INSTRUCTION MANUAL

MT760"

100A AC/DC TRMS MINI CLAMP METER

Contents

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1. Overview

The MT760 is a 2000 count True RMS 100A AC/DC mini digital clamp meter with a resolution of 1mA. The meter measures 600V AC/DC, capacitance, resistance measurements, plus a continuity buzzer and diode test function. The VFC function allows the user to measure stable voltage in high frequency applications of Variable Frequency Drives. Added features include Zero/Relative mode for Capacitance Zero, resistance, DCV, ACV, DCA and ACA offset adjustment and Non-Contact voltage detection. Housed in a modern double moulded rubber housing.

2. Open case inspection

Open the package and take out the instrument. Please check whether the following accessories are missing or damaged. If any item is missing or damaged, please contact your supplier immediately.

1. Instruction manual - 1 copy
2. 1.5V AAA battery - 2 pieces
3. Probe assemblies - 1 pair

3. Safety precautions

This Meter complies with EN 61010-1,61010-2-032,61010-2-033, Pollution Degree 2, measurement category: (CAT II 600V, CAT III 300V) and Double Insulation standards.

Conforms to UL STD. 61010-1, 61010-2-032, 61010-2-033 Certified to CSA STD. C22.2 NO. 61010-1,IEC STD 61010-2-032, 6101 0-2-033

CAT II: Applicable to test and measuring circuits connected directly to utilization points (socket outlets and similar points) of the low voltage MAINS installation.

CAT Ill: Applicable to test and measuring circuits connected to the distribution part of the building's low-voltage MAINS installation, before use and follow all safety instructions.

1. Use the clamp meter by following operation instructions, otherwise safety functions of the current clamp meter may fail to protect you.
2. Abide by national safety laws and regulations. When operating in dangerous and live wire exposed environment, use personal protection equipment to prevent accidents such as electric shock and arc discharge.
3. Do not cross any position other than protective barrier of current clamp meter.
4. Before each use, check whether current clamp meter housing or output cable insulation cracks or damaged first, also check for poor connected parts. Especially pay attention to insulating layer around the clamping mouth.

5. Before removing the battery cover, please remove clamp meter from all energized circuit and disconnect lead wire.
6. Do not use clamp meter in circuit with voltage higher than 600V working or frequency higher than 400Hz.
7. Measurement category class is CAT II 600V/CAT III 300V, pollution degree is 2. Do not use it out of scope.
8. Be cautious when in environment with exposed wire. Contact with wire may result in electric shock.
9. For voltage above 60V DC (direct current), 30V AC (AC effective value) or 42V AC (peak value), such voltage may cause electric shock.
10. Probe assemblies used for MAINS measurements CAT II 600V/CAT III 300V according to IEC 61010-031, If you want to replace the probe assemblies and they need the same level CAT II 600V/CAT III 300V or better level. Protection impairment if used in a manner not specified by the manufacturer.
11. Function switches shall be set at the correct position prior to measurement. Do no switch ranges while measuring voltage or current.

4. Electrical symbol

	Low battery	Warning	Buzzing on-off
V	ACV/DCV	Diode	Earthing
A	ACA/DCA	Double insulation	
	Danger! High voltage		
CE	Comply with European Union directives		
	Application around and removal from UNINSULATED HAZARDOUS LIVE conductors is permitted		
	This symbol signify the product comply with both USA and Canada requirement		

5. General standard

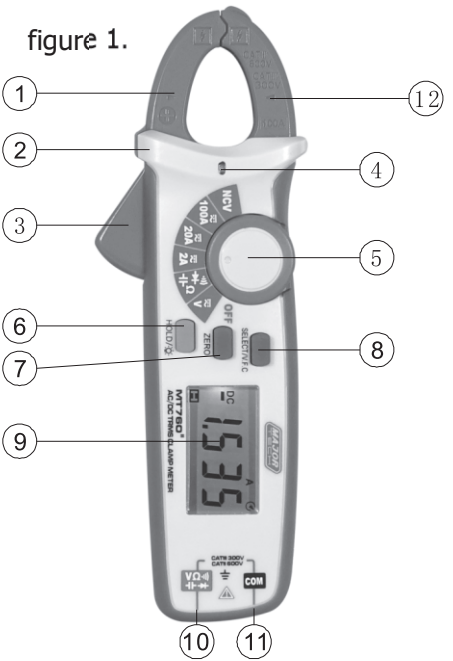
1. Maximum faulty operation protection voltage between input terminal and earthing is 600V.
2. Maximum overload protection for clamp head terminal:100A.
3. Maximum display: 2000 Counts, update 2~3 times per second.
   Over range displays "OL".
   Diode: approx. 3.2V
   Range: automatic (exclusive of electricity gear)
   Polarity: automatic
   Work temperature: 0°C ~40°C
   Relative humidity: 0°C ~30°C :75%,30°C ~40°C :50%
   Storage temperature: -10°C~50°C
4. Electromagnetic compatibility:
   In 1V/m radio frequency field: overall frequency=designated precision +5%, radio frequency field above 1V/m has no designated index.
5. Work altitude: 0~2000m
6. Built-in battery: AAA 1.5V x 2 pieces
7. Low battery: LCD displays "▭".
8. Dimensions: approx. approx. (175 x 60 x 33.5mm), maximum clamp head size is 17mm.
9. Weight: approx. 170g (including battery)

