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Siglent SHS810X

Siglent SHS810X Handheld Oscilloscope User Manual

Model: SHS810X

Introduction

The Siglent SHS810X is a versatile handheld oscilloscope designed for professional and educational use. It integrates a dual-channel oscilloscope with a digital multimeter, offering comprehensive measurement capabilities in a portable form factor. This manual provides detailed instructions for the safe and effective operation of your device.
Key features include a 5.6-inch TFT-LCD display, 1 GSa/s maximum sample rate, 12 Mpts memory depth, and various intelligent trigger functions. The device is powered by a UL2054 certified lithium battery pack, ensuring portability and extended use.

Safety Information

Please read all safety information carefully before operating the device to prevent injury or damage to the instrument.

- **Electrical Shock Hazard:** Always ensure the device is properly grounded when connected to AC power. Do not operate in wet conditions.
- **Battery Safety:** Use only the specified lithium battery pack and external charger. Do not disassemble, crush, or expose the battery to extreme temperatures.
- **Probe Usage:** Use only insulated probes and test leads supplied or recommended by Siglent. Ensure probes are rated for the voltage being measured.
- **Maintenance:** Refer all servicing to qualified service personnel. Do not attempt to repair the device yourself.
- **Environment:** Operate the device within the specified environmental conditions (temperature, humidity) to ensure optimal performance and longevity.

What's in the Box

Verify that all items listed below are included in your package:

- Siglent SHS810X Handheld Oscilloscope Unit
- USB Cable
- Quick Start Guide
- Passive Probes (2)
- Certification Document
- Power Adapter/Charger

- Multimeter Test Leads



Image: All components included in the Siglent SHS810X package, neatly laid out.





Image: The USB cable provided with the SHS810X for data transfer and connectivity.



Image: The red and black multimeter test leads, including alligator clips, for use with the SHS810X's multimeter function.

Product Overview

The SHS810X features a robust design with a clear display and intuitive controls. Familiarize yourself with the main components:

- **Front Panel:** 5.6-inch TFT-LCD display, function buttons, navigation controls, and input jacks for multimeter.
- **Top Panel:** BNC connectors for oscilloscope channels (CH1, CH2).
- **Side Panel:** USB port for connectivity.
- **Rear Panel:** Battery compartment and kickstand.



Image: Front view of the SHS810X, showing the display, control panel, and multimeter input ports.



Image: Side view of the SHS810X, illustrating the integrated kickstand for desktop use.



Image: Rear view of the SHS810X, showing the battery compartment cover and product labels.



Image: Close-up of the multimeter input jacks on the front panel, protected by a cover.



Image: Top view of the SHS810X, highlighting the two BNC connectors for oscilloscope probes (CH1 and CH2).

Setup

1. Battery Installation and Charging

The SHS810X is powered by a rechargeable lithium-ion battery. For first use, or if the battery is depleted, it is recommended to fully charge the device.

1. Locate the battery compartment on the rear of the device.
2. Open the battery compartment cover.
3. Insert the lithium battery pack, ensuring correct polarity.
4. Close the battery compartment cover.
5. Connect the provided power adapter to the device's charging port and then to a power outlet.
6. The power indicator LED will show charging status. A full charge typically takes several hours.



Image: Rear view of the SHS810X with the battery compartment open, showing where to insert the battery pack.



Image: The power adapter and cable used to charge the SHS810X and power it from an AC outlet.

2. Initial Power On

Press and hold the power button located on the front panel until the display illuminates. The device will boot up and enter the last used mode (Oscilloscope or Multimeter).

3. Probe Compensation (Oscilloscope Mode)

Before taking accurate measurements with the oscilloscope, it is crucial to compensate the probes. This ensures the probe's capacitance matches the oscilloscope's input impedance.

1. Connect a passive probe to one of the BNC input channels (e.g., CH1).
2. Connect the probe tip to the probe compensation output (usually a square wave test point on the device itself or a dedicated probe compensation terminal).
3. Adjust the probe's compensation screw (typically on the probe body) until a flat-top square wave is displayed on the screen.
4. Repeat for all passive probes.

Operating the SHS810X

1. Mode Selection

The SHS810X can operate as an oscilloscope or a digital multimeter. Use the dedicated mode buttons on the front panel to switch between "Scope" and "Meter" modes.

