NCV Series Clamp Meters

User's Manual

True RMS

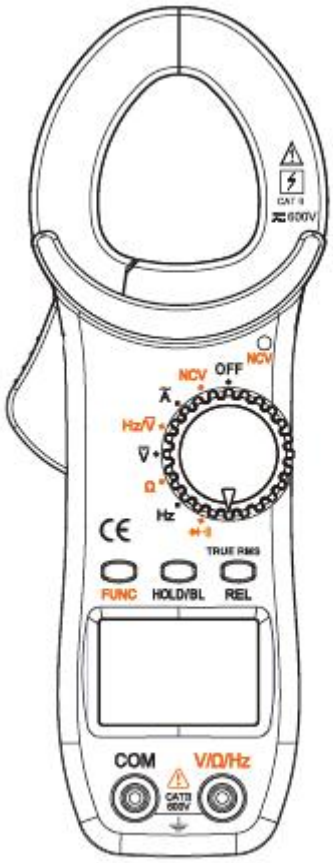


Table of contents

1. Product Description

NCV series clamp meters includes 4 models, they are named in A, B, C and D.
This series has the function of RMS and the frequency response range is ≤2KHz

- AC Current measurement range for A and B（1999digits） is: 0.1A — 600A
- AC Current measurement range for C and D（3999digits） is: 0.1A — 600A
- The maximum measuring distance of clamp jaws is:25mm
- Automatic range
- Display screen： A/B is 3 1/2 digit (1999count) LCD display and The C/D is 3 3/4 digit (3999 count) LCD display
- Non-Contact Voltage (NCV)detection
- 600V input voltage protection
- Auto Power-OFF
- HOLD function
- MAX value's hold function only for the A/B
- Relative value measurement function only for the C/D(show the variety of the measurements of current, voltage and resistor)
- Temperature measurement only for the B and D
- Frequency measurement only for the C and D
- Capacitance measurement only for the D
- Over load indication： "OL" symbol displayed when exceeding the measuring range
- Low battery indication：Display "  "symbol
- Power supply： 3V AAA Type 2 pc
- Dimension & Wight： approx. 183（L）x 47（W）x 25（H） & approx. 165g（Include Battery）

2. Safety Precaution

2-1 : Safety specification

All series products are designed to meet international safety standard. IEC61010-1, IEC61010-031:2002 & IEC61010-2-032 Measurement Category (CAT.) II 600V.

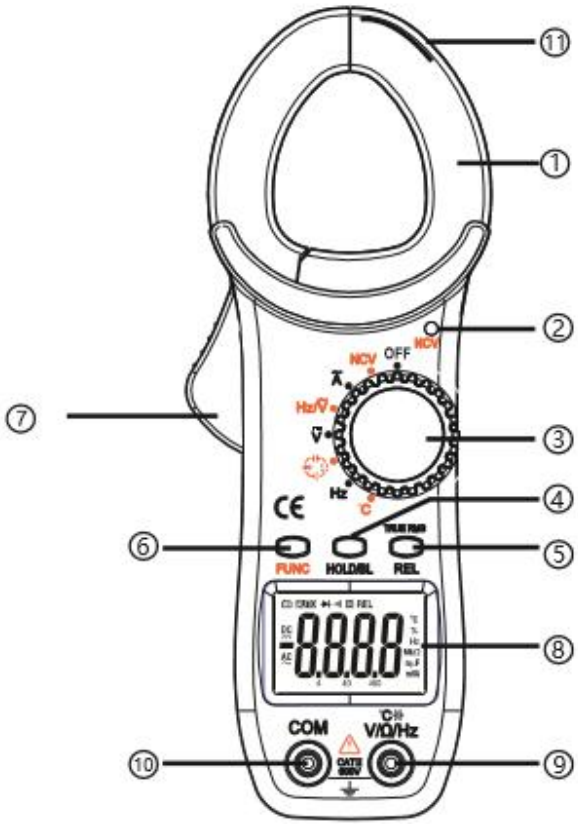
2-2: Precautions

- Do not using instrument on a circuit in which voltage over AC 600V.
- Do not using instrument in the presence of flammable gasses.
- Do not using instrument above the 2000m elevation.

- Working condition of the instrument is: less than 2000m high,
- Operating temperature is between -10℃ and 50℃.