6. Product panel figure

1. Clamp head.
2. Protective barrier.
3. Clamp head trigger: pull the trigger to open clamp head.
4. NCV indicator: when the induced AC electric field intensity and induction distance satisfy designated value, it will send out warning sound and flashes.
5. Function selection button: rotate this button to switch to corresponding functions indicated on the panel.
6. HOLD/backlight key: for measuring readings/long press 2s to turn on or turn off backlight.
7. ZERO key: used for DCA zero, capacitance/voltage measurement relative value.
8. SELECT key: select function mode, such as ACV/DCV, resistance/ on-off/diode/capacitance, ACA/DCA, etc. in AC voltage and current gear, long press this key for more than 2s to enter or exit VFC function.
9. LCD display screen: measurement function, symbol and numerical value.

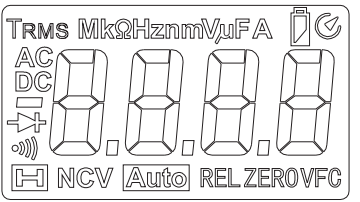
10. Positive terminal input jack: when measure voltage, resistance/on off/ capacitance/diode, red meter pen inserts into this jack.
11. Input jack at COM terminal: when measure voltage, resistance/on off/ capacitance/diode, black meter pen inserts into this jack.
12. Indication mark for geometric center of the clamp head.

figure 1.



7. LCD full view figure (Figure 2)

figure 2.



No.	Symbols	Instructions
1.	TRMS	True Root Mean Square measurement status prompt
2.	AC/DC	AC/DC voltage measurement prompt
3.	—	Negative reading
4.	⊣◁	Diode measurement prompt
5.	•))	Circuit on-off measurement prompt
6.	H	Data hold prompt
7.	Ω kΩ MΩ	Resistance unit: 0, kO, MO
8.	Hz kHz MHz	Frequency unit: Hz, kHz, MHz
9.	mV、V	Voltage unit: mV, V
10.	mA、A	Current unit: mA, A
11.	nF μF mF	Capacitance unit: nF, μF, mF
12.	(EF)NCV	Non-contact AC voltage induction prompt
13.	Auto	Auto range prompt
14.	ZERO/REL	Zero/relative measurement prompt
15.	VFC	Variable frequency voltage/current measurement prompt
16.	▭	Low built-in battery prompt
17.	⏲	Auto power-off prompt

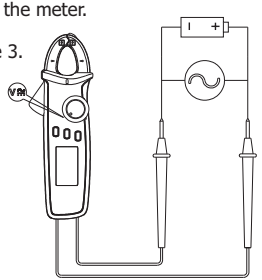
8. Operation instructions

1. AC/DC voltage measurement

- Select AC voltage or DC voltage gear
- Insert red meter test lead into red jack (positive terminal), black meter test lead into black jack (COM terminal)
- Touch the test piece by red and black meter test lead, for example, power socket (Figure 3).
- Read measurement value from LCD screen .

⚠ When measure voltage, maximum input voltage is 600V (AC/DC), do not exceed this limitation, otherwise it may cause electric shock or damage to the meter.

figure 3.

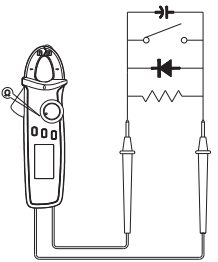


2. Resistance/circuit on-off/diode/capacitance

- Insert red meter test lead into red jack (positive terminal), black meter test leads into black jack (COM terminal)
- Connect meter pen in parallel to test piece for measurement (Figure 4)
- Read measurement value from LCD screen.

⚠ When measure resistance/on-off/capacitance/diode range, do not input voltage over DC 60V or AC 30V to avoid damage.

figure 4.



9. AC/DC current measurement (Figure 5, Figure 6)

1. AC

- Select AC range (2A ~, 20A ~, 100A ~)
- Open clamp head, hook electric wire (single wire), place electric wire on geometric center indicated by clamp head, make sure the left and right clamp heads are totally closed. There is no gap between the left and right clamp heads.
- Read measurement data from LCD.

