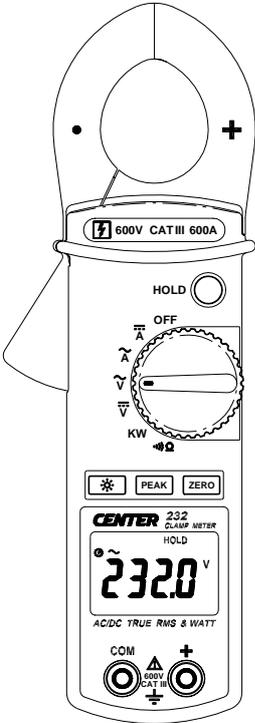


CENTER[®] 232
CLAMP METER



**Instruction
Manual**

AC/DC TRUE RMS & WATT

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I.  Safety Information – Read first

- Read the user manual before use and follow all safety information.
- Use the meter only as specified in this user manual. Otherwise meter protection may be impaired.
- Never use this meter on a circuit with voltages greater than 650Vrms @ 50/60 Hz.
- Do not operate the meter if the body or test leads look damaged.
- Check the function selector range switch and make sure it is at the correct position before each measurement.
- Do not perform resistance and continuity test on a live circuit.
- Exercise extreme caution when measuring live systems with voltage greater than 60V DC or 30V AC.
- Use extreme care when working around bus bars and bare conductors.
- Do not use the meter in over range/overload conditions (OL).
- Change the battery when the  symbol appears to avoid erroneous readings.

Environmental Conditions:

Altitude up to 2000 meters.

Operating temperature: 0°C ~ 40°C, <80% RH, non-condensing

Storage temperature: -10°C ~ 60°C, <70% RH, battery removed

Pollution Degree: 2

Installation Categories III (600V)

Explanation of Symbols:

 Attention! Refer to operation Instructions.

 Dangerous voltage may be present at terminals.

 This instrument has double insulation.

When servicing, use only specified replacement parts.

Approvals:  EN61010 600V CAT III

II. Specification

General Specification:

Digital Display: 4 digits LCD display with maximum reading 9999

Symbol and Scale range:

Automatic display according symbols and range input signal.

Polarity:  Displayed when negative signal applied to the input.

Over Load:

 is Displayed when input signal exceeds measuring limit.

Sample Rate: 2.5 times/sec

Low Battery Indication:

 displayed when the battery is below the required voltage.

Power Source: 1.5Vx2. (UM-4 or AAA size)

Battery Life: about 45 hrs. (Alkaline)

Auto Power Off:

The meter will power itself OFF if there is no push button or rotary switch operation for 30 minutes.

To deactivate this function, press the "HOLD" button and keep it pressed down. Then power up the clamp.

Clamp opening size: 30mm

Dimension (L x W x H) : 218 x 84 x 30 mm, 8.58 x 3.30 x1.18 inch

Weight: 270g, 9.52OZ (battery included)

Accessory:

Instruction Manual, Carrying Case, Test lead, 1.5V Batteryx2

Electrical Specification:

The accuracy specification is defined as $\pm(\dots\% \text{reading} + \dots \text{count})$ At 23 ± 5 , 80 %RH

True RMS for ACV and ACA accuracy are specified from 5% to 100% of range. accuracy add $\pm(1\% \text{rdg})$ on Crest Factor $1.4 < CF < 3$ at full scale & $CF < 6$ at half scale.

ACA

Range	Resolution	Accuracy		Overload Protection
		50 - 60Hz	60 - 500Hz	
600A	0.1A	$\pm (1.5\% \text{rdg} + 5 \text{dgts})$	$\pm (2.5\% \text{rdg} + 5 \text{dgts})$	1200App

DCA

Range	Resolution	Accuracy	Overload Protection
600A	0.1A	$\pm (1.5\% \text{rdg} + 5 \text{dgts})$	1200App

ACV

Range	Resolution	Accuracy	Input Impedance	Overload Protection
600V	0.1V	$\pm (1.5\% \text{rdg} + 5 \text{dgts})$ 50 - 500Hz	1M	1200Vpp

DCV

Range	Resolution	Accuracy	Input Impedance	Overload Protection
600V	0.1V	$\pm (1\% \text{rdg} + 5 \text{dgts})$	1M	1200Vpp

KW (Auto ranging)

