

## SEEIRIR HP-90EPC

# HP-90EPC Digital USB Multimeter User Manual

Brand: SEEIRIR | Model: HP-90EPC

## INTRODUCTION

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The SEEIRIR HP-90EPC is a versatile digital multimeter designed for accurate measurement of various electrical parameters. It features an auto-ranging function, a clear digital display, and a USB interface for PC connectivity, making it suitable for both professional and home use. This manual provides essential information for the safe and effective operation, maintenance, and troubleshooting of your HP-90EPC multimeter.

Key features include:

- Measures DC and AC voltage, current, resistance, capacitance, and temperature.
- Auto-ranging for simplified operation.
- USB interface for data logging and analysis on a PC.
- Compact and lightweight design for portability.
- Complies with safety standards to ensure user safety.

## SAFETY INFORMATION

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Always adhere to safety precautions when using the multimeter to prevent electric shock or damage to the instrument. Read all safety information before operating the device.

- Do not exceed the maximum input values for any range.
- Ensure test leads are properly connected before making measurements.
- Do not use the multimeter if it appears damaged or if the test leads are frayed.
- Be cautious when working with voltages above 30V AC RMS, 42V peak, or 60V DC, as these pose a shock hazard.
- Always turn off the circuit power and discharge all high-voltage capacitors before measuring resistance, continuity, diodes, or capacitance.

## PRODUCT OVERVIEW

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Figure 1: Front view of the HP-90EPC Digital Multimeter with USB cable connected. This image shows the large LCD display, the rotary function switch, and the input jacks. The USB port is visible at the top, connected to a cable.



Figure 2: Front view of the HP-90EPC Digital Multimeter with red and black test leads connected to the input jacks. This view highlights the robust design and the clear labeling of the input terminals.

## Components:

1. **LCD Display:** Shows measurement readings, units, and function indicators.
2. **Function Rotary Switch:** Used to select the desired measurement function (Voltage, Current, Resistance, etc.).
3. **Input Jacks:** Terminals for connecting test leads (VΩHz, COM, mA, A).
4. **Function Buttons:**
  - **SELECT:** Toggles between AC/DC, resistance/continuity/diode, or temperature units.
  - **HOLD:** Freezes the current display reading.
  - **PC-LINK:** Activates the USB data transfer mode.
  - **REL:** Relative measurement mode.
5. **USB Port:** For connecting the multimeter to a PC for data logging.

## SETUP

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### 1. Battery Installation

The HP-90EPC multimeter typically uses standard batteries (e.g., 9V or AA/AAA, check battery compartment for specific type). To install or replace batteries:

1. Ensure the multimeter is turned **OFF**.
2. Locate the battery compartment cover on the back of the unit.
3. Unscrew the retaining screw(s) and remove the cover.
4. Insert new batteries, observing the correct polarity (+ and -).
5. Replace the battery compartment cover and secure it with the screw(s).

### 2. Connecting Test Leads

Always connect the black test lead to the **COM** (common) input jack. Connect the red test lead to the appropriate input jack based on the measurement you intend to make:

- **VΩHz**: For voltage, resistance, frequency, capacitance, diode, and continuity measurements.
- **mA**: For current measurements up to 400mA.
- **A**: For current measurements up to 20A.

Ensure the test leads are fully inserted into the jacks.

## OPERATING INSTRUCTIONS

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Before taking any measurement, ensure the multimeter is set to the correct function and range, and the test leads are connected to the appropriate input jacks.

### 1. Measuring DC Voltage (V<sub>-</sub>)

1. Turn the rotary switch to the **V<sub>-</sub>** position.
2. Connect the black test lead to **COM** and the red test lead to **VΩHz**.
3. Connect the test leads in parallel across the DC voltage source.
4. Read the voltage value on the LCD display.

### 2. Measuring AC Voltage (V<sub>~</sub>)

1. Turn the rotary switch to the **V<sub>~</sub>** position.
2. Connect the black test lead to **COM** and the red test lead to **VΩHz**.
3. Connect the test leads in parallel across the AC voltage source.
4. Read the voltage value on the LCD display.

### 3. Measuring DC Current (A<sub>-</sub> / mA<sub>-</sub>)

1. Turn the rotary switch to the **A<sub>-</sub>** or **mA<sub>-</sub>** position.
2. Connect the black test lead to **COM**. Connect the red test lead to **mA** for currents up to 400mA, or to **A** for currents up to 20A.
3. Connect the multimeter in series with the circuit where current is to be measured.
4. Read the current value on the LCD display.
5. *Caution: Never connect the multimeter in parallel across a voltage source when measuring current, as this can blow the fuse or damage the meter.*

### 4. Measuring AC Current (A<sub>~</sub> / mA<sub>~</sub>)

1. Turn the rotary switch to the **A~** or **mA~** position.
2. Connect the black test lead to **COM**. Connect the red test lead to **mA** for currents up to 400mA, or to **A** for currents up to 20A.
3. Connect the multimeter in series with the circuit where current is to be measured.
4. Read the current value on the LCD display.