2. DC

- Press SELECT key to enter DC range (2A=, 20A:, 100A:)
- Press ZERO key before measurement to make readings zero. If it does not return to zero after one press, then press it several times until the reading is zero. Note: as the product is highly sensitive, to ensure correct measurement data, direction of meter during measurement should be the same as when it is in zero as much as possible.
- Open clamp head, hook electric wire (single wire), place electric wire on geometric center indicated by clamp head, make sure the left and right clamp heads are totally closed. There is no gap between the left and right clamp heads.
- Read measurement data from LCD. When the reading is positive, it means current flows from positive end indicated by clamp head to the negative end. Negative reading is the opposite .

⚠ When measure current, unplug test lead to avoid electric shock.

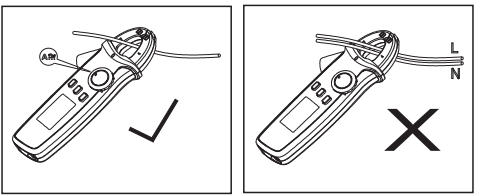


figure 5.

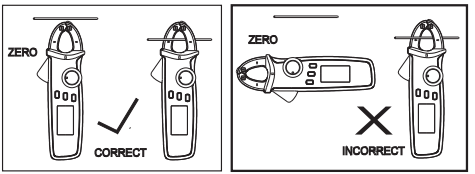


figure 6.

10. NCV non-contact electric field measurement (Figure 7)

If you want to measure whether there is AC voltage or electromagnetic field, place front end of clamp head 8~15mm close to the test piece, analog quantity of inductive AC voltage is about ≤ critical voltage 100V, display "EF", < critical voltage 100V, display"-", it has four"----" levels based on voltage size with different buzzing at each level, with NCV light flashing to discriminate electric field intensity .

⚠ When ranges switch NCV measurement, please unplug the test lead to avoid electric shock.

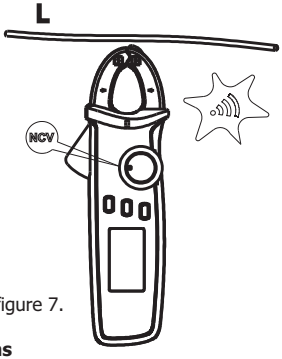


figure 7.

11. Other functions

- HOLD key for 2s to turn on or turn off LCD backlight function.
- Automatic power-off: when measuring, if the rotary button has not been moved for 15 minutes, the instrument will automatically power off to save energy. In automatic power-off mode, turn rotary button to OFF and restart the machine, or click any key to wake the instrument.
- Turn off automatic power-off function: press and hold SELECT key, then power-on start, you will hear 5 buzzing which means automatic power-off function is cancelled. Turn off and restart the machine, automatic power-off function will be recovered.
- The buzzer will send out 5 warnings 1 minute before automatic power-off. A long buzz will be heard before power off. When automatic power-off function is canceled, you will hear 5 continuous warnings every 15 minutes.
- Buzzer: press any key or rotate function switch, if such function key is valid, buzzer will "beep" once (lasting approx. 0.25s). In gear, when

the circuit-under-test is conductive (≤10Ω), buzzer makes sound continuously. When measure voltage or current outrange, buzzer will "Beep" to warn outrange, function status is as below:
a) When AC, DC voltage <600V, buzzer beeps
b) 100A AC and DC gear: current >maximum range, buzzer beeps.

- Low-voltage detect: when battery voltage is lower than 2.5V, battery under-voltage symbol if appears, measurement accuracy may be lower once this symbol shows, replace battery timely; if it is lower than 2.2V, only battery under-voltage symbol shows after starting up, it can't work.
- When battery supply voltage lowers to 2.6V, LCD backlight will be in weak or non-start state; but measurement functions still work.

12. Technical index

Accuracy: ±(a% reading+ b word count), warranty period is 1 year.
Environment temperature: 23°C ±5°C (73.4°F ±9°F) relative humidity ≤ 75%

1. DC Voltage Measurements

Range	Resolution	Accuracy
200.0mV	0.1mV	±(0.7%+5)
2.000V	1mV	±(0.7%+3)
20.00V	10mV	
200.0V	100mV	
600V	1V	

⚠ Input resistance is about 10MΩ. (as input resistance is high, when 200mV range open circuit, there may be instable digital display, but measurement can be stabilized once the measured source with internal resistance lower than 10MΩ is connected, but the impact of internal resistance of measured source on measurement reading should be considered)

⚠ Maximum input voltage: ±600V

2. AC voltage measurement

Range	Resolution	Accuracy
2.000V	1mV	± (1.0%+3)
20.00V	10mV	
200.0V	100mV	±(1.0%+3) V.F.C. mode:± (4.0%+3)
600V	1V	±(1.2%+3) V.F.C. mode:± (4.0%+3)

⚠ Input resistance: 10MΩ in average.
⚠ Maximum input voltage: 600V RMS

- Show true virtual value. Frequency response: 45~400Hz
- Accuracy guarantee range: 5-100% range, short circuit allows <10 residue readings.
- Non-sinusoidal wave counts add error by crest factor:
  When crest factor is 1~2: Add 3%.
  When crest factor is 2~2.5: Add 5%.
  When crest factor is 2.5-3: Add 7%.

