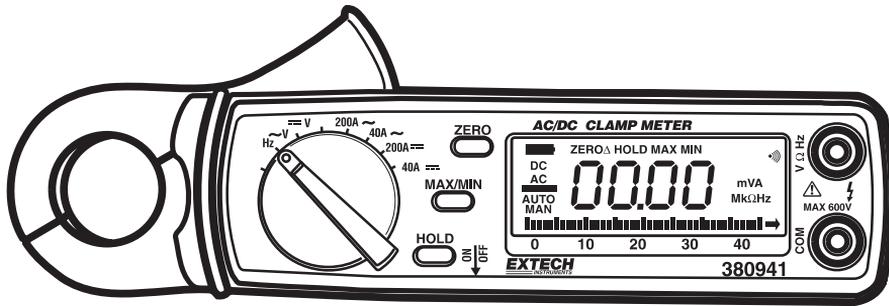


# User's Guide

# **EXTECH** INSTRUMENTS

## 200A Mini Clamp + DMM

### Model 380941



- Large 3 3/4 digit LCD display with 40 segment bargraph
- Continuity and Frequency Measurements
- One touch DCA zero adjust
- MIN/MAX and Data Hold functions
- 0.9" (23mm) Jaw diameter

### ***Introduction***

Congratulations on your purchase of Extech's DC/AC Clamp Meter. This professional meter, with proper care, will provide years of safe reliable service.

# Specifications

## General Specifications

Display	3-3/4 (4000 count) Digit LCD with 40 segment bargraph
Functions	ACA, DCA, ACV, DCV, Resistance, Frequency, Continuity
Polarity	"-" 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 temp.	4 <sup>0</sup> F to 122 <sup>0</sup> F (-10 <sup>0</sup> C to 50 <sup>0</sup> C)
Operating Humidity	< 85% RH
Power consumption	Approximately 10mA DC
Weight	8 oz. (225g) including battery
Dimensions	7 x 1.75 x 1.25" (178 x 45 x 32mm) (HWD)
Jaw opening	0.9" (23mm)
Standards	IEC 1010 Category III 300V, Category II 600V

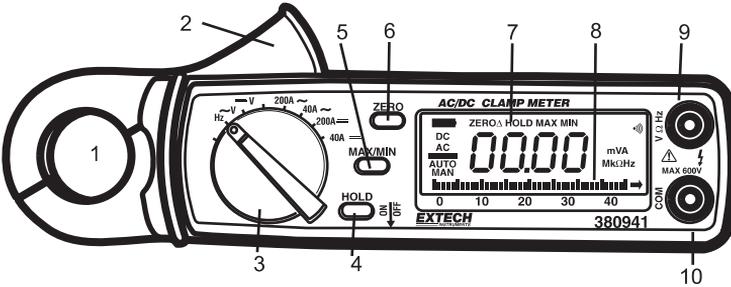
## Range Specifications

Function	Range	Resolution.	Accuracy		Overload protect
DC Current	40A	10mA	$\pm(1.0\% +2dgts)$		400A DC
	0 to 150A	100mA	$\pm(1.0\% +2dgts)$		400A DC
	150 to 200A	100mA	$\pm(2.2\% +2dgts)$		400A DC
AC Current			50/60Hz	40 to 400Hz	
	40A	10mA	$\pm(1.0\% +3dgts)$	$\pm(1.5\% +4dgts)$	400A AC
	0 to 150A	100mA	$\pm(1.0\% +3dgts)$	$\pm(1.5\% +4dgts)$	400A AC
	150 to 200A	100mA	$\pm(2.2\% +3dgts)$	$\pm(2.5\% \pm4dgts)$	400A AC
DC Voltage	400V	0.1V	$\pm(1.0\% +2dgts)$		1000VDC
AC Voltage			50/60Hz	40 to 400Hz	
	400V	0.1V	$\pm(1.5\% +2dgts)$	$\pm(2.0\% +4dgts)$	800V AC
Resistance	40 to 400 $\Omega$	0.1	$\pm(1.0\% +2dgts)$	Beep <38 $\Omega$	600V AC
Frequency	100 to 10k	0.01Hz	$\pm0.5\% \pm2dgts$	Sensitivity; 2V, 0.1A AC	600V AC

