

User Guide



Flexible AC Clamp Meter

3000 Amp / 600 Volt

Model 382400



Introduction

Congratulations on your purchase of the Model 382400 Extech AC Clamp device. The Model 382400 features:

- True RMS AC measurements
- 3000A maximum current
- 600V maximum voltage
- Fast Peak Hold feature
- MAX-MIN and Data Hold features
- Auto Power OFF

This meter is shipped fully test and calibrated. Careful use of this meter will provide years of reliable service.

Safety

International Safety Symbols



This symbol, adjacent to another symbol or terminal, indicates 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 measurement ranges.
- Set the function switch to the OFF position when the meter is not in use.
- Remove the batteries if the meter is to be stored for longer than 60 days.

WARNINGS

- Do not install the flexible current probe around bare conductors carrying a voltage ranging from 30V to 600V unless wearing protective clothing and gloves suitable for high-voltage work.
- Always inspect and check any damage of the current probe assembly before usage. Do not use the flexible current probe if any damage is found.
- Do not use the meter on circuits rated higher than 600V.
- Set function switch to the appropriate position before measuring.
- When measuring voltage do not switch to the current mode.

CAUTIONS

- Improper use of this meter can cause damage, shock, injury or death. Read and understand this user manual before operating the meter.
- Always remove the test leads and clamp jaw from circuits or devices under test before replacing the battery or fuses.
- Use great care when making measurements if the voltages are greater than 25VAC rms. These voltages are considered a shock hazard.
- 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.

MAXIMUM INPUTS

Function	Maximum Input
Current (Amperes)	3000A AC
Voltage (Volts)	600V AC

PER IEC1010 OVERVOLTAGE INSTALLATION CATEGORY

OVERVOLTAGE CATEGORY I

Equipment of OVERVOLTAGE CATEGORY I is equipment for connection to circuits in which measures are taken to limit the transient overvoltages to an appropriate low level.

Note – Examples include protected electronic circuits.

OVERVOLTAGE CATEGORY II

Equipment of OVERVOLTAGE CATEGORY II is energy-consuming equipment to be supplied from the fixed installation.

Note – Examples include household, office, and laboratory appliances.

OVERVOLTAGE CATEGORY III

Equipment of OVERVOLTAGE CATEGORY III is equipment in fixed installations.

Note – Examples include switches in the fixed installation and some equipment for industrial use with permanent connection to the fixed installation.

OVERVOLTAGE CATEGORY IV

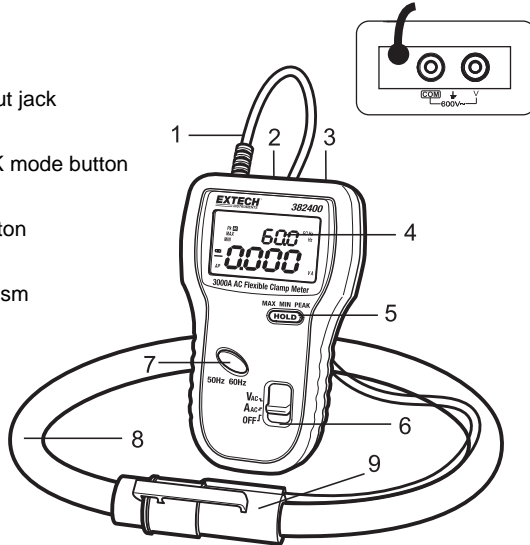
Equipment of OVERVOLTAGE CATEGORY IV is for use at the origin of the installation.

Note – Examples include electricity meters and primary over-current protection equipment

Description

Meter Description

1. Clamp conductor
2. COM test lead input jack
3. Voltage (V) test lead input jack
4. LCD Display
5. HOLD, MIN, MAX, PEAK mode button
6. Function select switch
7. 50/60Hz select push-button
8. Flex Clamp probe
9. Clamp coupling mechanism



Display Description

- Data Hold
- MAX** Max reading
- MIN** Min reading
- PK** Peak reading
- Low battery
- V** Volts (Voltage)
- A** Amperes (Current)
- HZ** Frequency
- AP** Auto Power OFF
- Minus sign Negative reading display
- 0 to 9999 Measurement display digits



Operation

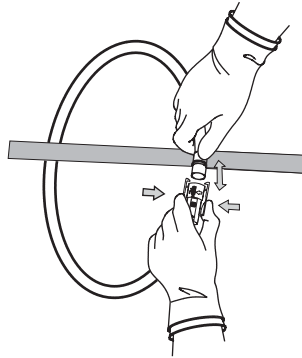
NOTES: Read and understand all **Warning** and **Caution** statements in this operation manual prior to using this meter. Set the function select switch to the OFF position when the meter is not in use.

AC True RMS Current Measurements

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

1. Set the Function switch to the **A** position.
2. Select the fundamental frequency (50Hz or 60Hz) with the **50Hz-60Hz** push-button. The LCD display will reflect the selected frequency.
3. Open the clamp loop by pressing the latch tabs and disconnecting the clamp coupling connector.
4. Fully enclose only one conductor centered inside the clamp loop. Allow at least 25mm between the conductor and the clamp coupling connector.
5. The meter's LCD will display the current (A) and frequency (Hz) readings.

Note: For measurements lower than 3A, the meter's frequency display will indicate '0'. 'OL' is displayed when the measurement exceeds the specified maximum limit.

