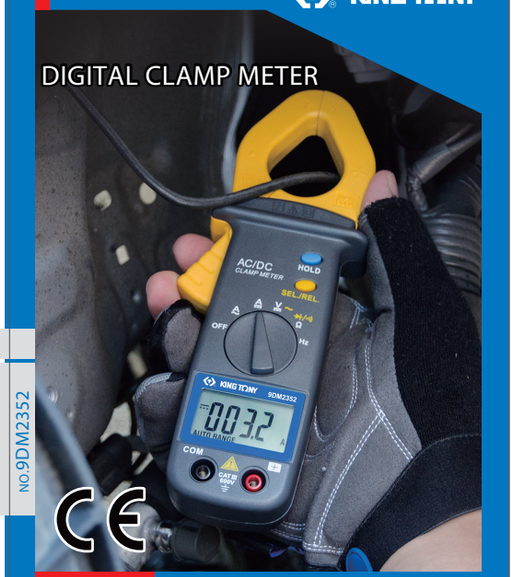
KING TONY

DIGITAL CLAMP METER



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CE

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EN

SAFETY PRECAUTIONS : Before use, read the following safety precautions.

PRECAUTION:

To avoid danger and damage happened during operation, the following symbols are used as points for attention.

Warning: Improper use of the meter may bring hurt or even death to body. Please read the operation carefully.

:Dual insulation :DC- Direct current

:AC- Alternating current :Grounding - Earth terminal

Warning:

To prevent electrical shock or fire!

- Before getting measured, make sure that the test leads and function switch has been set properly.
- Before switching among functions, remove the test leads off the measured object.
- Before measurement, make sure the circuit or the object won' t exceed the maximum measurement range.
- Do not use this instrument, if there's any crack or damage in the case of meter or test leads.
- Do not open the case of meter during measurement.
- When measuring with test leads, always put your hands behind the guard ring of the test leads.
- When measuring with censoring clamp, put your hands behind the guard ring of the meter.
- Before undergoing resistance measurement, switch off the power to the circuit under test firstly.
- Never use the meter under rainy or humid environment or with wet hands.
- Before undergoing current measurement, make sure to remove the test leads from the input terminals.

Warning:

■ To prevent damage or electrical shock to the meter!

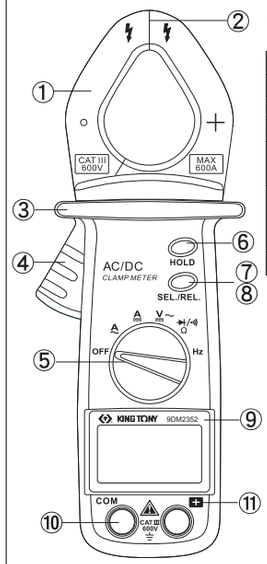
According to the safety standard, the maximum voltage input power is classified as follows to protect the users against transient impulse voltage in power lines.

Over-voltage category (CAT.)	Maximum input voltage
CAT III	600V

Caution

- Do not use the meter near equipment emitting noise or under an environment with sudden temperature change. Otherwise, unstable or erroneous reading will appear.
- Take the batteries out of the meter if it will be left idle for a long time.
- After measurement, switch the function knob back to off. As there will be slight power consumption under auto power off mode.
- When measuring current, position the conductor in the center of the clamp to ensure the accuracy.
- When measuring current, keep away from high current nearby to ensure the accuracy.
- Do not use organic solvent to clean the meter. Wipe it with a soft cloth, if necessary.
- Do not expose the meter under direct sunlight, extreme temperature or moisture.
- When the measurement values appear to be irregular or the symbol displays, replace the batteries immediately to ensure normal operation.

