HAND HELD DMM

MY SERIES

OPERATOR'S MANUAL

1. SAFETY INFORMATION

⚠ WARNING

To ensure safe operation, and in order to the full the functionality of the meter, please follow the directions in this section carefully.

This multimeter has been designed according to EN61010-1:2001 concerning electronic measuring instruments with an overvoltage category CAT II 600V and pollution 2. Follow all the instructions in the manual to ensure that the meter is used safely and kept in good operating condition. With proper use and care, the digital meter will give you years of satisfactory service.

This instrument is one of the series of compact pocket - sized 3 1/2 digit multimeters for measuring DC and AC voltage, DC and AC current resistance diode. measurement and audible continuity test.

Full range overload protection and low battery voltage indication are Provided. They are ideal instruments for use in fields, such as laboratory, workshop, hobby and home applications.

1.1 PRELIMINARY

1.1.1 When using the meter, the user must observe all normal safety rules concerned.

1.1.2 Protection against the dangers of electrical current.

1.1.3 Protection of the meter against misuse.

1.1.4 When the meter is delivered, check that it has not been damaged in transit.

1.1.5 When poor condition under harsh preservation or shipping conditions caused, inspect and confirm this meter without delay.

1.1.6 Test leads must be in good condition. Before using verify that the insulation on test leads is not damaged and/or the leads wire is not exposed.

1.1.7 Full compliance with safety standards can be guaranteed only if used with test leads supplied. If necessary, they must be replaced with the same model or same electric ratings.

1.2 DURING USE

1.2.1 Before using, you must select the right input jack, function and range.

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

1.2.3 When the meter is linked to a measurement circuit, do not touch unused terminals.

1.2.4 At the manual range, when the value scale to be measured is unknown beforehand, set the range selector at the highest position.

1.2.5 Do not measure voltage if the voltage on the terminals exceeds 600V above earth ground.

1.2.6 Always be careful when working with voltages above 60V DC or 30V AC rms. keep fingers behind the probe barriers while measuring.

1.2.7 Never connect the meter leads across a voltage source while the transform switch is in the current, resistance, diode, transistor or continuity mode.

1.2.8 Before rotating the transform switch to change functions and ranges, disconnect test leads from the circuit under test.

1.2.9 Never perform resistance, transistor, diode and continuity measurements on live circuits.

1.2.10 Never use the meter under the condition of the explosive air, steam or dirt.

1.2.11 If any faults or abnormalities are observed, the meter can not be used any more and it has to be checked out.

1.2.12 Never use the meter unless the rear case is in place and fastened fully.

1.2.13 Please do not store or use meter in areas exposed to direct sunlight, high temperature, humidity or condensation.

1.2.14 Indoor working temperature 23℃±1, Humidity: 45%-75%

1.2.15 Don't use the instrument in the environment which is in high humidity or air is not circulated. (For example, the basement, ice storage)

1.3 SYMBOLS

⚠ Important safety information, refer to the operating manual.

CAT Ⅱ Overvoltage (Installation) category Ⅱ ,Pollution Degree 2 per EN 61010-

1:2001 refers to the level of Impulse Withstand Voltage protection provided.

CE Conforms to European Union directive

Earth ground

Diode

DC (direct current)

AC (alternating current)

Dangerous voltage may be present.

Double insulation (Protection Class II)

* **Optional equipment**

Continuity buzzer

The battery is not sufficient for proper operation.

Separate collection for electrical and electronic equipment

hFE **Transistor test hole**

KHz: **Frequency Test**

Fuse

PTC Resettable Fuse

CAP **Capacitance Test**

1.4 MAINTENANCE

1.4.1 Please do not attempt to adjust or repair the meter by removing the rear case while voltage is being applied.
A technician who fully understands danger involved should only carry out such actions.

1.4.2 Before opening the battery cover or case of the meter, always disconnect test leads from all tested circuits.

1.4.3 To avoid the wrong reading causing electricity attack, when the meter displays "🔋", you must change the battery.

1.4.4 For continue protection against fire, replace fuse only with the specified voltage and current ratings: **Fuse 1: 10A/250V(quick acting), Fuse 2: 200mA/250V Resettable Fuse.**
(*MY60 Fuse 2: 2A/250V) (quick acting)

1.4.5 Do not use abrasives or solvents on the meter, use a damp cloth and mild detergent only.

1. Turn the meter OFF and remove the test leads.
2. Shake out any dirt that may be in the terminals.
3. Soak a new swab with isopropyl alcohol and work around the inside of each input terminal.
4. Use a new swab to apply a light coat of the machine oil to the inside of each terminal.