## Front Panel Description

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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. 40 segment bargraph display
9. Positive input terminal for V, HZ and  $\Omega$
10. COM terminal



## International Symbols

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Caution ! Refer to the explanation in this Manual



Caution ! Risk of electric shock



Earth (Ground)

## Safety

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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 500V above earth ground.
4. **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.
5. **ALWAYS** discharge filter capacitors in power supplies and disconnect the power when making resistance or diode tests.
6. **ALWAYS** turn off the power and disconnect the test leads before opening the back to replace the fuse or batteries.
7. **NEVER** operate the meter unless the back cover and the battery/fuse door are in place and fastened securely.

# Operation

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## AC 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 40 or 200A 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.
- 3) Read the ACA value on the LCD.

## 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 40 or 200A 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 DCA value on the LCD.

## AC Voltage Measurements

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

- 1) Set the Function switch to the VAC position.
- 2) Insert the test leads to the meter as follows: Red lead to "V,HZ, $\Omega$ " terminal; Black lead to the COM input.
- 3) With the pointed end of the test leads measure voltage. Remember that voltage measurements are made in parallel with the device or circuit under test.
- 4) Read the ACV value on the LCD.

## DC Voltage Measurements

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

- 1) Set the Function switch to the VDC position.
- 2) Insert the test leads to the meter as follows: Red lead to "V,HZ, $\Omega$ " terminal; Black lead to the COM input.
- 3) With the pointed end of the test leads measure voltage. Remember that voltage measurements are made in parallel with the device or circuit under test.
- 4) Read the DCV value on the LCD.

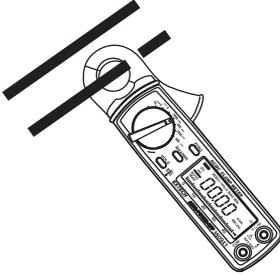
## Resistance and Continuity Measurements

**WARNING:** To avoid electric shock or damage to the meter, remove power to the circuit under test and discharge all capacitors.

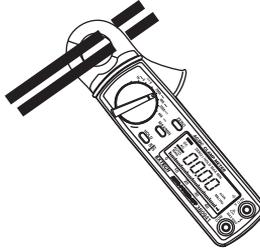
- 1) Set the Function switch to the  $\Omega$  position.
- 2) Insert the test leads to the meter as follows: Red lead to "V,HZ, $\Omega$ " terminal; Black lead to the COM input.
- 3) With the pointed end of the test leads measure resistance. Remember that resistance measurements are made in parallel with the device or circuit under test.
- 4) Read the resistance value on the LCD.
- 5) If the resistance is less than  $40\Omega$ , the continuity beeper will sound.

## Frequency Measurements

- 1) Ensure that at least 0.1A AC is detectable with an ACA measurement before measuring Frequency.
- 2) Set the Function switch to the Hz position.
- 3) Press the Trigger to open the Jaw and fully enclose the conductor to be measured. If line frequency is being measured, enclose only one line of the source (ensure first that there is current present).
- 4) Read the Frequency measurement on the LCD in Hz.



Single Conductor  
Correct Method



Two Conductors  
Incorrect Method

## Special Features

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### Relative Measurements

- 1) Press the Zero key and the present measurement will Zero.
- 2) All subsequent measurements are 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.
- 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. To release the Data Hold function and return the meter to normal operation, press the Data Hold key again.

### MIN/MAX Readings

Pressing the MIN/MAX key allows the meter to display ONLY the highest and 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.

# **Maintenance**

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## **Battery Replacement**

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

## **Cleaning**

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

# **Calibration and Repair Services**

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Extech offers repair and calibration services for the products we sell. Extech also provides NIST certification for most products. Call the Customer Service Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.

# **Warranty**

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EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website at [www.extech.com](http://www.extech.com) (click on 'Contact Extech' and go to 'Service Department' to request an RA number). A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. 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. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

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### **Support Hotline (781) 890-7440**

Tech support: Ext. 200; Email: [support@extech.com](mailto:support@extech.com)

Repair>Returns: Ext. 210; Email: [repair@extech.com](mailto:repair@extech.com)

Website: [www.extech.com](http://www.extech.com)