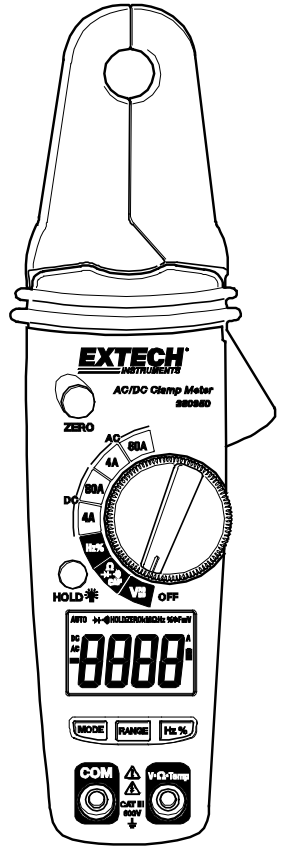
EXTECH®

USER MANUAL

Model 380950

80A Mini AC/DC Clamp Meter



User Manual translations available at www.extech.com

Introduction

Congratulations on your purchase of the Extech 80A Mini AC/DC Clamp Meter. The Model 380950 measures AC/DC Current, AC/DC Voltage, Resistance, Frequency, Capacitance, Duty Cycle, Diode, and Continuity. This clamp meter is shipped fully tested and calibrated and, with proper use, 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 input range for any function.
- Do not apply voltage to the meter when the resistance function is selected.
- Set the function switch OFF when the meter is not in use.
- Remove the batteries if the meter is to be stored > 60 days.

WARNINGS

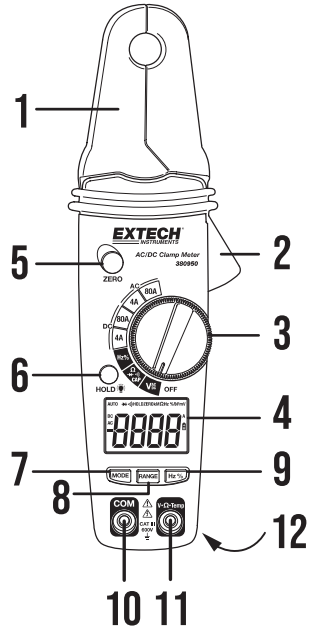
- Set the function switch to the appropriate position before measuring.
- When measuring voltage do not switch to the current or resistance modes.
- Do not measure current on a circuit whose voltage exceeds 240 V.
- When changing ranges always disconnect the test leads from the circuit under test.

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 before replacing the battery or fuses.
- Inspect the condition of the test leads and the meter for any damage, before use. Repair or replace any damage before use.
- Use care when making measurements if the voltages are > 25 VAC rms or 35 VDC. These voltages are considered a shock hazard.
- Always discharge capacitors and remove power from the device under test before performing diode, resistance or continuity tests.
- Voltage checks on electrical outlets can be difficult and misleading because of the uncertainty of the 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.

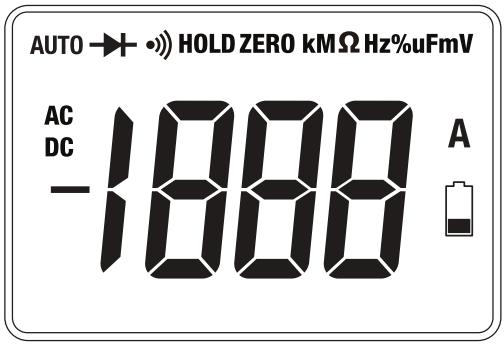
Meter Description

1. Conductor clamp jaws
2. Jaw opening trigger
3. Function select switch
4. Display (LCD)
5. Zero button
6. Data Hold and backlight button
7. Mode button
8. Range button
9. Hz % Duty Cycle button
10. COM input terminal
11. V Ω Hz input terminal
12. Battery compartment (rear)



DISPLAY ICONS

AC	AC (alternating current)
DC	DC (direct currrent)
▬	Minus sign
AUTO	Auto Range
ZERO	ZERO mode
•)))	Audible Continuity
HOLD	Data Hold
🔋	Low Battery
→|←	Diode test
m	milli
V	Volts
A	Amps
K	kilo
M	Mega
Ω	Ohms

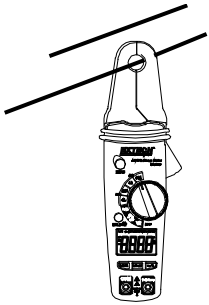


Operation

Notice: Read and understand all **WARNING** and **CAUTION** statements in the safety section of this user manual before use. Set the function select switch to the OFF position when the meter is not in use.

DC/AC Current Measurements

Warning: Disconnect the test leads from the meter before making current clamp measurements.



