

MULTITESTER

YF-250



YU PING

OPERATOR'S MANUAL

1. 50K Ω /V taut band type with high sensitivity meter.
2. 52 measurement ranges for widely test.
3. Battery test function for 1.5V, 1.55V & 9V.
4. Internal buzzer for continuity test.
5. Overload protection by diode & fuse.
6. Multifunction measurement by AC/DC 10A & h_{FE} installation.



Test Ranges:

Function	Test ranges				Error	Remark
DCV	±0-0.125, 0.5, 1.25, 5, 25, 125, 500V				In ±3% (F.S.)	Inner resistance 50 KΩ/V
	±0-0.25, 1, 25, 10, 50, 250, 1000V					Inner resistance 25KΩ/V
ACV	0-5, 25, 125, 500V				In ±4% (F.S.)	Inner resistance 10KΩ/V
	0-10, 50, 250, 1000V					Inner resistance 5KΩ/V
DCA	±0-0.025 (25μA), 2.5, 25, 250mA, 5A				In ±3% (F.S.)	Drop voltage 236mV
	±0-0.05 (50μA), 5, 50, 500mA, 10A					118mV
ACA	0-5, 10A				In ±4% (F.S.)	
Resistance (Ω)	Ranges	Min. scale	Mid. scale	Max. scale	In ±3% (F.S.)	
	×1	12Ω	10Ω	2KΩ		
	×10	2Ω	100Ω	20KΩ		
	×1K	200Ω	10KΩ	2MΩ		
	×10K	2KΩ	100KΩ	20MΩ		
Battery	1.5V				± 8%	Load current 150mA
	1.55V					Load current 2.5mA
	9V					Load current 10mA
Conductance test						Beeper
hFE	0-1000					
Volumn unit (db)	-20 ~ +31db, -10 ~ 62db					All 8 ranges

- II. 1. Service humidity & temperature:
0°C – 40°C (32°F – 102°F) under 80% RH.
2. Battery: UM-3 1.5V 1pc, 006P 9V 1pc.
3. Fuse: 0.5A fast blow type (5 ϕ x 20mm) 1pc.
4. Size & weight: 172 x 118 x 50mm, 470g approx.
5. Accessories: test lead, instruction manual, spare fuse, and transistor test lead.

III. OPERATION:

1. Preliminary

- a) Please read thorough this manual, and keep it for future performance reference.

b) Zero Adjustment

Before making measurement, adjust the zero adjuster to "0" on the transparent cover and turn the pointer to the "0" line of the scale left.

c) Replacement battery & fuse

When the resistance range $\times 10K\Omega$ is unable to zero, it means the power of 006P 9V battery is consumed and replace new one. And the resistance range $\times 1$ is the same condition for battery 1.5V UM-3.

The defected fuse should be replaced by a fast blow type fuse with specification 0.5A and below 1 Ω inner resistance.

d) Test lead connection

Plug the red lead into the "+" jack and the black lead into the "-COM" jack.

e) OFF range

This range has damping function to protect the meter movement. After measuring, the range selection should be set to the "OFF" position.

f) Method of measurement

It is best to test from top range and work down, if the approximate value of the desired circuit is unknown.

g) Slide switch using

i) Put the slide switch to the V.A position, its measurement resistance should be DC $25\text{K}\Omega/\text{V}$, AC $5\text{K}\Omega/\text{V}$ and then to read the correct figure from proper range.

ii) When the slide switch is put to the V-A/2 position, the measurement resistance will raise up to $50\text{K}\Omega$ per voltage, and ACV measurement resistance will be $10\text{K}\Omega$ per voltage. But do note that the correct reading should be half as the scale reading. For example, when the range switch set on the AC250V position, and its scale reading is 210V, then the correct reading should be $210\text{V} \times \frac{1}{2} = 105\text{V}$.

* If a switch qualifies the above V-A function will be only suitable for ranges DCV, ACV, DCmA, DC 10A, AC 10A.

2. DCV (under 250V) measurement

- 1) Set the range switch to the correct DCV position, and slide switch to the V.A. Ω position.
- 2) Plug the red lead into the "+" jack and the black lead into the "-COM" jack.

- 3) Connect the two long ends of test leads to the desired test-load or power supply in parallel.
 - 4) Read the figure on DCV. A scale.
3. DCV (DC 1000V) measurement
- 1) Set the range switch to the range DCV 250 & 1KV and slide switch to the V.A. Ω position.
 - 2) Plug the short end of red lead into the DC 1KV + jack, and black one into the “-COM” jack.
 - 3) Connect the two long ends of test leads to the desired over-load or power supply in series.
 - 4) Read the figure on DCV. A scale.
4. ACV measurement
- 1) Set the range switch to the proper ACV position, and slide switch to the V.A. Ω position.
 - 2) Plug the two short ends of lead into the “+” and “-COM” jacks: the two long ends connect to the desired circuit in parallel.
 - 3) Read the correct figure on ACV. A scale.
*The AC voltage has two scales. The red AC 10V scale is only suitable for AC 10V range; and the black ACV. A scale is for the rest ranges.
(same as DCV. A scale)
5. DC current (DC mA) measurement
- 1) Set the range switch to the proper DCmA position, and slide switch to the V.A. Ω position.
 - 2) Plug the short end of red lead into the “+” jack and the black one into the “-COM” jack.
 - 3) Connect the two long ends of test lead to the desired circuit in series.
 - 4) Read the figure on DCV. A scale.

