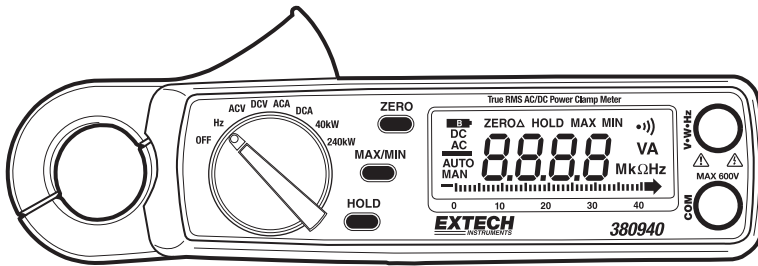


User's Guide



True RMS AC / DC Power Clamp Meter

Model 380940



Warranty

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 for contact information. 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.







Introduction

Congratulations on your purchase of the Extech 380940 True RMS Watt Clamp DMM. This meter combines multimeter and clamp meter functionality in one convenient meter. Careful use of this meter will provide years of reliable service.

Safety

1. **NEVER** exceed the specified voltage/current 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 mode. Doing so can damage the meter.
5. **ALWAYS** discharge filter capacitors in power supplies and disconnect the power when measuring.
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.

International Safety Symbols

	DC Voltage DC Current		Refer to explanation in owners manual
	AC Voltage AC Current		Dangerous voltage risk of electrical shock
	Ground		Double Insulation

Specifications

General Specifications

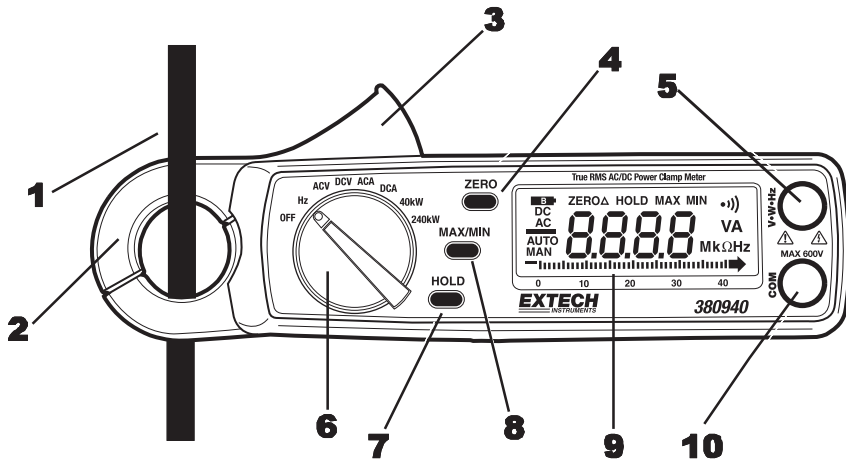
Display	3-3/4 digit (4000 count) LCD with 40 segment bargraph
Functions	Watts, ACA, DCA, ACV, DCV, Frequency
Polarity	"-" indicates negative polarity; positive assumed
Current sensor	Hall effect sensor type
Overload indication	Left blinking digit
DCA zero adjust	One touch zero key
Display rate	2 readings/second (20 readings/second for bargraph)
Auto Power Off	Meter turns off automatically after 30 minutes
Battery	Two 1.5V AA batteries
Operating temp.	4°F to 122°F (-10°C to 50°C)
Operating Humidity	< 85% RH
Power consumption	Approximately 10mA DC
Weight	6.7 oz. (190g) including battery
Dimensions	7.2 x 2.5 x 1.4" (183 x 63.6 x 35.6mm) (HWD)
Jaw opening	0.9" (23mm) maximum conductor size
Standards	IEC 1010 Category III 300V, Category II 600V

Range Specifications

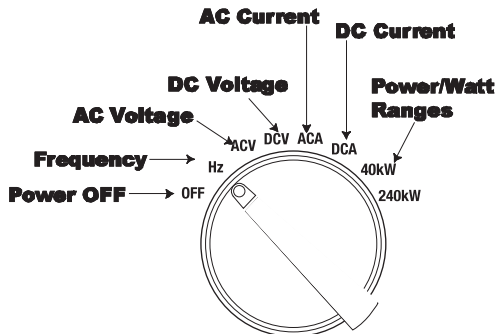
Function	Range	Resolution	Accuracy	Overload protect	
AC Power	40kW	10W	$\pm(1.5\% + 3\text{dgts})$	250V, 400A	
	Note: 50/60Hz, PF 0.6 to 1, Vpeak < 360V				
	240kW	100W	$\pm(1.5\% + 3\text{dgts})$	600V, 400A	
	Note: 50/60Hz, PF 0.6 to 1, Vpeak < 850V				
	40kW	10W	$\pm(2.5\% + 3\text{dgts})$	250V, 400A	
	240kW	100W	$\pm(2.5\% + 3\text{dgts})$	600V, 400A	
Note: 40Hz to 100Hz, PF 0.6 to 1, Vpeak < 850V					
DC Power	40kW	10W	$\pm(1.5\% + 3\text{dgts})$	250V, 400A	
	240kW	100W	$\pm(1.5\% + 3\text{dgts})$	250V, 400A	
DC Current	400A	100mA	$\pm(1.5\% + 3\text{dgts})$	600A DC	
AC Current <small>True RMS, Crest factor < 4</small>			50/60Hz	40 to 100Hz	
	400A	100mA	$\pm 1.5\% \pm 3\text{dgts}$	$\pm 2.5\% \pm 4\text{dgts}$	600A AC
DC Voltage	400V	0.1V	$\pm(1.0\% + 2\text{dgts})$	800V DC	
AC Voltage <small>True RMS, Crest factor < 4, Input impedance 10M</small>			50/60Hz	40 to 1kHz	
	600V	1V	$\pm(1.5\% + 2\text{dgts})$	$\pm(2.0\% + 4\text{d})$	800V AC
Frequency	10Hz - 10kHz	0.01- 10Hz	$\pm(0.8\% + 2\text{dgts})$	Sensitivity 10V	600V AC

