UNI-T®

UT81A/B

Operating Manual

Scope Digital

Multimeter

P/N:110401104496X

The Meter Structure

The Figure 2-1 shows the Meter structure.

1. USB Terminals
2. LCD Display
3. Functional Buttons
4. Rotary Switch
5. Power adaptor Input Terminals
6. 10A Input Terminal
7. mAμA Input Terminals
8. COM Input Terminal
9. Other Input Terminals

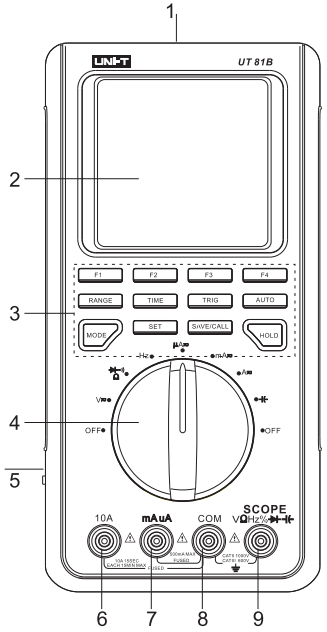

Figure 2-1. Meter Structure

Functional Buttons

The buttons activate features that augment the function selected with the rotary switch. The buttons are shown in Table 2-2.

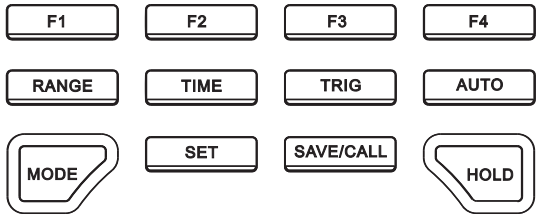

Figure 2-2. Functional Buttons

Table 2-2. Functional Buttons

Buttons	**Description**
F1, F2, F3 and F4	Software functional buttons, details please refer to the below.
Range	Under scope mode, Press **Range** button to switch between DC and AC measurement
Time	Under scope mode, press **Time** button to set the X-axis of time base.
Trig	Under scope mode, press **Trig** button to change the trigger mode.
Auto	In multimeter mode: Press **Auto** button to enter autoranging mode when measuring resistance, voltage and current. This button is invalid when measuring capacitance, diode, continuity buzzer and capacitance. In scope mode: Press **Auto** button to set the amplitude and time base to auto.

Table 2-2. Functional Buttons

Buttons	**Description**
Mode	To switch between waveform display (scope mode) and digital reading (multimeter mode). This button is only valid when under voltage, frequency, currents mode.
Set	Press **Set** button to set the auto power off, backlight, contrast and beep
Save/Call	Under scope mode, press **Save/Cal** to store and recall data.
Hold	Press **Hold** button to enter or exit hold mode.

Chapter 3
Making Measurement

Introduction
Chapter 3 explains how to make measurements.

You could turn the Meter off by turning to **OFF** position or set up the sleep mode from 1-30 minutes. Please must ensure the Meter is not under sleep mode if you turn the Meter on but without display.

To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery as soon as the battery indicator " " appears.

A. Scope Mode

- The LCD top right part display: RUN, HLD, REV
- The LCD top right corner has battery icon to indicate when the battery is lower than 5V.
- Under scope mode, both reading and waveform will be displayed.

i. Setting up Sleep Mode, Contrast, Beep

Based on the working environment to set up sleep mode, contrast, beep
Press **Set** button to set the auto power off, display backlight, contrast and beep

Auto off	**Bk Light**	**Contrast**	**Beep**
F1	F2	F3	F4

F1: Set auto power off time

Auto off	▲	**15**	▼	**ENTER**
F1	F2		F3	F4

The time level is from OFF, 1 to 30 minutes. Press F4 to confirm, save and return. Press functional button to exit and the setting remains unchanged.

F2: Set the Display Backlight

BK Light	▲	15	▼	ENTER
F1	F2		F3	F4

The brightness level from 0 to 31. Press F4 to confirm, save and return. Press functional buttons to exit, the setting is kept, but will not save. The setting will be lost after power off.

F3: Set the LCD contrast

Contrast	▲	15	▼	ENTER
F1	F2		F3	F4

The contrast level from 0 to 31. Press F4 to confirm, save and return. Press functional buttons to exit, the setting is kept, but will not save. The setting will be lost after power off.

F4: Set the beeps features, it can only be used under resistance, diode and continuity measurement.