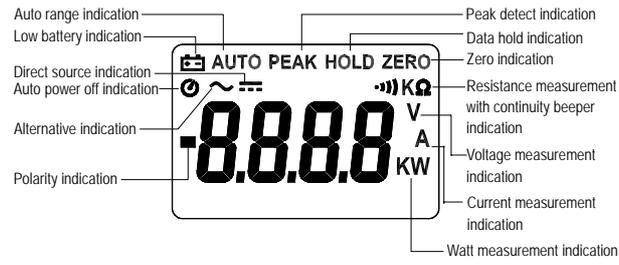
	Range	Resolution	Accuracy
AC Power	100KW	0.01KW	$\pm (1.5\% \text{rdg} + 3 \text{dgts}) (50-60\text{Hz})$ $\pm (2.5\% \text{rdg} + 3 \text{dgts}) (60-500\text{Hz})$
	360KW	0.1Kw	
DC Power	100KW	0.01KW	$\pm (1.5\% \text{rdg} + 3 \text{dgts})$
	360KW	0.1KW	

Ohm

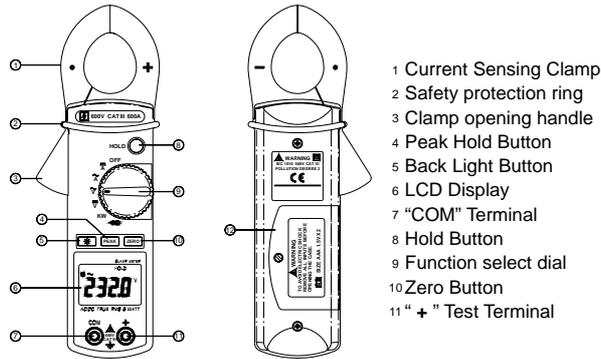
Range	Resolution	Accuracy	Overload Protection
10000	1	$\pm (1.5\% \text{rdg} + 3 \text{dgts})$	600Vrms
•••••		<100	600Vrms

III. Instrument Familiarization:

Symbol Definition:



Part and Position :



IV. Measuring Instruction:

4.1 Current Measurement:

ACA

Switch the main function selector to "ACA" current range.

Open the clamp by pressing the jaw-opening handle and insert the cable to be measured into the jaw.

DCA

Switch the main function selector to "DCA" range.

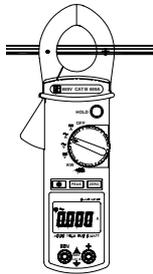
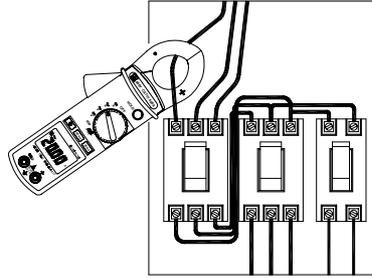
Wait for the reading to stabilize then press ZERO button to null the reading. After these are done, open the clamp by pressing the jaw-opening handle and insert the cable to be measured into the jaw and read the value.

Note:

Before this measurement, disconnect the test lead with the meter for safety.

In some occasion that the reading is hard to read, push the HOLD button and read the result later.

CORRECT



INCORRECT

(2 wires inside)

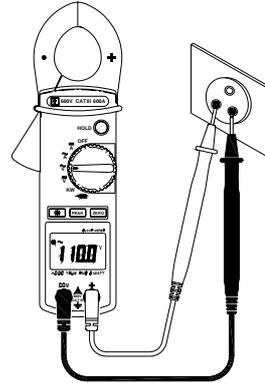
4.2 Voltage Measurement:

Switch the main function selector to “ACV” or “DCV” range.

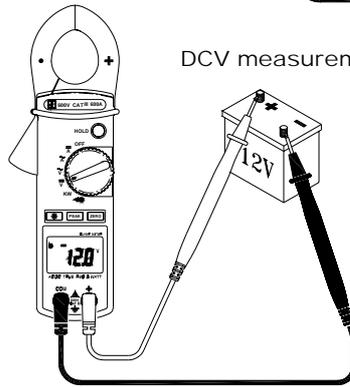
Connect red test lead to “+” terminal and black one to the “ COM ” terminal. Measure the voltage by touch the test lead tips to the test circuit where the value of voltage is needed.

Read the result from the LCD panel.

ACV measurement



DCV measurement



4.3 Resistance Measurement and Continuity Test:

Switch the main function to " Ω " range, check the power line is disconnected from the system.

Connect red test lead to "+" terminal and black one to the "COM" terminal.