1.4.6 Always set the ON/OFF button to the OFF position when the meter is not in use.

1.4.7 If the meter is to be stored for a long period of time, the batteries should be removed to avoid damage.

2. FRONT PANEL DESCRIPTION

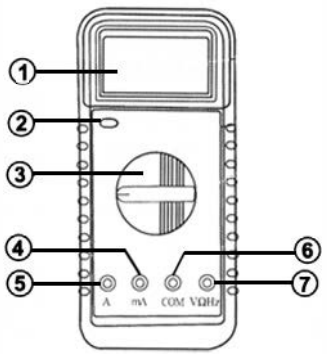
(1) DISPLAY

3 1/2 digit 7 segment, 20mm high LCD

(2) ON/OFF BUTTON

This Button is used to switch power to extend the life of the battery.

The button should be in the "OFF" state when the instrument is not in use.



(3) FUNCTION AND RANGE SWITCH

This switch is used to select the function and desired range as well as to turn on the instrument.

(4) (hFE. Temp. CAP.Jack)

Plug in connector with red (positive) test lead for current (expect 10A) measurement. **Multifunction Socket.**

(5) "10A" Jack

Plug in connector with red (positive) test lead for 10A measurement.

(6) "COM" Jack

Plug in connector with black (negative) test lead.

(7) "V/ Ω " Jack

Plug in connector with red (positive) test lead for all voltage and resistance measurements.

MY SERIES							
		MY60	MY61	MY62	MY63	MY64	
DCV	200mV	√	√	√	√	√	
	2V	√	√	√	√	√	
	20V	√	√	√	√	√	
	200V	√	√	√	√	√	
	600V	√	√	√	√	√	
ACV	2V	√			√		
	20V	√	√	√	√	√	
	200V	√	√	√	√	√	
	600V	√	√	√	√	√	
DCA	2mA	√	√	√			
	20mA	√	√	√	√	√	
	200mA	√	√	√	√	√	
	2A	√					
	10A	√	√	√	√	√	
ACA	2mA	√					
	20mA	√	√	√	√	√	
	200mA	√	√	√	√	√	
	2A	√					
	10A	√	√	√	√	√	
Resistance	200	√	√	√	√	√	
	2k	√	√	√	√	√	
	20k	√	√	√	√	√	
	200k	√	√	√	√	√	
	2M	√	√	√	√	√	
	20M	√	√	√	√	√	
CAP	20n		√				
	200n		√	√	√	√	
	2u		√	√	√	√	
	20u		√	√	√	√	
Transistor Test		√	√	√	√	√	
Diode Test		√	√	√	√	√	
Continuity Buzzer		√	√	√	√	√	
Freq Test					√	√	
Temp Test				√		√	

3. SPECIFICATIONS

Accuracy is specified for a period of year after calibration and at 18℃ to 28℃ (64°F to 82°F) with relative humidity to 75%.

3.1 GENERAL SPECIFICATIONS

- MAX. Volltage Between Terminals And Earth Ground: 600V DC or AC
- Fuse Protection: Fuse 1: 10A/250V Fuse 2: 200mA/250V
  (*MY60 Fuse 2: 2A/250V Φ 5 x 20mm)
  mA Terminal Fuse: 200mA/250 Resettable Fuse
  10A Terminal Fuse: Φ 5 x 20mm 10A/250V.(Fast)
- Operating Altitude: 2000 meters (7000ft.) maximum
- Display: 25mm LCD
- MAX. Show Value: 1999 (3 1/2)
- Polarity Indication: "-" indicates negative polarity.
- Overrange Indication: Display "1"
- Sampling Time: approx. 0.4 second
- Auto Power Off
- Unit showing: showing of function and electrical capacity.
- Low Bettery Indication: "🔋" displayed
- Power Supply: 9V 6F22
- Operating Temperature: 0℃ to 40℃ (32°F to 104°F)
- Storage Temperature: -10℃ to 50℃ (10°F to 122°F)
- Dimension: 189mm x 91mm x 32mm
- Weight: approx. 240g (including battery & holster)

3.2 ELECTRICAL SPECIFICATIONS

3.2.1 DC Voltage

Range	Accuracy	Resolution
200mV	± 0.5%, of rdg ± 2 digits	100uV
2V	± 0.8%, of rdg ± 2 digits	1mV
20V		10mV
200V		100mV
600V	± 1.0%, of rdg ± 2 digits	1V

Input Impedance: 10M ohm on all ranges. Overload Protection: 600V dc or peak ac on all ranges.

