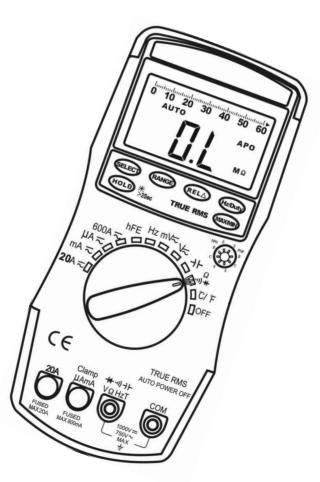# 760E
OPERATION
MANUAL

1. ATIONSAFETY INFORM SAFETY SYMBOLS

⚠ **Warning!** Dangerous Voltage (Risk of electric shock).

⚠ **Caution!** Refer to the user's manual before using this Meter.

▣ **Double Insulation** (Protection Class Ⅲ).

∿ Alternating Current (**AC**).

⎓ Direct Current (**DC**).

⏦ Either **DC** or **AC**.

⏚ **Ground** (maximum permitted voltage between terminal and ground).

🖾 The symbol indicating separate collection for electrical and electronic equipment.

⚠ **The RESPONSIBLE BODY shall be made aware that, if the instrument is used in a manner not specified by the manufacturer, the protection provided by the instrument may be impaired.**

⚠ **The finger or any part of your body shall not be beyond the barrier of the test probe when measuring.**

⚠ **Individual protective equipment must be used if HAZARDOUS LIVE parts in the installation where measurement is to be carried out could be ACCESSIBLE.**

The following safety information must be observed to insure maximum personal safety during the operation at this meter.

Do not operate the meter if the body of meter or the test lead look broken.

Check the main function dial and make sure it is at the correct position before each measurement.

When making current measurements ensure that the circuit not "live" before opening it in order to connect the test leads.

Do not perform resistance, capacitance, temperature, diode

and continuity test on a live power system.

Do not apply voltage between the test terminals and test terminal to ground that exceed the maximum limit record in this manual.

Exercise extreme caution when measuring live system with voltage greater than 60V DC or 30V AC.

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

Use the DMM indoor, altitude up to 2000m and temperature 5°C to 40°C.

Maximum relative humidity 80% for temperatures up to 31°C, decreasing linearly to 50% relative humidity at 40°C.

1.9 In locations subject to radio frequency interference, the product may malfunction and it resets automatically when leaving this environment.

Meter Description

■ **Terminals**

Refer to table 1 for terminal function

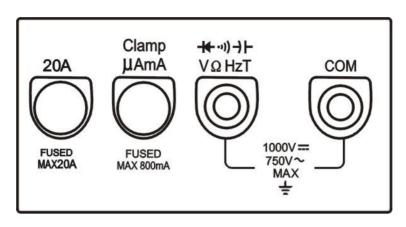| Terminal	Function
COM	Common terminal for all measurement
✦·⟩)⊩ V/Ω/HzT	Volts , Ohm , Diode , Freq. , Temp. and Cap. Measurement and square wave output terminal
Clamp μAmA	Clamp，Microampere, milliampere current measurement terminal
20A	Ampere current measurement terminal

Table 1. Terminals

Figure1. terminal

■ **Rotary switch**

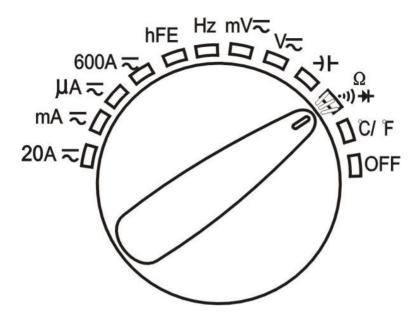| Position of Rotary switch	Function
20A⎓∿	DC&AC Ampere current
mA⎓∿	DC&AC milliampere current
μA⎓∿	DC&AC microampere current
600A⎓∿	DC&AC Ampere current
hFE	Transistor hFE test
Hz	Duty cycle / Frequency
mV⎓∿	DC&AC millivolts
V⎓∿	DC&AC voltage
⊣⊢	Capacitance
Ω ⊣⊦ ⸙	Resistance, Diode & continuity
℃/℉	Temperature
OFF	Power off

Table 2. Rotary switch functions

Figure2. Rotary switch

■ **Push button**

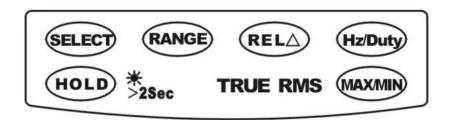

Figure3. Push button

1. SELECT

● Press this button to select your measurement mode.

