

# User's Guide

# **EXTECH** INSTRUMENTS

## 1000A / 2000A DC/AC Clamp DMM

Models 380922 / 38092F&C / 380923 / 38093F&C /  
38095F&C

- 1000A models (380922, 38092C, 38092F, 38095C and 38095F)
- 2000A models (380923, 38093C, and 38093F)
- True RMS models (38095C and, 38095F)
- Models with temperature (38092C, 38092F, 38093C, 38093F 38095C and 38095F)
- Designed to meet IEC 1010 safety standards



### INTRODUCTION

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

## 2. SPECIFICATIONS

Display	13 mm(0.5") LCD display, 3-1/2 digits, $\pm$ 1999 count
Measurement	ACA, DCA, ACV, DCV, $\Omega$ , Diode, Temp (C& F models only)
Data hold	Available for all functions
Peak Hold	Acquisition Time - 150ms; Display Decay Rate <2 digits/sec.
Diode Check	Short, Open, Good/Defective test
Polarity	Automatic switching. "-" indicates reverse polarity.
Current Sensor	Hall effect sensor
Overload indication	"1" or "-1"
Sampling Time	Approximately 0.4 second
Max. Conductor size	1.3" (32mm) 1000A models, 2" (50mm) 2000A models
Operating Temp.	32 °F to 122 °F ( 0 °C to 50 °C)
Operating Humidity	Max. 80% RH.
Power Supply	006P DC 9V battery (Heavy duty type).
Power Consumption	Approximately 11mA DC (approx. 100 hrs.)
IEC 1010	CAT III 600V
Size / Weight	9.1 x 2.8 x 1.4" (230 x 70 x 36mm) / 0.85 lbs (380g) inc. battery
Accessories, supplied	Instruction manual, Test leads (red & black), Carrying case, Bead wire temperature probe with temperature models
Accessories, optional	NIST certificate, AC line separator, Temperature probes

Function	Range	Res.	Accuracy	Overload Protection
DC Voltage	200V	0.1V	$\pm$ (0.8% reading. + 1 digit)	DC /AC 600V
	600V	1V		
380922/23 only	200 mV	0.1mV		DC/AC 400V
AC Voltage	200V	0.1V	$\pm$ (1% reading + 2 digits)	AC/DC 600V
	600V	1V		
Resistance	2000 $\Omega$	1 $\Omega$	$\pm$ (1% reading + 1 digit)	AC/DC 250V
AC/DC Current 380922/2CF/5CF 380923/3CF	200A	0.1A	$\pm$ (1.5% FS+ 10 digits)	AC/DC 1000A
	1000A	1A	$\pm$ (2% FS+ 5 digits)	
	2000A	1A	$\pm$ (2% FS+ 5 digits) $\leq$ 1,500A	AC/DC 2000A
<b>Notes:</b>	DCV/ACV input impedance is 10 M $\Omega$ ACA/ACV frequency response is 40 to 400Hz ACA/ACV specifications apply at 50/60Hz ACA/ACV True RMS response for models 38095F/C			

### Temperature measurement specifications

Range	Resolution.	Accuracy
Models 38092C, 38095C and 38093C		
0 to 750°C	1°C	$\pm$ (1%+2°C)
750 to 900°C		typical $\pm$ (2%+1°C)
900 to 1000°C		typical $\pm$ (3%+1°C),
0 to -20°C		typical $\pm$ 2°C
-20 to -40°C		typical $\pm$ 3°C
Models 38092F, 38095F and 38093F		
32 to 1400°F	1°F	$\pm$ (1.2%+2°F)
1400 to 1800°F		typical $\pm$ (2%+2°F)
1800 to 2000°F		typical $\pm$ (4%+4°F)
32 to -4°F		typical $\pm$ 4°F
-4 to -40°F		typical $\pm$ 6°F

