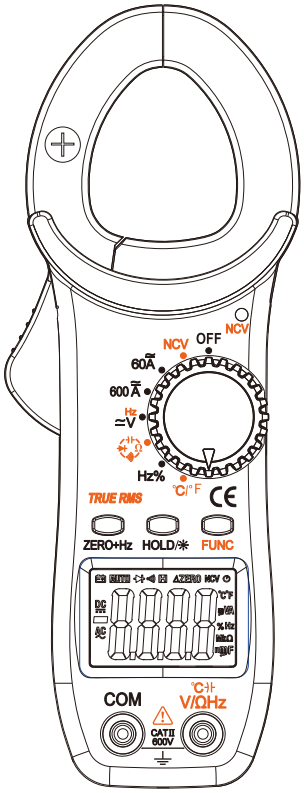
600A AC/DC Clamp Meter

AC TRUE RMS

User's Manual



Contents

1. Brief Introduction

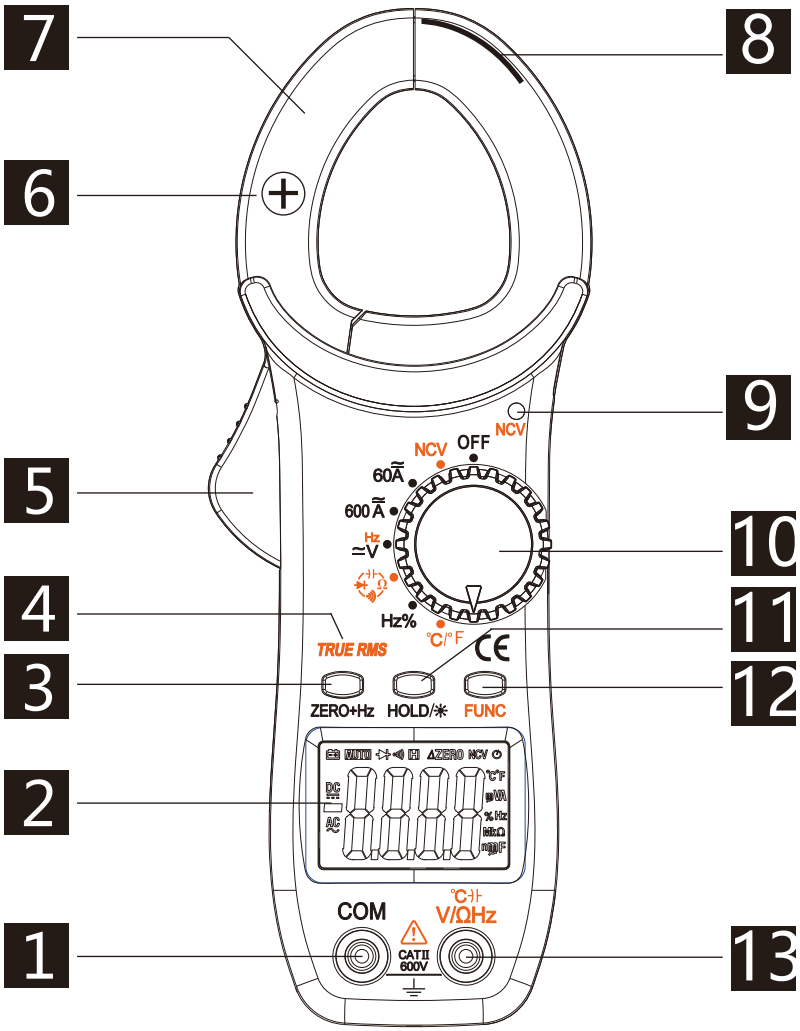
The meter is a multi-function instrument with high measurement accuracy, fast response, and high safety level. Embedded with a special chip up to 6000 counts.This chip is composed of high-precision A/D converter with high-speed digital processor that can do high-speed true RMS calculation for AC 1KHZ.It is with accurate measurement, high resolution, fast operation speed, complete software calibration, no change in long-term use in accuracy.

This meter can be used to measure AC and DC voltage AC and DC current, resistance, capacitance, temperature diodes and circuit continuity test.

