DIGITAL CLAMP MULTIMATE
OPERATION MANUAL

I. General

It is a 3 3/4-bit digital clamp meter of automatic range change and a high-reliability digital clamp multimeter with stable performance and driven by battery. It adopts 18mm font height LCD display of clear readings. With the functions of data retention and automatic power-off, it is more convenient to use.

This meter can be used to measure such parameters as DCV, ACV, DC, AC, resistance, capacity, frequency, diode, continuity, etc. Centered on the dual slope A/D conversion of large-scale integrated circuit, the whole set has the function of automatic range change and thus is a meter with excellent performance and a desirable tool for labs, factories, radio fans and homes.

⚠ **Warning: Before use, please read carefully the information under 〝safety Notices〞.**

II. Unpacking Check

After unpacking, please carefully check if the following items are missing or damaged. If yes, please contact the distributor immediately.

digital clamp multimeter	1set
Bag	1piece
Certificate of conformity	1piece
User's manual	1piece
Test probe	1set
9V battery	1piece

III. Safety Notices

Please note warning mark “⚠” and the sentence titled with “Warning”, which represent the circumstances or actions that endanger the user, may cause damages to the clamp multimeter or the tested equipment.

This meter is designed and produced strictly in accordance with the safety requirements of GB4793 electronic measuring meters and IEC61010-1 andIEC1010-2-032 Safety Standards and conforms to the safety standards of double insulation and over-voltage CAT III 600V and Grade II pollution. Before use, please read this manual carefully.

1. When measuring the voltage above 30V,
with inductive loads and the AC electric line du
fluctuation, be cautious against electric shock.
2. Before measurement, check if the measur
switch is at the proper gear, check if the test pr
measured item reliably, if proper connection, g
order to avoid electric shock.
3. The clamp multimeter cannot conform to
the related safety standards until it is used toge
test probe. If the test probe cable is broken, it m
the cable of the same type or the same electric s
4. Do not use any other batteries not confirm
replace the battery of the meter; do replace the
battery of the same type or the same electric sp
replacing the test probe, keep it away from the
make sure there are no signals on the input end
5. During the electric measurement, never d
ground or touch naked metal terminals, output
that may have ground potential.
6. Do not store and use the meter in the envi
temperature, high humidity, high flammability
potential and strong magnetic field.
7. Measuring the voltage out of the allowed
damage the meter and endanger the operator. T
voltage is marked on the panel of the meter. Ne
signal out of this standard in order to prevent e
damage on the meter.
8. Do not attempt to calibrate or repair this r
necessary, the calibration and repair must be c
trained personnel or qualified professional per
9. During measurement, the function/range
be placed at the correct range gear. When chan
function/range selection switch, be sure to dis
cable from the tested item and make sure there
into the input end. Never change the function/r
during measurement.

the AC electric line
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rement function
obe touches the
good insulation, etc, in

the requirements of
ether with the attached
must be replaced with
specifications.
ned or unauthorized to
battery with only the
ecifications. Before
measured point and
.
irectly touch the
ports, lead clamps, etc.

ronment of high
, high explosion

limit voltage may
The allowed limit
ever measure the input
lectric shock and

meter. Surely, when
onducted by specially
rsonnel.
selection switch must
ging the
connect the test probe
are no signals input
range selection switch

10. When the LCD display shows “ 🔋 ”, please replace the battery in order to ensure the measurement accuracy.

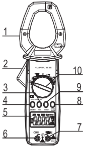
11. Do not change the circuits of this meter without any permission in order to prevent from damaging this meter and endangering safety.

IV. Common Electric Symbols

⚠	Warning!	⎓	DC
⚡	High voltage! Danger!	∿	AC
⏚	Ground	⎓∿	AC/DC
⧈	Double insulation	CE	European directives complied
🔋	Low battery	▭	Fuse

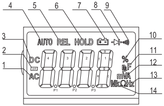
V. External Structure

1. Clamp head;
2. Clamp head trigger;
3. Reset (REL) key;
4. Function selection (SELECT) key;
5. LCD display;
6. COM input port: Negative input terminal with black test probe inserted;
7. VΩ input port: Positive input terminal For measuring voltage, resistance, capacity, frequency, diode and continuity with red test probe inserted here;
8. Manual range and duty ratio (RANGE/DUTY%) key;
9. Data Hold key (HOLD);
10. Function/range selection button: used to select various measuring functions and ranges.