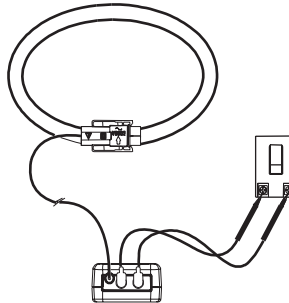


AC True RMS Voltage Measurements


WARNING: Maximum input is 600Vac rms. Do not attempt to take any voltage measurement that exceeds this limit. Exceeding the limit could cause electrical shock and damage to the meter.

1. Insert the black test lead into the negative **COM** terminal and the red test lead into the positive **V** terminal.
2. Set the function switch to the **V** position.
3. Select the fundamental frequency (50Hz or 60Hz) with the **50Hz-60Hz** push-button. The LCD display will reflect the selected frequency.
4. Connect the test leads in parallel to the circuit under test.
5. Read the voltage measurement (V) and frequency (Hz) on the LCD display. 'OL' is displayed when the measurement exceeds the specified maximum limit.

Note: For measurements lower than 30V, the meter's frequency display will indicate '0'.



DATA HOLD, MAX-MIN, and PEAK Modes

1. Measure current or voltage as previously described.
2. Press the HOLD button to access the Data Hold mode; an  icon will be displayed. Use the Data Hold mode to freeze a displayed reading.
3. Press again to access the MAX mode. In the MAX mode, only the highest reading will be displayed. The MAX icon will be indicated on the LCD display.
4. Press again to access the MIN mode. In the MIN mode, only the lowest reading will be displayed. The MIN icon will be indicated on the LCD display.
5. Press again to access the PEAK mode. The PEAK display icon will be indicated on the LCD display.
6. Press and hold the HOLD button for 3 seconds to return to the normal operating mode.

Note: The sampling time of the PEAK Mode is 39 μ S (50Hz) or 33 μ S (60Hz).
HOLD, MAX and MIN display the TRMS value

Automatic Power OFF

In order to conserve battery life, the meter will automatically turn off after approximately 15 minutes. To turn the meter on again, turn the function switch to the OFF position and then to the desired function position.

To defeat the Auto Power OFF feature, press and hold the **HOLD** button while turning the meter on.

Specifications

AC Current

50/60Hz, Auto Range, True RMS, Crest Factor <4
Conductor should be positioned at the center of the flexible loop

Range	Resolution	Accuracy *
0 to 300.0 AAC	0.1A	$\pm 1.0\%$ of range
300.0 to 999.9 A		
1000 to 3000 A	1A	

*Position sensitivity is 2% of range; External field effect of < 40A/m and 200mm from the coupling is 1% of range; Temperature coefficient is 0.02% of reading/ $^{\circ}$ C.

AC Voltage

50/60Hz, Auto Range, True RMS, Crest Factor <4, Input Impedance 10M ohm, Overload protection 800V

Range	Resolution	Accuracy
4.0V to 600.0 VAC	0.1V	$\pm (0.5\% \text{ reading} + 5 \text{ digits})$

Frequency

ACV value > 30VAC or ACA value > 30A

Range	Resolution	Accuracy
45 – 65	0.1	$\pm 0.2\text{Hz}$

Probe Specifications

Probe length	24" (610mm)
Bending diameter	1.4" (35mm)
Connector diameter	0.9" (23mm)
Cable diameter	0.5 "(14mm)
Cable length (probe to meter)	6.7" (170mm)
Cable length (meter to output)	6.7" (170mm)

General Specifications

Display	Four (4) digit (9999 counts) LCD
Range selection	Automatic
Low Battery indication	Battery symbol is displayed
Over-range indication	'OL' is displayed
Measurement rate	2 readings per second, nominal
Peak Hold	Captures peaks 39 μ S (50Hz) or 33 μ S (60Hz)
Operating Temperature	14°F to 185 °F (-10°C to 85°C)
Storage Temperature	-4°F to 185°F (-20°C to 85°C)
Operating Humidity	15% to 85%
Storage Humidity	15% to 85%
Operating Altitude	7000ft. (2000m) max.
Battery	Two (2) 1.5V 'AA' batteries
Power consumption	10mA approx.
Auto power OFF	After approx. 15 minutes
Weight	15.2 oz. (430g)
Safety	For indoor use and in accordance with the requirements for double insulation to EN61010-1-032 Category III 600V; Pollution Degree 2.
Approvals	CE

Maintenance

WARNING: To avoid electrical shock, disconnect the meter from any circuit, remove the test leads from the input terminals, and turn OFF the meter before opening the case. Do not operate the meter with an open case.

Inspection

Inspect the clamp for damage before each use; have the unit repaired before use if damage is evident.

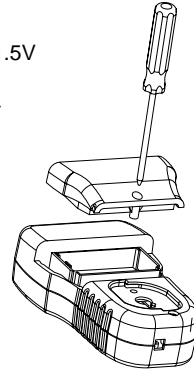
Cleaning and Storage

Periodically wipe the meter and probe with a damp cloth and mild detergent; do not use abrasives or solvents. If the meter is not to be used for 60 days or more, remove the batteries and store separately.

Battery Replacement

When the low battery symbol appears on the LCD, replace the two 1.5V 'AA' batteries.

1. Remove the center Phillips head screw that secures the rear battery door (see diagram)
2. Open the battery compartment
3. Replace the 1.5V 'AA' batteries
4. Secure the battery compartment



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 to 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 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.*

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 Care 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 Guide, Software updates, and other up-to-the-minute product information, visit our website: www.extech.com
Extech Instruments Corporation, 285 Bear Hill Road, Waltham, MA 02451

Copyright © 2007 Extech Instruments Corporation

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