(1) NAME OF PARTS



① Jaw
② Opening of the jaw
③ Guard ring
④ Clamp trigger
⑤ Function switch knob

Range	Function
OFF	Turn off power
A~	AC current measurement
A⎓	DC current measurement
V⎓~	DC voltage / AC voltage measurement
Ω/⊣◀/•ıı)	Resistance measurement / Diode check / Continuity check
Hz	Frequency measurement

⑥ HOLD

Press HOLD key during measurement, D-H symbol will appear on display and lock the reading value. Press HOLD key again to release this function when the held data is no longer needed.

⑦ SEL./REL. seclect

Press SEL./REL. key to switch among the following functions:

	RANGE	Function
SEL.	V⎓~	Select measurement of DC voltage or AC voltage
	Ω/⊣◀/•ıı)	Select measurement of resistance or diode check or continuity check
REL.	A⎓	Zero set function
	A~	Relative function

⑧REL key function

(A) Relative measurement – for ACA(A~) and DCA (A⎓)

Press REL. key during the measurement while REL symbol litondisplay. The difference between 2 input signals will display while under this function. For example,the first input is X and the 2nd input is Y. In RELATIVE mode, the display on LCD is equivalent toY minus X .If the 3rd input is Z, the relative value is Z minus X .

- ACA (A~) & DCA (A⎓) – in relative mode the range is locked according to the1st input,**AUTORANGE** disappears.

Note:

- OL displays means the relative value is beyond the range.
- Press REL. key again to cancel relative mode If range is locked,turn function switch knob to OFFthen turn to the position desired for measurement to recall the auto range.

(B) Zero Set Function -for DCA(A⎓)

■ DCA (A⎓)

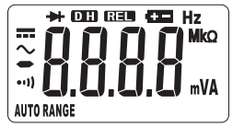
Before measurement, press REL. key for zero set if there is minor reading displays. The auto range is cancelled and the range is fixed thereof.

Note:

- To recall auto range please turn the function switch knob back to OFF then turn to the position desired for measurement.

⑨LCD display

Show measurement symbols, units and values.



Symbol & Units	Description
⎓	Lit when in DC mode measurement
~	Lit when in AC mode measurement
⊟+	Polarity indicator - lit when the polarity is negative
AUTO RANGE	Auto range indicator
•ıı)	Lit when in continuity check
⊣◀	Lit when in diode check
D-H	Data hold indicator
REL	Lit when In relative mode
⊟+	Lit when the battery power is low
Hz	Lit when in frequency measurement
MΩ,kΩ,Ω	Unit for resistance measurement
mV,V	Unit for voltage measurement
A	Unit for current measuremen
8.8.8.8.8	Display the measured values

⑩ " COM " terminal

Connect the negative input end for DCV, ACV,Ω, ⊣◀ ,•ıı) & Hz measurement (black test lead)

⑪ " ⊞ " terminal

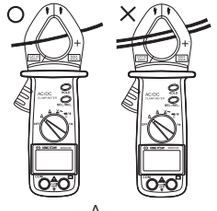
Connect the positive input end for DCV, ACV, Ω, ⊣◀ ,•ıı) & Hz measurement (red test lead)

(2)MEASURING INSTRUCTION

■ AC Current Measurement (A~)

Measuring range: 400.0A~600A(2 ranges, will change automatically)

1. Set the function switch knob to A~
2. Pull the clamp trigger to open the clamp. Place one conductor only in the center of the clamp (as figure below). Read the value until the reading becomes stable.
3. In AUTO RANGE mode, it will choose the proper range for measurement automatically.
4. When finished set the function switch knob to OFF position and turn off the meter



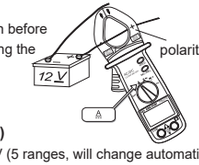
■ DC Current Measurement (A⎓)

Measuring range: 400.0A ~ 600A(2 ranges, will change automatically)

1. Set the function switch knob to A⎓
2. Press REL. key for zero set (auto range is cancelled and range is fixed after press REL. key).
3. Pull the clamp trigger to open the clamp. Place one conductor only in the center of the clamp(as figure below). Read the value until the reading becomes stable.
4. If minor reading before measurement is not concerned may not press REL key for zero set and the measurement will carry out in auto range mode.
5. When finished set the function switch knob to OFF position and turn off the meter.