VI. Symbols Displayed

1. AC signal measurement sign;
2. Negative sign;
3. DC signal measurement sign;
4. Automatic range sign;
5. Relative value measurement Sign;
6. Data hold sign;
7. Low battery sign;
8. Diode measurement sign;
9. Buzzer symbol;
10. Duty ratio measurement symbol;
11. Capacity measurement unit (nF, uF);
12. Voltage & current measurement unit (A, V, mV);
13. Frequency measurement unit (Hz; kHz);
14. Resistance measurement unit (Ω， kΩ， MΩ);



VII. Functions of Keys and Automatic Power-of

（1）SELECT: Selects functions in the trigger mode. When two or above measurement functions combine at the same gear, press this key to change measurement functions.

(2) HOLD: Holds readings in the trigger mode. Press this key to lock the displayed value and press it again to relieve the locking state and then enter the normal measurement state.

(3) REL: Measures relative values in the trigger mode. Press this key at the DCA gear and then this meter will regard the currently displayed value as the reference value and automatically reset the LCD display. In the subsequent measuring results, the reference value will be automatically deducted until the relative value measurement function exits by pressing this key again.

(4) RANGE: Manual range key to work at trigger mode.

(5) Automatic power-off function: During measurement, whether pressing function keys or rotating function/range selection button, if idle for 15min, the meter will automatically “power off”. In such state, press the function keys (for effective key operations, see VIII) or rotate the function/range selection button, then the meter will automatically “Power on” and enter the measurement status. Hold the SELECT key during the Power On, and then the automatic power-off function will be cancelled.

⚠ Note: "Auto Power-off" represents a sleep status. In such state, a small amount of current (approximately 5μA) will be consumed. If the meter is not used for long, be sure to shut off its power.

(6) Buzzer: Press any function key at any gear; if such key is valid, the buzzer will buzz; if invalid, the buzzer will not buzz; the buzzer will give 5 continuous warning buzzes for warning about 1min before auto power-off; the buzzer will give a long buzz for warning before power-off. The buzzer gives sounds at the continuity measurement resistance less than about 50Ω

VIII. Effectiveness of Keys

Not all key operations are effective at any gear. Only the effective key operation can choose corresponding operation function or wake up the sleeping clamp multimeter. See the following table for details (● means effective):

Key	REL	HOLD	RANGE/DUTY%	SELECT
V≂	●	●	●（RANGE）	●
Ω ▶⊢ ⊣⊢ ·)))	None (Note①)	●	None	●
Hz	None	●	●（DUTY%）	None
40A≂	●	●	None	●
400A≂	●	●	None	●
1000A≂	●	●	None	●

Note ①: The capacitance gear has relative value measurement function.

IX. Features

1. General Features

1-1. Display mode: LCD display;

1-2. Max. display: 3999(3 3/4)bit auto polar display or unit display;

1-3. Measurement mode: Dual slope A/D conversion;

1-4. Conversion rate: 3 times/s;

1-5. Over-range display: "OL" or "-OL" displayed in the highest;

1-6. Low battery display: " [+ -] " symbol occurs;

1-7. Auto power-off function;

1-8. Max. head opening size: dia. 55mm;

1-9. Max. size of predicted current lead: dia. 47mm;

1-10. Effect of electromagnetic field: If used for devices near electromagnetic field, unstable or incorrect readings may be displayed;

1-11. Error caused by test position: When measuring current, please place the source to be tested in the center of the head; otherwise, certain additional error will occur;

1-12. Operating environment: (0~40)℃, RH<80%;

1-13. Storage environment: -10~50℃, RH<80%;

1-14. Power supply: 9V battery;

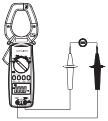
1-15. Volume (dimensions): 255mm×90mm×46mm(L×W×H) ;

1-16. Approx. 388g (battery included).

2. Technical

Accuracy: ± (a% of reading + digit number); to ensure accuracy, ambient temperature: (23±5)℃, RH<75%; calibration warranty period as one year from ex-works date.

2-1. DCV Measurement



A) Turn the function/range SELECT switch to V≂ gear

B) Respectively insert the red test probe And black test probe into the VΩ and COM ends.

C) Connect the test probe cable onto the tested circuit or the power supply in parallel, then the polarity of the red test probe cable and the tested voltage value will be shown on the screen.

D) Read the currently measured result from the display

DCV Technical Indicators:.

Range	Accuracy	Resolution
400mV	±(0.5%+4d)	0.1mV
4V		1mV
40V		10mV
400V		100mV
1000V	±(1.0%+6d)	1V

Input resistance: 10MΩ.

Overload protection: 1000V DC or AC peak

2-2. ACV Measurement

A)Turn the function/range SELECT switch t

Gear. Press the SELECT key to choose the d

ACV.

