. See diagram.
4. Read the displayed measurement value on the LCD.



Frequency Measurements

Note: Current (with clamp) and voltage (with test leads) frequency measurements are possible with this instrument. At least 10A (minimum threshold) must be available when measuring the frequency of a current signal with the clamp.

1. Set the rotary selector switch to a voltage or current position. Then Press the Hz button.
2. **For measuring the frequency of a voltage** (using test leads), connect the black test lead to the COM terminal and the red test lead to the V/Ω terminal. Note that in the 400V range, the minimum threshold is 30V.
3. Connect the other ends of the test leads to the circuit, component, or other device under test
4. **For measuring the frequency of a current** signal (using the clamp), fully enclose the conductor under test in the jaws.
5. Read the displayed measurement value on the LCD.