Note:

1. If " ◀ "symbol appears, it means the direction of the measured conductor is opposite to the polarity mark on the clamp
2. When taking measurement in place where indicated values are hard to read, press HOLD key to lock the value and then read it in other proper place.
3. Please push the "REL." button before use as the meter keeps reading the ionization current in the surrounding.



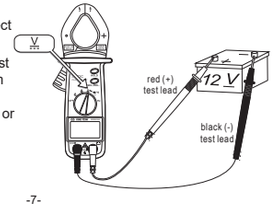
■ DC Voltage Measurement (V⎓)

Measuring range: 400.0mV ~ 600V (5 ranges, will change automatically)

1. Set the function switch knob to V⎓~ .⎓ display on LCD.
2. Plug black test lead into COM terminal and red test lead into ⊞ terminal
3. Connect test leads to the object under test and then read the value when it stabilizes.
4. If " ◀ " symbol appears it means the polarity of the object is opposite to the meter.
5. The meter will choose the appropriate range for measuring automatically.
6. When finished, set the function switch knob to OFF position and turn off the meter.

Attention:

1. Make sure the polarity is correct before measurement.
2. Make sure the object under test does not exceed the maximum range of 600V to avoid the possible injury of human body or damage the meter.



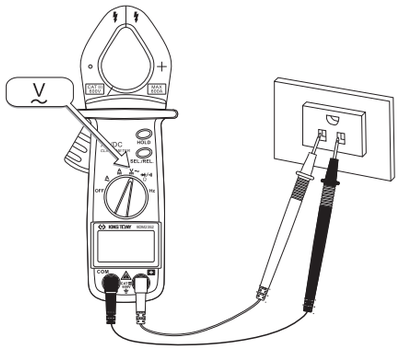
■ AC Voltage Measurement (V̲)

Measuring range: 4.000V ~ 600V (4 ranges will change automatically)

1. Set the function switch knob to V̲~ . Press SEL./REL. key until ~display on LCD.
2. Plug black test lead into COM terminal and red test lead Into ⊕ terminal.
3. Connect test leads to the object under test and then read the value when it stabilizes.
4. The meter will choose the appropriate range for measuring automatically.
5. When finished, set the function switch knob to OFF position and turn off the meter.

Attention:

1. Polarity is unrelated to AC voltage measurement.
2. Make sure the object under test does not exceed the maximum range of 600V to avoid the possible injury of human body or damage the meter.



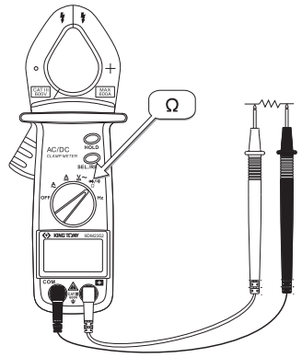
■ Resistance Measurement (Ω)

Measuring range: 400Ω ~ 40MΩ (6 ranges, will change automatically)

1. Set the function switch knob to Ω/⊣/•ı) "OL" and MΩ unit display on LCD.
2. Plug black test lead into COM terminal and red test lead into ⊕ terminal.
3. Connect test leads to the object under test and then read the value when it stabilizes.
4. The meter will choose the appropriate range for measuring automatically.
5. When finished, set the function switch knob to OFF position and turn off the meter.

Attention:

1. Polarity is unrelated to resistance measurement.
2. Do not touch the metal probe of test leads with hands to avoid the error reading of measurement result.



■ Diode Test (⊣)

1. Set the function switch knob to Ω/⊣/•ı) Press SEL./REL. key until ⊣ symbol and V unit display.
2. Plug black test lead into COM terminal and red test lead into ⊕ terminal.
3. Apply test leads to the diode and then read the value when it stabilizes.