3. Symbols on Panel

1. Clamp
2. NCV indicator (red LED)
3. Rotary switch, used to choose the range.
4. "Hold" button, used to keep the readings.
   Press the button to enter into the data hold mode and press again to cancel it.
5. "MAX" button for model A and B
   "REL" button for model C and D.
   This function can used to show the variety of the measurements . Press the button to keep the current readings as a referring value,
   which will be minus by the reading next time and showing the results on the screen. Press again the button to cancel this mode.
6. "FUNC" button, used to shift and
   then choose the certain function for it
   contains more than one function.
7. Trigger , used to open and close the clamp
8. LED screen
9. Input terminal for voltage, resistor,
   diode, temperature, capacitance and frequency.
10. "COM" input terminal
11. NCV induced area



4.0 Specification

4-1. A/B Specification

FUNCTION	RANGE	Max. Resolution	ACCURACY
ACA	2A 20A	1mA	±(3%rdg+5dgt) ±(2%rdg+5dgt)
	200A/600A	0.1A	±(2%rdg+5dgt)
ACV	2V/20V/200V/600V	1mV	±(1.2%rdg+5dgt)

DCV	200mV/2V/20V/200V/600V	0.1mV	±(0.8%rdg+5dgt)
Temperature	-20℃-- +1000℃ (-4℉---+1832℉)	1℃/℉	±(3%rdg+5dgt)
Resistance	200/2K/20K/200K/2M/20M	0.1Ω	±(1.2%rdg+5dgt)
Diode	Open voltage:1.999V		
Cotinuity	When the resistance value less than 50Ω, the buzzer is sound.		

* Temperature only for B model.
*The accuracy of current is guaranteed when the current is more than 1A.
*The input resistance impedance of voltage is 10MΩ.

4-2. C/D Specification

FUNCTION	RANGE	Max. Resolution	ACCURACY
ACA	40A/600A	10mA	(2.5%rdg+5dgt)
ACV	4V/40V/400V/600V	1mV	±(1.2%rdg+5dgt)
DCV	400mV/4V/40V/400V/600V	0.1mV	±(0.8%rdg+5dgt)
Frequency	4Hz/40Hz/400Hz/4KHz/40KHz/400KHz/4MHz/10MHz	0.001Hz	±(0.5%rdg+5dgt)
Capacitance	4nF /40nF/400nF/4uF/40uF /400uF/4mF	1pF	±(3%rdg+5dgt)
Temperature	-20℃--+1000℃ (-4℉---+1832℉)	1℃(1℉)	±(3%rdg+5dgt)
Resistance	400 /4K/40K/400K/4M/40M	0.1Ω	±(1.2%rdg+5dgt)
Cotinuity	When the resistance value less than50Ω,the buzzer is sound		
Diode	Open voltage:1.999V		

* Temperature and capacitance only for D model.
*The accuracy of current is guaranteed when the current is more than 1A.
*The input resistance impedance of voltage is 10MΩ.

4-3. Other Features

- Operating temperature：0℃ to 40℃ & <75%RH & humidity
- Storage temperature： -10℃ to 50℃ & <75%RH & humidity
- Auto power off: It will automatically turn off after 15 minutes no operation to conserve the energy.

5. Operating Instruction

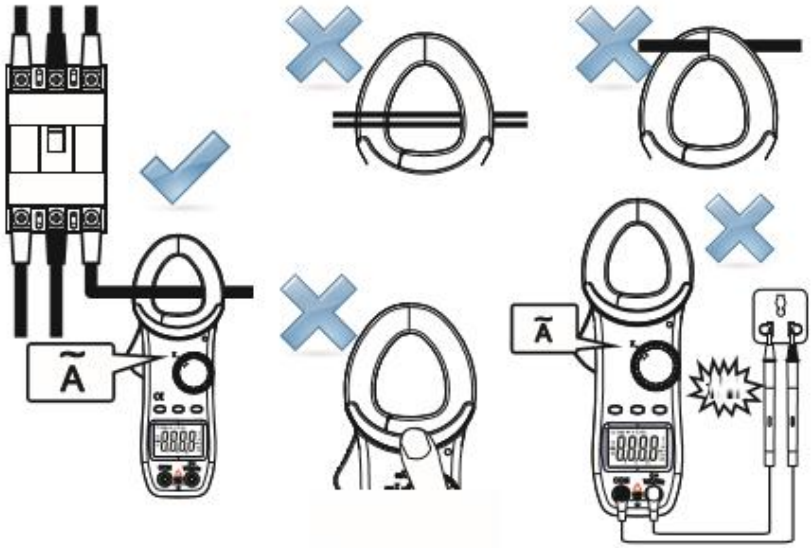
5-1. AC Current Measurement

A and B have two ranges: ～200/600A and ～2/20A. C and D both have ～40A/600A range only.

（1） Set the Rotary Function and switch to the range needed.
（2） Press the trigger to open the transformer jaws and clamp them onto the one conductor under test, and then take the reading on the LCD display.

Notes:

1. Do not clamp two conductors with the converse current direction to avoid the current counteract with each other.
2. Keep the fingers under the arc-shaped part of the clamp to ensure safety



5-2. AC and DC Voltage Measurement

The most input voltage is 600V.