1. Set the function switch to the **80 ADC, 4 ADC, 80 AAC or 4 AAC** range. If the range of the measured is not known, select the higher range first then move to the lower range if necessary.
2. For DC current measurement, press the **ZERO** button to null the meter display.
3. Press the trigger to open jaw. Fully enclose only one conductor to be measured.
4. The clamp meter display will indicate the reading.

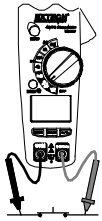
DC/AC Voltage Measurements

1. Set the function switch to the **V** position.
2. Insert the black test lead banana plug into the negative (COM) jack. Insert the red test lead banana plug into the positive (V/Ω/Hz) jack.
3. Select AC or DC with the **MODE** button.
4. Connect the test leads to the circuit under test.
5. Read the voltage on the display. The display will indicate the proper decimal point and value.

Resistance Measurements

1. Set the function switch to the Ω →|– •))) **CAP** position.
2. Insert the black test lead banana plug into the negative (COM) jack. Insert the red test lead banana plug into the positive (VΩ Hz) jack.
3. Touch the test probe tips across the circuit or part under test. It is best to disconnect one side of the part under test so that the circuit will not interfere with the resistance reading.
4. Read the resistance on the display. The display will indicate the proper decimal point and value.

Continuity Check



1. Set the function switch to the Ω →|– •))) **CAP** position.
2. Press the **MODE** button to indicate •))) on the display.
3. Insert the black lead banana plug into the negative (COM) jack. Insert the red test lead banana plug into the positive (VΩ Hz) jack.
4. Touch the test probe tips to the circuit or wire you wish to check.
5. If the resistance is lower than approximately 150Ω, the audible signal will sound. If the circuit is open, the display will indicate “OL.”.

Diode Test

1. Turn the rotary switch to the Ω →+ •))) **CAP** position.
2. Insert the black test lead banana plug into the negative (COM) jack. Insert the red test lead banana plug into the positive (VΩ Hz) jack.
3. Press the **MODE** button to indicate →+ on the display.
4. Touch the test probes across the diode under test. Typically, for a good diode, forward voltage will indicate 0.4V to 0.7V. Reverse voltage will indicate "OL". Shorted devices will indicate near 0V and an open device will indicate "OL" in both polarities.

Capacitance Measurements

Warning: To avoid electrical shock, disconnect power to the unit under test and discharge all capacitors before taking any capacitance measurements.

1. Set the function switch to the Ω →+ •))) **CAP** position.
2. Press the **MODE** button to indicate **nF** on the display.
3. Insert the black lead banana plug into the negative (COM) jack. Insert the red test lead banana plug into the positive (VΩHz) jack.
4. Press the **ZERO** button to null the meter display.
5. Touch the test probe tips across the capacitor.
6. Read the capacitance value on the display.

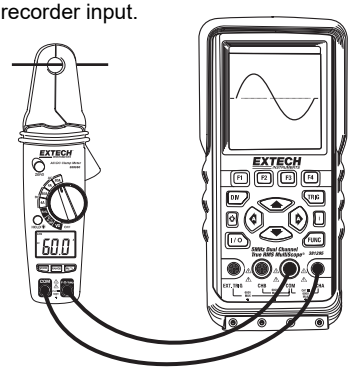
Frequency or % Duty Cycle Measurements

1. Turn the rotary switch to the **Hz %** position.
2. Insert the black test lead banana plug into the negative (COM) jack and the red test lead banana plug into the positive (VΩ Hz) jack.
3. Select Hz or % with the **HZ / %** button.
4. Touch the test probe tips to the circuit under test.
5. Read the frequency on the display.

Analog Signal Output

1. Turn the rotary switch to the **DCA** or **ACA** position.
2. Insert the black test lead banana plug into the negative (COM) jack and the red test lead banana plug into the positive (VΩ Hz) jack.
3. Connect the test leads to a multimeter, oscilloscope, or chart recorder input.
4. Press the trigger to open the jaw. Fully enclose one conductor to be measured.
5. The analog voltage signal is output to the measuring device.

Note: When measuring DCA, the output signal is DCV. When measuring ACA, the output signal is both ACV and DCV.



Auto/Manual Ranging

The meter powers up in the Auto range mode. Press the **RANGE** button to enter manual range. Each press of the **RANGE** button will step to the next range as indicated by the units and decimal point location. Long press the **RANGE** button to return to the Auto range mode.

Note: Manual range is not available in the AC current, diode, and continuity modes. In Temperature mode, the **RANGE** button will change the resolution from 0.1° to 1°.

Data Hold

To freeze the meter reading, press the **HOLD** button. While data hold is active, the **HOLD** display icon appears. Press the **HOLD** button again to return to normal operation.

Backlight

Long press the **HOLD** button to switch the backlight ON/OFF.

Note: The HOLD feature will activate when the backlight is switched ON. Press the **HOLD** button again to exit the HOLD mode.

