

# User's Guide

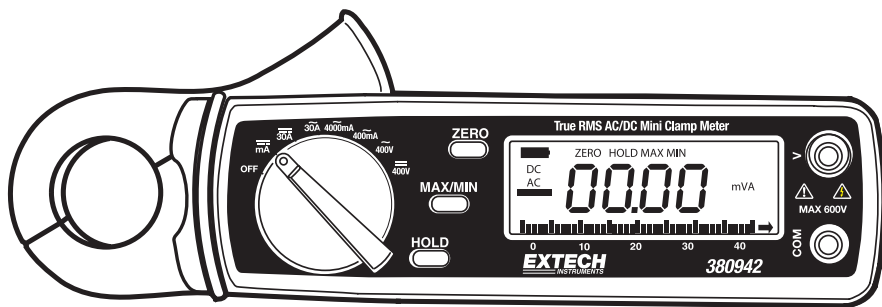
# **EXTECH<sup>®</sup>**

**INSTRUMENTS**

A FLIR COMPANY

## Model 380942

## True RMS AC/DC 30A Mini Clamp-on Meter

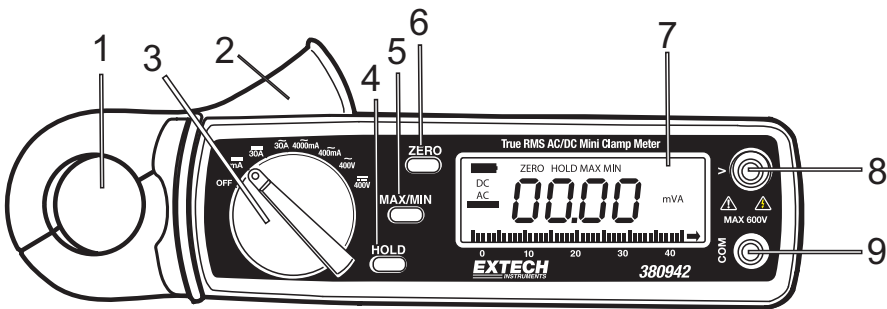


## Introduction

Congratulations on your purchase of the Extech Model 380942 DC/AC Clamp Meter. This meter is shipped fully tested and calibrated and, with proper use, will provide years of reliable service.

## Meter Description

1. Current sense jaw
2. Measurement Trigger
3. Function switch
4. Data HOLD key
5. MAX / MIN key
6. One-touch DCA ZERO key
7. LCD Display
8. Positive input terminal for Voltage
9. COM terminal



## Safety Symbols and Information



Caution ! Refer to the explanation in this Manual



Caution ! Risk of electric shock



Earth (Ground)

This meter has been designed to be safe in use, but the operator must use caution in its operation. The rules listed below should be carefully followed for safe operation.

1. **NEVER** apply voltage or current to the meter that exceeds the specified maximum:
2. **USE EXTREME CAUTION** when working with high voltages.
3. **DO NOT** measure voltage if the voltage on the "COM" input jack exceeds 600V above earth ground.
4. **ALWAYS** turn off the power and disconnect the test leads before opening the back to replace the fuse or batteries.
5. **NEVER** operate the meter unless the back cover and the battery/fuse door are in place and fastened securely.

## Operation

### AC Current Measurements (True RMS)

**WARNING:** To avoid electric shock, disconnect the test leads from the meter before making current measurements.

- 1) Set the Function switch to the 400mA, 4000mA, or 30A AC range.
- 2) Press the jaw trigger and clamp around, fully enclosing a single conductor. Do not allow a gap between the two halves of the jaw. Refer to the diagram at right for the correct way to enclose a single conductor.
- 3) Read the AC Current value on the LCD's digital or bargraph display.



### DC Current Measurements

**WARNING:** To avoid electric shock, disconnect the test leads from the meter before making current measurements.

- 1) Set the Function switch to the mA or 30A DC range.
- 2) Press the DCA zero key to null the meter display.
- 3) Press the Trigger to open the current sense Jaw.
- 4) Fully enclose the conductor to be measured. Do not allow a gap between the two halves of the jaw.
- 5) Read the DC Current value on the LCD's digital or bargraph display.

### AC Voltage Measurements (True RMS)

**WARNING:** To avoid electric shock or damage to the meter, do not make any voltage measurements that exceed the maximum specified limits.

- 1) Set the Function switch to the 400V AC position.
- 2) Insert the test leads to the meter as follows: Red lead to "V" terminal; Black lead to the COM input.
- 3) Connect the test leads to the circuit or device under test.
- 4) Read the AC Voltage value on the LCD's digital or bargraph display.

### DC Voltage Measurements

**WARNING:** To avoid electric shock or damage to the meter, do not make any voltage measurements that exceed the maximum specified limits.

