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## UNI-T UTD2152CEX

# UNI-T UTD2152CEX Digital Storage Oscilloscope User Manual

Model: UTD2152CEX | Brand: UNI-T

## 1. INTRODUCTION

The UNI-T UTD2152CEX is a high-performance digital storage oscilloscope designed for precise waveform analysis and measurement. This device features a 150MHz bandwidth across 2 channels, a 1GSa/s real-time sampling rate, and a wide vertical range from 1mV/div to 20V/div. It is equipped with a 7-inch TFT LCD display, offering clear visualization of waveforms and measurement data. This manual provides essential information for the safe and effective operation of your oscilloscope.

Key features include automatic measurement of 32 waveform parameters, a unique waveform record and replay function, and support for plug-and-play USB storage for data transfer and system software upgrades. Its versatile design makes it suitable for various applications, including serial data analysis, jitter analysis, data storage device testing, and general electronics design, maintenance, and troubleshooting.

## 2. SAFETY INFORMATION

Please read all safety instructions carefully before operating the UNI-T UTD2152CEX oscilloscope. Failure to follow these instructions may result in electric shock, fire, or damage to the device.

- **Power Supply:** Ensure the oscilloscope is connected to a power source that matches the specified voltage and frequency requirements. Use only the provided power cord.
- **Grounding:** The oscilloscope must be properly grounded to prevent electric shock. Do not defeat the grounding feature of the power plug.
- **Environment:** Operate the device in a dry, well-ventilated area. Avoid exposure to moisture, extreme temperatures, or direct sunlight.
- **Probes:** Use only probes designed for the oscilloscope and ensure they are correctly connected before making measurements. Verify the probe's voltage rating matches or exceeds the circuit being tested.
- **Maintenance:** Refer to the maintenance section for cleaning and care instructions. Do not attempt to service the device yourself; contact qualified personnel for repairs.
- **Ventilation:** Do not block the ventilation openings on the device. Adequate airflow is essential to prevent overheating.

## 3. PACKAGE CONTENTS

Verify that all items listed below are included in your UNI-T UTD2152CEX oscilloscope kit:

## Accessories Kit / UTD2152CEX



✓ Elastical contact ground x 1



✓ IC tip x 2



✓ Adjustment tool x 1



✓ Marker ring (4pcs)



✓ Sprung hooks x 2  
Probes x 1 pair



✓ USB cable x 1



✓ USA standard power cord x 1

Figure 3.1: Included accessories for the UTD2152CEX oscilloscope.

- UNI-T UTD2152CEX Digital Storage Oscilloscope Unit
- Probes (1 pair)
- Sprung Hooks (2 pieces)
- IC Tips (2 pieces)
- Elastical Contact Ground (1 piece)
- Adjustment Tool (1 piece)
- Marker Rings (4 pieces)
- USB Cable (1 piece)
- USA Standard Power Cord (1 piece)
- User Manual (this document)

## 4. PRODUCT OVERVIEW

The UNI-T UTD2152CEX features a user-friendly interface with a large display and intuitive controls. Familiarize yourself with the main components:

## 4.1 Front Panel



**Figure 4.1:** Front view of the UTD2152CEX oscilloscope, showing the display, control knobs, and input channels.

The front panel includes the 7-inch TFT LCD display, various function buttons (e.g., MEASURE, ACQUIRE, STORAGE, CURSOR, DISPLAY, UTILITY, AUTO), vertical and horizontal controls, trigger controls, and input channels (CH1, CH2). A USB host port is located on the front for convenient data transfer.