2. RANGE

● When the meter is powered on, the meter is in the auto range mode; press this button to select a specific measurement range.

● Press this push button more than 2 seconds the meter returns to auto range.

3. MAX/MIN

● Pressing this button the meter enters the dynamic record mode.

● In the dynamic record mode, pressing this button again cycles *MAX, MIN , AVG , MAX-MIN* and *Present Reading* on.

4. HOLD

● Pressing this button, the meter enters the auto data hold mode and "H" is displayed on the LCD.

● The data hold function allows the operator to hold a displayed value on the LCD while the analog bar graph continues to display the updated value.

● In the auto hold mode the meter can display a new value when a new and stable value is on the input and the Beeper will sound.

● Pressing this button for more than 1 seconds, the meter exits the HOLD mode and returns to the normal state.

● Pressing the button for more than 2 seconds turns the backlight on,look the Selector Knob more clearly, pressing it again turns it off..

5. REL△

● Pressing this button, the meter enters relative measuring mode,

"**REL▲**" is displayed on the LCD and the present reading becomes the

reference value and displayed on the secondary display. Relative measurement has two modes. R*EL*▲*=measurement value-Reference value*, the other is *REL%=(REL*▲*/Reference value)×100%* (press $\boxed{\textsf{SELECT}}$ to select REL△ or REL% mode)..

● Set up reference value for your measurement.

‧ select your measurement function and your $\boxed{\textsf{RANGE}}$.

‧ Press $\boxed{\textsf{SET}}$ once, then press $\boxed{\textsf{SELECT}}$ twice to select the reference value for a measurement.

● Pressing the $\boxed{\textsf{REL}\triangle}$ button for more than 2 seconds returns the meter to normal state.

Pressing the button turns the backlight on, look the Selector Knob more clearly, pressing it again turns it off.

6. $\boxed{\textsf{Hz/Duty}}$

pressing the button display the Duty Cycle, pressing it again display Frepuency.

2. SPECIFICATIONS

2.1 GENERAL SPECIFICATIONS

■ Display: LCD with a max. reading of 6000 & Analogue bar graph.

■ Range control: Auto range & Manual range control.

■ Polarity: Automatic negative polarity indication.

■ Zero adjustment: Automatic.

■ Over range indication: The "OL" or "-OL" display.

- Low battery indication: Display "🔋" sign.

- Data hold: Display "**HOLD**" sign.

- Relative measurement: Display "△" sign.

- Auto Power Off: Display "**APO**" sign. When measurement exceeds 15 minutes without switching mode and pressing key, the meter will switch to standby mode. Press any key or switch selector switch to exit standby mode. When restart the system, press and hold **SELECT** key to disable auto power off.

- Mechanical blocking system for terminal sockets to prevent mistake operation.

- Bar graph display

- Safety standards: CE **EMC/LVD. CAT** Ⅲ **1000V.**

    The meter is up to the standards of IEC1010 Double Insulation，Pollution Degree 2, Overvoltage Category Ⅲ.

- Operating environment:

    Temperature   32 to104°F (0°C to 40°C),

    Humidity ≤ 80% RH.

- Storage environment:

    Temperature   -4 to140°F (-20°C to 60°C),

    Humidity ≤ 90% RH.
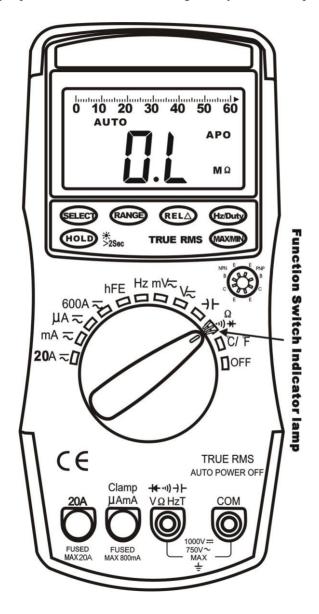
- Power supply: 9V battery

- Dimension: 190mm×88.5mm×27.5mm

- Weight: Approx.320g (including battery).

Express function：

New style patent of function direction light, easy use in dark place.

2.2 ELECTRICAL SPECIFICATIONS

Accuracies are ± (% of reading + number in last digit)at 23 ± 5°C ,
≤75% RH.