The meter is equipped with a backlight, allowing users to read the measurement display in a dark place.

2. Symbols on Panel

❶ COM input socket
❷ LED display
❸ Clear symbol+ frequency+ percentage (ZERO+Hz+%)
Press this button(ZERO) to clear when DCA 60A is under using
❹True RMS
❺Trigger used to open and close the clamp
❻DCA direction symbol
❼ Clamp
❽ NCV induction plate
❾ NCV indicator
❿ Functions switch
❶❶Data hold
❶❷Function choose
❶❸VΩ Hz℃ ⊣⊢ input socket



3. Technical datasheet

Comprehensive indicators

*Operating conditions:
600V CAT II Pollution grade: 2
Height: under 2000m
Working temperature: 0-40℃（＜80%RH, not considered ＜10℃）
Storage temperature: -10-60℃（＜70%RH, take off battery）
*Test or calibrate surrounding temperature: 20℃±2℃
*The biggest voltage between measurement end and ground: 600V
*Clamp open size:25mm
*Auto Ranging
*Conversion rate: about 3s/second
*Display:6000 counts LED display
*Overload: 'OL' displayed
*Low voltage display of battery: displayed when the working voltage is low
*Input polarity indicator: "-" shown automatically
*Battery:2 X AAA
*Size: 183mm (L)*47mm (W)*25mm (H)
*Weight: about 165g (battery included)

Accuracy index

Accuracy:±（%reading+digit）,one year warranty from the manufacture date
Conditions: surroundings temperature from 18℃ to 28℃，＜80%RH

Direct Current Voltage (DCV)

Range	Insulation	Accuracy
600mV	0.1mV	±（0.5readings+5digits）
6V	1mV	
60V	10mV	
600V	100mV	±（0.8readings+5digits）

Input resistance: 10MΩ
Maximum input voltage：DC600V

Alternative Current Voltage (ACV TRUE RMS)

Range	Insulation	Accuracy
6V	1mV	±（1 readings+4digits）
60V	10mV	
600V	100mV	±（1.2readings+10digits）

Input resistance: 10MΩ
Maximum input voltage：600V
Frequency response: 40HZ to 1KHZ true RMS

Temperature

Range	Insulation	Scope	Accuracy
℃	1℃	-20℃---1000℃	±（1.0+3）readings
℉	1℉	-4℉---1832℉	±（1.0+3）readings

Overload protection:250V DC/AC
Open circuit voltage: 2.4V

Resistance

Range	Insulation	Accuracy
600Ω	0.1Ω	±（0.8readings+5digits）
6kΩ	1Ω	
60kΩ	10Ω	
600kΩ	100Ω	
6MΩ	1kΩ	
60MΩ	10kΩ	±（1.2readings+5digits）

Overload protection:250V DC/AC

Diode and Buzzer

Function	Test Conditions
Diode ⊳|	The display shows the approximate value of diode forward voltage drop.
Buzzer •)))	It buzzers when the resistace of the circuit under testing is lower than 50 Ω .

Overload protection:250V DC/AC

Direct Current (DCA)

Range	Insulation	Accuracy
60A	10mA	±（3readings+3digits）
600A	100mA	

Overload protection:250V DC/AC

Alternative Current (ACA TRUE RMS)

Range	Insulation	Accuracy
60A	10mA	±（2.5readings+3digits）
600A	100mA	

Overload protection:250V DC/AC

Frequency

Range	Insulation	Accuracy
60Hz	0.01 Hz	±（1.5readings+5digits）
600 Hz	0.1 Hz	
6k Hz	0.001k Hz	
60k Hz	0.01k Hz	
600k Hz	0.1k Hz	
10M Hz	0.001M Hz	

Overload protection:250V DC/AC
Input Voltage Range:200Mv---10V DC

Capacitance

Range	Insulation	Accuracy
60nF	0.01nF	±（4.0readings+5digits）
600nF	0.1nF	
6uF	1nF	
60uF	10nF	
600uF	100nF	
6mF	0.1uF	
100mF	0.001mF	±（5.0readings+5digits）