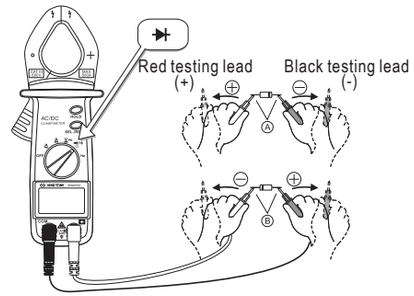
(A) Forward- bias Diode Test

Connect black test lead to the cathode and red test lead to the anode as shown Fig. (A). Silicon diodes should give a reading approximately 0.5~0.7V and GE diodes give 0.2~0.3V. In case the reading value is near to "0" it means short circuit If LCD displays" OL "means open circuit.

(B) Reverse bias Diode Test

Connect black test lead to the anode and the red test lead to the cathode as shown Fig. (B). Normally the LCD display"OL" indicating that the diode is good. The diode is defective if the display give a certain voltage level.

4. When finished, set the function switch knob to OFF position and turn off the meter.



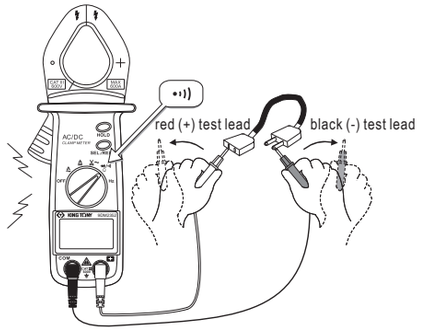
■ Continuity check (•ı))

⚠Attention

To avoid damaging the multimeter

- Please shut down the power source applying to the circuit under test before forwarding measurement. Otherwise, the high voltage or big current may damage the multimeter.

1. Set the function switch knob to Ω/⊣/•ı)
2. Plug black test lead into COM terminal and red test lead into ⊕ terminal.
3. Press SEL. / REL. key until •ı) symbol & Ω unit display.
4. Apply test leads to the circuit under test and the beeper will sound while the circuit is continuous and approximately below 100Ω.
5. When finished, set the function switch knob to OFF position and turn off the meter.



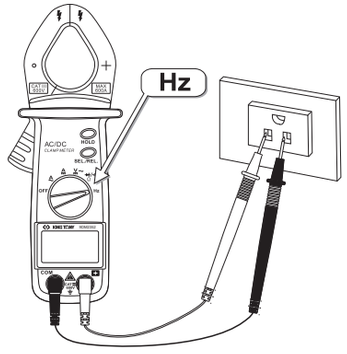
■ Frequency Measurement (Hz)

Measuring range: 5.000Hz~100kHz(6 ranges, will change automatically)

1. Set the function switch knob to Hz. Hz unit display.
2. Plug black test lead into COM terminal and red test lead Into ⊕ terminal.
3. Connect test leads to the object under test and then read the value when it stabilizes.
4. The meter will choose the appropriate range for measuring automatically.
5. When finished, set the function switch knob to OFF position and turn off the meter.

Attention:

1. Polarity is unrelated to frequency measurement.
2. Make sure the object under test does not exceed 600V to avoid the possible injury of human body or damage the meter.



(3) AUTO POWER OFF (POWER SAVING) DEVICE

When power on the meter and not press any key or function switch knob for 30 minutes, the multimeter will shut down automatically for saving the power Press any key before power off will postpone the power off time or restart the multimeter which has turned off already.

(4) REPLACING BATTERIES

When battery power is low for normal operation, ⊣⊢ symbol display. Replace both two new batteries standard alkaline UM-04 or R03 AAA battery. Apply non alkaline batteries are also available but life time will be shorter.

⚠Attention

- Before replacing batteries, make sure to disconnect the clamp meter from the circuit under test.
- Replace two new batteries at the same time and make sure the batteries are installed at correct polarities.