Beep	ON	OFF	ENTER
F1	F2	F3	F4

F2 : to turn the beep on
F3 : to turn the beep off
F4 : to confirm , save and return

Press functional buttons to exit, the setting is kept, but will not save. The setting will be lost after power off.

ii. ACV, DCV, Hz, ACA and DCA range

Turn the rotary switch to ACV, DCV, Hz, ACA or DCA range, the Meter displays digital reading (Multimeter mode). Press Mode to switch to waveform display (scope mode) as below Figure 4. When entering scope mode, time base is auto trace, the amplitude is manual set, you may need to re-set them. You could set the trigger level as well if it is needed. Details of measurement operation of ACV, DC, Hz, ACA or DCA can be seen from B. Digital Multimeter Mode:

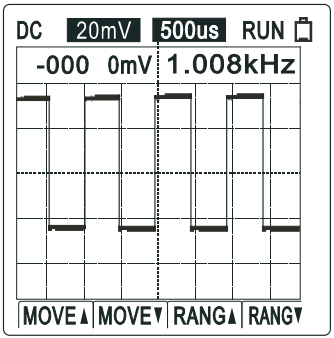

Figure 3-1. Waveform Display

- Press **Range** to switch between DC and AC measurement.
- When the frequency and amplitude of a waveform is unknown, press **Auto** :
  - When the amplitude is set to auto, the amplitude indicator will be shown white text in black background. When the amplitude is set to manual, the amplitude indicator will be shown black text in white background.
  - When the time base is set to auto, the time base indicator will be shown white text in black background. When the time base is set to manual trace, the time base indicator will be shown black text in white background.
  - When the time base is between 20ms - 100ns, it is possible to set the auto. When the time base is between 50ms - 5s, the auto feature will be in valid.

- Y-axis adjustment: Press **Range** button under scope mode, the corresponding functional button:

Move ▲	**Move** ▼	**Rang** ▲	**Rang** ▼
F1	F2	F3	F4

F1: move up the waveform
F2: move down the waveform
F3: go up range
F4: go down a range

The auto set feature will be off when changing the measurement mode

- Press **Time** button under scope mode, the corresponding functional button:

Base ▲	**Base** ▼	**Base <**	**Base >**
F1	F2	F3	F4

F1: increase the number of periods
F2: decrease the number of periods.
F3: trigger point move left
F4: trigger point right move

The auto set feature will be off when changing the measurement mode.

iii. Trigger function

Press **Trig** button under scope mode, the corresponding function buttons:

Trig ▲	**Trig** ▼	**Auto/Norm/Shot**	**Slop Rrise/Fall**
F1	F2	F3	F4

F1: move the trigger level up
F2: move the trigger level down
F3: select the trigger mode: auto, normal or single
F4: slope adjustment: rise or fall

iv. Waveform data save and recall

Press **Save/Call** button under scope mode, the corresponding functional buttons:

Save/Call	▲	**1**	▼	**Enter**
F1	F2	F3	F4	

F1: save or recall
F2 and F3: select location (location from 0-9, total 10 location)
F4: confirm

- When saving the data, it will overwrite the current data in the location no matter that location has data or not.
- If you recall the location has no data, the meter will appear error message, you need to press **HOLD** button to continue measurement,
- If you recall the location has data, it will save the current setting and display the data, the LCD top left shows **REV** to indicate recalling mode is on. Press **HOLD** button to return to working mode and continue measurement. You could continue recalling under recall mode or save the data.
- Recall mode can be used under any scope mode. For example, it is possible to recall the waveform or data saved from voltage or frequency mode when the meter is under current measurement mode.
- Recall mode can be worked under any waveform mode. For example: the Meter is at current mode but recalling the waveform or data which are saved under voltage or frequency mode. The Meter must

be returned to working mode to carry out measurement.

Remarks:

In order to have more accurate waveform, user can buy an optional BNC probe and scope probe to decrease signal attenuates. The scope probe directly connect to the BNC probe.

When measuring voltage and frequency signal, connect the BNC black probe to the COM input terminal and the red probe to the voltage terminal.

When measuring current signal, connect BNC black probe to the COM terminal and the red probe to mA terminal.

Don't connect the BNC probe to the 10A terminal.

B. Digital Multimeter Mode

i. Measuring Voltages

⚠ **Warning**

To avoid harms to you or damages to the Meter from electric shock, please do not attempt to measure voltages higher than DC 1000V, AC 750V, although readings may be obtained.

To measure voltages, set up the Meter as Figure 3-2 and do the following:

1. Insert the red test lead into the **V** terminal and the black test lead into the **COM** terminal.
2. Set the rotary switch to **V** ⎓ .
3. Connect test leads across with the object being measured.
4. The measured value shows on the display.
5. Press **MODE** button to toggle between Multimeter mode and Scope mode.
6. Press F1 to toggle between AC and DC voltage measurement.