Overload protection:250V DC/AC

4.Operation Instructions

Regular operation:

•ZERO/Hz key could clear the induced digits on the LED screen when it turns on in DCA 60A range. This key can also be used to choose frequency and percentage in ACV and ACA ranges.
•FUNC key is used to choose the measuring functions such as choosing DCV or DCA, ACA measuring mode as well as choosing resistance, diode, buzzer and capacitance modes.
•Data hold (HOLD/*):short press the key to enter into the data hold mode and press again to exit it. Long press the * key to turn on the light. Long press again to exit it. It turns off automatically with no operation for 15S.
• Auto power off: After about 15 minutes after power on, if there is no operating instrument, it will automatically turn off the LED screen but the chip is still working and consuming the power. Any key can restart it.

ACV and DCV measurement

1. Turn the switch to Hz ⎓V and use FUNC to choose "～" or "⎓" .
2. Connect the black test pen to the COM jack and the red pen to the V jack.
3. Measure the voltage value of the circuit under test with the other two ends of the test pens.

4. The reading will be shown on the LED display as well as the polarity of the end connected with the red lead.（When the alternative voltage is higher than 10V,please measure the frequency in this range. The measuring scope is 10Hz to 30KHz ）

Notes:

*The meter shows readings in range DCV 600mV and 6V even there is no input voltage or test pens connection. Then short circuit V/Ω and “COM” to make the meter shows zero.

*Model A/C:Under range ACV, short pressing the FUNC/HOLD key can test the frequency of the alternative current power. Please refer to the frequency measurement.

*Model B: Press ‘HZ/%’button to measure the frequency and duty cycle the AC voltage power.

*The AC voltage values measured with this instrument are all true RMS values (square root). For sine waves and other waveforms (without DC offset) such as square waves, triangular waves and staircase waves, these measurements are accurate.

Resistance measurement

1. Rotate the rotary switch to ⊳⊢/•))/Ω/⊣⊢ position and press “FUNC” button to “Ω” position.
2. Connect the black test pen and the red test pen to the “COM” input socket and V/Ω input socket
3. Uses the test pen to test the resistance value of the circuit.
4. The resistance value shows on the display window.

Notes:

*The resistance value measured on the circuit is usually different from the resistance rating.

*To measure the low resistance accurately, please short-circuit the two test pens to read out the short-circuit resistance of the test leads, and subtract it by the readings to get accurate resistance value.

*At 60 megohms range, the reading will stabilize after a few seconds, which is normal for high resistance measurements.

*When the meter is not in circuit, the display will show “OL”, indicating that the measurement value is out of the measurement range.

Diode measurement

1. Turn the rotary switch to ⊳⊢/•))/Ω/⊣⊢ and press “FUNC” button to “⊳⊢” position.
2. Connect the black test pen and the red test pen to the “COM” input socket and V/Ω input socket
3. Connect the black test pen and red test pen to the negative and positive electrodes of the diode under test.
4. The meter will display the forward bias value of the diode under test. If the polarity is reversed, then it shows ‘OL’ .

The normal diode in the circuit still produces a forward voltage drop of 0.5V to 0.8V, but the reverse bias reading will depend on the variety of the resistance value of the other channels between the two test pens.

Buzzer test

1. Turn the rotary switch to ⊳⊢/•))/Ω/⊣⊢ and press “FUNC” button to “•))” position.

2. Connect the black test pen and the red test pen to the “COM” input socket and V/Ω input socket
3. Measure the resistance of the circuit under test at the other end of the test pens. If the resistance of the circuit under test is not greater than about 50 ohms, the buzzer will sound continuously.

Capacitance measurement

1. Turn the rotary switch to ⊳⊣/•))/Ω/⊣⊢ and press “FUNC” button to “⊣⊢” position.
2. Connect the black test pen and the red test pen to the “COM” input socket and V/Ω input socket
3. Measure the capacitance value of the circuit under test with the other two ends of the test pens. The reading will be shown on the LED display window.