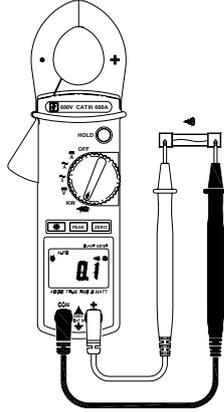
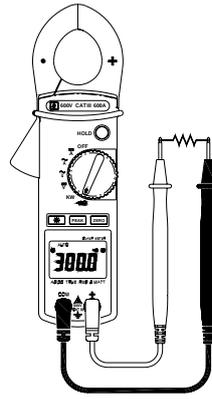
Connect tips of the test leads to the points where the value of the resistance is needed.

Read the result from the LCD panel.

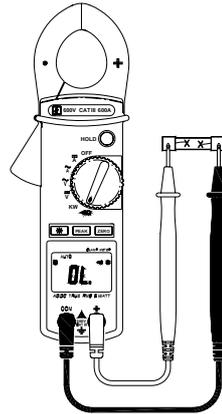
If the resistance is under 100 Ω , the beeper will sound continuously.

Note:

When take resistance value from a circuit system, make sure the power is cut off and all capacitors need to be discharged.



> Short circuit



> Open circuit

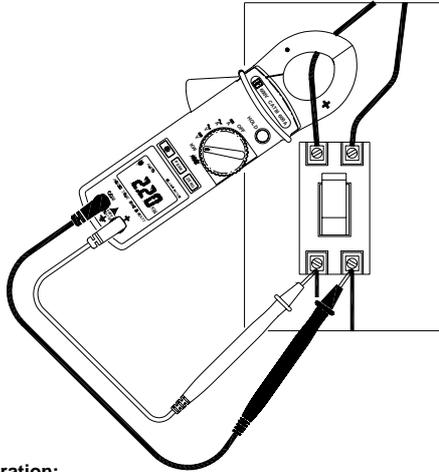
4.4 Power Measurement:

Switch the main function selector to “KW” range.

Open the clamp by pressing the jaw-opening handle and insert the cable to be measured into the jaw.

Connect red test lead to “+” terminal and black one to the “ COM ” terminal. Measure the voltage by touch the test lead tips to the test circuit.

Read the result from the LCD panel.



4.5 Button Operation:

■ Data Hold Function:

At any time, the user can hold the present reading by press the “Hold” button and release the held data by press it again.

■ Peak Hold Function:

This meter is built with 10ms peak hold function at ACA, ACV, DCA and DCV ranges.

The user can press “PEAK” button into Peak Hold mode and exit Peak Hold mode by press it again.

■ **Back Light Function:**

Press the "Back Light" button will turn back light on and Press it once again will turn off.

The meter will turn back light off if there is no push "Back Light" button for 30 seconds.

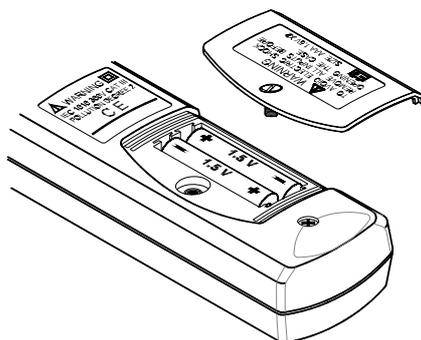
■ **ZERO Function:**

Press the "ZERO" button will change the zero to the present reading and the relative value will show on the LCD.

Press it once again will set the meter back to normal operation.

V. Battery Changing:

1. When the battery voltage drop below proper operation range the symbol will appear on the LCD display and the battery needs to be changed.
2. Before changing the battery, switch the main dial to "OFF" and disconnect test leads.
Open the back cover by a screwdriver.
Replace the old batteries with two new 1.5V(AAA Size) battery.
3. Close the back cover and fasten the screw.



VI. Maintenance:

⚠ WARNING!

Before open the meter, disconnect both test lead and never uses the meter before the cover is closed.

CAUTION!

To avoid contamination or static damage, do not touch the circuit board without proper static protection.

*** REMARK:**

- If the meter is not going to be used for a long time, take out the battery and do not store the meter in high temperature or high humidity environment.
- When take current measurement, keep the cable at the center of the clamp will get more accurate test result.
- Repairs or servicing not covered in this manual should be performed only by qualified personal.

*** CLEANING:**

Periodically wipe the case with a dry cloth. Do not use abrasives or solvents on these instruments.

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