TELEDYNE TEST TOOLS
Everywhereyoulook™

# T3DSO3000

## Digital Storage Oscilloscope

# Quick Start Guide

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# Copyright Information

# Contents

# About the T3DSO3000 series

Teledyne Test Tools T3DSO3000 series Digital Storage Oscilloscopes are available in bandwidths of 1 GHz, 500 MHz, 350 MHz and 200MHz. All models include a maximum sample rate of 5 GSa/s, maximum record length of 250 Mpts, and display up to 4 analog channels + 16 digital channels mixed signal analysis capability.

The T3DSO3000 series employs the latest technology which features a maximum waveform capture rate of up to 110,000 wfm/s (normal mode, up to 500,000 wfm/s in Sequence mode) and a 256-level intensity grading display function plus a color temperature display mode. It also employs an innovative digital trigger system with high sensitivity and low jitter. The trigger system supports multiple powerful triggering modes including serial bus triggering. History waveform recording, Sequence acquisition, Search and Navigate functions allow for extended waveform records to be captured, stored, and analyzed. An impressive array of measurement and math capabilities, a 25 MHz arbitrary waveform generator, and serial decoding are all features of the T3DSO3000.

The large 10.1'' display capacitive touch screen supports multi-touch gestures. With the addition of a user-friendly one-button design for the most commonly used functions, the T3DSO3000 provides the user with an enhanced operating efficiency.

## Key Features

- Waveform capture rates of up to 110,000 wfm/s (normal mode), and 500,000 wfm/s (sequence mode)
- Supports 256-level intensity grading and color temperature display modes
- Record length up to 250 Mpts
- Digital trigger system

# Specifications

For detailed specifications please refer to the data sheet.

| **Analogue Channels** | |
|---|---|
| Bandwidth | 200 MHz, 350 MHz, 500 MHz and 1 GHz |
| Channels | 4 |
| Sample Rate | 5 GSa/s (max.) |
| Waveform Length | 250 Mpts (max.) |
| **Digital Channels** | |
| Channels | 16 |
| Sample Rate | 1.25 GSa/s |
| Detectable Pulse Width | 3.3 ns (min.) |
| Data Rate | 300 Mbps (max.) |

# Packing List

Please check the accessories with the packing list. If the accessories are incomplete or damaged, please contact your Teledyne LeCroy sales representative.

- 1 Oscilloscope
- 4 Passive probes
- 1 AC power cord rated for the local region
- 1 Quick Start Guide
- 1 Certificate of Calibration
- 1 Declaration of Conformity
- 1 USB cable

# General Safety Summary

Read the following precautions carefully to avoid any personal injuries, or damage to the instrument or products connected to it. Use the instrument only as specified.

**Only use the power cord supplied for the instrument.**

**Ground the instrument.** The instrument is grounded through the ground conductor of the power cord. To avoid electric shock, always ensure that the instrument is grounded correctly before connecting its input or output terminals.

**Connect the signal wire correctly.** To avoid damage, observe input polarity and maximum voltage/current ratings at all times.

**Observe all terminal ratings and signs on the instrument to avoid fire or electric shock.** Before connecting to the instrument, read the manual to understand the input/output ratings.

**Do not operate with suspected failures.** If you suspect that the instrument is damaged, contact the Teledyne LeCroy service department immediately.

**Do not operate in wet/damp conditions.** Keep the surface of the instrument clean and dry.

**Do not operate in an explosive atmosphere.**

**Avoid touching exposed circuits or wires.** Do not touch exposed contacts or components when the power is on.

**Do not operate without covers.** Do not operate the instrument with covers or panels removed.

**Use only the fuse specified for the instrument.**

**Use proper over voltage protection.**

**Use anti-static protection.** Operate in an anti-static protected area. Ground measurement cable conductors before connecting to the instrument to discharge any static electricity before connecting the cables to the instrument.

**Observe ventilation requirements.** Ensure good ventilation by checking the instrument's vent and fan regularly, to prevent overheating.

# Safety Terms and Symbols

The following terms may appear on the instrument:

**DANGER:** Direct injury or hazard may occur.

**WARNING:** Potential injury or hazard may occur.

**CAUTION:** Potential damage to instrument/property may occur.

The following symbols may appear on the instrument:

**CAUTION** Risk of injury or damage. Refer to manual.

**WARNING** Risk of electric shock or burn

Earth Ground Terminal

Protective Conductor Terminal

Frame or Chassis Terminal

ON/ Standby Power

Alternating Current

# General Maintenance and Cleaning

### Maintenance

Do not store or leave the instrument in direct sun light for extended periods of time.

To avoid damage to the instrument or probes, do not expose them to liquids or solvents.

### Cleaning

Regularly perform the steps below to clean the instrument and probes.

- Disconnect the instrument from all power sources and then clean with a soft damp cloth.
- Clean any loose dust on the outside of the instrument and probe using a soft cloth. When cleaning the display, take care to avoid scratching it.

