

SEEIRIR ET120MPro

SEEIRIR ET120MPro Portable Digital Oscilloscope and Signal Generator

User Manual

1. INTRODUCTION

The SEEIRIR ET120MPro is a versatile 2-in-1 portable device combining a digital oscilloscope and a signal generator. Designed for electronic maintenance, DIY projects, and automotive diagnostics, it offers a 120MHz bandwidth, 500MS/s sampling rate, and a 3MHz signal source. This manual provides essential information for the safe and effective operation of your device.

2. SAFETY INFORMATION

- Always operate the device within its specified voltage and current limits.
- Avoid exposing the device to moisture, extreme temperatures, or direct sunlight.
- Do not attempt to disassemble or modify the device. Refer servicing to qualified personnel.
- Ensure proper grounding when connecting to circuits, especially high-voltage ones.
- Use only the provided or recommended accessories and probes.

3. PRODUCT OVERVIEW

The ET120MPro features a compact design with a clear display and intuitive controls. It integrates a digital oscilloscope for waveform analysis and a signal generator for outputting various test signals.



Figure 3.1: Front view of the ET120MPro device, showing the display and control buttons. The display illustrates an oscilloscope waveform and menus for Sine, Ramp, and Square signal generation with frequency settings.

3.1. Display Elements

- **Waveform Display:** Shows the measured electrical signal.
- **Measurement Parameters:** Displays values like VPP (Peak-to-Peak Voltage), Frequency (F), and other auto-measured data.
- **Time Base:** Indicates the horizontal scale (e.g., 2uS per division).
- **Vertical Sensitivity:** Indicates the vertical scale (e.g., 500mV per division).
- **Trigger Status:** Shows trigger mode (e.g., Auto).
- **Coupling:** Indicates AC or DC coupling.
- **Probe Attenuation:** Shows 1X or 10X setting.

3.2. Control Panel

- **MENU:** Accesses the main menu for settings.
- **F1/F2:** Function buttons, context-sensitive.
- **SAVE:** Saves the current waveform data.
- **AC/DC:** Toggles between AC and DC coupling for the input signal.
- **1X/10X:** Adjusts probe attenuation setting.

- **50%:** Sets the trigger level to 50% of the signal amplitude.
- **TRIG:** Enters trigger settings menu.
- **MODE/OK:** Selects modes or confirms selections.
- **EDGE:** Selects trigger edge (rising/falling).
- **AUTO:** Enables auto-ranging for oscilloscope settings.
- **STOP:** Stops waveform acquisition.
- **Navigation Arrows (Up/Down/Left/Right):** Used for menu navigation and parameter adjustment.

4. SETUP

4.1. Powering On/Off

Press and hold the power button (usually located on the top or side) to turn the device on or off. Ensure the battery is sufficiently charged or connected to a power source.

4.2. Connecting Probes

Connect the oscilloscope probe to the input BNC connector. Ensure the probe's ground clip is securely connected to the circuit's ground reference. For signal generation, connect the output cable to the designated signal output port.

4.3. Initial Calibration (if applicable)

Some probes may require compensation. Connect the probe to the calibration output (if available) and adjust the probe's compensation screw until a stable square wave is displayed.

5. OPERATING THE DEVICE

5.1. Oscilloscope Mode

The device typically defaults to oscilloscope mode upon startup. If not, navigate through the menu to select it.

- **Automatic Measurement:** Press the **AUTO** button for the device to automatically adjust vertical, horizontal, and trigger settings for a stable waveform display. This also provides automatic readings for frequency, voltage (VPP), and duty cycle.
- **Adjusting Vertical Sensitivity (Volts/Div):** Use the navigation arrows to adjust the vertical scale, changing the voltage represented by each vertical division on the grid.
- **Adjusting Time Base (Sec/Div):** Use the navigation arrows to adjust the horizontal scale, changing the time represented by each horizontal division.
- **Trigger Settings:** Press **TRIG** to access trigger options. Use **EDGE** to select rising or falling edge triggering. Adjust the trigger level using navigation arrows to stabilize the waveform.
- **AC/DC Coupling:** Press **AC/DC** to switch between AC coupling (blocks DC component) and DC coupling (shows full signal including DC offset).
- **Probe Attenuation:** Ensure the **1X/10X** setting on the device matches the physical attenuation setting on your probe.
- **Saving Waveforms:** Press the **SAVE** button to store the current waveform data.

5.2. Signal Generator Mode

The ET120MPro can generate various waveforms for testing circuits. Access this mode via the main menu or a dedicated function button (if available).

- **Selecting Waveform Type:** Use navigation buttons to choose between Sine, Ramp, and Square waveforms as shown in the product overview image.
- **Setting Frequency:** Adjust the output frequency using the navigation arrows. The device supports frequencies up to 3MHz.

- **Setting Amplitude (VPP):** Adjust the peak-to-peak voltage of the output signal.

5.3. Data Management

The device supports USB storage for exporting waveform data. Connect the device to a computer using a USB cable to transfer saved files for further analysis.

6. MAINTENANCE

- **Cleaning:** Use a soft, dry cloth to clean the device. Do not use abrasive cleaners or solvents.
- **Battery Care:** For optimal battery life, avoid fully discharging the battery frequently. Store the device with a partial charge if not used for extended periods.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
No display/Device won't power on	Low battery; Power button not pressed correctly	Charge the battery; Press and hold the power button firmly.
Unstable waveform	Incorrect trigger settings; Probe compensation issue; Signal too noisy	Adjust trigger level/mode; Perform probe compensation; Use AUTO function; Check probe connections.
No signal displayed	Probe not connected; Incorrect vertical sensitivity; AC coupling blocking DC signal	Ensure probe is connected to circuit; Adjust Volts/Div; Switch to DC coupling.
Signal generator output incorrect	Incorrect frequency/amplitude settings; Output cable issue	Verify settings in signal generator mode; Check output cable connection.

8. SPECIFICATIONS

- **Bandwidth:** 120MHz
- **Sampling Rate:** 500MS/s
- **Digital Channels:** 1
- **Display Resolution:** 320*240 Pixels
- **Signal Source Frequency:** Up to 3MHz
- **Item Weight:** 400 g
- **Dimensions:** Approximately 1 x 1 x 1 cm (Parcel Dimensions)
- **Manufacturer:** SEEIRIR
- **Model Number:** ET120MPro

9. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the documentation provided with your purchase or contact SEEIRIR customer service. Keep your proof of purchase for warranty claims.