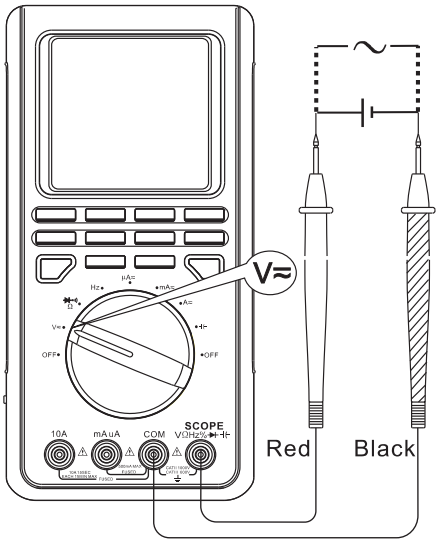

Figure 3-2. Voltages Measurement

When measuring voltage, the corresponding functional buttons

AC / DC	REL	Rang	▲	Rang	▼
F1	F2	F3		F4	

F1: toggle between AC or DC

F2: relative mode (REL will be displayed at the right bottom of the LCD when it is on)

F3: select a range up

F4: select a range down

Note:

- After changing the measurement mode, the autoranging will be off automatically and the AUTO will be disappeared at the bottom left of the LCD.
- When voltage measurement has been completed, disconnect the connection between the testing leads and the circuit under test and remove testing leads away from the input terminals of the Meter.

II. Measuring Currents

⚠ Warning

If the fuse burns out during measurement, the Meter may be damaged or the operator himself may be hurt.

To avoid possible damage to the Meter or to the equipment under test, check the Meter's fuses before measuring current. Use proper terminals, function, and range for the measurement. Never place the testing leads in parallel with any circuit or component when the leads are plugged into the current terminals.

Turn off power to the circuit before test leads are connected in series to the return circuit to be tested.

- *μA Range Measurement*

  To measure ACμA or DCμA currents, set up the Meter as Figure 3-3 and proceed as follows:

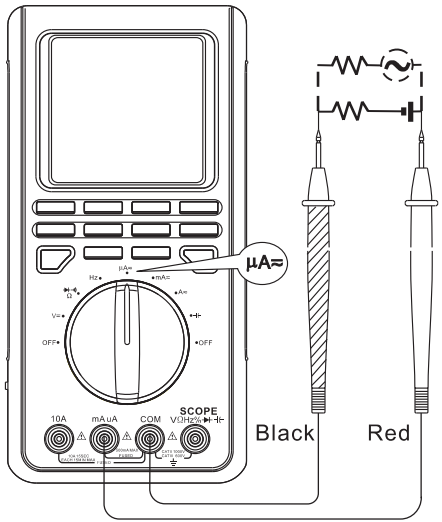

Figure 3-3. μA Range Measurement

1. Insert the red test lead into the μ**mA** terminal and black test lead into the **COM** terminal.
2. Set the rotary switch to μ**A≈**.
3. Connect the test lead in series with the return circuit to be tested.
4. The measured value shows on the display.
5. Press **MODE** button to toggle between Multimeter mode and Scope mode.
6. Press F1 to toggle between AC and DC current measurement.

- *mA Range Measurement*

  To measure ACmA or DcmA currents, set up the Meter as Figure 3-4 and proceed as follows:

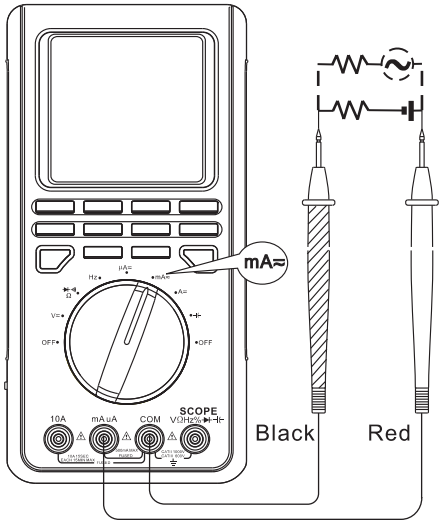

Figure 3-4. mA Range Measurement

1. Insert the red test lead into the μA**mA** terminal and black test lead into the **COM** terminal.
2. Set the rotary switch to **mA**≂.
3. Connect the test lead in series with the return circuit to be tested.
4. The measured value shows on the display.
5. Press **MODE** button to toggle between Multimeter mode and Scope mode.
6. Press F1 to toggle between AC and DC current measurement.