2.2.1 DC Voltage

Range	Accuracy	Resolution
60mV	± (0.8% of rdg+10digits)	0.01mV
600mV	± (0.5% of rdg+15 digits)	0.1mV
6V		1mV
60V		10mV
600V		100mV
1000V	± (0.8% of rdg+10 digits)	1V

Overload protection: 1000V DC or 750V AC rms

Impedance: ≥10MΩ

2.2.2 AC Voltage

Range	Accuracy	Resolution
60mV	± (2.0% of rdg+10 digits)	0.01mV
600mV		0.1mV
6V	± (1.5% of rdg+10 digits)	1mV
60V		10mV
600V		100mV
750V	± (2.0% of rdg+10 digits)	1V

Average sensing, calibrated to rms of sine wave

Frequency: 40~400Hz

Overload protection: 1000V DC or 750V AC rms

Impedance: ≥10MΩ

2.2.3 AC Voltage(True RMS/only 760D)

Range	Resolution	Accuracy					Sensitivity
		50-500Hz	500-1KHz	1K-5KHz	5k-10KHz	10K-20KHz	
60mV	0.01Mv	± (1.2% of rdg+ 10 digits)	± (1.5% of rdg+ 10 digits)	± (2% of rdg+ 10 digits)	± (3.5% of rdg+ 10 digits)	± (4.5% of rdg+ 10 digits)	50mV
600mV	0.1mV	± (1.2% of rdg+ 10 digits)	± (1.5% of rdg+ 10 digits)	± (2% of rdg+ 10 digits)	± (3.5% of rdg+ 10 digits)	± (4.5% of rdg+ 10 digits)	500mV
6V	1mV	50Hz-1KHz: ± (1.5% of rdg+10 digits)					1V
60V	10mV	50Hz-400Hz: ± (1.2% of rdg+10 digits)					1V
600V	100mV						1V
750V	1V						1V

Average sensing, calibrated to rms of sine wave

Overload protection: 1000V DC or 750V AC rms

Impedance: ≥10MΩ

2.2.4 DC Current

Range	Accuracy	Resolution
600μA	± (2.0% of rdg+10 digits)	0.1μA
6000μA		1μA
60mA		10μA
600mA		100μA
6A	± (2.5% of rdg+10 digits)	1mA
20A		10mA
600A	± (3.0% of rdg+10 digits)	100mA

20A up to 10 seconds; 600A range with AC/DC Current Clamp Adapter

Overload protection: 0.8A/250V or 0.75A/250V, 20A/250V fuse

2.2.5 AC Current

Range	Accuracy	Resolution
600μA	± (2.0% of rdg+10 digits)	0.1μA
6000μA		1μA
60mA		10μA
600mA		100μA
6A	± (2.5% of rdg+10 digits)	1mA
20A		10mA
600A	± (3.5% of rdg+10 digits)	100mA

20A up to 10 seconds;600A range with AC/DC Current Clamp Adapter

Average sensing, calibrated to rms of sine wave

Frequency: 40～400Hz

Overload protection: 0.8A/250V or 0.75A/250V, 20A/250V fuse

2.2.6 Resistance

Range	Accuracy	Resolution
600Ω		0.1Ω
6kΩ		1Ω
60kΩ	± (1.2% of rdg+10 digits)	10Ω
600kΩ		100Ω
6MΩ		1kΩ
60MΩ	± (2.5% of rdg+15 digits)	10kΩ

Overload protection: 250V DC or AC rms

2.2.7 Capacitance

Range	Accuracy	Resolution
40nF	± (3.5% of rdg+30 digits)	10pF
400nF	± (2.5% of rdg+5 digits)	100pF
4μF		1nF
40μF	± (5.0% of rdg+10 digits)	10nF
400μF	± (20.0% of rdg+20 digits)	100nF
4000μF		1μF

It can not display bar graph on capacitance range
Overload protection: 250V DC or AC rms

2.2.8 Diode and Audible continuity test

Range	Description	Test condition
✦ •)))	Display read Approximately forward voltage of diode	Forward DC current approx. 0.4mA Reversed DC voltage approx. 2.8V
	Built-in buzzer sounds if resistance is less than 100Ω	Open circuit voltage approx. 0.5V

It can not display bar graph on diode range

Overload protection: 250V DC or AC rms
2.2.9 Frequency

Range	Accuracy	Resolution
10Hz		0.01Hz
100Hz		0.1Hz
1000Hz		1Hz
10kHz	± (0.5% of rdg+5 digits)	10Hz
100kHz		100Hz
1000kHz		1kHz
10MHz		10kHz