3. Resistance measurement

Range	Resolution	Accuracy
200.00Ω*	0.1Ω	± (1.0%+2)
2.000kΩ	1Ω	
20.00kΩ	10Ω	
200.0kΩ	100Ω	
2.000MΩ	1kΩ	± (1.2%+3)
20.00MΩ	10kΩ	

⚠ Range: measured value=measurement display value-meter pen short circuit value - Open-circuit voltage is about 1V
Overload protection: 600V-RMS

4. •))) circuit on-off, ▶| diode measurement

Range	Resolution	Accuracy
•)))	0.1Ω	Resistance value for circuit disconnect:> 150Ω, buzzer makes no sound; Resistance value for circuit conduct: <1Ω on, buzzer beeps continuously.
▶|	1mV	Open circuit voltage is 3.2V: normal voltage for silicon PN junction is 0.5~0.8V.

⚠ Overload protection: 600V-RMS

5. Capacitance measurement

Range	Resolution	Accuracy
2nF	1pF	± (4%+10)
20.00nF~200.0μF	10pF~100nF	± (4%+5)
2.000mF~20.00mF	1μF~10μF	±10%

⚠ Overload protection: 600V-RMS. ≤1μF measured capacitance, it is suggested to use ZERO measurement mode to ensure accuracy.

6. DCA measurement

Range	Resolution	Accuracy
2.000A	1mA	± (2%+8)
20.00A	10mA	± (2%+3)
100.0A	100mA	± (2%+3)

⚠ Overload protection 100A

As external electromagnetic field such as the earth exists, to ensure accuracy of measurement reading, press ZERO key before measurement to make readings be zero. If it is not zero after one press, press it for several times until reading is zero. Direction of meter during measurement should be the same as when it is in zero as much as possible.

7 .ACA measurement

Range	Resolution	Accuracy
2.000A	1mA	±(3%+10) V.F.C mode: ± (4.0%+10)
20.00A	10mA	±(2. 5%+8) V.F.C mode: ± (4.0%+10)
100.0A	100mA	±(2.5%+5) V.F.C mode: ± (4.0%+10)

⚠ Overload protection 100A

- Accuracy warranty coverage: 5~100% range, 2A open circuit allows <20 residue readings.
- Displays are true valid value. Frequency response: 50~60Hz.
- Non-sinusoidal wave counts add error by crest factor:
  a) When crest factor is 1~2: Add 3%.
  b) When crest factor is 2~2.5: Add 5%.
  c) When crest factor is 2.5~3: Add 7%.

13. Maintenance and repair

⚠ Warning: before removing rear cover of the instrument, make sure power supply is off; meter leads are removed and circuit-under-test.

1. General maintenance and repair

- For maintenance and repair, use wet cloth and mild cleaner to clean instrument cover, do not use grinding agent or solvent.
- If the instrument is abnormal, stop use it and maintain.
- If it is necessary to verify or maintain the instrument, maintain it by qualified professional serviceman or designated maintenance department.

2. Replace battery (see Figure 8)

- When LCD displays under-voltage a prompt, replace built-in battery immediately otherwise it will affect measurement accuracy.
- Battery specification: AM 1.5V x 2cells

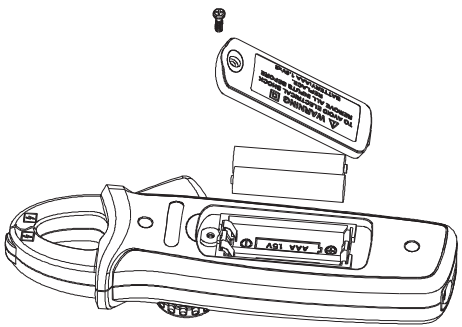


figure 8.

Operation procedure:

1. Place power switch on "off' position and remove meter pen from input jack.
2. Unscrew the screw fixed on the rear cover of battery by screwdriver, remove battery rear cover and take out old battery as shown in the figure.
3. Replace 2 pcs of new batteries (specification AM1 .5V)

This instruction manual is subject to change without further notice.

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