- *10A Range Measurement*

  To measure AC 10A or DC 10A currents, set up the Meter as Figure 3-5 and proceed as follows:

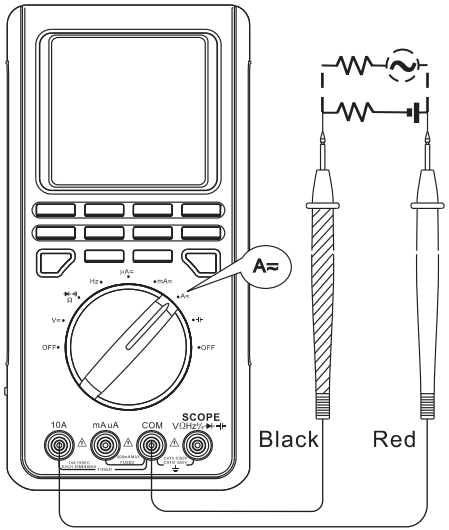

Figure 3-5. 10A Range Measurement

1. Insert the red test lead into the **10A** terminal and black test lead into the **COM** terminal.
2. Set the rotary switch to **A≈**.
3. Connect the test lead in series with the return circuit to be tested.
4. The measured value shows on the display.
5. Press **MODE** button to toggle between Multimeter mode and Scope mode.
6. Press F1 to toggle between AC and DC current measurement.

When measuring current, the corresponding functional buttons:

AC / DC	REL	Rang ▲	Rang ▼
F1	F2	F3	F4

F1: toggle between AC or DC
F2: relative mode (REL will be displayed at the right bottom of the LCD when it is on)
F3: select a range up
F4: select a range down

Note

- After changing the measurement mode, the autoranging will be off automatically and the AUTO will be disappeared at the bottom left of the LCD.
- If the value to be measured is unknown, use the maximum measurement position and reduce the range step by step until a satisfactory reading is obtained.
- When the measured current is ≤5A, continuous measurement is allowed.
- When the measured current is between 5A-10A, continuous measurement ≤10 seconds and interval more than 15 minutes.
- When current measurement has been completed, disconnect the connection between the testing leads and the circuit under test and remove testing leads away from the input terminals of the Meter.

iii. Measuring Resistance

⚠ Warning

To avoid possible damages to the Meter or to the devices under test, disconnect circuit power and discharge all the high-voltage capacitors before measuring resistance.

To measure resistance, set up the Meter as shown in Figure 3-6 and follow the following procedure:

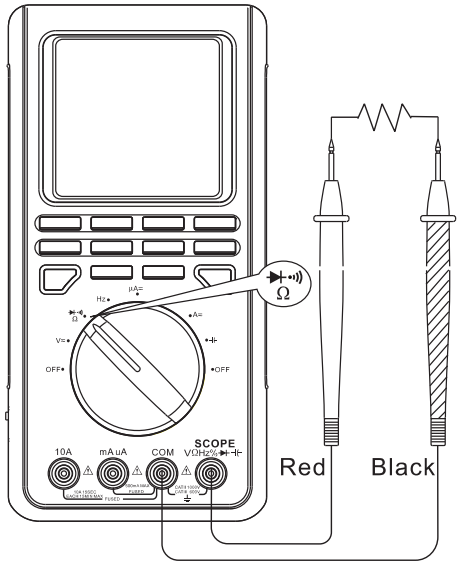

Figure 3-6. Resistance Measurement

1. Insert the red test lead into the Ω terminal and the black test lead into the COM terminal.
2. Set the rotary switch to Ω
3. Connect the test leads across with the object being measured.
4. The measured value shows on the display.

When measuring resistance, the corresponding functional buttons:

RES	REL	Rang ▲	Rang ▼
F1	F2	F3	F4

F1: toggle to diode mode
F2: relative mode
F3: select to a range up
F4: select to a range down

Note

- When measuring low resistance, the test leads can add 0.1Ω to 0.2Ω of error to resistance measurement. To test the leads, touch the probe tips together and read the resistance of the leads. Take the reading obtained to subtract the resistance of the leads to get the final reading.
- For high-resistance measurement (>1MΩ) or low resistance measurement (<40Ω), it is normal taking several seconds to obtain a stable reading.
- The LCD displays “OL” indicating open-circuit without input.
- When resistance measurement has been completed, disconnect the connection between the testing leads and the circuit under test and remove testing leads away from the input terminals.

iv. Testing Diodes

⚠ Warning

To avoid harms to you, please do not attempt to input voltages higher than 60V DC or 42V rms AC.

To avoid damages to the Meter or to the devices under test, disconnect circuit power and discharge all the high-voltage capacitors before testing diodes.