Overload Protection: 200V rms AC for 200mV range and 600V DC or AC for other ranges.

3.2.2 AC Voltage

Range	Accuracy	Resolution
2V	± 0.8%, of rdg ± 3 digits	1mV
20V		10mV
200V		100mV
600V	± 1.2%, of rdg + 3 digits	1V

Input Impedance: 10M ohm on all ranges.

Frequency Range: 40Hz to 1kHz

Overload Protection: 220V rms AC for 200mV range and 600V DC or AC for other ranges.

Indication: Average (rms of sine wave).

3.2.3 DC Current

Range	Accuracy	Resolution
2mA	± 1.2%, of rdg ± 2 digits	1uA
20mA		10uA
200mA	± 1.5%, of rdg ± 2 digits	0.1mA
2A		1mA
10A	± 2.0%, of rdg ± 5 digits	10mA

Overload Protection: **Fuse 1: 10A/250V (10Aup to 15seconds).**

Maximum input Current: **Fuse 2: 200mA/250V (Resettable fuse).**
(*MY60 Fuse 2: 2A/250V).

Measuring Voltage Drop: 200 mV.

3.2.4 AC Current

Range	Accuracy	Resolution
2mA	± 1.2%, of rdg ± 2 digits	1uA
20mA		10uA
200mA	± 1.8%, of rdg ± 2 digits	0.1mA
2A		1mA
10A	± 3.0%, of rdg ± 7 digits	10mA

Overload Protection: **Fuse 1: 10A/250V (10Aup to 15seconds).**

Indication: Average (rms of sine wave).

Maximum Input Current: **Fuse 2: 200mA/250V (Resettable fuse).**
(*MY60 Fuse 2: 2A/250V).

Measuring Voltage Drop: 200mV

Frequency Range: 40Hz to 1kHz

3.2.5 Resistance

Range	Accuracy	Resolution
200 ohm	± 0.8%, of rdg ± 2 digits	0.1 ohm
2K ohm		1 ohm
20K ohm		10 ohm
200K ohm		100 ohm
2M ohm	± 1.2%, of rdg ± 2 digits	1K ohm
20M ohm	± 1.8%, of rdg ± 2 digits	10K ohm

Overload Protection: 220V dc/ac rms on all ranges.
Open Circuit Voltage: Less than 750 mv.

3.2.6 Diode and Audible Continuity Test

Range	Description	Test Condition
2K →|←	Display read approximate forward voltage of diode	Forward DC current approximately 1mA. Reversed DC voltage approximate 2.8 Volts.
·))) 200ohm	Built-in buzzer sounds if resistance is less than approximate 50 Ω	Open Circuit Voltage approximate 2.8 Volts.

Overload Protection: Sounds alarm (220V dc/ac rms)

*3.2.7 FREQUENCY

Range	ACCURACY	TEST CURRENT
20kHz	± (1.5%, of rdg + 5 digits)	**10Hz**

semsitirity: 200mV rms and input no more 10V rms

3.2.8 Transistor hFE Test

Range	Description	Test Condition
hFE	Display read approximate hFE value (1-1000) of transistor under test (ALL TYPE)	Base Current approx 10uA VCE approximately 2.8 Volts.

*3.2.9 CAPACITANGE

Range	Accuracy	Resolution
20nF	± 4 %, of rdg ± 5 digits	**10pF**
200nF		**0.1nF**
2u		**1nF**
20u		**10nF**

*3.2.10 TEMPERATURE

Range	Accuracy			Resolution
-20℃ to 1000℃	-20℃ to 0℃	0℃ to 400℃	400℃ to 1000℃	1℃
	±5.0% of rdg ± 4digits	± 1% of rdg ± 3digits	± 2% of rdg	

4. OPERATING INSTRUCTION

4.1 PREPARATION FOR MEASUREMENT

Check the 9-volt battery by setting the ON-OFF switch to ON. If the battery is weak, a "🔋" sign will appear on the left of the display.

If this does not appear on the display, proceed as below. See MAINTENANCE if the battery has to be replaced.

The "⚠" besides the input jack shows that the input voltage or current should be less than specification on the sticker of the meter to protect the inner circuit from damaging.

Select a function and a range for the item to be measured through rotating the switch accordingly. When the value scale to be measured is unknown beforehand, set the switch at the highest position.

When connection, first connect to the public testing line, then to the electrifeious testing line. When you'll remove it, you should remove the electriferous one.