## 4.2 Rear Panel

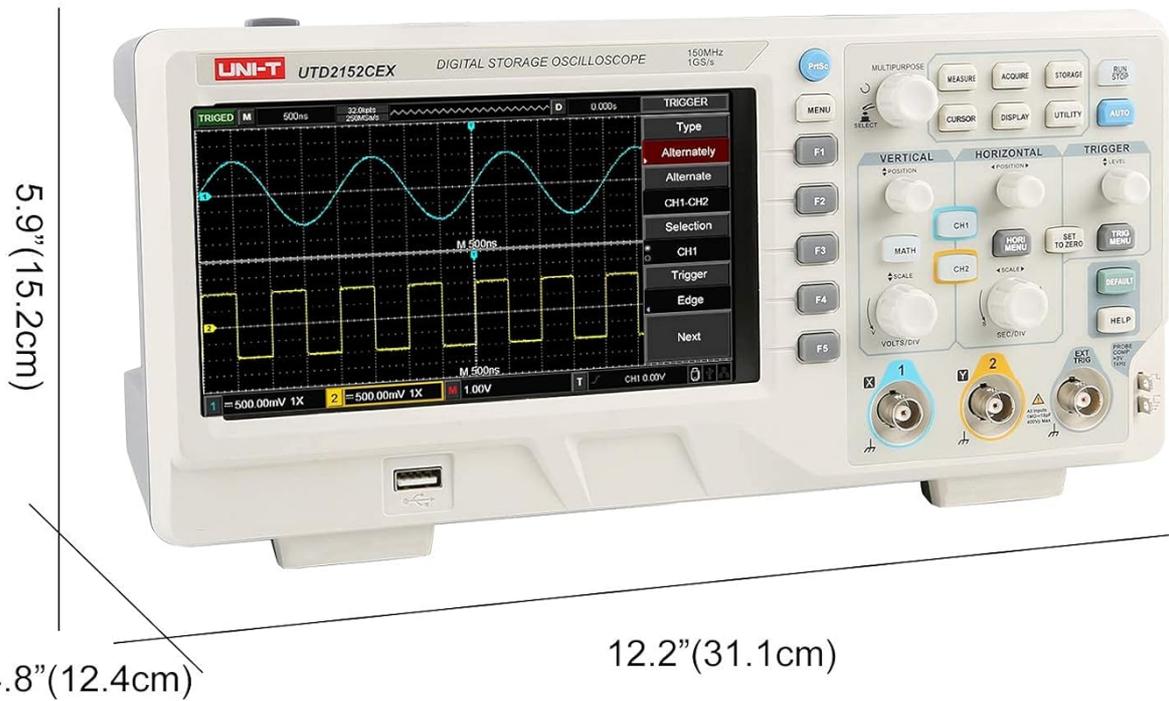


Figure 4.2: Rear view of the UTD2152CEX oscilloscope, highlighting the USB Device port and Pass/Fail output.

The rear panel houses the power input, a USB Device port for PC communication, and a Pass/Fail output connector. Ensure proper ventilation around these areas during operation.

### 4.3 Dimensions



Figure 4.3: Physical dimensions of the UTD2152CEX oscilloscope.

The approximate dimensions of the oscilloscope are 12.2 inches (31.1 cm) in width, 5.9 inches (15.2 cm) in height, and 4.8 inches (12.4 cm) in depth.

## 5. SETUP

Follow these steps for initial setup of your UNI-T UTD2152CEX oscilloscope:

1. **Unpacking:** Carefully remove the oscilloscope and all accessories from the packaging. Retain the original packaging for future storage or transport.
2. **Power Connection:** Connect the provided USA standard power cord to the power input on the rear panel of the oscilloscope, then plug it into a grounded AC power outlet.
3. **Power On:** Press the power button located on the front panel to turn on the device. The UNI-T logo will appear on the screen during startup.
4. **Probe Connection:** Connect the oscilloscope probes to the CH1 and/or CH2 input connectors on the front panel. Ensure a secure connection.
5. **Probe Compensation:** Before taking measurements, it is recommended to perform probe compensation to ensure

accurate readings. Refer to the operating instructions for detailed steps on probe compensation.

## 6. OPERATING INSTRUCTIONS

This section outlines the basic operation of the UNI-T UTD2152CEX oscilloscope.

### 6.1 Basic Waveform Display

After powering on, connect a probe to an input channel (e.g., CH1) and attach the probe tip to the signal source you wish to observe. Use the **AUTO** button for quick automatic setup of vertical, horizontal, and trigger settings. Adjust the **VERTICAL** (Volts/Div) and **HORIZONTAL** (Sec/Div) knobs to scale the waveform appropriately on the 7-inch display.