1) Switch Rotary Function at desired" $\widetilde{V}$ " or" $\overline{\overline{V}}$ " position.
2) Inset the red test lead in" V/Ω " terminal and the Black test lead in "COM" terminal for DC Voltage measurement. In the AC Voltage measurement, insert the any test leads in" V/Ω " and "COM" terminal.
3) Insert the red and black test leads in the positive (+) and negative (-) sides of the circuit under test respectively in the DC V measurement.
4) For C /D model, pressing the 'FUNC' button in ACV measurement can measure the frequency (about 10Hz to 30kHz)

5-3. Resistance Measurement

1) Set the Rotary Function Switch to " Ω "position and use"FUNC" key to switch until "Ω"show(Model A and C do not need switch)
2) Insert the red test lead in " V/Ω "terminal, And the black test lead in "COM" terminal.
3) Read the measure result directly from LCD display

Note:*Considering the contact resistor of the test leads (about 0.2-0.3Ω) while measuring the small resistor,connect the two leads directly and take a note of the resistor at first, then the readings of the resistor tested should minus the readings noted .
*When checking in-circuit resistance, be sure the circuit under test has all power removed and that all capacitors have been discharged fully.

5-4. Diode & Continuity Check

1) Set the Rotary Function Switch to the position having " ⊣◀ " and " •))) " .
2) Press the "FUNC" key to change to diode " ⊣◀ " or continuity " •))) " .
*B model has " Ω ⊣◀ •))) " in one range and D model has " Ω ⊣◀ ⫪ •))) " in one range.
3) In the Continuity mode, insert the test leads in the both ends of the conductor under test. The buzzer sounds, if the resistance under test is 50Ω or less.
4) Insert the red test lead in " V/Ω " terminal and the black test lead in 'COM" terminal to detect the diode.Insert the red and black test leads in the positive and negative of the diode under test respectively. Read measure result on the display, which is the positive voltage drop of the diode. If the test pens connect the converse polarity of the diode and 'OL' is shown on the screen, that means the diode is OK.

5-5. Frequency Measurement (C and D)

When the input voltage is more than 30V, use"Hz/~v "to mesure.
Frequency measurement range is 0.001Hz---10MHz
Sensity(0.2Vpp-8Vpp)

(1) Connect the output wires of frequency power into "COM" and "VΩHz" ,if the wires are not suitable, the test leads are needed to test the frequency.
(2) The reading on the LED screen is the frequency tested.

5-6. Capacitance Measurement (D only)

1) Set Rotary Function Switch to " Ω ⊣◀ ⫪ •))) "Position, and then press the "FUNC" key to select the Capacitance Measurement Mode.
2) Insert the test leads in the both ends of capacitor, and read result on the LCD display.

*While testing the "pF" capacitance, use the test leads as short as possible to reduce the impact on the readings.

To avoid damage to the Meter or to the equipment under test, disconnect power and discharge all high-voltage capacitors before measuring capacitance. When the capacitance is larger than 10 "uF", it needs more than 30s minutes to get the readings.

5-7. Temperature Measurement (B and D. Use FUNC to switch ℃/℉)

It shows environment temperature while switch to this range. The temperature of the objects can be testes after the insert of the K-type Temperature Probe.

5-8. NCV Function("EF" is shown when there is no measuring)

Red LED on the right upper area on the panel quickly flashing when Electric field exceeding 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.

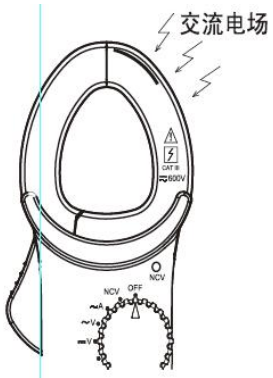
1) Set Rotary Function Switch to the "NCV" position.

2) When the clamp jaws detect voltage (Power stripe or anywhere with strong electric field) the NCV LED is quickly flashing and there is buzzer. The more close to the electric field, the frequency of the flashing and buzzer is quicker. According to the strength of the electric field, it changes from "-" to "----"

3) This position can also be used to identify the live wire . The live wire can make continuous flashing and buzzing with black or red test lead inserted at random. (Note:there could be of mistake when there is LED light in the socket)

Note:

* The AC electric field is only in the placed shown in the picture below and no in the left clamp.



6. Maintenance

1. When the low battery symbol " " is shown on the screen. It need to take off the back

cover and change the battery of the same model immediately.

2. Do not use abrasives or solvents on the meter. Clean it using a damp cloth and mild detergent only.
3. When not in use for a long time, please remove the battery, and avoid storing in high temperature and humidity.

8. Accessories

- Test Leads: 1set
- Battery: 1.5V AAA Type x 2pcs
- User's Manual: 1pcs
- Carrying Case: 1pcs

  K-Type Temperature Probe: 1 set（Only for B&D）