

OWON ADS814A

OWON ADS814A 12-bit Digital Oscilloscope User Manual

Model: ADS814A | Brand: OWON

1. INTRODUCTION

The OWON ADS814A is a high-performance 4-channel 12-bit digital oscilloscope designed for precise signal analysis. Featuring a 100 MHz bandwidth, 1.25 GSa/s real-time sample rate, and a 7-inch multi-touch screen, this instrument offers advanced measurement capabilities for various applications. This manual provides essential information for setting up, operating, maintaining, and troubleshooting your device.

2. KEY FEATURES

- **12-bit Vertical Resolution:** Captures signal details with 4096 levels of vertical resolution, significantly enhancing precision for microvolt-level signal analysis.
- **High Performance:** Offers 100 MHz bandwidth, 1.25 GSa/s real-time sample rate, 50 Mpts memory depth, and a waveform capture rate of up to 700,000 wfms/s.
- **Extensive Trigger Types:** Supports Edge, Video, Pulse Width, Slope, Runt, Overtime, Nth Edge, Logic, and serial bus triggers (RS232/UART, I2C, SPI, CAN, LIN).
- **Hardware Decoding:** Provides 2-channel hardware decoding for RS232/UART, I2C, SPI, CAN, and LIN protocols.
- **7-inch Multi-Touch Screen:** Intuitive smartphone-like operation with user-customizable shortcut keys. Supports external mouse and keyboard for enhanced efficiency.
- **Advanced Measurement Functions:** Includes 43 automatic measurements with advanced mathematical functions, measurement gating, and a technical terms dictionary for quick setup.
- **Multi-functional Design:** Integrates digital oscilloscope, protocol analyzer, high-precision frequency counter, FFT spectrum analyzer, and voltmeter functionalities.

FIVE-IN-ONE MULTIFUNCTIONAL

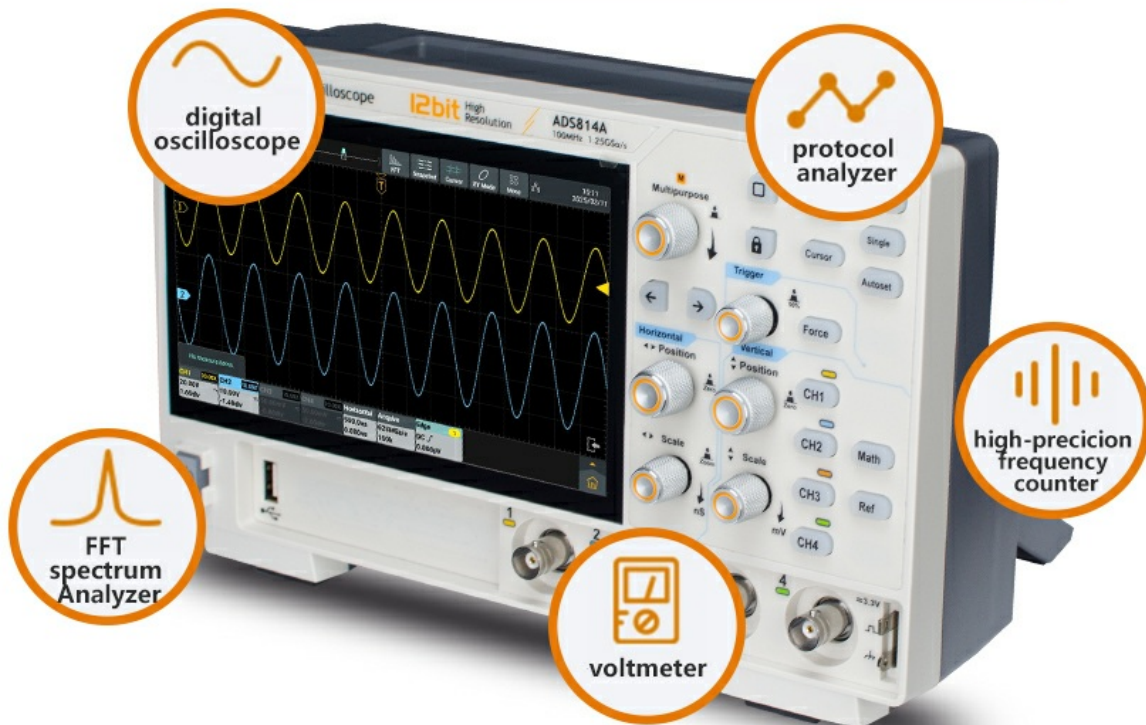


Figure 2.1: The OWON ADS814A functions as a digital oscilloscope, protocol analyzer, FFT spectrum analyzer, voltmeter, and high-precision frequency counter.