6. DC 10A measurement

- 1) Set the range switch to the range 250 & 10A position and slide switch to the V.A. Ω position.
- 2) Plug the short end of the red lead into the "10A+" jack, and the black one into the "-COM" jack.
- 3) Connect the two long ends of test lead to the desired circuit in series.
- 4) Read the figure on DCV. A scale.

7. AC 10A measurement

- 1) Set the range switch to the range AC 10A position, and the slide switch to the V.A. Ω position.
- 2) Plug the two short ends of test leads into the "10A+" and "-COM" jacks.
- 3) Connect the two long ends of test lead to the desired circuit in series.
- 4) Read the figure on ACV. A scale.

8. According to the performance method of above mentioned ranges DCV, ACV, DCmA, DC10A & AC10A to set the slide switch at V-A/2 position, thus will enlarge the measurement ranges and resolution. But the measurement power can not over input its half value of original ranges, also the correct measurement figure should be half of its original figure.

9. Battery measurement: 9V, 1.5V, 1.55V

- 1) Put the range switch to the "BATT TEST" position, and slide switch to the V.A. Ω position.
- 2) Plug the red lead into "+" jack, the black lead into "-COM" jack.

- 3) Connect the red lead to the positive end, the black lead to the negative end.
- 4) Read the figure of BATT 9V, 1.5V, 1.55V on scale. If the indication signs on "GOOD" and turns to right side, it means the battery with full power; contrarily, the "BAD" means poor power.

10. Buzzer Cont. measurement

- 1) Put the range switch to "CONT" position.
- 2) Plug the two short ends of lead into the "-COM" and "+" jacks.
- 3) Connect the two long ends of lead to the desired circuit.
- 4) When the buzzer sounds, it means the circuit under continuity. The smaller buzz is, the larger resistance exists on the circuit.

*NOTE: Making continuity measurement, it is necessary to cut off the power supply of desire circuit and parts, and be sure all capacitors are fully discharged.

11. Resistance (Ω) measurement

- 1) Set the range switch to the correct position, and slide switch to the V.A. Ω position.
- 2) Plug the short ends of lead into the "-" and "+" jacks.
- 3) Zero adjustment
Touch the test probes together and adjust the OHM ADJUST control to bring the pointer

to the "0" on the right side of the OHM scale. The pointer cannot be adjusted to "0" position, please check whether the battery UM-3 1.5V and 006P 9V are exhausted or not. (UM-3 1.5V is to ranges $\times 1$, $\times 10$, $\times 1K$; 006P 9V is to range $\times 10K$).

- 4) When checking "in-circuit" resistance, be sure the circuit under test has all power removed, and all capacitors are fully discharged.
- 5) Connect the test probe's tips to the parts or circuits under test. Do not touch two ends of the objects to avoid causing the difference of testing figure.
- 6) Read the resistance on the OHM scale, and use the proper multiplier to obtain the correct value.

12. Transistor h_{FE} measurement

1) PNP transistor

- a) Set the range switch to the $\times 10$ (h_{FE}) range, and slide switch to the V.A. Ω position.
- b) Plug the red transistor clip into the "+(P)" jack, the black clip into the "-COM(N)" jack.
- c) Connect the red clip on the "+(P)" jack to transistor's collector and black to base.
- d) Connect the black clip on the "-COM(N)" jack to emitter.
- e) Read the correct figure on the h_{FE} scale.

2) NPN transistor

- a) Set the range switch to the $\times 10$ (h_{FE}) range, and slide switch to the V.A. Ω position.

- b) Plug the red transistor clip into the “-COM (N)” jack, the black clip into the “+(P)” jack.
- c) Connect the red clip on the “-COM(N)” jack to transistor’s collector and black to base.
- d) Connect the black clip on the “+(P)” jack to emitter.
- e) Read the correct figure on the h_{FE} scale.

13. Decibel measurement

- 1) The measuring way of db is the same as AC Voltage. The real db value is to read from the db scale.
- 2) While a range selector setting at ACV 10V position, read the db value directly. For other ranges, it should add the indicating number of db to the revised value, reading as notes on the following chart.

AC voltage		10	50	250	1,000
Add dB	V-A/ 2	0	14	28	40
	V.A. Ω	6	20	34	46

14. Prevention of poor usage

- 1) Before measurement, be sure the ranges selection and test leads connection are correct. If the test field is unknown, it is best to start from the top and work down.
- 2) Only the user qualifies with electricity background

may measure the high voltage. Also avoid touching the power source with body, or any electric shock caused by poor insulation of objects when measuring.

- 3) Take off the test leads with hand holding the short end instrument of drawing out directly.
- 4) The defective fuse should be replace by specification 0.5A (5 ϕ x 20mm) and input impedance under 1 fast blow type. Be sure not to replace with different substitute to protect meter from damage.

15. Maintenance

- 1) Multitester is of precise instrument and should be kept from collision and vibration. When the unit is not in the usage of open test, set the range selector to "OFF" position, in order to avoid extra power consumption or damage on meter.
- 2) When not in the usage for long time, take out the battery to avoid the leakage of liquid damaging the meter.
- 3) Do not put the instrument under high humidity & temperature circumstance and far away from strong magnetic field to avoid any harmful influence.