## 5. Measuring Resistance ( $\Omega$ )

1. Turn the rotary switch to the  **$\Omega$**  position.
2. Connect the black test lead to **COM** and the red test lead to **V $\Omega$ Hz**.
3. Ensure the circuit or component is de-energized before connecting the test leads across the component.
4. Read the resistance value on the LCD display.

## 6. Measuring Capacitance (F)

1. Turn the rotary switch to the **F** position.
2. Connect the black test lead to **COM** and the red test lead to **V $\Omega$ Hz**.
3. Ensure the capacitor is fully discharged before connecting the test leads.
4. Connect the test leads across the capacitor terminals.
5. Read the capacitance value on the LCD display.

## 7. Measuring Temperature (C/F)

1. Turn the rotary switch to the **°C/°F** position.
2. Connect the temperature probe (if included) to the appropriate input jacks (usually V $\Omega$ Hz and COM, or dedicated temperature jacks if present).
3. Place the probe tip on or near the object whose temperature is to be measured.
4. Press the **SELECT** button to toggle between Celsius and Fahrenheit.
5. Read the temperature value on the LCD display.

## 8. USB Interface and PC Support

The HP-90EPC features a USB interface for connecting to a personal computer. This allows for real-time data logging, analysis, and potentially waveform display using compatible software (software typically provided by the manufacturer or available for download).

1. Install the necessary driver and software on your PC (refer to manufacturer's website or included CD for details).
2. Connect the USB cable from the multimeter's USB port to an available USB port on your PC.
3. Turn on the multimeter and press the **PC-LINK** button to activate data transfer mode.
4. Launch the PC software and follow its instructions to establish connection and begin data logging.

## MAINTENANCE

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### 1. Cleaning

To clean the multimeter, wipe the case with a damp cloth and a mild detergent. Do not use abrasives or solvents. Ensure the multimeter is turned off and disconnected from all circuits before cleaning.

### 2. Battery Replacement

When the battery indicator appears on the display, replace the batteries as described in the "Battery Installation" section under Setup. Low battery can affect measurement accuracy.

### 3. Fuse Replacement

If the multimeter fails to measure current, the fuse(s) may be blown. Fuses protect the current measurement circuits from overload. Refer to the specifications for the correct fuse ratings (e.g., 20A and 400mA fuses mentioned on the device).

1. Ensure the multimeter is turned **OFF** and all test leads are disconnected.
2. Open the battery compartment cover (and potentially the entire back casing, depending on design) to access the fuse holders.
3. Carefully remove the blown fuse(s) and replace with new fuses of the **exact same type and rating**.
4. Securely close the casing and battery compartment.

## 4. Storage

When not in use for extended periods, remove the batteries to prevent leakage. Store the multimeter in a cool, dry place, away from direct sunlight and extreme temperatures.

## TROUBLESHOOTING

Problem	Possible Cause	Solution
Multimeter does not power on.	Dead or incorrectly installed batteries.	Check battery polarity; replace batteries.
No reading or "OL" (Overload) displayed.	Incorrect function/range selected; open circuit; input value exceeds range.	Select correct function/range; check circuit continuity; ensure input is within meter's limits.
Incorrect current reading.	Blown fuse; incorrect input jack used; meter not in series.	Check/replace fuses; ensure red lead is in mA or A jack; connect meter in series.
PC software not connecting.	Driver not installed; PC-LINK mode not activated; faulty USB cable.	Install drivers; press PC-LINK button; try a different USB cable.
Display is dim or flickering.	Low battery.	Replace batteries.

## SPECIFICATIONS

Parameter	Value
Model Number	HP-90EPC
Display Type	Digital display
Operating Mode	Auto Range
DC Voltage Range	400mV/4V/40V/400V/1000V
AC Voltage Range	4V/40V/400V/750V
DC Current Range	400uA/4000uA/40mA/400mA/4A/20A
AC Current Range	400uA/4000uA/40mA/400mA/4A/20A
Resistance Range	400Ω/4KΩ/40KΩ/400KΩ/4MΩ/40MΩ
Capacitance Range	5.12nF/512nF/5.12uF/51.2uF/100uF
Operating Temperature	-20°C to 1000°C (for temperature probe measurement)

Parameter	Value
Dimensions	167mm x 90mm x 50mm
Item Weight	300 Grams (approx. 10.58 ounces)
Certification	CE

*Note: Specifications are subject to change without notice. Refer to the product packaging or manufacturer's website for the most up-to-date information.*

## WARRANTY AND SUPPORT

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Specific warranty terms and conditions for the SEEIRIR HP-90EPC multimeter are typically provided by the seller or manufacturer at the time of purchase. Please retain your proof of purchase for warranty claims.

For technical support, troubleshooting assistance beyond this manual, or warranty inquiries, please contact the seller or the manufacturer directly. Contact information can usually be found on the product packaging, the seller's website, or the manufacturer's official website.



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