3. SETUP

3.1 Unpacking and Inspection

Carefully remove the oscilloscope from its packaging. Inspect the device for any signs of damage during transit. Ensure all accessories listed in the packing list are present.

3.2 Power Connection

1. Connect the provided power adapter to the DC 12V power input port on the rear panel of the oscilloscope.
2. Plug the power adapter into a suitable AC power outlet.
3. Press the power button located on the front panel to turn on the device.

3.3 Probe Connection

Connect the BNC end of the oscilloscope probes to the input channels (CH1, CH2, CH3, CH4) on the front panel. Ensure a secure connection by twisting the BNC connector until it locks. Connect the probe tip and ground clip to the circuit under test.

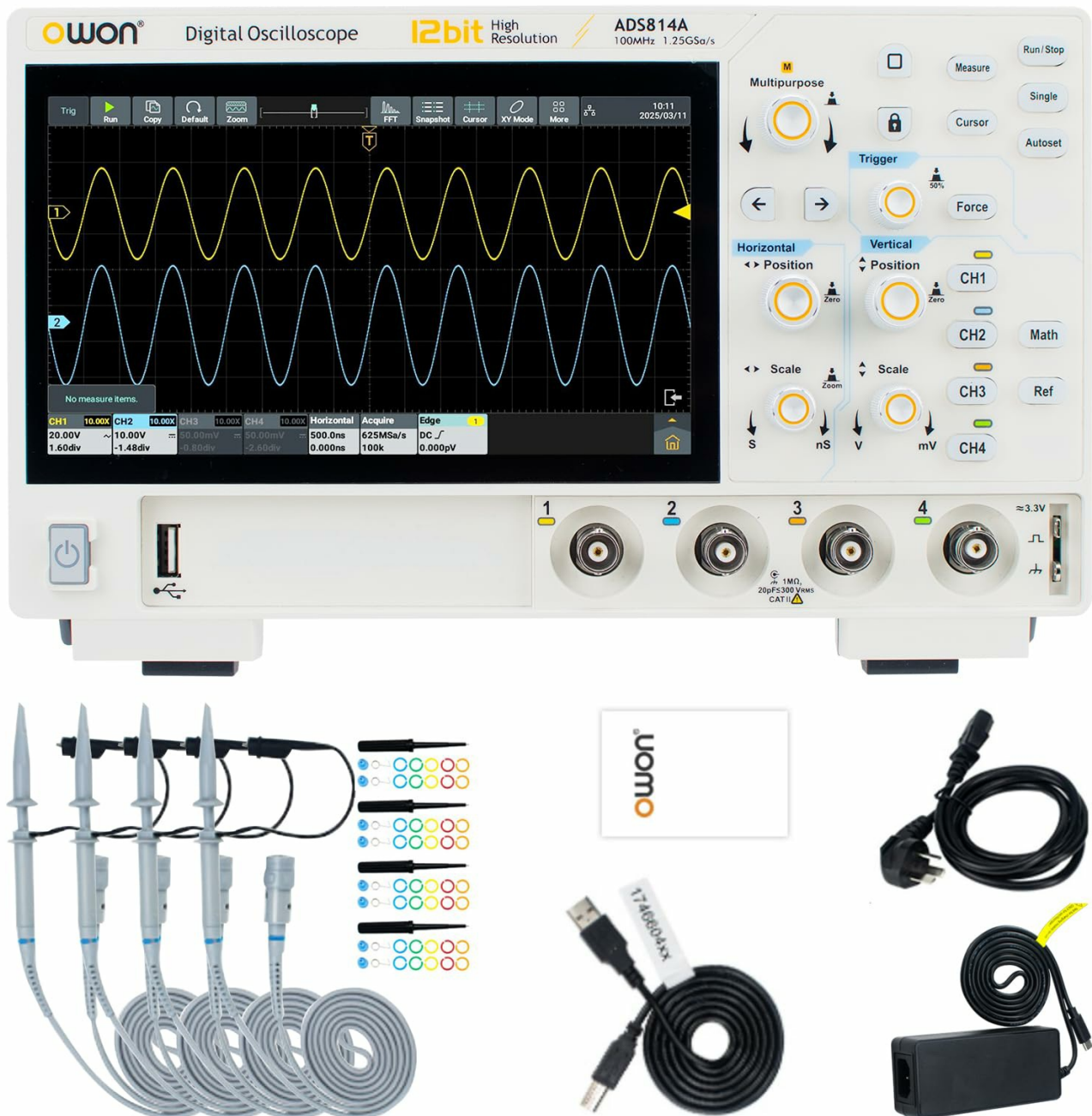


Figure 3.1: Front panel of the OWON ADS814A, showing input channels and controls.

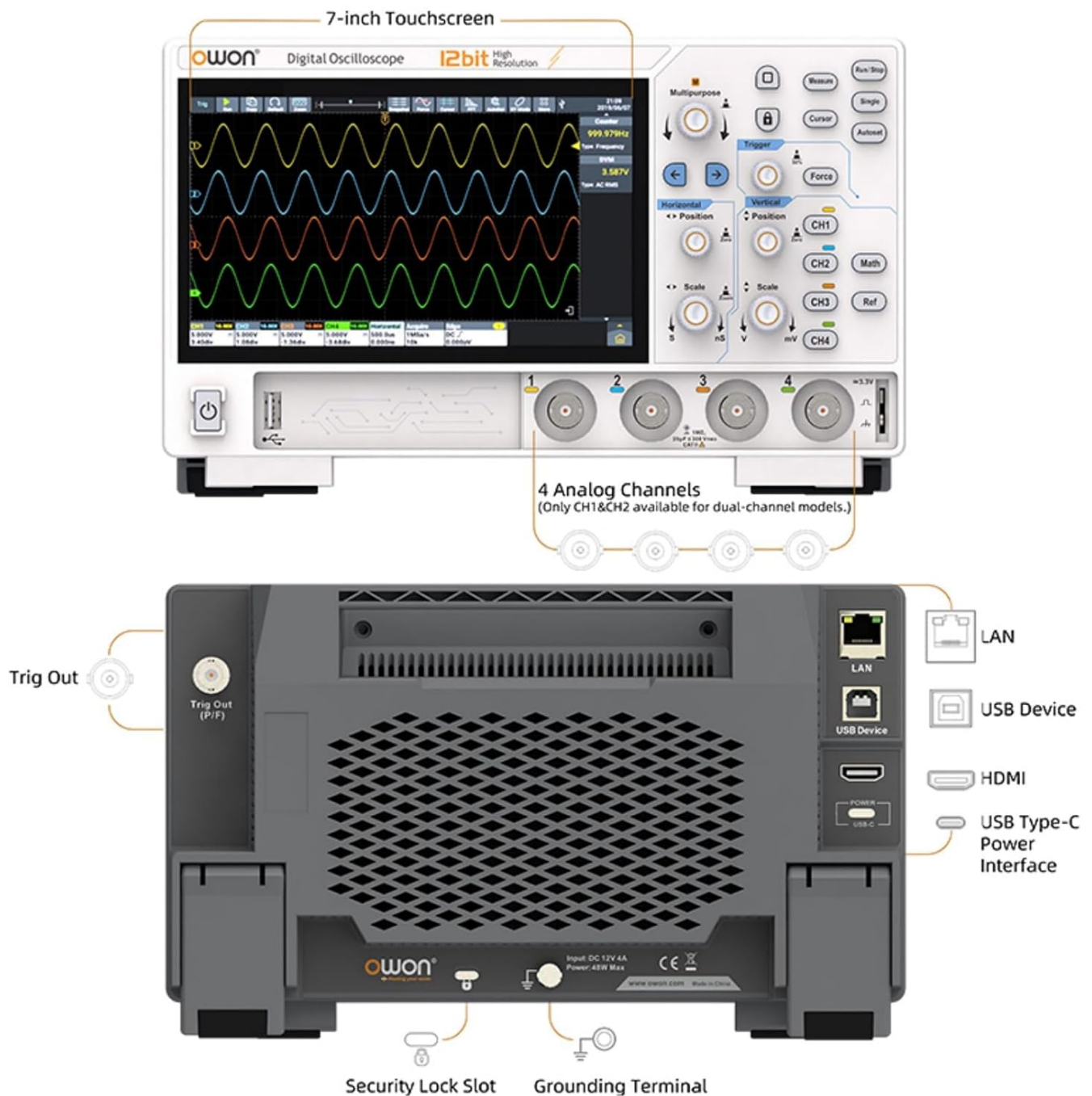


Figure 3.2: Rear panel connections including LAN, USB, HDMI, and power input.