Use the diode test to check diodes, transistors, and other semiconductor devices. The diode test sends a current through the semicondutor junction, then measure the voltage drop across the junction. A good silicon junction drops between 0.5V and 0.8V

To test the diode out of a circuit, set up the Meter as Figure 3-7 and proceed as follows:

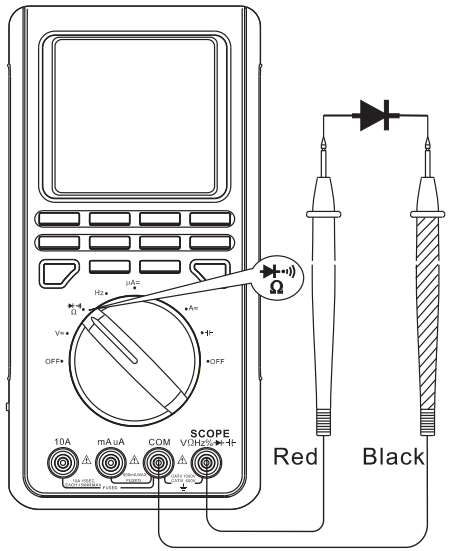

Figure 3-7. Diode Test

1. Insert the red test lead into the Ω terminal and the black test lead into the **COM** terminal.
2. Set the rotary switch to Ω•))) ⊣ .
3. For forward voltage drop readings on any semiconductor component, place the red test lead on the component's anode and place the black test lead on the component's cathode. The red test lead polarity is "+" while the black test lead polarity is "—".
   The measured value shows on the display.

When measuring diode, the corresponding functional buttons:

DIODE	**REL**
F1	F2

F1: toggle to continuity buzzer

F2: relative mode

Note

- Connect the test leads to the proper terminals as said above to avoid error display.
- The LCD will display **OL** indicating either open circuit or wrong polarity connection.
- The unit of diode is volt (V), displaying the positive-connection voltage-drop value.
- When diode testing has been completed, disconnect the connection between the testing leads and the circuit under test and remove the test leads away from the input terminals.

v. Testing for Continuity

⚠ Warning

To avoid harms to you, please do not attempt to input voltage higher than 60V DC or 42V rms AC.

To avoid possible damages to the Meter or to the devices under test, disconnect circuit power and discharge all the high-voltage capacitors before measuring continuity.

To test for continuity, set up the Meter as Figure 3-8 and do the following:

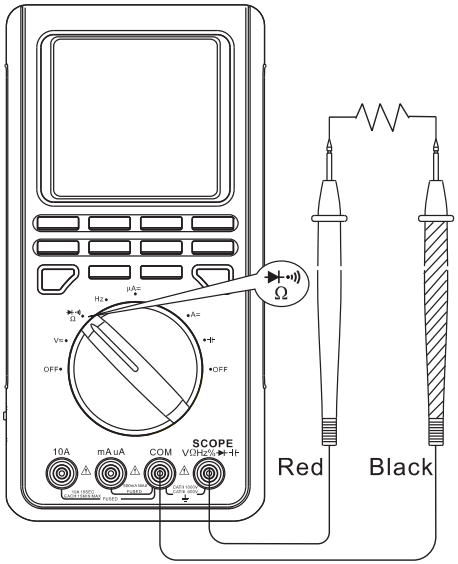

Figure 3-8. Continuity Test

1. Insert the red test lead into the W terminal and the black test lead into the **COM** terminal.
2. Set the rotary switch to Ω•))) ⊣⊢ .
3. Connect the test leads across with the object being tested.
4. The tested circuit overload resistance value shows on the display.
5. The beeper comes on continuously for open conditions, that is test resistance <10W.
6. The beeper does not sound when the test resistance is >100W

When measuring continuity buzzer, the corresponding functional buttons:

CONTINUITY	REL
F1	F2

F1: toggle to resistance measurement mode
F2: relative mode

Note

- When continuity testing has been completed, disconnect the connection between the testing leads and the circuit under test and remove the test leads away from the input terminals**.**

vi. Measuring Frequency / Duty Cycle

⚠ **Warning**

To avoid harms to you, please do not attempt to input voltage higher than 42V rms.

To measure frequency and duty cycle, connect the Meter as Figure 3-9 and do the following:

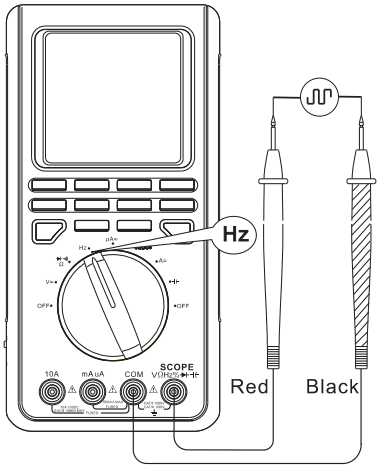

Figure 3-9. Measuring Frequency / Duty Cycle

1. Insert the red test lead into the **Hz** terminal and the black test lead into the **COM** terminal.
2. Set the rotary switch to Hz.
3. Connect the test leads across with the object being measured.
4. The measured value shows on the display.
5. Press **MODE** button to toggle between Multimeter mode and Scope mode.
6. Press F1 to toggle between frequency and duty cycle measurement.