Sensitivity: Range of input voltage:1.5V~10V, If input voltage over range, need adjust

It can not display bar graph on frequency range

Overload protection: 250V DC or AC rms

2.2.10 Duty cycle

0.1%~99.9%: ± (2.0%+2)   Frequency lower than 10kHz

Sensitivity: sine wave 0.6V rms

It can not display bar graph on duty cycle range

Overload protection: 250V DC or AC rms

2.2.11 Temperature

Range		Accuracy	Resolution
℃/℉	-20~150℃ -4~302℉	± (3℃+2)	1℃/1℉
	150~300℃ 302~572℉	± (3% of rdg+2digits)	
	300~1000℃ 572~1800℉	± (3.5% of rdg+10digits)	

NiCr-NiSi sensor

It can not display bar graph on temperature range

Overload protection: 250V DC or AC rms

2.2.12 hFE test

Ib = 10μA   Vce = 2V Approx.

Test range : 0～1000.

3. OPERATION

3.1 DC and AC Voltage Measurement

1) Set the selector switch to desired "**mV⎓**" or "**V⎓**" position.

2) Connect the black test lead to "**COM**" socket and red test lead to the "**VΩHz**" socket.

3) Set the selector switch to desired "**mV⎓**" or "**V⎓**" position.

4) Press "**SELECT**" key to choose "**DC**" or "**AC**" measurement.

5) Measure the voltage by touch the test lead tips to the test circuit where the value of voltage is needed.

6) Read the result from the LCD panel.

3.2 DC and AC Current Measurement

1) Set the selector switch to desired "**μA⎓**"、"**mA⎓**" or "**20A⎓**" position.

2) Connect the black test lead to "**COM**" socket. For measurement up to 600mA, connect the red test lead to the "**μAmA**" socket; for measurement   from 600mA to 10A, connect the red test lead to the "**20A**" socket

3) Press "**SELECT**" key to choose "**DC**" or "**AC**" measurement.

4) Remove power from the circuit under test and open the normal circuit path where the measurement is to be taken. Connect the meter in series with the circuit.

5) Read the result from the LCD panel.

6) On **AC** range, press "**Hz/DUTY**" key to measurement **frequency** or **duty cycle.**

3.3 DC and AC 600A Current Measurement

1) Set the selector switch to desired "**600A⎓**" position.

2) Connect the black banana plug of the AC/DC Special Current Clamp Adapter to "**COM**" socket and the red banana plug to the "**µAmA**" socket.

3) Press "**SELECT**" key to choose "**DC**" or "**AC**" measurement.

4) When perform DC current measurement, always rotate or push the DCA zero adjuster on the Clamp Adapter until the multimeter reads zero.

5) Clamp the Jaws around the **one** conductor to be measured. Center the conductor within the Jaw using the Centering Marks as guides.

6) Read the result from the LCD panel. The arrow in the Jaw indicates the DC current direction of positive current flow (positive to negative).

3.4 Resistance Measurement

1) Set the selector switch to desired "$\Omega \dashv\vdash \cdot))$" position.

2) Connect the black test lead to "**COM**" socket and red test lead to the "**VΩHz**" socket.

3) Press "**SELECT**" key to choose **Resistance** measurement.

4) Connect tip of the test leads to the points where the value of the resistance is needed.

5) Read the result from the LCD panel.

Note: When take resistance value from a circuit system, make sure the power is cut off and all capacitors need to be discharged.

3.5 Capacitance Measurement

1) Set the selector switch to desired "$\dashv\vdash$" position.

2) Connect the black test lead to "**COM**" socket and red test lead to the "**VΩHz**" socket.

3) Connect tip of the test leads to the points where the value of the capacitance is needed.

4) Read the result from the LCD panel.

Note:

a) Before testing, discharge the capacitor by shorting its leads together. Use caution in handing capacitors because they may have a charge on them of considerable power before discharging.

b) Before testing, press "**REL△**" key to eliminate the zero error.

c) When testing 4000μF capacitor, note that there will be approx. 30 seconds time lag.

3.6 Diode and Audible continuity Test

1) Set the selector switch to desired "**Ω ✦ ⠂⠕**" position.

2) Connect the black test lead to "**COM**" socket and red test lead to the "**VΩHz**" socket.

3) Press "**SELECT**" key to choose **Diode** or **Audible continuity** measurement.