Notes:

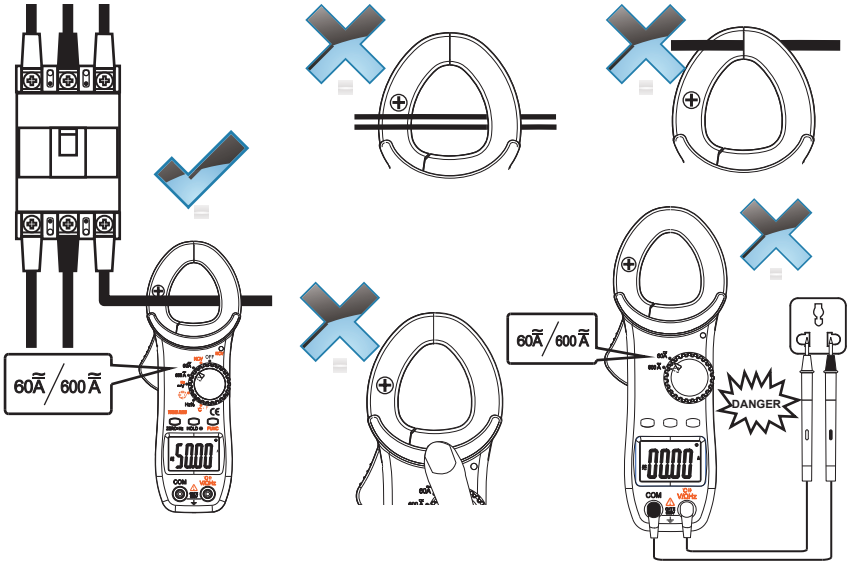
*It needs a certain time to measure the big capacitor.
*Take note of the polarities of the capacitor to connect correctly to protect the meter.

Current measurement

1. Turn the rotary switch to ≂60A or ≂600A and press FUNC to choose ⎓ or ~.
2. Before testing the DCA, press ZERO to clear the induced digits on the screen (only 60A range). There will be induced digits on the screen when testing ACA and it will not affect the testing results.
3. Press the tiger to open the transformer jaw and clamp them onto the one conductor under test, and then take the reading on the LED display.

Notes:

1. Do not loosen the trigger in a sudden to avoid the reading changes.
2. Do not clamp two conductors with the converse current direction to avoid the current counteract with each other.
3. Keep the fingers under the arc-shaped part of the clamp to ensure safety.
4. If the display shows only “OL” this indicates that the input exceeds the selected range. The rotary switch should be placed at a higher range.
5. Under the ACA testing mode, press Hz key to test the frequency of the alternative current source.(more than 20A)



Frequency measurement

1. Turn the switch to HZ%.
2. Connect the black test pen to the COM jack and the red pen to the HZ jack.
3. Measure the frequency value of the circuit under test with the other two ends of the test pens.
4. Press FUNC to show the frequency and duty cycle respectively (0.1%--99.9%)

Temperature measurement

1. Switch the rotate to "℃（℉）"and the meter shows the surrounding temperature.
2. Take off the test pens and connect the "com" and "VΩ mA" injects with the right polarity ends of the thermocouples.
3. The meter shows the approximate temperature from the thermocouple.

NCV

Red LED on the right upper area on the panel quickly flashing when Electric field exceeding20V is detected by the inductive sensor installed in the jaws. It indicates a presence of voltage in an electrical circuit or equipment without touching them.

1. Set Rotary Function Switch to the "NCV" position. The NCV indicator flash every 1-2 seconds means the instrument getting ready for testing voltage.
2. When the clamp jaws detect voltage, the NCV LED is quickly flashing.

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5.Battery Replacement and Attachments

Battery replacement

Please follow the steps below to replace the battery:

1. Turn off the power of the instrument
2. Pull all the test pens out of the input socket,
3. Use a screwdriver to loosen the screws fixing the battery.
4. Remove the battery cover
5. Remove the old battery or the damaged fuse
6. Replace the new one Batteries or new fuses
7. Install batteries cover and close the screws.

Attachments

1. An instruction
2. A pair of test leads
3. A piece of thermocouple
4. Two pieces of AAA batteries