To avoid damage to the surface of the instrument and probe, please do not use any corrosive liquid or chemical cleaners. Ensure that the instrument is completely dry before restarting it to avoid potential short circuits or personal injury.

# Oscilloscope Front View


**A** **Touch Screen Display** The display and menu functions area. See “Touch Screen Display” chapter for more details.

**B** **Front Panel** Includes knobs and buttons. See “Front Panel” chapter for more details.

**C** **Probe Compensation and Ground Terminal** Supplies a 1 kHz square wave for compensating the probes.

**D** **USB Host Ports** Connects the USB host ports to USB storage devices used for data transfer or USB mouse / keyboards.

**E** **Digital Input Connector** Receives digital signals from the digital probe.

**F** **Analog Input Connectors**

**G** **Power On / Off Switch**

**H** **Supporting Legs** Adjust the supporting legs to tilt the oscilloscope upwards and allow for its stable positioning.

# Oscilloscope Rear View


**A** **Auxiliary Output** Outputs the trigger pulse. When Pass / Fail is enabled, it will output the pass / fail signal.

**B** **External Trigger Input**

**C** **10MHz Clock Input / Output** Receives or outputs 10 MHz reference clock for synchronization between the oscilloscope and other instruments.

**D** **VGA Video Output**: Connect the port to an external monitor. The display resolution is 1024 * 600.

**E** **LAN Port** connects to the network for remote control.

**F** **USB Ports** One USB device to connect with a PC for remote control and one USB host to connect with a USB storage device or USB mouse / keyboard.

**G** **AC Power Input**

**H** **Handle**

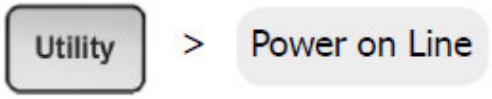
# Connecting to External Devices / Systems

## Power Supply

The standard power supply for the instrument is 100-240 V, 50/60 Hz or 100-120 V, 400 Hz. Please use the power cord provided with the instrument to connect it to AC power.

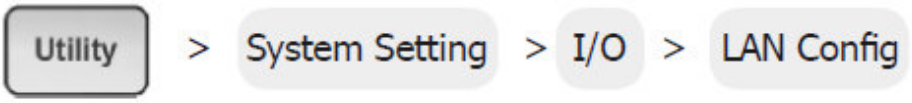
Connect the AC power supply, then press the power switch to power on the oscilloscope. Pressing the power switch for approximately 2 seconds will force the oscilloscope into Standby mode. In Standby mode the oscilloscope still consumes around 4 W power. To completely shut off the oscilloscope please disconnect the AC power supply.

The T3DSO3000 provides a “Power on Line” option. When enabled, the oscilloscope powers on as soon as the AC power supply is connected. Follow the steps below to enable this option:




## LAN

Connect the LAN port to the network with a network cable with an RJ45 connector to enable remote control. Follow the steps below to setup the LAN connection:




## USB Peripherals

Connect a USB storage device to one of the USB host ports for data transfer or use the USB host port to connect a USB mouse / keyboard to control the instrument.

## External Monitor

Use a D-sub cable to connect the VGA port to an external monitor. The video signals from the VGA port have a 1024 * 600 resolution.

## Auxiliary Output

When Pass / Fail is enabled, the port outputs the pass / fail signal, otherwise it outputs the trigger indicator. Follow the steps below to set Pass / Fail:

Analysis > Pass/Fail

## Waveform Generator

Connect the USB function / arbitrary waveform generator module to any USB host port on the oscilloscope. The oscilloscope can now control the USB module to output the specified waveform.

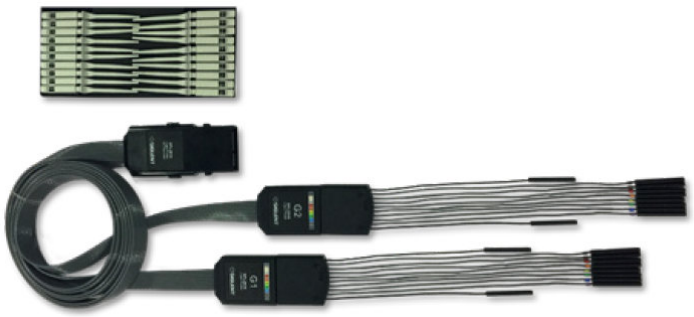
Press the WaveGen button on the front panel to set the waveform.