B) Respectively insert the red test probe and

black test probe into the VΩ and COM ends

C) Connect the test probe cable onto the test

circuit or the power supply in parallel,

then the polarity of the red test probe cable

and the tested voltage value will be shown o

D) Read the currently measured result from

ACV Technical Indicators:

Range	Accuracy
400mV	±(1.6%+8d)
4V	±(0.8%+10d)
40V	
400V	
750V	±(1.0%+10d)

Input resistance: 10MΩ.

Frequency response: 40～400Hz @ below

@750V.

Note:Do not measure the DCV above 100

When high voltage is measured, be sure to

After measurement, immediately discon

the tested circuit.

2-3. Resistance Measurement

A) Turn the function/range SELECT Switch to ⊣⊢ gear.

B) Respectively insert the red test probe And black test probe into the VΩ and COM ends.

C) Connect the test probe cable onto the tested resistor in parallel, then the tested resistance value will be shown On the screen.

D) Read the currently measured result from

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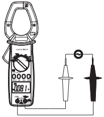


n the display.

the display.

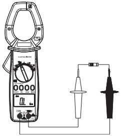
Resolution
0.1mV
1mV
10mV
100mV
1V

400V; 40～200Hz

0V or ACV above 750V.

o avoid electric shock.

nect the test probe from



the display.

Note:

When the online resistor is measured, be sure to shut off the line power supply and discharge all capacitors completely.

If the tested resistor is open or its resistance is out of the max.range of the clamp multimeter, it will show "OL"

When the resistance above 1MΩ is measured, the reading on the meter will not be stable until several seconds have passed. This is normal for high-resistance measurement.

When the resistor is measured, do not input voltage value. Never input the voltage above the overload protection; otherwise, the meter may be damaged and the operator may be hurt.

After the measurement is over, immediately disconnect the test probe from the tested circuit.

Resistance (Ω)Technical Indicators:

Range	Accuracy	Resolution
400Ω	±(0.8%+5d)	0.1Ω
4kΩ	±(0.8%+4d)	1Ω
40kΩ		10Ω
400kΩ		100Ω
4MΩ		1KΩ
40MΩ	±(1.2%+10d)	10KΩ

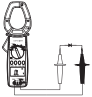
Open voltage: 400mV

Overload protection: 250V DC or AC peak.

Note: When 400Ω is used, it is necessary to short circuit the test probe to test the resistance of the lead, which will be deducted from the actual test.

2-4. Diode Measurement and Continuity Test

2-4-1.Diode Measurement



A) Turn the function/range SELECT switch to gear. Press the SELECT key to choose the desired diode measurement mode.

B) Respectively insert the red test probe and Black test probe into the VΩ and COM ends.

C) Connect the red test probe onto the positive of the diode and the black test probe onto the negative.

D) Read the currently measured result from the display.

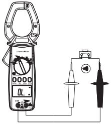
Note:

In case of open diode or reverse polarity, the display will show "OL".

When the online diode is measured, be sure to shut off the line power supply and discharge all capacitors completely.

After the measurement is over, immediately disconnect the test probe from the tested circuit.

2-4-2. Continuity Test



A) Turn the function/range SELECT switch to gear.

B) Press the SELECT key to choose the desired continuity measurement function.

C) Respectively insert the red test probe and black test probe into the VΩ and COM ends.

D) Connect the test probes onto both ends of the tested circuit in parallel.

E) If the resistance between both ends of the circuit is less than about 50Ω, the built-in buzzer will sound.

Technical Indicators of Diode Measurement and Continuity Test:

Range	Resolution	Description
Diode	1mV	Open voltage approx. 1.4V Forward voltage drop approx. 0.5～0.8V
Continuity Test	0.1Ω	Open voltage approx.0.45V; when less than 50Ω, the buzzer will sound.

Overload protection: 250V DC or AC peak.

Note:

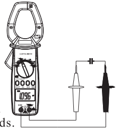
If the tested circuit is open, the display will show "OL".

In case of line continuity test, be sure to shut off the line power supply and discharge all capacitors.

After the measurement is over, immediately disconnect the test probe from the tested circuit.

2-5. Capacitance Measurement

A) Turn the function/range SELECT switch To gear.



B) Press the SELECT key to choose the desired capacitance measurement mode.

C) Press the REL key to clear (For small capacitance measurement, don't press the REL key until the number on LCD is stabilized.

D) Respectively insert the red test probe and black test probe into the V Ω Hz and COM ends.

E) Connect the testing end of the test probe cable ontothe tested capacitor in parallel and then the tested capacitance value will be shown on the display.

F) Read the measured result from the display.