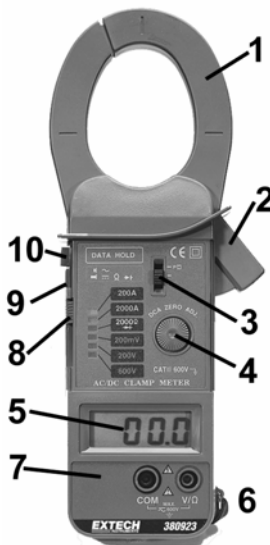
Note: The measurement range of the type k naked-bead probe supplied is:

-40°C to 250°C (-40°F to 482°F)

### 3. FRONT PANEL DESCRIPTION

1. Current sense Jaws
2. Measurement trigger
3. Power and Peak Hold Switch
4. DCA zero adjust
5. LCD Display
6. Input terminals
7. Temperature probe input socket (only on Temperature models)
8. Function select switch
9. AC/DC, Ohms, temperature, diode test select switch
10. Data Hold switch

**Note that the battery compartment is on the rear of the unit.**



### 4. 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

## 5. OPERATION

### 5.1 Preparation for Measurement

1. Check that the 9V battery is properly connected.
2. Slide the "POWER" switch to the "ON" position
3. Make sure the "Data Hold" button is in the "OFF" (out) position.
4. **Note: Always remove test leads from the source before changing functions.**
5. Slide the "FUNCTION SWITCH" to the correct position for the desired measurement.
6. Do not exceed the maximum rated voltage of each range and input terminal.
7. Switch the power "OFF" when the instrument is not in use. Remove the battery if the instrument will not be used for a long period of time.

### 5.2 DCV / ACV Measurement

1. Insert the **Black** test lead into the "COM." terminal.
2. Insert the **Red** test lead into the "V/ $\Omega$ " terminal .
3. If measuring DCV, make sure the "AC/DC,  $\Omega$ , Diode" button is in the 'out' position. If measuring ACV, make sure the "AC/DC,  $\Omega$ , Diode" button is pressed in.
4. Slide the "Function Switch" to the appropriate position for the highest anticipated voltage (200mV, 200V or 600V for **DCV**; 200V or 600V for **ACV**).
5. Select power "ON".

### 5.3 Resistance Measurement

1. Insert the **Black** test lead into the "COM." terminal.
2. Insert the **Red** test lead into the "V/ $\Omega$ " terminal.
3. Make sure the "AC/DC,  $\Omega$ , Diode" button is in the 'out' position.
4. Slide the "Function Switch" to the 2000 $\Omega$  position.
5. Select power "ON".
6. Connect the test leads across the device to be measured.

### 5.4 Diode Test

1. Insert the **Black** test lead into the "COM." terminal.
2. Insert the **Red** test lead into the "V/ $\Omega$ " terminal.
3. Make sure the "AC/DC,  $\Omega$ , Diode" button is in the out position.
4. Slide the "Function Switch" to the 2000 $\Omega$  position.
5. Select power "ON".
6. Connect the test leads as indicated below.
7. When the leads are connected with the polarity shown in Fig. 3, a forward current flow is established and a good diode will produce a reading on the display. If the diode is defective, "000" (short circuit) or "1" (open circuit) will be displayed. When the leads are connected with the polarity shown in Fig. 4, a reverse check on the diode is done. A good diode will show "1" on the display. If the diode is defective, "000" will be displayed. A diode test should include both forward and reverse current flow check.

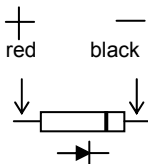


Fig. 3

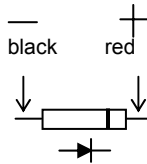
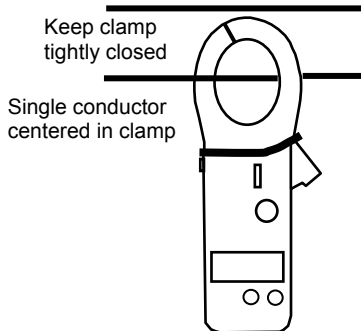


Fig. 4

### 5.5 AC Current Measurement

1. Make sure the "AC/DC,  $\Omega$ , TEMP, Diode" button is pressed in.
2. Slide the "Function Switch" to the appropriate position for the highest anticipated current (200A or 1000A/ 2000A)
3. Press the "Trigger" to open the "Jaws" and place the clamp around the conductor of the power line. The conductor should be centered in the clamp.
4. Select power "ON".



