

[Manuals.plus](#) /

> [Abestop](#) /

> Abestop AT312G Oscilloscope Multimeter 3 in 1 Handheld Oscilloscope with 12MHz Bandwidth 50MSa/s Sampling Rate Built-in Generator Voltage Tester Multimeter Function AT312G-12MHz User Manual

## Abestop AT312G

# Abestop AT312G Oscilloscope Multimeter User Manual

Model: AT312G-12MHz

Brand: Abestop

## 1. INTRODUCTION

The Abestop AT312G is a versatile 3-in-1 handheld device integrating a 12MHz bandwidth oscilloscope, a 6,000 counts digital multimeter, and a waveform generator. Designed for portability and ease of use, it is suitable for a wide range of applications including primary users, DIY projects, home appliance repair, car maintenance, electrical measurement, and educational purposes.

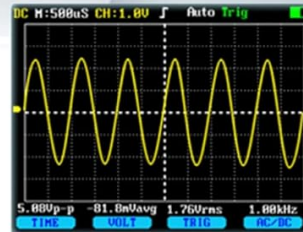


Figure 1.1: Abestop AT312G Oscilloscope Multimeter with included accessories.

OSCILLOSCOPE + MULTIMETER + SIGNAL GENERATOR

**3 in 1**

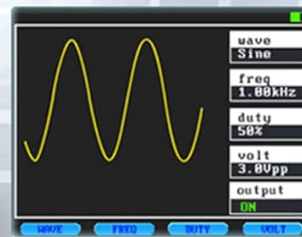
# ONE MACHINE REPLACES THREE



12MHz  
50MS/s



6000 Count



100KHz

Figure 1.2: The AT312G combines oscilloscope, multimeter, and signal generator functions.

## 2. WHAT'S IN THE BOX

Upon opening the package, please verify that all components are present:

- Abestop AT312G Oscilloscope Multimeter
- Test Leads (Red and Black)
- USB-C Charging Cable
- Protective Carrying Case
- User Manual

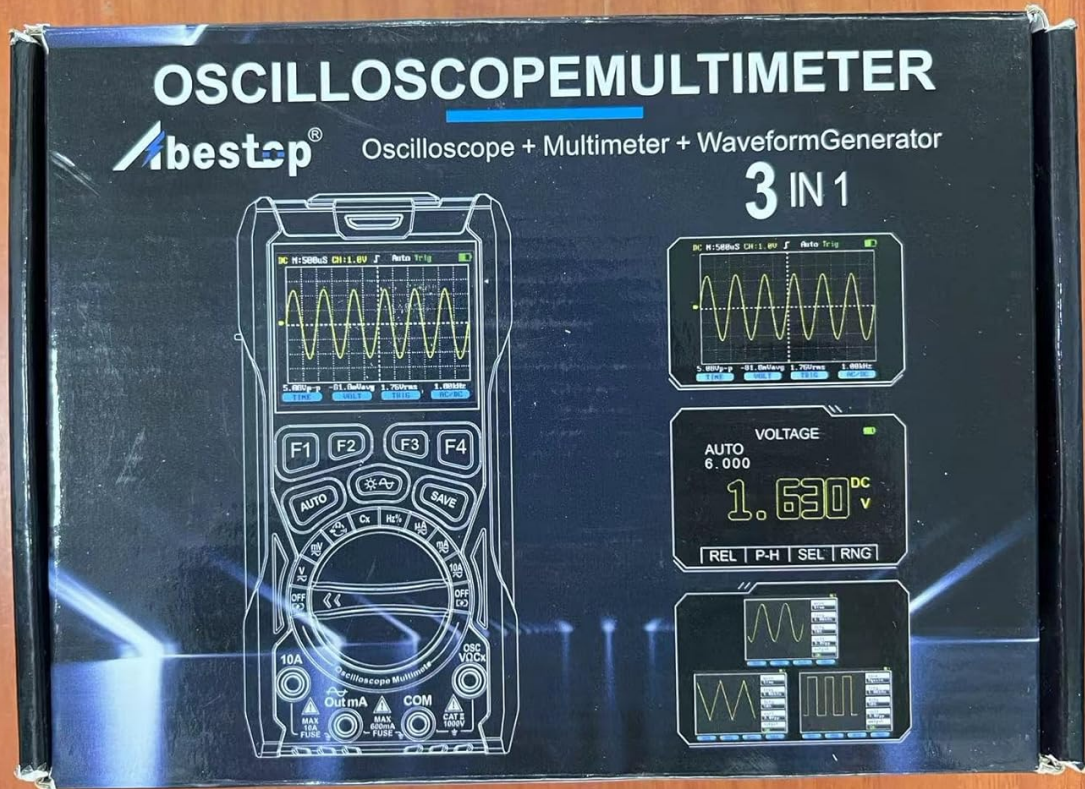


Figure 2.1: The complete oscilloscope set as packaged.