Capacitance (C) Technical Indicators:

Range	Accuracy	Resolution
4nF	±(3.5%+30d)	1pF
40nF	±(3.0%+10d)	10pF
400nF		100pF
4uF		1nF
40uF		10nF
100uF	±(5.0%+10d)	100nF

Overload protection: 250V DC or AC peak.

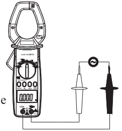
Note:

When the online capacitor is measured, be sure to shut off the line power supply and discharge the capacitor completely.

It will take long time to measure large capacitance, for example, 100uF needs about 30s.

After the measurement is over, immediately disconnect the test probe from the tested circuit.

2-6. Frequency Measurement



A) Turn the function/range SELECT switch to the Hz gear as shown in the right figure.

B) Respectively insert the red test probe and black test probe into the V Ω and COM ends.

C) Connect testing end of the test probe onto the signal source to be tested in parallel.

D) Read the measured result from the display.

Frequency Indicator:

Range	Accuracy	Resolution
9.999Hz	±(0.5%+4d)	0.001Hz
99.99Hz		0.01Hz
999.9Hz		0.1Hz
9.999kHz		1Hz
99.99kHz		10Hz

Sensitivity: Virtual value 2V.

Overload protection: 250V DC or AC peak.

Note:

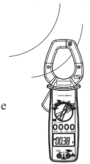
Do not input the signal above 250V; otherwise, the meter may be damaged and the user may be hurt.

After the measurement is over, immediately disconnect the test probe from the tested circuit.

The signal measurement value above 100kHz is for reference only.

2-7. AC/DC Measurement

A) Turn the function/range SELECT key to “40A” or higher range as shown in the right figure.



B) Press the SELECT key to choose AC or DC measurement mode.

C) If used for devices near electromagnetic field, unstable or incorrect readings may bedisplayed;

D) Please press the REL key to reset before current measurement(No reset required for ACA).

E) Press the head trigger to open the head and use the head to clamp the conductor to be tested and then release the trigger slowly until the head is closed completely. Please confirm if such conductor is clamped in the center of the head because such conductor not placed in the center will cause additional error. This meter can only measure a current conductor once; if it measures two or above current conductors at the same time, the measurement readings will be incorrect.

DC Technical Indicators:

Range	Accuracy	Resolution
40A	±(3%+8d)	0.01A
400A	±(2.5%+8d)	0.1A
1000A	±(3%+10d)	1A

AC Technical Indicators:

Range	Accuracy
40A	±(3%+10d)
400A	±(2.5%+8d)
1000A	±(3%+10d)

Note:

1. AC frequency response: 50~60Hz;

2. If this meter is near any place with strong ma
display unstable or incorrect induction reading
the measurement resu

X. Maintenance and Care

Warning: In order to prevent electric sho
the bottom cover, take the test bar away.

1. General Maintenance

1-1. This meter is a precision instrument and th
change circuits without permission;

1-2. Please take waterproof, dustproof and anti

1-3. Do not store and use this meter in hightem
and under explosive and flammable environme
magnetic field;

1-4. Please clean the housing of this meter with
detergent rather than strong solvents as abrasiv

1-5. If the battery is not used for long, please ta
prevent the leakage from corroding this meter;

1-6. Do not use DC or AC peak voltage more th

1-7. Never measure voltage values at the curre
diode gear and buzzer gear;

1-8. Do not use this meter before the battery is
or the back lid is not tightened properly;

2. Battery installation or replacement

Please pay attention to the use condition of 9
when the “[+ −]” sign appears on the display o
available, please replace the battery according
The steps are shown as below:

2-1. Switch off this meter and remove the test p
terminal or current lead clamped in.

2-2. Let the panel of this meter faced down and
on the battery lid and remove the lid.

2-3. Take out the old battery and install new ba
polar indication.

Resolution
0.01A
0.1A
1A

gnetic field, it will
that does not affect

ck, before opening

us users should not

-falling measures;
perature and humidity
nt and in the strong

wet cloth and mild
e, alcohol, etc;
ke it out in order to

an 1000V;
nt gear, resistor gear,

not installed properly

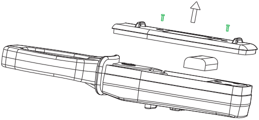
V battery during use;
r power-on is not
to the following figure.

robe in the input

screw out the screws

ttery according to the

2-4. Please use the battery with the same model rather than improper battery.
2-5. After installing new battery, insert the lid and tighten the screws.



This user's manual is subject to any change without further notice.
The content in this user's manual is deemed correct; if you find any mistake, omission, etc, please contact the manufacturer.
We will not be held liable for any accidents or harms caused due to your wrong operations.
The functions set forth in this user's manual shall not be regarded as reasons for applying this product for special purposes.

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