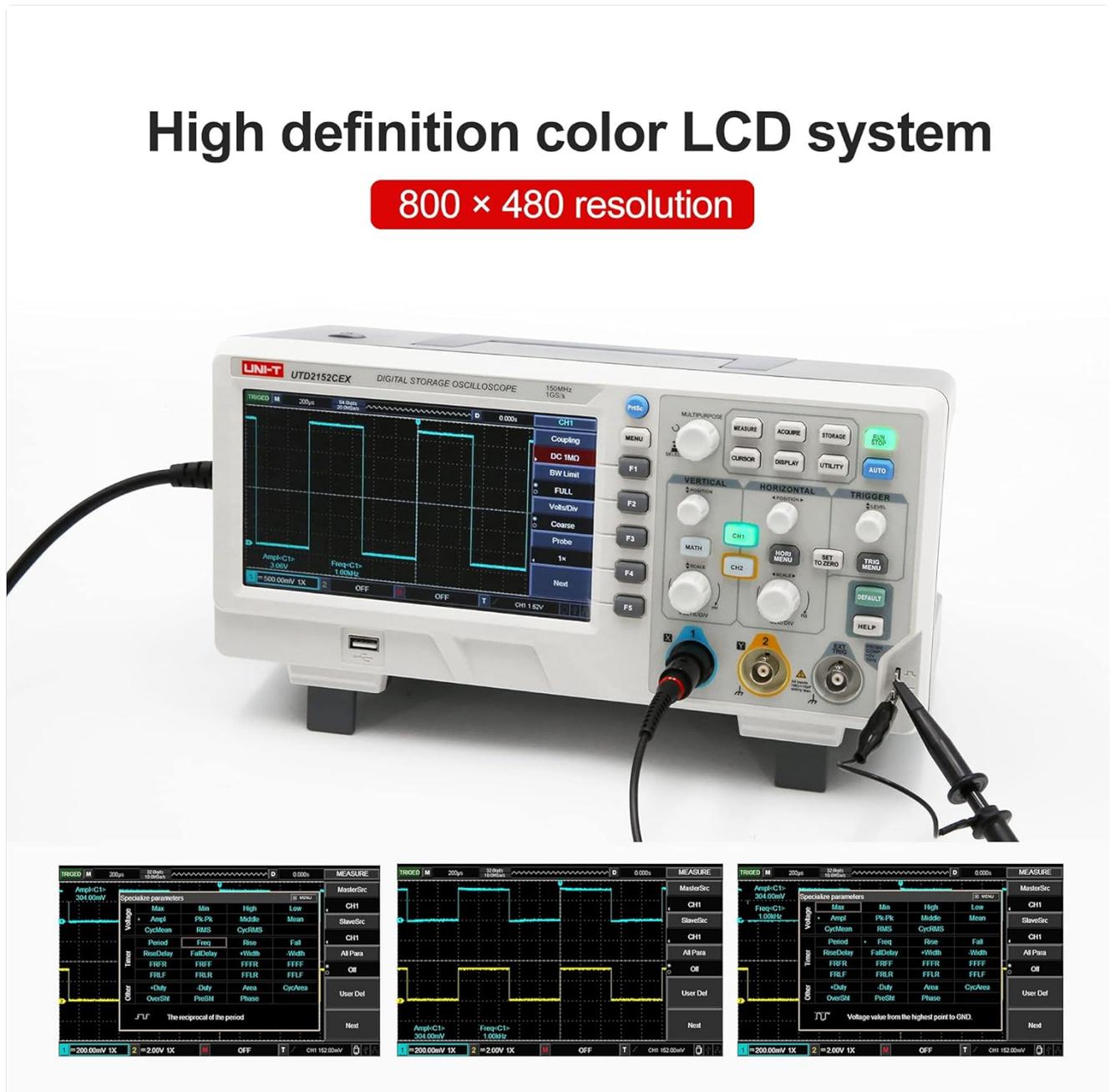


Figure 6.1: The 7-inch TFT LCD display with 800x480 resolution provides a clear view of waveforms.

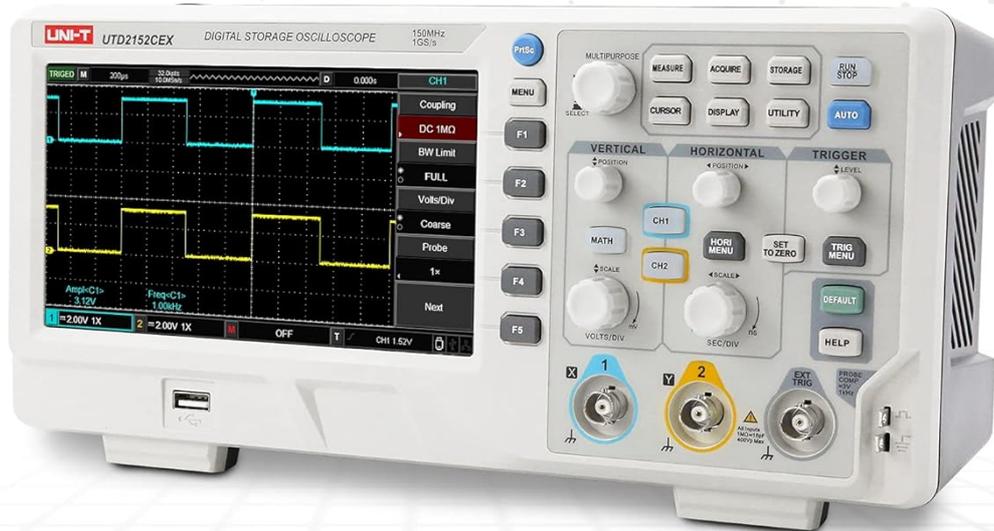
### 6.2 Waveform Parameters and Measurements

The UTD2152CEX supports automatic measurement of 32 waveform parameters. Press the **MEASURE** button to access the measurement menu. You can select various parameters such as Peak-to-Peak Voltage (Vpp), Frequency, Period, Rise Time, Fall Time, and more. The results are displayed on the screen for easy analysis.



