BM87 ENGLISH INSTRUCTION MANUAL

1. Introduction

The digital clamp meter is completely portable, 3 1/2 digits LCD display instrument for measuring AC current, DC and AC voltage, resistance, diode and for testing audible continuity. It is kind of ideal facility for measurement and monitor in electrician materials, electrical equipment and household electric appliances etc.

2. Safety Information

This clamp meter has been designed according to IEC1010 and UL3111-1.

Please read this manual carefully before using the meter.

2.1 Explanation of Symbols

⚠ Warning! Important safety information is found in the manual.

Caution: dangerous voltage, risk of electric shock.

Double insulation (protection class II)

2.2 Never exceed the protection limit values indicated in the specifications for each range of measurement.

2.3 Check the rotary switch and make sure it is at the correct position before measuring.

2.4 Before rotating the range selector to change functions, disconnect test leads from the circuit under test.

2.5 Never perform resistance measurements and continuity test on live circuits.

2.6 Exercise extreme caution when measuring live system with voltage above 60V dc or 30V ac rms.

2.7 Keep fingers behind the barriers while measuring current.

2.8 Never touch exposed wiring, connections or live circuit when attempting to take measurements.

2.9 Change the battery when the "  " symbol appears to avoid incorrect data.

3.Specification

3.1 General Specification:

3.1.1 Digital display: 3 1/2 digits LCD display with maximum reading 1999.

3.1.2 Jaw opening capability: 30mm.

3.1.3 Data hold function: When the HOLD button is pushed, the display will keep the last reading and "DH" symbol will appear on the LCD until pushing it again.

3.1.4 Polarity: "-" displayed for negative polarity.

3.1.5 Over-range indication: "1" figure only on the display.

3.1.5 Low battery indication: When the battery is under the proper operation range, "  " will appear on the display.

3.1.6 Operating temperature and humidity: 0°C～40°C，≤70%RH.

3.1.7 Storage temperature and humidity: -10°C～60°C，≤80%RH.

3.1.8 Power supply: 1.5V batteries size 7(AAA)*2

3.1.9 External dimensions: 165（L）×68（W）×28（H）mm

3.1.10 Weight: About 170g (including battery's weight)

3.2 Electrical Specification:

The accuracy specification is defined as ±…%reading ±…count.

At 23±5°C，≤70%RH.

Function	Range	Resolution	Accuracy	Overload protection
ACA	2000mA	1mA	±2%±10	40A
	20A	0.01A		40A
	200A	0.1A		800A
	600A	1A		800A
ACV	600V	1V	±1.2%±5	600V
DCV	600V	1V	±0.8%±5	600V
Ω	2000Ω	1Ω	±1.0%±5	250V
	Forward current: 0.8A. Reversed voltage: 2.6V.			250V
	Buzzer sounds at less than50Ω. Open circuit voltage: 2.6V, Test current: 1mA.			250V

DCV/ACV input impedance :10MΩ Frequency Range : 50～60Hz

4. Operating Instruction

4.1 Front Panel Description

(1) Transformer jaws: Pick up the AC current flowing through the conductor.

(2) Trigger: Press the lever to open the transformer. When the lever is released, the jaws will close again.

(3) Rotary switch: This switch is used to selected functions and desired ranges as well as to turn on/off the meter.

(4) Data-hold button: The user may hold the present reading and keep it on the display by pressing the "Hold" button. When the data is no longer needed, one may release the data-hold operation by press the "Hold" button again.

(5) LCD display

(6) "V/Ω" jack: This is positive input terminal for volt and ohms.

(7) "COM" jack: This is negative (ground) input terminal for all measurement modes except current.

4.2 AC Voltage Measurement

⚠ **WARNING!** Maximum Input Voltage is 600V AC/DC. Do not attempt to take any voltage measurement that may exceed to avoid electrical shock hazard or damage to this meter.

(1) Set the rotary switch at AC600V position. Connect the red test lead to "V/Ω" jack and the black test to

the “COM” jack.

(2) Connect test leads across the source or loading being measured and read voltage value on the LCD display.

4.3 DC Voltage Measurement

⚠ **WARNING!** Maximum Input Voltage is 600V AC/DC. Do not attempt to take any voltage measurement that may exceed to avoid electrical shock hazard or damage to this meter.

(1) Set the rotary switch at DC600V position. Connect the red test lead to “V/Ω” jack and the black test to the “COM” jack.

(2) Connect test leads across the source or loading being measured and read voltage value on the LCD display.

4.4 AC Current Measurement

⚠ **WARNING!** The input current should not exceed indicated values, it is to avoid electrical shock hazard or damage to this meter.

(1) Set the rotary switch at AC600A position.

(2) Press the trigger to open transformer jaw and clamp one conductor only, making sure that the jaw is firmly closed around the conductor. Read current value on LCD display.

(3) If current under test is smaller, the lower range has to be selected.

Note: a) Disconnect the test lead with the meter for safety before this measurement.

b) If two or more conductors are clamped, the meter will stop operating.

c) The accurate reading will be obtained by the conductor across center of the transformer jaws.

4.5 Resistance Measurement

⚠ **WARNING!** When checking in-circuit resistance, be sure the circuit under test has all power removed and all capacitors have been discharged fully.

(1) Set the rotary switch at 2000Ω position.

(2) Connect the red test lead to “V/Ω” jack and the black test to the “COM” jack.

(3) Connect test leads across the resistor to be measured and read LCD display.

(4) When at open circuit or over-range condition, “1” will be displayed.

4.6 Diode Measurement

(1) Set the rotary switch at  position. When the input is not connected, i.e. at open circuit, the figure “1” will be displayed.

(2) Connect the red test lead to “V/Ω” jack and the black test to the “COM” jack.(The polarity of red lead is positive “+”)

(3) If diode test mode is selected, connect the red and black leads to the anode and cathode of the diode, the forward voltage drop of this diode will be displayed in mV.

(4) The figure “1” will be displayed when the diode is reversed under test.

4.7 Continuity Test

(1) Set the rotary switch at  position. When the input is not connected, i.e. at open circuit, the figure “1” will be displayed.

(2) Connect the red test lead to “V/Ω” jack and the black test to the “COM” jack.

(3) Connect tip of the test leads to the points where the conduction needed. If the resistance is under 50Ω, the buzzer will sound continuously.

Note: The circuit to be tested must in power off status during the continuity check, because any load signals may sound the buzzer and mislead the result.

Ⅴ. Maintenance of meter

⚠ Warning! Switch off the power, the meter pens and any of input signals to prevent electric shock before opening the cover of meter or the cover of battery.

5. 1 When the meter displays the symbol of “  ”, the battery should be changed. Open the battery cover, and then change the used battery with two new 1.5V batteries size 7(AAA) to ensure the normal operation of the meter.

5. 2 Keep the meter and the pens clean, dry and non-destructive. Clean cloth or detergent may be used for cleaning the cover of the meter. No grinding agent or organic solvent can be used for the same cleaning purpose.

5.3 The meter should be protected against damage, vibration and impact. It shouldn’t be placed where high temperature or intense magnetic field exists.

5.4 Calibrating of the meter is done on a yearly basis.

Ⅵ. Accessories

6.1 A pair of test leads

6.2 One instruction manual