4.2 MEASURING DC VOLTAGE

⚠ WARNING

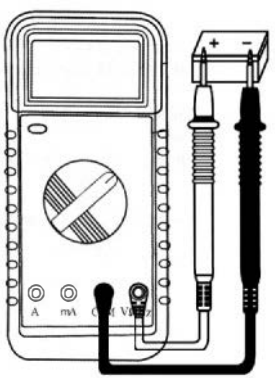
You can't input the voltage which more than 600V DC, It's possible to show higher voltage, but it may destroy the inner circuit.
Pay attention not to get an electric shock when measuring high voltage.

(1) Connect red test lead to "VΩ ", Black lead to "COM" jack.

(2) Put down the "ON/OFF BUTTON" Set RANGE switch to desired DCV position. If the voltage to be measured is not known beforehand, set switch to the highest range and reduce it until satis- factory reading is obtained.

(3) Connect test leads to device or circuit being measured.

(4) Turn on power of the device or circuit being measured, voltage value will appear on Digital Display along with the voltage polarity.



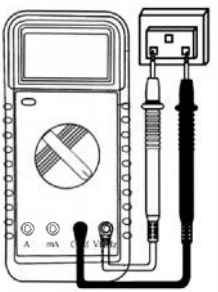
NOTE:

- At the little voltage range, the meter will show unsteady reading when test leads do not touch the circuit, it's normal because the meter is very sensitivity. When test leads touch the circuit, you can get the true reading.
- When only the figure "1" is displayed, it indicates overrange situation and the higher range has to be selectred.
- When the value scale to be measured is unknown beforehand, set the range switch at the highest position.
- When the voltage measured is above 600V,the buzzer is working,it means that the value tested is over-range,it's better not to measure voltage of large value.

4.3 MEASURING AC VOLTAGE

⚠ WARNING

You can't input the voltage which more than 600V rms AC, it's possible to show higher voltage, but it's may destroy the inner circuit.
Pay attention not to get an electric shock when measuring voltage.



(1) Red lead to "VΩ", Black lead to "COM" jack.

(2) Put down the "ON/OFF BUTTON" RANGE switch to desired ACV position.

(3) Connect test leads to device or circuit being tested.

(4) Read voltage value on Digital Display.

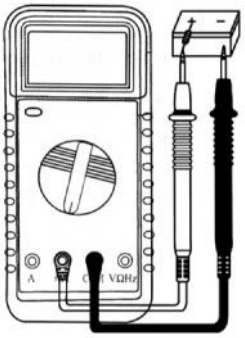
NOTE:

- At the little voltage range, the meter will show unsteady reading when test lead haven't reach the circuit, it's normal because the meter is very sensitivity. When test leads touch the circuit, you can get the true reading.
- When only the figure "1" is displayed, it indicates overrange situation and the higher range has to be selectred.
- When the value scale to be measured is unknown beforehand, set the range switch at the highest position.
- When the voltage measured is above 600V,the buzzer is working,it means that the value tested is over-range,it's better not to measure voltage of large value.

4.4 MEASURING DC CURRENT

⚠ WARNING

Shut down the power of the tested circuit, then connect the meter with the circuit for measurement.



(1) Red lead to "mA". Black lead to "COM". (For measurements 10A connect red lead to "10A" jack with fully depressed.)

(2) Put down the "ON/OFF BUTTON" RANGE switch to desired DCA position.

(3) Open the circuit to be measured, and connect test leads IN SERIES with the load in which current is to be measured.

(4) Read current value on Digital Display.

NOTE:

- When only the figure "1" is displayed, it indicates overrange situation and the higher range has to be selectred.
- When the value scale to be measured is unknown beforehand, set the range switch at the highest position.
- 10A's maximum current is 10A.
- When testing in "10A" range, measuring no more than 10 seconds each time. After first time test, do wait for 15 minutes. Until the temperature drops (the LCD display 0), then you can begin another current test.

4.5 MEASURING AC CURRENT

⚠ WARNING

Shut down the power of the tested circuit, then connect the meter with the circuit for measurement.

(1) Red lead to "mA", Black lead to "COM". (For measurements 10A connect red lead to "10A" jack with fully depressed.)

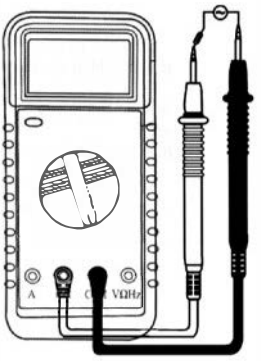
(2) Put down the "ON/OFF BUTTON", RANGE switch to desired ACA position.