When measuring frequency and duty cycle, the corresponding functional buttons:

Freq/Duty

F1

F1: toggle between frequency and duty cycle

Note

- The requirement of Input amplitude “a” is as follows:
  When ≤1MHz: 300 mV ≤ a ≤ 30Vrms;
  >1MHz: 600 mV ≤ a ≤ 5Vrms
- It is normal to have few seconds run time when switch from other functions to these functions.
- When Hz or duty cycle measurement has been completed, disconnect the connection between the testing leads and the circuit under test and remove the test leads away from the input terminals.

vii. Measuring Capacitance

⚠ Warning

To ensure accuracy, the Meter inside is discharged against the tested capacitor

To avoid damage to the Meter or to the equipment under test, disconnect circuit power and discharge all high-voltage capacitors before measuring capacitance.

To measure capacitance, set up the Meter as shown in Figure 3-10 and proceed as follows:

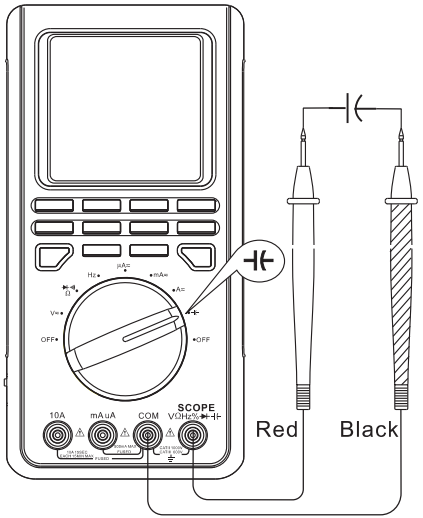

Figure 3-10. Measuring Capacitance

1. Insert the red test lead into ⊣⊢ theterminal and the black test lead into the COM terminal.
2. Set the rotary switch to ⊣⊢ measurement mode, the Meter may display a fixed reading which is a internal distributed capacitor value. For testing less than 40nF capacitor, the tested value must subtract the internal distributed capacitor value to maintain the accuracy.
3. To improve the accuracy, press F2 REL with the test leads open to subtract the residual capacitance of the Meter and the test leads.
4. It is recommended to use as short as test lead carrying out measurement to reduce the effect of internal distributed capacitor.

When measuring capacitance, the corresponding functional buttons:

Capacity	REL
F1	F2

F2: relative mode

Note

- Capacitors larger than 10μF take longer time.
- If the tested capacitor has polarity, connect the red test lead to positive side and black test lead to negative side.
- When capacitance measurement has been completed, disconnect the connection between the testing leads and the circuit under test and remove the test leads away from the input terminals of the Meter.

Chapter 4
Using Software

When using the Software, please refer to the Installation Guide of the included CD-ROM.

Chapter 5
Maintaining The Test Tool

This chapter provides basic maintenance information including battery and fuse replacement instruction.

⚠ Warning

Do not attempt to repair or service your Meter unless you are qualified to do so and have the relevant calibration, performance test, and service information.

A. General Service

- Periodically wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.
- To clean the terminals with cotton bar with detergent, as dirt or moisture in the terminals can affect readings.
- Turn the Meter to **OFF** when it is not in use.
- Take out the battery when it is not using for a long time.
- Do not use or store the Meter in a place of humidity, high temperature, explosive, inflammable and strong magnetic field.

B. Replacing the Fuses

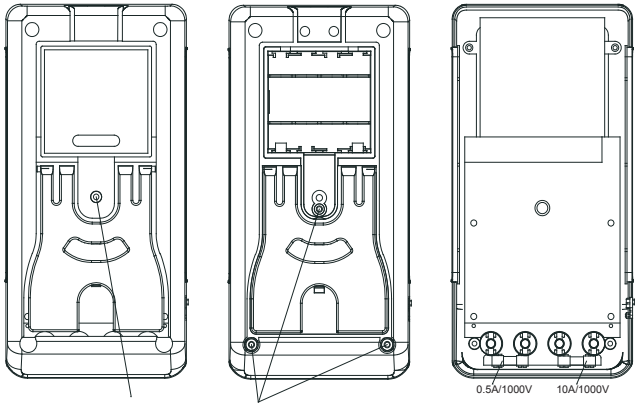

Figure 5-1. Fuse Replacement

⚠ Warning

To avoid electrical shock or arc blast, or personal injury or damage to the Meter, use specified fuses ONLY in accordance with the following procedure.