4. OPERATING INSTRUCTIONS

4.1 User Interface Navigation

The ADS814A features a 7-inch multi-touch screen for intuitive control. You can interact with the device using touch gestures similar to a smartphone. Physical knobs and buttons are also available for precise adjustments of vertical scale, horizontal scale, and position.

7-inch Multi-Touch Screen



7-inch

Resolution: 1024*600 pixels

Multi-touch screen

user-customizable menu support

Remote control

Embedded webserver allows browser-based access and operation of the oscilloscope

Hardware expansion

Supports external Wi-Fi modules and network printers

Figure 4.1: The 7-inch multi-touch screen interface.

4.2 Basic Measurements

1. **Vertical Scale (Voltage):** Use the vertical scale knob (labeled 'Scale' under 'Vertical') to adjust the volts per division.
2. **Horizontal Scale (Time):** Use the horizontal scale knob (labeled 'Scale' under 'Horizontal') to adjust the seconds per division.
3. **Position Adjustment:** Use the vertical and horizontal position knobs to shift the waveform on the screen.
4. **Auto Set:** Press the 'Autoset' button for the oscilloscope to automatically adjust settings to display a stable waveform.
5. **Automatic Measurements:** Press the 'Measure' button to access a menu of 43 automatic measurements. Select desired parameters like Vavg, Vpp, Frequency, Period, etc.

ADS814A



Durable
electroplated
knob with
metallic finish

Figure 4.2: Durable electroplated control knobs for precise adjustments.

4.3 Triggering

The trigger system stabilizes repetitive waveforms and captures single-shot events. Use the 'Trigger' section on the front panel to adjust trigger settings.

- **Trigger Level:** Adjust the trigger level knob to set the voltage point at which the trigger occurs.
- **Trigger Mode:** Select between Auto, Normal, and Single modes. Auto mode triggers even without a signal, Normal mode requires a trigger event, and Single mode captures one event and stops.
- **Trigger Type:** Access the trigger menu on the screen to select advanced trigger types such as Edge, Pulse Width, Video, etc.

5. MAINTENANCE

5.1 Cleaning

To maintain the performance and appearance of your oscilloscope, clean the exterior surfaces regularly. Use a soft, damp cloth with a mild detergent. Avoid abrasive cleaners or solvents that could damage the casing or screen. Ensure the device is powered off and disconnected from the power source before cleaning.

5.2 Storage

When not in use for extended periods, store the oscilloscope in a dry, dust-free environment, away from direct sunlight and extreme temperatures. Use the original packaging or a protective case to prevent damage.

5.3 Calibration

The oscilloscope is factory calibrated. For optimal accuracy, periodic calibration by qualified personnel is recommended. Refer to the official OWON support resources for calibration services.

