

# A3383

## 3 3/4 AUTO RANGE DIGITAL AC CLAMP MULTIMETER OPERATION MANUAL

This LCD Auto Range & Auto Power off Digital AC clamp multimeter is a portable, 3 3/4-digit multimeter. It is ideally suited for field, laboratory, shop and home applications.

### 1. SPECIFICATIONS

#### 1.1 GENERAL SPECIFICATIONS

- Display: 3 3/4 digit LCD with a max. reading of 3999.
- Range control: Auto range or manual range control.
- Polarity: Automatic negative polarity indication.
- Zero adjustment: Automatic.
- Over range indication: Only the "OL" or "-OL" display.
- Low battery: Display "BAT" sign.
- Auto Power Off: 30 minutes after stopping the switch or no push button, the meter automatically enter to power off mode. Push button or run switch, auto power off disable.
- Safety Standards: The meter is up to the standards of IEC1010 Double Insulation, Pollution, Degree 2, Over voltage Category III.
- Clamp opening size: 38mm.
- Operating Environment: Temperature 32~104°F(0~40°C), humidity < 80%RH.
- Storage Environment: Temperature -4~140°F(-20~60°C), humidity < 90%RH.
- Power supply: Type 3V battery # 3
- Dimension: 189(H)×55(W)×24(D)mm.
- Weight Approx:150g (including batteries).

#### 1.2 ELECTRICAL SPECIFICATIONS

- Accuracy are ±(% of reading +number in last digit) at 23±5°C < 75%RH.
- DC Voltage  
400mV, 4V, 40V, 400V: ±(0.5%+2)  
600V: ±(0.8%+2)
- Impedance: 10MΩ, More than 100MΩ on 400mV scale.
- AC Voltage  
400mV at 50 to 500Hz: ±(3.0%+5)  
4V, 40V, 400V at 50 to 500Hz: ±(1.0%+3)  
600V at 50 to 100Hz: ±(3.0%+5)
- Impedance: 10MΩ, More than 100MΩ on 400mV scale.
- AC Current

- 400A at 50 to 60Hz: ±(2.0%+5)
- 500A at 50 to 60Hz: ±(2.5%+5)
- Overload protection: 600Arms within 60 seconds.
- Resistance  
400Ω ±(1.2%+8)  
4KΩ, 40KΩ, 400KΩ, 4MΩ: ±(1.0%+2)  
40MΩ: ±(2.0%+3)
- Overload protection: 250V DC/250Vrms AC
- Capacitance  
40nF: ±(3.0%+10)  
400nF, 4uF, 40uF: ±(2.5%+5)  
100uF(15Sec): ±(5.0%+10)
- Overload protection: 250V DC/250Vrms AC
- Frequency  
4Hz, 40Hz, 400Hz, 4KHz, 40KHz, 400KHz,  
4MHz, 10MHz: ±(0.5%+4)
- Sensitivity: 0.6Vrms(10MHz: 1.5Vrms)
- Duty cycle: 0.1% ~ 99.9%
- Overload protection: 250V DC/250Vrms AC
- Temperature  
< 150°C: ±(3°C+1)  
> 150°C: ±(3%+1)
- Scale: -20°C ~ +80°C
- Probe: NiCr-NiSi probe
- Overload protection: 250V DC/250Vrms AC
- Diode Test  
Test current: 1.0±0.7mA  
Test voltage: Approx. 1.5V
- Overload protection: 250V DC/250Vrms AC
- Continuity Test  
Audible indication: less than 50Ω Approx.
- Test voltage: Approx. 0.5V
- Overload protection: 250V DC/250Vrms AC

### 2. OPERATION WARNING

- When measuring voltage ensure that instrument is not Switched to the current range, resistance range, diode and continuity range, capacitance range or temperature range.
- Use extreme care when measuring voltage above 50V, especially from sources where high energy is existed.
- Avoid making connections to "live" circuits whenever possible.
- Before making resistance measurements, diode or continuity test, capacitance test or temperature test, ensure that the circuit under test is de-energized.
- Always ensure that the correct function and range is selected.

- Extreme care should be taken when using the instrument to conjunction with a current transformer connected to the terminals if an open circuit occurs.
- Ensure that the test leads and probes are in good condition with no damage to the insulation.
- Take care not to exceed the over-load limits as given in the specifications.
- Before opening the cover of the battery cabinet to replace batteries, disconnect the test leads from any external circuit, set the selector switch to "OFF" position.
- Keep the fingers after the protection ring when measuring through the instrument lead.
- Check the battery by rotating switch.  
If the battery is weak, a "BAT" symbol will appear on the right of the display. It means that the battery should be replaced.
- Attached function
  - "F" key  
On the "Ω" range, Push the key to choose resistance, diode, continuity test or capacitance test.
  - "Rang" key  
Push the key to select manual mode, push it again to change the range, press the key for more than 2 seconds to go back auto range mode. But in Hz/Duty and Capacitance measurement, it can not select manual range mode.
  - "Hz/%" key  
In Hz range, push the key, you can measure the duty, push again, go back to Hz measurement. In voltage range, push it, you can measure Hz and duty, but the measurement range will be smaller, and the auto range mode will be changed to manual range mode.
  - "HOLD" key  
In any range, push the key, the present display value will be locked and the "DH" symbol will appear, push it again to exit HOLD and the "DH" symbol disappear.  
Press the key for more than 2 seconds to light the back light, press it for more than 2 seconds again to go out light.
- DC and AC Voltage measurement
  - Connect the black test lead to "COM" socket and red test lead to the "VΩHz" socket.
  - Set the selector switch to desired "DCmV", "DCV" or "ACV" position,
  - connect the probes across the source or load under measurement.
- AC Current measurement
  - Set selector switch to desired "ACA" position.