# UTD2152CEX Digital oscilloscope

- ✓ 150MHz bandwidth, 2 Channel
- ✓ 1GSa/s Sample rate
- ✓ 34 waveform parameters
- ✓ Waveform capture rate 5,000wfms/s



**2**  
ANALOG  
CHANNELS

**150**  
150MHz  
BANDWIDTH

**1**  
1GSA/S  
SAMPLE RATE

**34**  
WAVEFORM  
PARAMETERS

**5000**  
WAVEFORM  
CAPTURE RATE

**64**  
STORAGE  
DEPTH

Figure 6.2: Overview of key specifications including 150MHz bandwidth, 1GSa/s sample rate, and 34 waveform parameters.

## 6.3 Trigger System

The trigger system stabilizes repetitive waveforms and captures single-shot events. Use the **TRIGGER** controls to set the trigger level, mode (Edge, Pulse, Video, Slope, Alternate), and source (CH1, CH2, EXT, AC Line). Proper trigger settings are crucial for observing specific events within a waveform.

## 6.4 Data Storage and Connectivity

The oscilloscope supports plug-and-play USB storage devices. Insert a USB flash drive into the front panel USB host port to save waveform data, screenshots, or instrument settings. The unique waveform record and replay function allows for capturing and reviewing transient events. The rear USB Device port enables communication with a computer for remote control and data transfer using compatible software. System software upgrades can also be performed via USB.

## 6.5 Multilingual Menu

The device features a multilingual menu, allowing users to select their preferred language for operation. Access this setting through the **UTILITY** menu.

## 7. MAINTENANCE

Proper maintenance ensures the longevity and accuracy of your UNI-T UTD2152CEX oscilloscope.

- **Cleaning:** Disconnect the power cord before cleaning. Use a soft, damp cloth with mild detergent to clean the exterior. Do not use abrasive cleaners or solvents. Keep the display clean and free of dust.
- **Storage:** When not in use, store the oscilloscope in a dry, dust-free environment. Use the original packaging or a suitable carrying case to protect it from physical damage.
- **Calibration:** Regular calibration by qualified service personnel is recommended to maintain measurement accuracy.
- **Probe Care:** Handle probes carefully. Avoid bending or stressing the cables. Store them properly to prevent damage to the tips and connectors.

## 8. TROUBLESHOOTING

This section provides solutions to common issues you might encounter with your oscilloscope.

Problem	Possible Cause	Solution
No display after power on	Power cord not connected; Power switch off; Faulty power outlet	Check power cord connection; Ensure power switch is ON; Test power outlet with another device.
No waveform displayed	Probe not connected; Input signal too small/large; Incorrect vertical/horizontal settings; Incorrect trigger settings	Connect probe securely; Adjust Volts/Div and Sec/Div; Use AUTO button; Adjust trigger level and mode.
Unstable waveform	Incorrect trigger settings; Noisy signal source	Adjust trigger level and mode; Ensure proper grounding of the signal source and oscilloscope.
USB storage not recognized	Incompatible USB device; USB device faulty; Incorrect file system format	Ensure USB device is FAT32 formatted; Try a different USB device; Check USB port for damage.

If the problem persists after attempting these solutions, please contact UNI-T customer support or a qualified service technician.

## 9. SPECIFICATIONS

Detailed technical specifications for the UNI-T UTD2152CEX Digital Storage Oscilloscope:

- **Model:** UTD2152CEX
- **Channels:** 2
- **Bandwidth:** 150 MHz
- **Sampling Rate:** 1 GSa/s (Real-time)
- **Vertical Range:** 1 mV/div to 20 V/div
- **Waveform Parameters:** Automatic measurement of 32 parameters
- **Waveform Capture Rate:** 5,000 wfms/s
- **Storage Depth:** 64k points
- **Display:** 7-inch TFT LCD, WVGA (800x480 resolution)
- **Connectivity:** USB Host (front), USB Device (rear)
- **Special Features:** Unique waveform record and replay function, supports USB drive system software upgrade, multilingual menu.

- **Dimensions (L x W x H):** Approximately 12.2 x 4.8 x 5.9 inches (31.1 x 12.4 x 15.2 cm)
- **Weight:** Approximately 6.24 pounds (2.83 kg)

## 10. WARRANTY AND SUPPORT

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UNI-T products are manufactured to high-quality standards and are backed by a manufacturer's warranty. For specific warranty terms and conditions, please refer to the warranty card included with your product or visit the official UNI-T website.

For technical support, troubleshooting assistance, or service inquiries, please contact UNI-T customer service through their official channels. Keep your purchase receipt and product serial number handy when contacting support.