### 3. SETUP AND INITIAL USE

#### 3.1 Charging the Device

The AT312G is powered by a built-in Lithium Ion battery. Before first use, it is recommended to fully charge the device. Connect the provided USB-C cable to the charging interface on the device and to a standard USB power adapter (not included).

#### 3.2 Powering On/Off

To power on the device, rotate the functional range knob from the 'OFF' position to any desired measurement function. To power off, rotate the knob back to the 'OFF' position.

#### 3.3 Interface Description

# KEY AND INTERFACE DESCRIPTION



Figure 3.1: Detailed view of the AT312G's buttons, ports, and display elements.

- **Charging indicator light:** Indicates charging status.
- **Charging interface:** USB-C port for charging.
- **Multi-Function Buttons (F1-F4):** Context-sensitive buttons for various operations.
- **AUTO button:** Used for one-click oscillogram and other auto functions.
- **Backlight/Signal Output button:** Controls display backlight and signal generator output.
- **SAVE button:** For data retention and storage.
- **Functional range knob:** Selects measurement modes.
- **10A current input terminal:** For high current measurements.
- **Signal output / current input terminal (Out mA):** Used for signal generator output and milliampere current measurements.
- **Oscillographic/voltage/resistance/current input port (VΩCx):** Main input for most measurements.
- **COM input:** Common ground terminal.

## 4. OPERATING MODES

### 4.1 Oscilloscope Operation (OSC)

The AT312G features a built-in 12MHz bandwidth oscilloscope with a 50MSa/s sampling rate. It supports automatic, conventional, and single waveform scanning modes.

- **Entering OSC Mode:** From the voltage section of the multimeter mode, press and hold the "AUTO" button for 2 seconds to enter the oscilloscope (OSC) mode.
- **One-Button Auto Oscilloscope:** In OSC mode, briefly press the "AUTO" button to automatically adjust the waveform display for optimal viewing.
- **Time Base Adjustment:** Under the main menu of the oscilloscope, press the F1 key (TIME) to enter the time base adjustment sub-menu.
- **Range Adjustment:** In the main menu of the oscilloscope mode, press the F2 key (VOLT) to enter the range adjustment sub-menu.
- **Data Storage:** Press "SAVE" to temporarily hold the current waveform data. Press "SAVE" again and hold for 2 seconds to enter the database, then press F4 (SAVE) to permanently save the current data. The device can store up to 10 waveforms.

Video 4.1: Demonstrates oscilloscope operation, including entering OSC mode, auto-ranging, and saving data. (Relevant segments: 0:15 - 0:49)



Figure 4.1: The device can measure waveform amplitude up to 200V/grid with a maximum measurement of 1600Vpp.

## 4.2 Multimeter Functions

The AT312G functions as a 6,000 counts digital multimeter, offering a wide range of measurement capabilities.

- **AC Voltage and Frequency:** Connect the test leads to the appropriate terminals and the circuit. The device can measure AC Voltage from 0 ~ 750V and Frequency from 1 ~ 20MHz. Use the SEL button to cycle through different measurement parameters like frequency and duty cycle.
- **Resistance Measurement:** Rotate the knob to the Resistance ( $\Omega$ ) setting. Connect the test leads across the component to measure resistance from 0 ~ 60M $\Omega$ .
- **Diode Measurement:** Select the Diode ( ) setting. The device has an open circuit voltage of 2.8V for diode testing.
- **Capacitance Measurement:** Switch to the Capacitance (Cx) setting. The device can measure capacitance from 10nF ~ 100mF.
- **DC Voltage:** 0 ~ 1000V
- **DC/AC Current:** 0 ~ 10A
- **Continuity:** Judgement resistance 50 $\Omega$ .

Video 4.2: Demonstrates various multimeter functions including AC voltage, frequency, resistance, diode, and capacitance measurements. (Relevant segments: 1:15 - 1:37)



Figure 4.2: Overview of multimeter measurement capabilities.

### 4.3 Waveform Generator

The built-in waveform generator provides three types of waveform outputs with adjustable parameters.

- **Waveform Types:** Sine wave (100Hz~100KHz), Triangle wave (100Hz~50KHz), and Square wave (100Hz~20KHz).
- **Adjustable Parameters:** Frequency, duty cycle, and voltage parameters can be adjusted.
- **Automatic Measurement:** Supports automatic measurement functions for Vp-p, Vavg, Vrms, and Hz.