2. Oscilloscope Operation

The oscilloscope function allows for waveform visualization and analysis.

- **Connecting Probes:** Connect passive probes to CH1 or CH2 BNC inputs. Ensure the probe attenuation setting (e.g., 1X, 10X) matches the setting on the oscilloscope.
- **Vertical Controls:** Use the vertical scale (V/div) and position controls to adjust the amplitude and vertical offset of the waveform.
- **Horizontal Controls:** Use the horizontal scale (s/div) and position controls to adjust the time base and horizontal offset.
- **Triggering:** The SHS810X supports various intelligent triggers including Edge, Slope, Pulse Width, Window, Runt, Interval, Time out (Dropout), and Pattern. Use the "Trigger Setup" button to configure trigger type, level, and source.
- **Auto Setup:** Press the "Auto Setup" button for automatic scaling and triggering of the input signal.
- **Measurements:** Access automatic measurements (e.g., Vpp, Vrms, Frequency) via the "Measure" menu.
- **FFT Analysis:** The device supports 1 Mpts FFT for frequency domain analysis, including Peaks and Markers.

3. Multimeter Operation

The integrated 6000 counts digital multimeter supports various electrical measurements.

- **Connecting Test Leads:** Connect the red and black multimeter test leads to the appropriate input jacks on the front panel (e.g., VΩmA for voltage, resistance, current; COM for common).
- **Measurement Functions:** The multimeter supports DCV (DC Voltage), ACV (AC Voltage), DCI (DC Current), ACI (AC Current), Resistance, Diode Test, Capacitance, and Continuity Test. Select the desired function using the dedicated buttons or menu.
- **Current Measurement:** For current measurements, ensure the test leads are connected to the correct current input jack (e.g., 10A or mA) and the appropriate external shunt is used if necessary.

Maintenance

- **Cleaning:** Use a soft, damp cloth to clean the exterior of the device. Do not use abrasive cleaners or solvents. Ensure the device is powered off and disconnected from all power sources before cleaning.
- **Storage:** Store the SHS810X in a cool, dry place away from direct sunlight and extreme temperatures. If storing for

extended periods, ensure the battery is partially charged (around 50%) to prolong its lifespan.

- **Battery Care:** Avoid fully discharging the battery frequently. Recharge the battery when the low battery indicator appears. If the device will not be used for a long time, remove the battery.
- **Calibration:** Periodic calibration by authorized service centers is recommended to maintain measurement accuracy.

Troubleshooting

Problem	Possible Cause	Solution
Device does not power on.	Battery depleted or not installed correctly; power adapter issue.	Charge the battery. Ensure battery is correctly inserted. Check power adapter connection.
No waveform displayed in oscilloscope mode.	Probe not connected; incorrect vertical/horizontal settings; no input signal; trigger not set correctly.	Connect probe. Press "Auto Setup". Adjust V/div and s/div. Check signal source. Adjust trigger level/type.
Inaccurate multimeter readings.	Test leads not connected properly; incorrect function selected; battery low.	Ensure test leads are firmly connected to correct jacks. Select appropriate measurement function. Charge battery.
Screen is frozen or unresponsive.	Software glitch.	Perform a soft reset by holding the power button until the device turns off, then restart. If issue persists, contact support.

Specifications

Detailed technical specifications for the Siglent SHS810X:

- **Model:** SHS810X
- **Oscilloscope Channels:** 2 (non-isolated)
- **Multimeter Channel:** 1 (isolated)
- **Bandwidth:** 100 MHz
- **Max Sample Rate:** 1 GSa/s (single channel), 500 MSa/s (two channels)
- **Memory Depth:** 12 Mpts (single channel), 6 Mpts (two channels)
- **Display:** 5.6-inch TFT-LCD, 640 x 480 resolution
- **Multimeter Counts:** 6000 counts
- **Battery:** UL2054 certified lithium battery pack, 6900 mAh capacity
- **Dimensions:** 20 x 18 x 15 inches (Product Dimensions)
- **Weight:** 10 Pounds
- **Triggers:** Edge, Slope, Pulse Width, Window, Runt, Interval, Time out (Dropout), Pattern
- **FFT:** 1 Mpts, supports Peaks and Markers