Follow Figure 5-1 and proceed as follows to replace the Meter's fuse:

- Turn the rotary switch to **OFF** and remove all connections from the terminals.
- Remove the screw from the battery compartment, and separate the battery compartment from the case bottom.
- Remove the three screws from the case bottom, and separate the case bottom from the case top.
- Remove the fuse by gently prying one end loose, then take out the fuse from its bracket.
- Install ONLY replacement fuses with the identical type and specification as follows and make sure the fuse is fixed firmly in the bracket.
  Fuse 1: F0.5A/1000V Φ6.35×31.8mm
  Fuse 2: F10A/1000V Φ6.35×32mm
- Rejoin the case bottom and case top, battery compartment and case bottom, and install the 5 screws.

Replacement of the fuses is seldom required. Burning of a fuse always results from improper operation.

C. Replacing the Battery

Figure 5-2. Battery Replacement

⚠ Warning

To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery as soon as the battery indicator "🪫" appears.

Make sure the test leads are disconnected from the circuit being tested before opening the case bottom.

Follow Figure 5-2 and proceed as follows to replace the battery:

- Turn the rotary switch to OFF and remove all connections from the terminals.
- Remove the screw from the battery compartment, and separate the battery compartment from the case bottom.
- Replace with 4 pieces new 1.5V (R6P) batteries.
- Rejoin the case bottom and battery compartment, and reinstall the screw.

Chapter 6
Specifications

Safety and Compliances

Maximum Voltage between any Terminal and Grounding	Refer to different range input protection voltage
Certification	CE
Compliances	IEC 61010 CAT. II 1000V, CAT.III 600V overvoltage and double insulation standard
⚠ Fused Protection for **mA** input terminal:	F0.5A/1000V Φ6.35×31.8mm
⚠ Fused Protection for **10A** input terminal:	F10A/1000V Φ6.35×32mm

Physical Specifications

Display (LCD)	Digital: 3999 counts on display ; updates 2-3 times / second.
Operating Temperature	0°C~40°C (32°F~104°F)
Storage Temperature	-10°C~50°C (14°F~122°F)
Relative Humidity	≤ 75% @ 0°C~40°C; ≤ 0% @ -10°C~50°C.
Altitude	Operating: 2000m; Storage: 10000m.
Battery Type	1.5V (R6) x 4 Batteries or Power adaptor. Check carefully about the working voltage of power adaptor before use.
Electromagnetic Compatibility	l In a radio field of 1 V/m below: Overall Accuracy = Specified Accuracy + 5% of Range l In a radio field of 1 V/m above: No assigned accuracy is specified.
Dimensions (H x W x L)	200 x 100 x 48mm.
Weight	Approx. 498g (including battery)

General Specifications (Digital Multimeter)

Range	When it is under Multimeter mode, you could select either auto or manual ranging.
Polarity	Auto, negative polarity displays “-“
Overloading	Display **OL**
Battery Deficiency	Display

General Specifications (Scope)

Display	160 x 160 Monochrome
Auto setting	Auto set the Meter according to the tested signal size
Overloading	Display **OL**
Memory	10 screens and setups
USB	Optically isolated to ensure safety
Tilt Stand	Allowing viewing at a convenient position and angle.

Feature Summary

Display	160 x 160 Monochrome
Autorange	When it is under multimeter mode, the Meter automatically selects best range
Continuity	Beeper sounds for resistance readings below threshold.
Duty Cycle	Measure signal on or off time in %.
Battery Access Door	Battery replaceable.

Basic Specifications (Digital Multimeter)

Function	**Ranges / Description**
DC Voltage	0 to 1000V
AC Voltage	0 to 750V
Basic Accuracy	DC Voltage: 0.8% AC Voltage: 1%
DC Current	0 to 10A
AC Current	0 to 10A
Resistance	0 to 40MΩ
Capacitance	0 to 100μF
Frequency	0~10MHz

Basic Specifications (Scope)

Horizontal		Vertical	
Sampling rate	40M per second	Bandwidth	UT81A:2MHz,UT81B:8MHz
Sampling rate / Scale	20 pixels	Channel	Single
Updating rate	>5	Coupling	DC
Trigger types	Free Run / Normal / Single Shot	Voltage resolution	8 Bits
Timebase Range	100ns/div~5 sec /div (1-2-5)	Input Impedance	10MΩ (excluding Multimeter part)
Timebase accuracy	±(0.1% + 1pix)	Accuracy	±(5%+1pix)
		Maximum input voltage	1000Vp-p
		Voltage Sensitivity	20mV/div~500V/div (1-2-5)