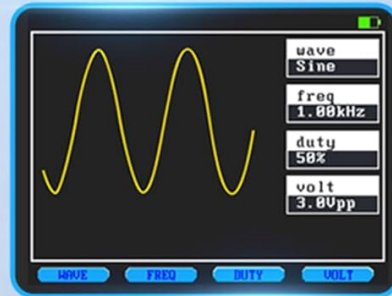
Video 4.3: Demonstrates the signal source operation, showing the selection of different waveform types and adjustable parameters. (Relevant segments: 0:50 - 1:14)

# MULTIPLE SIGNAL OUTPUTS

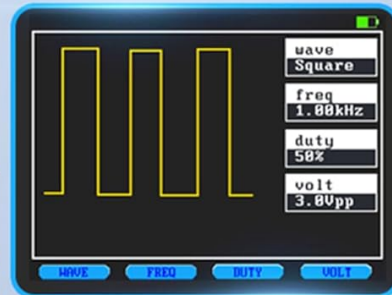
- adjustable frequency
- Adjustable amplitude
- Adjustable duty cycle



**sine**  
100Hz~100kHz



**square**  
100Hz~20kHz



**triangular**  
100Hz~50kHz

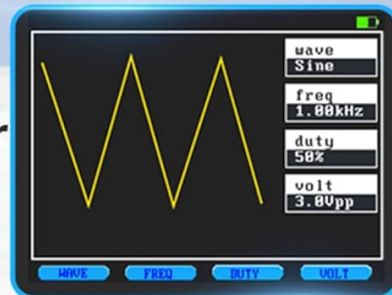


Figure 4.3: The AT312G can generate sine, square, and triangular waveforms.

## 5. SPECIFICATIONS

Feature	Specification
Product Dimensions	5.7 x 2.36 x 7.87 inches
Item Model Number	AT312G
Batteries	1 Lithium Ion battery required (included)
Date First Available	July 20, 2023
Manufacturer	Abestop
ASIN	B0CCDNNWXD

Feature	Specification
Country of Origin	China
Brand	Abestop
Power Source	Battery Powered
Style	AT312G-12MHz
Color	black
Item Weight	260 Grams (9.17 ounces)
Oscilloscope Bandwidth	12MHz
Sampling Rate	50MSa/s
Multimeter Counts	6,000 Counts
DC Voltage Range	0 ~ 1000V
AC Voltage Range	0 ~ 750V
DC/AC Current Range	0 ~ 10A
Resistance Range	0 ~ 60M $\Omega$
Capacitance Range	10nF ~ 100mF
Frequency Range	1 ~ 20MHZ
Diode Open Circuit Voltage	2.8V
Continuity Judgement Resistance	50 $\Omega$
Fuse Specification	750mA/250V, 10A/250V

## 6. MAINTENANCE

### 6.1 Cleaning

To clean the device, use a soft, damp cloth. Do not use abrasive cleaners or solvents, as they may damage the casing or display. Ensure the device is powered off and disconnected from any power source before cleaning.

### 6.2 Battery Care

The AT312G uses a Lithium Ion battery. To prolong battery life:

- Avoid fully discharging the battery frequently.
- Store the device in a cool, dry place when not in use for extended periods.
- Charge the device periodically if stored for a long time to prevent deep discharge.

## 6.3 Storage

When not in use, store the AT312G in its protective carrying case to prevent damage from dust, moisture, and physical impact. Avoid storing in extreme temperatures.

## 7. TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on.	Low battery or completely discharged.	Connect the device to a USB power source and charge for at least 30 minutes before attempting to power on.
Incorrect or no readings in multimeter mode.	Incorrect function selected on the knob. Test leads not properly connected. Blown fuse (for current measurements).	Ensure the knob is set to the correct measurement function. Check test lead connections to the device and the circuit. If current measurement fails, check and replace the fuse if necessary (refer to specifications for fuse type).
Oscilloscope display is flat or erratic.	Incorrect time base or voltage range settings. No input signal.	Press the "AUTO" button for one-button auto-scaling. Manually adjust time base (F1) and voltage range (F2) as needed. Verify the signal source is active and connected correctly.
Signal generator output is not as expected.	Incorrect waveform type or parameters selected. Output not enabled.	Review the selected waveform type (sine, triangle, square) and adjust frequency, duty cycle, and voltage parameters using the F-buttons. Ensure the signal output is enabled (refer to the backlight/signal output button).

## 8. WARRANTY AND SUPPORT

Abestop products are manufactured to high-quality standards. For information regarding warranty coverage, technical support, or service, please refer to the contact details provided on the product packaging or visit the official Abestop website. Please retain your purchase receipt as proof of purchase for any warranty claims.