Zero Button

Press the **ZERO** button to null the display before taking capacitance and DC current measurements. The **ZERO** button can also be used as an ‘offset’ function, using the indicated value as a reference to compare with subsequent measurements.

Specifications

Function	Range & Resolution	Accuracy (of reading)
DC Current	4.000 A	± (2.8% + 10 digits)
	80.0 A	± (3.0% + 8 digits)
AC Current (50 ~ 60 Hz)	4.000 A	± (3.0% + 10 digits)
	80.0 A	± (3.0% + 8 digits)
DC Voltage	400.0 mV	± (1.0% + 15 digits)
	4.000 V	± (1.0% + 3 digits)
	40.00 V	± (1.5% + 3 digits)
	400.0 V	
	600 V	± (2.0% + 3 digits)
AC Voltage (50 ~ 60 Hz)	400.0m V	± (1.0% + 30 digits)
	4.000 V	± (2.0% + 5 digits)
	40.00 V	
	400.0 V	
	600 V	
Resistance	400.0 Ω	± (1.0% + 4 digits)
	4.000 kΩ	± (1.5% + 2 digits)
	40.00 kΩ	
	400.0 kΩ	
	4.000 MΩ	± (2.5% + 3 digits)
	40.00 MΩ	± (3.5% + 5 digits)
Capacitance	40.00 nF	± (5.0% + 30 digits)
	400.0 nF	± (3.0% + 5 digits)
	4.000 µF	± (3.5% + 5 digits)
	40.00 µF	
	100.0 µF	± (5.0% + 5 digits)
Frequency	5.000 Hz	± (1.5% + 5 digits)
	50.00 Hz	± (1.2% + 2 digits) Sensitivity: 10Vrms min.
	500.0 Hz	
	5.000 kHz	
	50.00 kHz	
	500.0 kHz	
	5.000 MHz	
	10.00 MHz	
Duty Cycle	0.5 % to 99.0 %	± (1.2% + 2 digits)
	Pulse Width: 100µs to 100ms, Frequency: 5 Hz to 150 kHz	
Analog Output (ACA & DCA ranges)	10mV/A (4 A range), 1mV/A (80 A range) Accuracy: ± (5%rdg + 2mV) Output impedance: approx. 3 kΩ	

Jaw size	12.7 mm (0.5 in.) approx.
Display	4000 count LCD
Continuity	Audible tone < 150 Ω approx.
Diode Test	Open circuit voltage < 1.5 VDC; Test current <1 mA (typical)
AC V bandwidth	50 Hz to 400 Hz
AC A bandwidth	50/60 Hz
Low battery indication	 is displayed
Overrange indication	“OL” is displayed
Auto Power OFF	After 15 minutes
Measurement rate	2 per second, nominal
Input Impedance	7.8 MΩ (V DC and V AC)
Operating Temperature	-10ºC to 50ºC (14ºF to 122ºF)
Storage Temperature	-30ºC to 60ºC (-22ºF to 140ºF)
Operating Humidity	Max 80% up to 31ºC (87ºF) decreasing linearly to 50% at 45ºC (113ºF)
Storage Humidity	< 80% RH
Operating Altitude	2000 m (6560 ft.)
Batteries	(2) 1.5V ‘AAA’ batteries
Weight	200 g (0.44 lbs.)
Size	200 x 50 x 35 mm (7.87 x 1.97 x 1.38 in.)
Safety	For indoor use and in accordance with the requirements for double insulation to IEC1010-1 (1995): EN61010-1 (1995) Overvoltage Category III, Pollution Degree 2.

PER IEC1010 OVERVOLTAGE INSTALLATION CATEGORIES

OVERVOLTAGE CATEGORY I

Equipment of OVERVOLTAGE CATEGORY I is equipment for connection to circuits in which measures are taken to limit the transient overvoltage 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

Maintenance

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

Cleaning and Storage

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

Battery Replacement

1. Remove the two rear battery cover Phillips screws.
2. Open the battery compartment.
3. Replace the two 1.5V AAA batteries observing correct polarity.
4. Re-assemble the meter.
5. Please dispose of batteries responsibly and within all applicable regulations.

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

Two-year Warranty

Teledyne FLIR warrants this Extech brand instrument *to be free of defects in parts and workmanship for* ***two years*** *from date of shipment. To view the full warranty text please visit: https://www.flir.com/support-center/warranty/instruments/extech-product-warranty/*

Calibration and Repair Services

Teledyne FLIR offers calibration and repair services *for the Extech brand products we sell. We offer NIST traceable calibration for most of our products.*

Customer Support

Local Telephone Support List: *https://support.flir.com/contact*

Return Material Authorization (RMA): *https://customer.flir.com/Home*

Customer Service: *https://support.flir.com/ContactService*

Technical Support: *https://support.flir.com*

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