- 1) Set the Function switch to the 400V DC position.
- 2) Insert the test leads to the meter as follows: Red lead to "V" terminal; Black lead to the COM input.
- 3) Connect the test leads to the circuit or device under test.
- 4) Read the DC Voltage value on the LCD's digital or bargraph display.

## ***Advanced Features***

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### **Relative Measurements**

- 1) Press the ZERO key. The displayed reading will zero and the word ZERO will appear on the upper portion of the LCD.
- 2) All subsequent measurements will now be displayed with respect to the zeroed reading. For example, if a 20A reading is zeroed and a 30A reading is subsequently measured, the LCD will display 10A.
- 3) To return to normal operation, press and hold the ZERO key for 2 seconds until the word ZERO switches off.
- 4) Note that Relative mode is not available if MIN/MAX mode is enabled.

### **Data Hold**

To freeze the current reading on the LCD, press the Data Hold key. The word HOLD will appear on the LCD while the meter is in the Data Hold mode. To release the Data Hold function and return the meter to normal operation, press the Data Hold key again. The word HOLD will switch off.

### **MIN/MAX Readings**

Pressing the MIN/MAX key allows the meter to display the highest and then the lowest readings encountered. Press the MIN/MAX key once to view the minimum reading, press it again to view the maximum reading. Note that the meter will only change its displayed reading when a measurement is taken higher than the previous MAX or lower than the previous MIN readings. The HOLD display icon (along with the MIN or MAX icon) will appear on the LCD in MIN/MAX mode. Pressing the MIN/MAX key a 3<sup>rd</sup> time returns the meter to normal operation.

### **Auto Power Off**

To extend battery life, the meter will auto power off after 30 minutes of operation. To resume operation, either turn the meter OFF and then ON again, or press the HOLD button. To disable the auto power off function, press down the "HOLD" key while turning the meter on.

## Maintenance

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### Battery Replacement

- 1) When the low battery symbol appears on the LCD the batteries must be replaced.
- 2) Turn the meter OFF and remove the rear battery compartment Phillips screw.
- 3) Lift off the battery compartment cover and replace the two 1.5V AA batteries.
- 4) Replace the compartment cover and secure the screw.
- 5)



You, as the end user, are legally bound (**EU Battery ordinance**) to return all used batteries, **disposal in the household garbage is prohibited!** You can hand over your used batteries / accumulators at collection points in your community or wherever batteries / accumulators are sold!

**Disposal:** Follow the valid legal stipulations in respect of the disposal of the device at the end of its lifecycle

### Cleaning

**Caution:** Use only a dry cloth to clean the plastic case.

## Specifications

### General Specifications

Display	3-3/4 digit (4000 count) LCD with 40 segment bargraph
Functions	ACA, DCA, ACV, DCV
Polarity	Minus sign ( - ) indicates negative polarity
Current sensor	Hall effect sensor type
Overload indication	Left blinking digit
DCA zero adjust	One touch zero key
Display rate	2 readings/second (20 readings/second for bargraph)
Battery	Two 1.5V AA batteries
Operating conditions	-10°C to 50°C (4°F to 122°F); < 85% Relative Humidity
Storage conditions	-20°C to 60°C (- 4°F to 140°F); < 75% Relative Humidity
Altitude	Operate at less than 2000 meters (for indoor use only)
Power consumption	Approximately 10mA DC
Weight	190g (6.2 oz.) including battery
Dimensions	183 x 63.6 x 35.6mm (7.2 x 2.5 x 1.4") (H x W x D)
Jaw opening	23mm (0.9")
Standards	IEC 1010 Category III 300V, Category II 600V

### Range Specifications

Function	Range	Resolution	Accuracy		Overload protect
<b>DC Current</b>	4000mA	1mA	$\pm (2.0\% + 3d)$		40A DC
	30A	10mA			100A DC
<b>AC Current</b> (True RMS)			<b>50/60Hz</b>	<b>40 to 100Hz</b>	
	400mA	0.1mA	$\pm(1.5\% + 5d)$	$\pm(2.0\% + 5d)$	40A AC
			<b>50/60Hz</b>	<b>40 to 1kHz</b>	
	4000mA	1mA	$\pm(2.5\% + 5d)$	$\pm(3.0\% + 5d)$	40A AC
	30A	10mA	$\pm(2.0\% + 5d)$	$\pm(2.5\% + 5d)$	100A AC
<b>DC Voltage</b>	400V	0.1V	$\pm (1.0\% + 2d)$		1000V DC
<b>AC Voltage</b> (True RMS)			<b>50/60Hz</b>	<b>40 to 1kHz</b>	
	400V	0.1V	$\pm(1.5\% + 4d)$	$\pm(2.0\% + 5d)$	800V AC

### Specification Notes

- AC Voltage and Current Crest Factor: < 3
- AC / DC Voltage Input Impedance: 10M $\Omega$

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