6. TROUBLESHOOTING

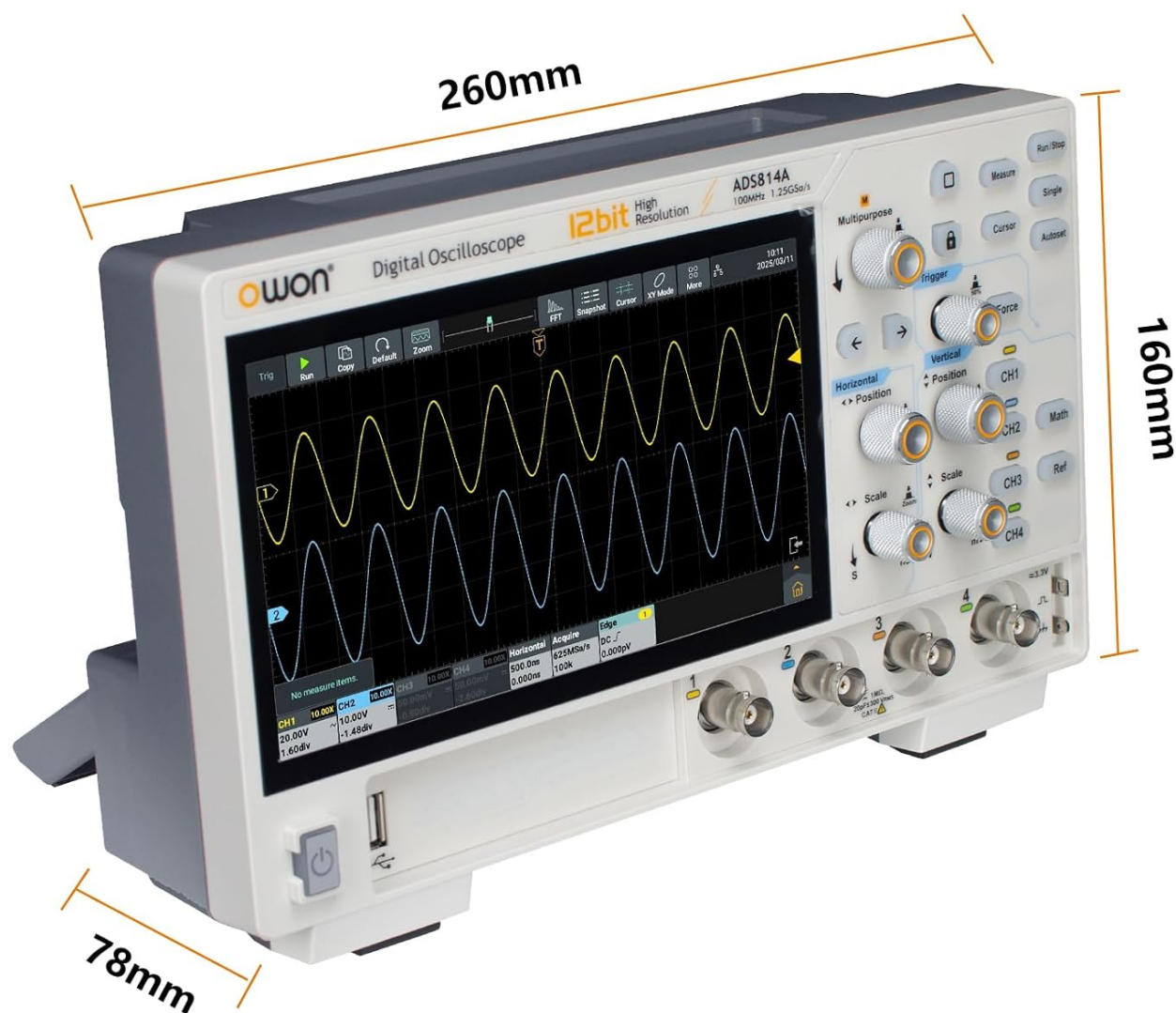
Problem	Possible Cause	Solution
No display after power on	Power cable not connected; Power adapter faulty; Device malfunction	Check power cable connection; Try a different power adapter; Contact support
No waveform displayed	Probe not connected; Input signal too small/large; Incorrect trigger settings; Channel off	Ensure probe is connected to circuit; Adjust vertical scale; Adjust trigger level/mode; Enable channel
Unstable waveform	Incorrect trigger source/level; Auto-set not used	Adjust trigger source/level; Use 'Autoset' function
Touch screen unresponsive	Temporary software glitch; Screen dirty	Restart the device; Clean the screen with a soft cloth

If the problem persists after attempting these solutions, please contact OWON customer support for further assistance.

7. SPECIFICATIONS

Parameter	Value
Brand	OWON
Model	ADS814A
Bandwidth	100 MHz
Channels	4
Real-time Sample Rate	1.25 GSa/s
Memory Depth	50 Mpts

Parameter	Value
Waveform Capture Rate	700,000 wfms/s
Vertical Resolution	12-bit
Display	7-inch Multi-Touch Screen
Dimensions (L x W x D)	260 x 160 x 78 mm
Weight (main unit)	Approx. 1.5 kg
Manufacturer Reference ID	OWON-814A



Dimensions:260*160*78mm(L*W*D)
Approximately 1.5KG(main unit)

Figure 7.1: Physical dimensions of the ADS814A unit.

8. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the documentation included with your product or visit the official OWON website. Keep your purchase receipt as proof of purchase for warranty claims.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question