Detailed Accuracy Specifications

Accuracy: ±([% of reading] + [number of least significant digits]), guarantee for 1 year.
Operating temperature: 18°C~28°C
Relative humidity: <75%RH

A. DC Voltage

Range	Resolution	Accuracy	Overload Protection	Input Impedance
400mV	100μV	±(0.8%+8)	1000V DC or AC	Around 10MΩ (excluding waveform)
4V	1mV			
40V	10mV			
400V	100mV			
1000V	1V	±(0.1%+8)		

B. AC Voltage

i. Under Multimeter mode

Range	Resolution	Accuracy	Overload Protection	Input Impedance
4V	1mV	±(1%+15)	1000V DC or AC	Around 10MΩ (excluding waveform)
40V	10mV			
400V	100mV			
750V	1V	±(1.2%+15)		

Remarks:

- Frequency Response: 40Hz ~ 400Hz
- Displays effective value of sine wave (mean value response).

ii. Under Scope mode

- The specification is same as ***Bi Under Multimeter mode***.
- On the top right corner of the display shows the accuracy of the frequency which is around ±2%. When the LCD displays 1-10 period waveform, the reading is valid, otherwise the Meter displays "— —"

C. DC Current

Range	Resolution	Accuracy	Overload Protection
400 A	0.1 A	±(1%+8)	F0.5A/1000V Φ6.35×31.8mm
4000 A	1 A		
40mA	10 A	±(1.2%+8)	
400mA	100 A		
4A	1mA	±(1.5%+8)	F10A/1000V Φ6.35×32mm (Continuous measurement ≤10 seconds and interval more than 15 minutes.)
10A	10mA		

D. AC Current

i. Under Multimeter mode

Range	Resolution	Accuracy	Overload Protection
400 A	0.1 A	±(1.5%+8)	F0.5A/1000V Φ6.35×31.8mm
4000 A	1 A		
40mA	10 A	±(2%+8)	
400mA	100 A		
4A	1mA	±(2.5%+5)	F10A/1000V Φ6.35×32mm (Continuous measurement ≤10 seconds and interval more than 15 minutes.)
10A	10mA		

Remarks:

- Frequency Response: 40Hz~400Hz.
- Displays effective value of sine wave (mean value response).

ii. Under Scope mode

- The specification is same as ***Di Under Multimeter mode***.

  On the top right corner of the display shows the accuracy of the frequency which is around ±2%. When the LCD displays 1-10 period waveform, the reading is valid, otherwise the Meter displays "------"

E. Resistance

Range	Resolution	Accuracy	Overload Protection
400Ω	0.1Ω	±(1.2%+5)	1000VDC or AC rms
4kΩ	1Ω	±(1%+5)	
40kΩ	10Ω		
400kΩ	100Ω		
4MΩ	1kΩ	±(1.2%+5)	
40MΩ	10kΩ	±(1.5%+5)	

F. Diode Test

Range	Resolution	Overload Protection	Remarks
⊣◀⊢	1mV	1000V DC or AC	A good silicon junction drops between 0.5V and 0.8V.

G. Continuity Test Test

Range	Resolution	Overload Protection	Remarks
•))	0.1Ω	1000V DC or AC	● The buzzer sounds when the test resistance is ≤10Ω. ● The buzzer does not sound when the test resistance is >100Ω.

H. Frequency and Duty Cycle %

i. Under Multimeter mode

Range	Resolution	Accuracy	Overload Protection
10Hz~10MHz	0.001Hz	±(0.1%+3)	1000V DC or AC rms
0.1%~99.9%	0.1%	Reading for reference only	

Remarks:

- Input amplitude “a” as follows; (DC electric level is zero)
  When ≤1MHz : 300mV ≤ a ≤ 30Vrms;
  When >1MHz : 600mV ≤ a ≤ 5Vrms

ii. Under Scope mode

- The specification is same as ***Hi. Under Multimeter mode***, press **RANGE** button to toggle between frequency and duty cycle mode.
- On the top right corner of the display shows the waveform's RMS value, for reference only. When the LCD displays 1-10 period waveform cycle or the peak-peak difference value is greater than 1/3 div, the reading is valid, otherwise the Meter displays "____"

I. Capacitance

Range	Resolution	Accuracy	Overload Protection
40nF	10pF	Under REL mode: ±(3%+10)	1000V DC or AC rms
400nF	100pF	±(3%+8)	
4 F	1nF		
40 F	10nF		
100 F	100nF	±(4%+8)	