### 5.6 DC Current Measurement.

1. Make sure the "AC/DC,  $\Omega$ , Diode" button is pressed in the out position.
2. Select power "ON".
3. Slide the "Function Switch" to the appropriate position for the highest anticipated current (200A or 1000A/2000A).
4. Turn the "DCA Zero Adjust" until the display shows "0".
5. **Note: If the "DCA Zero Adjust" knob cannot correct to a "0" reading, the jaws may be magnetized. To correct the problem, reverse the position of the clamp or reverse the DC current flow. Also, opening and closing the jaws several times may eliminate the condition.**
6. Press the "Trigger" to open the "Jaws" and place the clamp around the conductor of the power line. The conductor should be centered in the clamp.

### 5.7 Peak Current Measurement.

1. Select power "OFF". Turn off the device being tested.
2. Press the "Trigger" to open the "Jaws" and place the clamp around the conductor of the power line. The conductor should be centered in the clamp.
3. Press or depress the "AC/DC,  $\Omega$ , Diode" button depending on whether AC or DC current is being measured.
4. Slide the "Function Switch" to the appropriate position for the highest anticipated current (200A or 1000A/2000A)
5. Select power "ON".
6. If measuring DCA, turn the "DCA Zero Adjust" until the display shows "0".
7. Select "PEAK HOLD".
8. Turn on the device being tested. The peak value of the starting current will appear on the display.
9. Select power "ON" or "OFF" after the peak value is measured.

### 5.8 Data Hold

When making any measurements, pressing the Data Hold key will freeze the data on the display. Press the Data hold key again to release this function.

## 5.9 Temperature Measurement (Models 38092F/C, 38093F/C or 38095F/C only)

1. Make sure the "AC/DC,  $\Omega$ , TEMP, Diode" button is in the out position.
2. Slide the "Function Switch" to the "TEMP" position.
3. Insert the Thermocouple Probe into to "TYPE K" socket observing the proper polarity.
4. **NOTE: The meter is supplied with a thermocouple suitable for most applications. Maximum operating temperature for this probe is 250°C/480°F. Other type K probes are available for high temperature measurements and special applications.**
5. When first inserted, allow the thermocouple connector several minutes to stabilize to the same temperature as the meter. This will improve accuracy.
6. Select power "ON" and read the LCD measurement.

## 6. BATTERY REPLACEMENT

6.1 The low battery indication appears as "LOBAT" on the left corner of the display. When "LOBAT" appears, replace the battery as soon as possible. Reliable readings can be obtained for several hours after the first appearance of the low battery indication.

6.2 To replace the battery:

- a) Remove the screw holding the battery cover and slide the cover out.
- b) Replace with 9V battery (heavy duty type) and reinstall the cover.
- c) Make sure the battery cover is secured after changing the battery.

**Caution:** Disconnect test leads from meter before opening battery compartment.

## 7. CALIBRATION AND REPAIR SERVICES

Extech offers complete repair and calibration services for all of the products we sell. For periodic calibration, NIST certification or repair of any Extech product, call customer service for details on services available. Extech recommends that calibration be performed on an annual basis to insure calibration integrity.

## 8. 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. 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.

**Copyright © 2001 Extech Instruments Corporation. All rights reserved including the right of reproduction in whole or in part in any form.**



**Tech Support Hotlines**  
781-890-7440 ext. 200  
[extech@extech.com](mailto:extech@extech.com)  
[www.extech.com](http://www.extech.com)