- 4) Open the clamp by pressing the jaw-opening handle and insert the cable (one cable only) to be measured into the jaw.

3) Close the clamp and get the reading from the LCD panel.

Note:

- a) Before this measurement, disconnect the test lead with the meter for safety.
- b) In same occasion that the reading is hard to read, push the "H/Ω" button and read the result later.

## 2.5 Resistance measurement

- 1) Connect the black test lead to "COM" socket and red test lead to the "VΩHz" socket.

- 2) Set the selector switch to desired "Ω" position, the present function is resistance measurement, if it is other function, push the "F." to select resistance measurement.

- 3) Connect the probes across circuit to be tested.

Caution: Ensure that the circuit to be tested is "dead".

Max. input over-load: 250V rms < 10sec

## 2.6 Capacitance measurement

- 1) Connect the black test lead to "COM" socket and red test lead to the "VΩHz" socket.

- 2) Set the selector switch to desired "Ω" position, push the "F." to choose capacitance test.

- 3) Connect the probes to the capacitance to be tested.

Caution:

- a) Capacitors should be discharged before being tested.
- b) This device adopts charging mode to measure capacitance, so when testing large capacitance, it will take longer time before the final indication, and the larger capacitor, the longer the time (F or 100uF range, it will take about 15 seconds).

- c) When testing smaller capacitance (40uF range), the measurement true value is the measurement display value minus the display value when not test.

Max. input over-load: 250V rms < 10sec

## 2.7 Frequency measurement

- 1) Connect the black test lead to "COM" socket and red test lead to the "VΩHz" socket.

- 2) Set the selector switch to desired "Hz" position.

- 2) Connect the probes to the point of measurement and read the frequency from the display.

- 3) Push "Hz/%", you can measure the duty. Press again, go back to frequency measurement.

Max. input over-load: 250V rms < 10sec

## 2.8 Diode and Continuity test

- 1) Connect the black test lead to "COM" socket and red test lead to the "VΩHz" socket.

- 2) Set the selector switch to "Ω" position.

- 3) Push the "F." to choose diode or continuity test.

- 4) IN diode test, connect the black and red test probe to the cathode(-) and anode(+) ends of diode to be tested reliably, read the forward voltage drop (junction) value from the display. If reverse connected the probes to diode, display shows over-load.

- 5) In continuity test, connect the probes across circuit to be tested, the beeper sounds continuously if the resistance is less than 50Ω. Caution: Ensure that the circuit to be tested is "dead".

Max. input over-load: 250V rms < 10sec

## 2.9 Temperature measurement

- 1) Connect the black test lead of the sensor to "COM" socket and the red test lead to the "VΩHz" socket.

- 2) Set the selector switch to "C" position.

- 3) Put the sensor probe into the temperature field under measurement. Max. input over-load: 250V rms < 10sec

## 2.10 Auto/Manual Range Control

The auto range mode is a convenient function, but it might be faster to manually set the range when you measure values that you know to be within a certain range.

To select manual range control, repeatedly press the "Range" until the display shows the desired range. The range steps upward as you press "Range". But when you press "Range" for more than 2 seconds, then it can go to auto range mode. In Hz/Duty and capacitance measurement, it can not select manual range mode.

Caution: While using the manual range control, if "OL" appears on the display and you hear an intermittent tone, immediately set RANGE to a higher range.

## 3. CARE AND MAINTENANCE

### 3.1 CARING FOR YOUR MULTIMETER

Your Digital Multimeter is an example of superior design and craftsman ship. The following suggestions will help you care for the multimeter so you can enjoy it for years.

- 1) Keep the multimeter dry. If it gets wet, wipe it dry immediately. Liquids can contain minerals that can corrode electronic circuits.

- 2) Use and store the multimeter only in normal temperature environments.

Temperature extremes can shorten the life of electronic devices, damage batteries and distort or melt plastic parts.

- 3) Handle the multimeter gently and carefully. Dropping it can damage the circuit boards and cause and can accuse the multimeter to work improperly.

- 4) Keep the multimeter away from dust and dirt, which can cause premature wear of parts.

- 5) Wipe the multimeter with a damp cloth occasionally to keep it looking new.

Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the multimeter.

- 6) Use only fresh batteries of the required size and type. Always remove old or weak batteries. They can leak chemicals that destroy electronic circuits.

### 3.2 Battery replacement

- 1) Ensure the instrument is not connected to any external circuit. Set the selector switch to "OFF" position and remove the test leads from the terminals.

- 2) Open the cover of the battery cabinet by a screwdriver.

- 3) Replace the old batteries with the same type batteries.

- 4) Close the battery cabinet cover and fasten the screw.

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