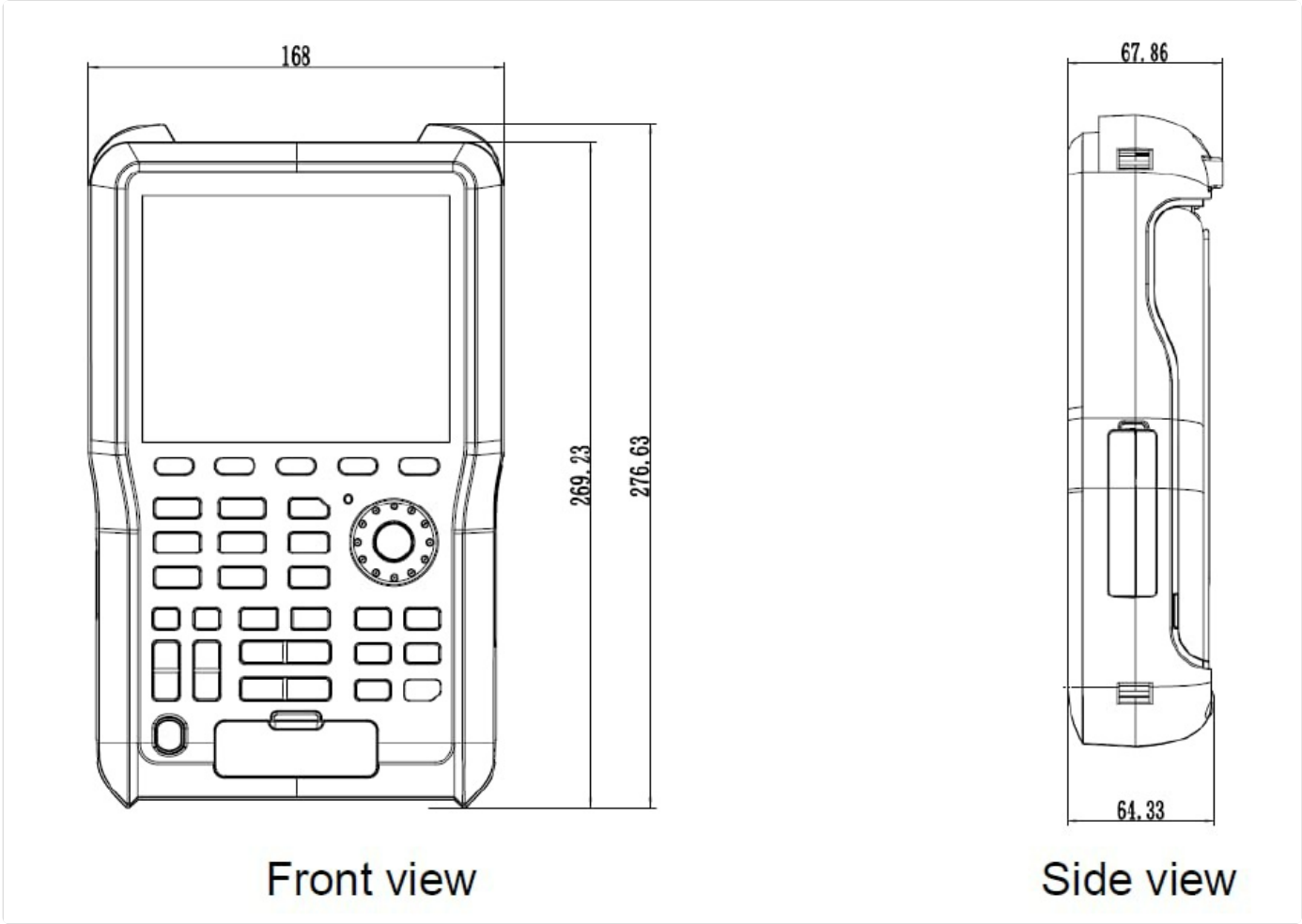


Image: Technical drawing illustrating the front and side dimensions of the SHS810X in millimeters.

Warranty and Support

Siglent Technologies provides a standard warranty for the SHS810X. Please refer to the warranty card included in your package for specific terms and conditions. For technical support, service, or warranty claims, please contact Siglent Technologies customer service or visit their official website.

Manufacturer: Siglent Technologies

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For more information, you can visit the Siglent Store on Amazon.

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