(3) Open the circuit to be measured, and connect test leads IN SERIES with the load in which current is to be measured.

(4) Read current value on Digital Display.

NOTE:

- When only the figure "1" is displayed, it indicates overrange situation and the higher range has to be selectred.
- When the value scale to be measured is unknown beforehand, set the range switch at the highest position.
- 10A's maximum current is 10A.
- When testing in "10A" range, measuring no more than 10 seconds each time.After first time test, do wait for 15 minutes. Until the temperature drops (the LCD display 0), then you can begin another current test.



4.6 MEASURING RESISTANCE

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

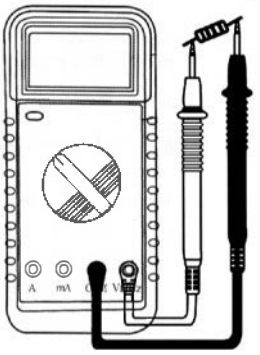
(1) Red lead to "VΩ", Black lead to "COM" jack.

(2) Put down the "ON/OFF BUTTON" RANGE switch to desired OHM position.

(3) If the resistance being measured is connected to a circuit, turn off power and discharge all capacitors before measurement.

(4) Connect test leads to circuit being measured..

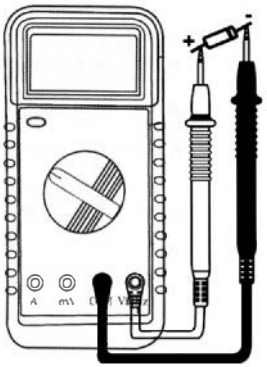
(5) Read resistance value on Digital Display.



NOTE:

- When only the figure "1" is displayed, it indicates overrange situation and the higher range has to be selectred.
- When the input is not connected, i.e. at open circuit, the figure "1" will be displayed for the overrange condition.

4.7 DIODE MEASURING



(1) Red lead to "VΩ", Black lead to "COM".

(2) Put down the "ON/OFF BUTTON" Set RANGE switch to ⊣◀ position.

(3) Connect the red test lead to the anode of the diode to be measured and black test lead to cathode.

(4) The forward voltage drop in mV will be dislayed. If the diode is reversed, figure "1" will be shown.

4.8 TESTING CONTINUITY BUZZER

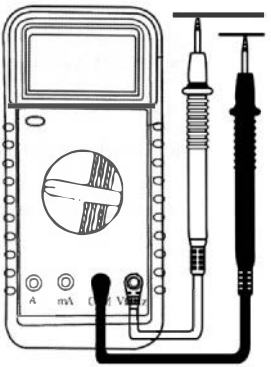
> **⚠ WARNING**
>
> **When testing the circuit continuity, be sure that the power of the circuit has been shut down and all capacitors have been discharged fully.**

(1) Connect the black test lead to the COM jack and the red test lead to the "VΩ" jack.

(2) Put down the "ON/OFF BUTTON". Set the transtorm switch at the "•))" range position.

(3) Connect test leads across two points of the circuit under testing.

(4) If continuity exists (i.e., resistance less than about 50 Ω), built-in buzzer will sound.



NOTE:

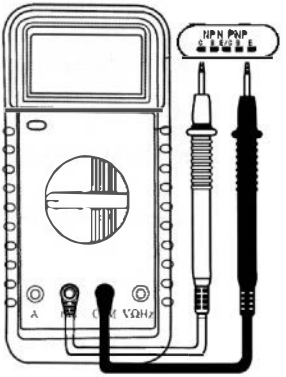
- If the inut open circuit (or the circuit resistance measured is higher than 2000Ω) then the figure "1" will be displayed.

4.9 TESTING TRANSISTOR

(1) Set the transform switch at range position.

(2) Connect the Black test lead to "COM" jack and transistor "COM" jack. The Red test lead to "mA" jack.

(3) Identify whether the transistor is NPN or PNP type and insert emitter base and collector leads into the proper holes of the transistor on the multifunction test socket for testing.



NOTE:

Do not put the plug into the wrong jack.

*4.10 MEASURING FREQUENCY

(1) Set the rotary switch at 20kHz

(2) Red lead to "VΩ", Black lead to "COM"jack.