Meter Description

1. Conductor under test
2. Clamp Jaws
3. Jaw trigger – Opens the meter jaws
4. ZERO button – Zeroes the DCA reading
5. Positive input jack (for red test lead)
6. Function select dial
7. HOD button freezes the displayed reading
8. MAX/MIN button – Press to track and view highest and lowest readings
9. LCD Display with function indicators and bargraph
10. COM input jack (for black test lead)



Function Select Switch



Display icons

B	Low battery
DC	Direct current
AC	Alternating current
—	Minus sign
AUTO	Automatic range (frequency only)
MAN	Manual range
ZERO	Zero / Relative function
HOLD	HOLD function
MAX	Highest reading
MIN	Lowest reading
•))	Audible continuity
V	Voltage unit of measure
A	Current unit of measure
M	Prefix MEGA (millions of units)
k	Prefix KILO (thousands of units)
Ω	Ohm (unit of measure for resistance and continuity)
Hz	Hertz (unit of measure for frequency)

Bargraph display

The 40 segment bargraph display shown below is a graphical interpretation of the measurement. It is displayed under the display digits on the LCD.

The bars in the bargraph indicate a presence of an electronic signal. The more bars showing, the higher the signal. The digits below the graph help the user see how many bars are showing. If 40 segments are showing, the bars will reach the '40' mark, if 20 bars are showing the bars will reach the '20' mark.

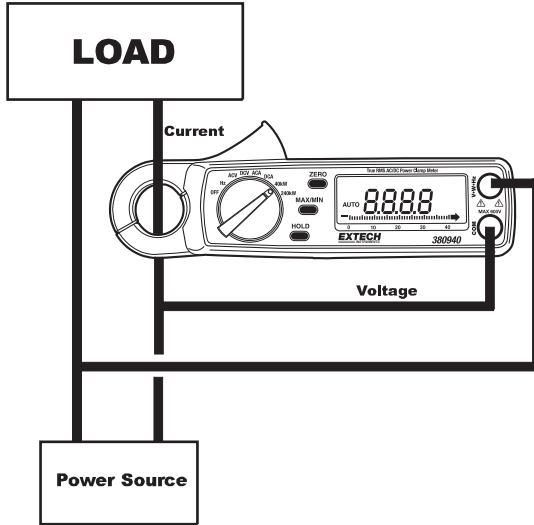
The bargraph is to be interpreted based on the range the meter is in while the measurement is being made. If the bargraph shows 40 segments lit, then the signal is at the highest end of the meter's present range.



Operation

AC + DC Power Watt Measurements

1. Connect the test leads to the voltage source in parallel with the load (refer to diagram).
2. Clamp onto one of the wires connected to the load.
3. Select the AC or DC voltage range using the function select switch and check the voltage reading.
4. Select the AC or DC current range using the function select switch and check the current reading.
5. Select the appropriate Watt range using the function select switch.
6. Read the KW value on the LCD.



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 AC Current position.
2. Press the jaw trigger and clamp around a single conductor fully enclosing it. 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 DC Current position.
2. Press the DCA zero key to null the meter display.
3. Press the jaw trigger and clamp around a single conductor fully enclosing it. Do not allow a gap between the two halves of the jaw.
4. 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 AC Voltage position.
2. Insert the test leads to the meter as follows: Red lead to "V,Ω,Hz" terminal; Black lead to the COM input.
3. Measure voltage with the pointed end of the test leads. Remember that voltage measurements are made in parallel with the device/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 DC Voltage position.
2. Insert the test leads to the meter as follows: Red lead to "V,Ω,Hz," 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.

Frequency Measurements

1. Set the Function switch to the Hz position.
2. Insert the test leads into the meter's input terminals.
3. Connect the other ends of the test leads in parallel with the device/circuit under test.
4. Read the Frequency measurement on the LCD in Hz.

MIN, MAX Function

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 3rd time returns the meter to normal operation.

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.

Relative Mode

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.

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.

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 screw.
3. Lift off the battery compartment cover and replace the two 1.5V AA cells.
4. Replace the compartment cover and secure the screw.

Cleaning

Use only a dry cloth to clean the plastic case.

Calibration and Repair Services

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.



Support line (781) 890-7440

Technical support: Extension 200; E-mail: support@extech.com

Repair & Returns: Extension 210; E-mail: repair@extech.com

Product specifications subject to change without notice

For the latest version of this User's Guide, Software updates, and other up-to-the-minute product information, visit our website: www.extech.com
Extech Instruments Corporation, 285 Bear Hill Rd., Waltham, MA 02451

Copyright © 2006 Extech Instruments Corporation

All rights reserved including the right of reproduction in whole or in part in any form.