

Digital Clamp-on Multimeter MT87



Instruction Manual

The Meter is completely portable, LCD, 3½ digit clamp meter. It has rugged design, is easy to hold in operator's hand and convenient to use

1. Safety Information

- 1.1 Read the following safety information carefully before attempting to operate or service the meter.
- 1.2 To avoid damages to the instrument do not exceed the maximum limited of the input values show in the technical specification tables.
- 1.3 Never measure current while the test leads are inserted into the input jacks.
- 1.4 Do not use the meter or test lead if they look damaged, Use extreme caution when working around bare conductors or bus bars.
- 1.5 Caution when working with voltage above 600 VDC or 450 VAC rms. Such voltage pose a shock hazard.

2. Operating environments

AC Current	: 0.01 A...400 A
AC Voltage	: 1 V....450 V (AC)
DC Voltage	: 1 V....600 V (DC)

The meter display is a liquid crystal assembly providing a readably display in a light conditions. The decimal point is automatically positioned, and the polarity sign (minus) is lighted for negative DC measurement (plus is undertook if no sign spears.) so the the display is direct reading in units selected at the rotary switch. Over range measurements are indicated by blanking all but the MSD, decimal point and polarity sign (if negative). In addition the display included a low battery is indicated, Operator should replace the used battery with new one.

Environment / Temperature

Normal operation	: 18°C...28°C (64°F...82°F)
Usable condition	: 0°C...50°C (32°F...122°F)
Storage	: -20°C...60°C (-30°F...140°F) (Battery removed and <80%Rh)
Relative humidity	: maximum 80%

Function Characteristics

Measurement method	: Dual slope integration
Reading rated	: 3 reading /sec
Polarity	: Automatic, indicated minus, assumed pulse
Overload indication	: Blanking of all digits, except MSD, decimal point and sign
Power requirements	: AAA 1.5 V x 2
Battery indication	: Display indication LO BT when approximately 20% of battery life remains.
Display	: LCD, 3½ digit (1999 cont)
Data Hold	: All function and ranges with this feature
Dimension	: approximate L150 x W63 x H28 mm
Weight	: Approximate 145 g (Including battery)
Accessories	: Test lead + Manual + Battery AAA 1.5 x 2

3. Specifications Feature

The following specification assume a one year calibration cycle and operating temperature of 18°C...28°C (64°F...82°F) at relative humidity up to 80% unless otherwise noted.

3.1 AC current (Average sensing, Calibrated to rms of sine wave)

Rang	Resolution	Accuracy (50Hz – 60 Hz)
20 A	10 mA	±(3% of reading + 5 digits)
200 A	100 mA	±(2% of reading + 5 digits)
400 A	1 A	±(3% of reading + 5 digits)

Overload protection : 400 A on all ranges

3.2 AC Voltage (Average sensing, Calibrated to rms of sine wave)

Rang	Resolution	Accuracy (50Hz – 60 Hz)
450 V	1 V	±(1% of reading + 4 digits)

Input impedance : 9 MΩ, Overload protection : 450 VAC on all ranges

3.3 DC voltage

Rang	Resolution	Accuracy (50Hz – 60 Hz)
600 V	1 V	±(0.8% of reading + 1 digits)

Input impedance : 9 MΩ, Overload protection : 600 VDC/Peak on all ranges

3.4 Diode test $\rightarrow|+$

Test current : <1.2 mA

Open circuit voltage : ≤ 3.2 V

Overload protection : 300 VAC / VDC Peak

Application : Semiconductor P-N junction good or bad test

Display reading approximate diode forward, voltage value.

3.5 Continuity test : Buzzer sound : < 75 Ω

Overload protection : 300 VAC / VDC Peak

3.6 Resistant

Rang	Resolution	Accuracy (50Hz – 60 Hz)
2 KΩ	1 Ω	±(1.0% of reading + 1 digits)
200 KΩ	100 Ω	±(1.0% of reading + 1 digits)

4. Operation

4.1 AC Current Measurement

4.1.1 Make sure that "Data Hold" switch is not pressed

4.1.2 Set the rotary switch at position rang to 2, 20A, 200 A or 400 A

4.1.3 Press the trigger to open the transformer jaw and clamp one conductor only. It's impossible to make measurements when two or three conductors are clamped at the same time.

4.1.4 Read the display

4.2 AC/DC Voltage Measurement

4.2.1 Connect the black test wire to the COM jack and the red wire to the VΩ \leftarrow jack

4.2.2 Set the rotary switch at position rang to AC450 V or DC600 V

4.2.3 Touch the tips of the test leads to the circuit under test.

4.2.4 Read the display

4.3 Diode / Continuity Measurement

4.3.1 Connect the black test wire to the COM jack and the red wire to the VΩ \leftarrow jack

4.3.2 Set the rotary switch at position rang to " \bullet))) $\rightarrow|+$ "

4.3.3 Diode measurement the meter will show the approximate forward voltage of the diode. If the lead connection is reversed, only figure "1" displayed.

4.3.4 Continuity measurement. The beeper sounds below about 75 Ω

4.4 Resistant Measurement

4.4.1 Connect the black test wire to the COM jack and the red wire to the VΩ \leftarrow jack

4.4.2 Set the rotary switch at position rang to Ω position and test lead across the resistor under measurement.

Note :

- If the resistance being measured exceeds the maximum value of the rang selected or the input connected. An over range indication "1" will be display
- When checking in circuit resistant, be sure circuit under test has all removed and all capacitors have been fully discharged.

4.5 Data hold Measurement

All ranges can hold a reading on the display using Data hold function

4.5.1 while making measurement. Press the Data hold button switch, The last reading remains held on the display with a hold symbol show on the display.

4.5.2 Press the Data Hold switch again to exit from Data Hold function.