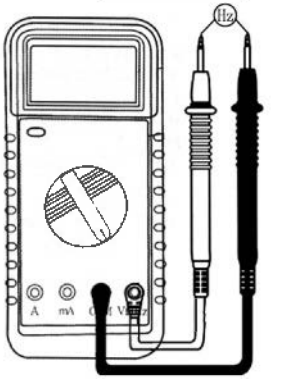
(3) Cnnect test leads to circuit being measured

(4) Read resistance value on Dgital Dsplay

NOTE:

Reading is possible at input voltages above 10Vrms, but the accuracy is not guaranteed

In noisy environment, it is preferable to use shield cable for measuring small signal



*4.11 MEASURING CAPACITANCE

(1) Set the rotary switch at "F" position

(2) Connect the Black test lead to "COM" jack and multifunctional Measuring "COM" jack, and t he Red test lead to "mA" jack

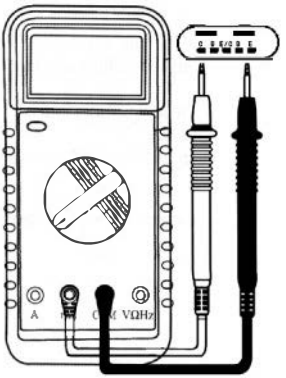
(3) Before inserting capacitor under measurement into the multifunctional "CX" jack, be sure that the capacitor has been discharged fully

(4) Read LCD display

NOTE:

Din' t insert the plug wrong jack

Set the rotary switch at the highest position when the capacity was unknown



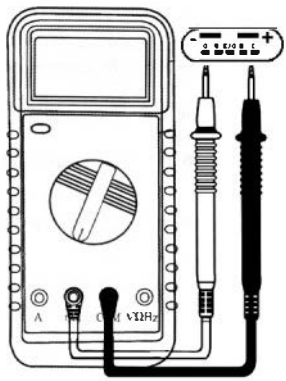
*4.12 MEASURING TEMPERATURE

(1) Set the rotary switch at "TEMP" position and the LCD display will Show the normal environment temperature

(2) Connect the Black test lead to "COM" jack and multifunctional measuring "COM" jack, and t he Red test lead to "mA" jack

(3) Insert "K" type theromcouple into the multifunctionde measuring "K" jack and contact the object to be measured with the thermocouple probe

(4) Read LCD display



NOTE:

Don' t insert the plug into wrong jack

Don' t insert the wrong place of thermocouple' s anode and cathode

5. MAINTENANCE

5.1 BATTERY REPLACEMENT

⚠ WARNING

Before attempting to open the battery cover of the meter, be sure that test leads have been disconnected from measurement circuit to avoid electric shock hazard.

(1) If the sign "🔋" appears on the LCD display, it indicates that the battery should be replaced.

(2) Loosen the screw fixing the battery cover and remove it.

(3) Replace the exhausted battery with a new one.

(4) Put the battery cover as its origin.

CAUTION:

- Risk of explosion if battery is replaced by an incorrect type Replace only with the same orequivalent type.
- Rep l ace of used batties according to the relevant regulation

5.2 FUSE REPLACEMENT

⚠ WARNING

Before attempting to open the battery cover of the meter, be sure that test leads have been disconnected from measurement circuit to avoid electric shock hazard.

For protection against fire, replace fuses only with specified ratings:

Fuse 1: 10A /250V(quick acting). Fuse 2: 200mA/250V (Resettable fuse) (*MY60 Fuse 2 : 2A/250V)

(1) Fuse seldom need replacement and blow almost always as a result of the operator's error.

(2) Loosen the fixing screw of the case and remove it.

(3) Replace the blown fuse with ratings specified.

(4) Put the case as its origin.

NOTE: In order to prevent damage and hurt, it can only be installed or replace the fuse with designated amperes and voltage.

5.3 TEST LEADS REPLACEMENT

⚠ WARNING

Full in compliance with safety standards can be guaranteed only if used with test leads supplied. If necessary, they must be replaced with the same model or same electric ratings. Electric ratings of the test leads:1000V 10A.

You must be replaced the test leads if the lead is exposed.

6.OVER-RANGE INDICATION

Range	Accuracy	Resolution
DC 600V	± 5%+5digits	1V
AC 600V	± 5%+1digit	1V

NOTE:

During the above range, when the LCD displays"1", it indicates over-range.

7.ACCESSORIES

(1) Test Leads: Electric Ratings1000V 10A	one set
(2) Battery: 9V 6F22	one piece
(3) Operating Manual	one piece
(4) Multifunction socket	one piece
*(5) "K" type thermocouple HYTP-105	one piece
(6) holster	one piece