(5) SPECIFICATION

■ General specification:

- **Max. Clamp size:** Φ30mm or 10x35mm
- Measurement functions:
  DCA, ACA, DCV, ACV, Resistance, Diode, Continuity & Hz.
- **Additional functions:**
  Data hold, Function selection, Relative measurement, Auto power off
- **LCD display:**
  Unit & function indication Measuring value display Negative polarity indication Low battery indication.
- **Range:** Auto
- **Sampling rate:** 3 times / sec. approx.
- **Operation temperature / Humidity:**
  0°C~50°C (32°F~122°F) / below 80% R.H. (no condensation).

- **Storage temperature / Humidity:**
  -10°C~60°C (14°F~140°F) / below 70% R.H. (no condensation).
- **Battery life time:** Approx. 300 hours at DCV (alkaline battery).
- **Dimension (mm):** 190(L) x71 (W) x37 (H)
- **Weight:** 220g approx..
- **Accessories :** Batteries AAA 1.5V.....2(installed)
  Test leads (black + red).....1
  Instruction manual.....1
  Carrying case.....1

■ Electrical specifications:

- 23°C± 5°C, 80% R. H. MAX.
- Accuracy: (%rdg + dgt)

● AC Current measurement (A̲)

*50~500Hz

Range	Resolution	AVG Accuracy	Maximum input current
400A	0.1A	± (1.8%rdg + 10dgt)	600A
600A	1A	± (1%rdg + 5dgt)	

● DC Current measurement (A̲)

Range	Resolution	Accuracy	Maximum input current
400A	0.1A	± (1.8%rdg + 10dgt)	600A
600A	1A	± (1%rdg + 5dgt)	

● DC Voltage measurement (V̲)

Range	Resolution	Accuracy	Input impedance	Maximum input voltage
400mV	0.1mV	± (0.75%rdg + 3dgt)	≥ Ω	600V
4V	0.001V	±(1%rdg + 3dgt)	approx. 11MΩ	
40V	0.01V		approx. 10MΩ	
400V	0.1V			
600V	1V			

● AC Voltage measurement (V̲)

*50~500Hz

Range	Resolution	AVG Accuracy	Input impedance	Maximum input voltage
4V	0.001V	±(1.5%rdg + 10dgt)	approx. 11MΩ	600V rms
40V	0.01V		approx. 10MΩ	
400V	0.1V	±(1.5%rdg + 5dgt)		
600V	1V			

● Resistance measurement (Ω)

Range	Resolution	Accuracy	Remarks	Maximum Input voltage
400Ω	0.1Ω	±(1%rdg + 5dgt)	●Open voltage: approx. 0.4V ●The measuring current changes in accordance with the resistance measure.	600V
4kΩ	0.001kΩ			
40kΩ	0.01kΩ			
400kΩ	0.1kΩ			
4MΩ	0.001MΩ	±(3%rdg + 5dgt)		
40MΩ	0.01MΩ	±(5%rdg + 5dgt)		

● Continuity check (•ı))

Range	Resolution	Accuracy	Maximum Input voltage
400Ω	0.1Ω	The buzzer turn on for resistances below approx. 100 Ω	600V

● Diode test (⊣)

Range	Resolution	Accuracy	Remarks	Maximum Input voltage
1.000V	0.001V	±(10%rdg + 5dgt)	●Open voltage: approx. 1.5V	600V

● Frequency measurement (Hz)

Range	Resolution	Accuracy	Remarks	Maximum Input voltage
5.000Hz	0.001Hz	±(0.7%rdg + 5dgt)	●Accuracy in the case of sine wave ● 5.000Hz~100kHz: typical above 5V rms	600V
50.00Hz	0.01Hz			
500.0Hz	0.1Hz			
5.000kHz	0.001kHz			
50.00kHz	0.01kHz			
100.0kHz	0.1kHz			

*<18℃, >28℃ add 0.1 x (specified accuracy) /℃.

Specifications and external appearance of the product described above may be revised for modification without prior notice.

Please contact our agents or distributors for avariety of measuring instrument we produce underthe strict quality control requirement of ISO 9001.