4) Connect the test leads across the diode under measurement, display shows the approx. forward voltage of this diode.

5) Connect the test leads to two point of circuit, if the resistance is lower than approx. 100Ω, the buzzer sounds.

Note:

Make sure the power is cut off and all capacitors need to be discharged under this measurement.

3.7 Frequency and Duty cycle measurement

1) Set the selector switch to desired "**Hz**" position.

2) Connect the black test lead to "**COM**" socket and red test lead to the "**VΩHz**" socket.

3) Press "**Hz/DUTY**" key to choose **Frequency** or **Duty cycle** measurement.

4) Connect the probe across the source or load under measurement.

5) Read the result from the LCD panel.

3.8 Temperature Measurement

1) Set the selector switch to desired "℃/℉" position.

2) Connect the black banana plug of the sensor to "**COM**" socket and red banana plug to the "**VΩHz**" socket.

3) Press "**SELECT**" key to choose ℃ or ℉ measurement.

4) Put the sensor probe into the temperature field under measurement.

5) Read the result from the LCD panel.

6）Please use special probe for test high temperature.

3.9 hFE Test

1) Set the selector switch to desired "**hFE**" position.

2) Never apply an external voltage to the hFE sockets, damage to the meter may result.

3) Plug the NPN or PNP transistor directly into the hFE socket. The sockets are labeled E, B, and C for emitter, base, and collector.

4) Read the transistor hFE (dc gain) directly from the display.

3.10 Data Hold

On any range, press the "**HOLD**" key to lock display value, and the "**HOLD**" sign will appear on the display, press it again to exit.

3.11 MAX/MIN Hold

Press the "**MIN/MAX**" key to lock **MAX** or **MIN** value, and the "**MAX**" or "**MIN**" sign will appear on the display, press it over 2 seconds to exit. It can not display bar graph on **MAX/MIN HOLD** mode.

3.12 Relative measurement

Press the "**REL△**" key, you can measure the relative value and "△" sign will appears on the display, the auto range mode be changed to manual range mode. Press it again to exit relative measurement and "△" sign disappears, but you can not go back to auto range mode. This function is non effective on **Hz /DUTY**

measurement. It can not display bar graph on **Relative measurement** mode.

3.13 Auto/Manual range

The auto range mode is a convenient function, but it might be faster to manually set the range when you measure values that you know to be within a certain range.

To select manual range, repeatedly press "**RANGE**" key until the display shows the desired range. The range steps upward as you press "**RANGE**" key. The meter will go back to auto range mode when you press "**RANGE**" key for more than 2 seconds. It can not select manual range mode on **Hz/DUTY, capacitance** and **temperature** range.

Caution: while using the manual range mode, if "**OL**" sign appears on the display, immediately set range to a higher.

3.14 Back Light

On any range, press the "**BACK LIGHT**" key to light the back light, press it again to wink the light.

3.15 Range Light

On any range, press the "**RAN LIGHT**" key to light the range light, press it again to wink the light.

4. Battery replacement

1) When the battery voltage drop below proper operation range, the "⊡" symbol will appear on the LCD display and the battery need to changed.

2) Before changing the battery, set the selector switch to "**OFF**" position. Open the cover of the battery cabinet by a screwdriver.

3) Replace the old battery with the same type battery.

4) Close the battery cabinet cover and fasten the screw.

Caution: Dispose the used battery according to the rules, which are defined by each community.

5. Fuse replacement

1) This meter is provided with a 0.8A/250V fuse to protect the current measuring circuits which measure up to 600mA, with a 10A/250V fuse to protect the 10A range.

2) Ensure the instrument is not connected to any external circuit, set the selector switch to "**OFF**" position and remove the test leads from the terminals.

3) Remove the two screws on the bottom case and lift the bottom case. Replace the old fuse with the same type and rating:

5×20mm 0.8A/250V or 6×25mm 10A/250V fuse.

4) Close the bottom case and fasten the screws.

6. MAINTENANCE

1)   Before open the battery cover or bottom case, disconnect both test lead and never uses the meter before the battery cover or bottom case is closed.

2) To avoid contamination or static damage, do not touch the circuit board without proper static protection.

3)   If the meter is not going to be used for a long time, take out the battery and do not store the meter in high temperature or high humidity environment.

4)   Repairs or servicing not covered in this manual should only by qualified personal.

5)   Periodically wipe the case with a dry cloth and detergent. Do not use abrasives or solvents on the meter.

6)   Please take out the battery when not using for a long time.