## Probes

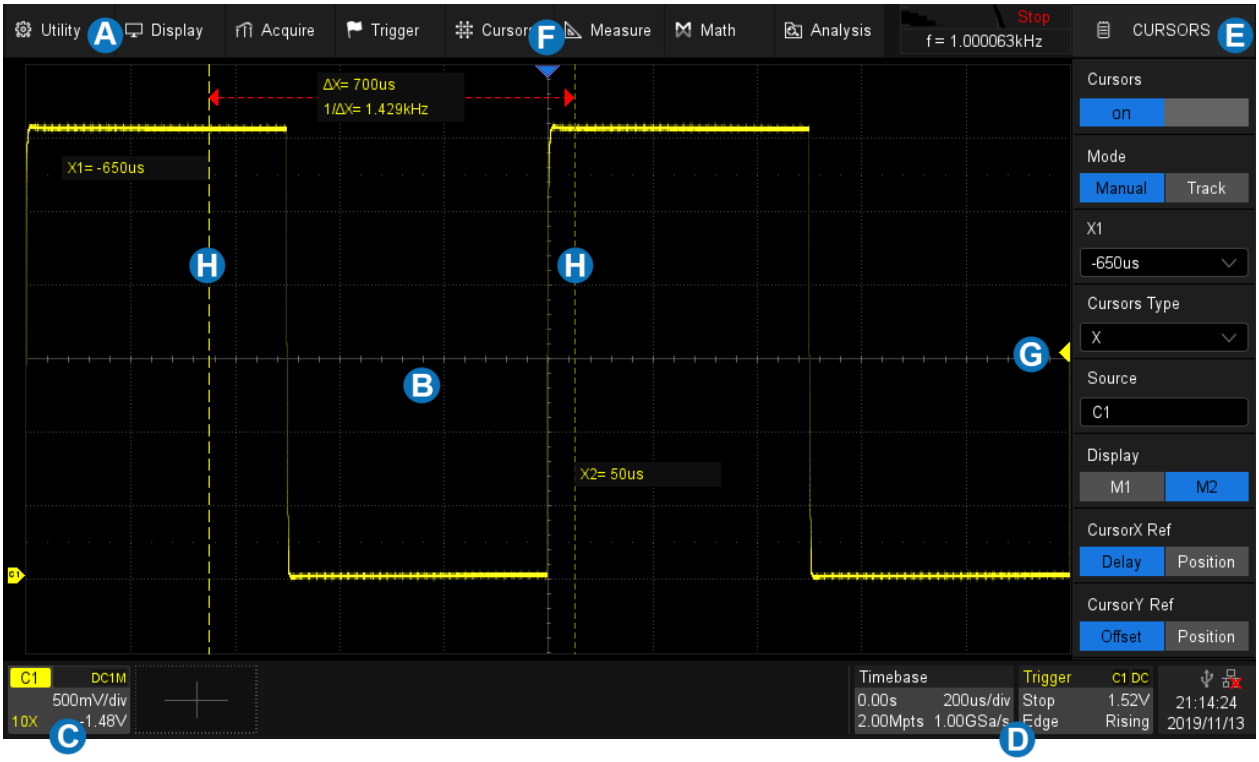
The T3DSO3000 series supports passive and active probes. The 500 MHz passive probe is a standard accessory (1 probe per channel), for more details on Teledyne LeCroy's probe offering please visit www.teledynelecroy.com/probes.

## Logic Probe

The logic probe is designed to probe up to 16 digital lines simultaneously. The 16 digital channels are separated into two groups and each has it's own threshold, making it possible to simultaneously view data from logic families.



# User Interface




**A** **Menu Bar** with drop-down menus lets you access set-up dialogs and other functions. All functionality can be accessed through the menu bar.

**B** **Grid Area** displays the waveform traces. Traces can be moved by dragging them and can be re-scaled by pinch and zoom.

**C** **Channel descriptor boxes** include analog channels (C1 - C4), digital channels (D), math (M) and reference (Ref). They are located under the grid area, showing the parameters of the corresponding traces. Touching the boxes creates a dialog box.

**D** **Timebase and Trigger Descriptor Boxes** show the parameters of timebase and trigger respectively. Touching the boxes will create a dialog box.

**E** **Dialog Box** is the main area to select the parameters for a chosen specific function.

**F** **Trigger Delay Indicator** locates where the waveform triggers on the horizontal axis.

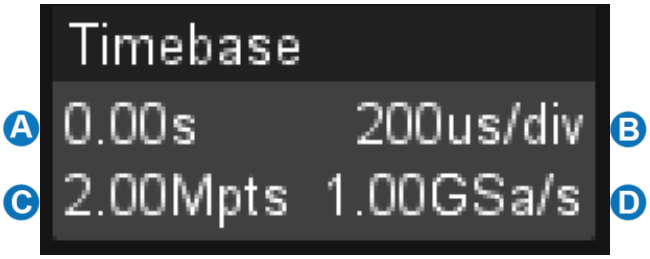
**G** **Trigger Level Indicator** shows the level where the waveform triggers on the vertical axis.

**H** **Cursors** show where the measurement points have been set.

## Channel Descriptor Box


- A Channel index
- B Bandwidth limit indicator
- C Coupling and impedance
- D Volts/div
- E Offset
- F Probe attenuation

## Timebase and Trigger Descriptor Boxes

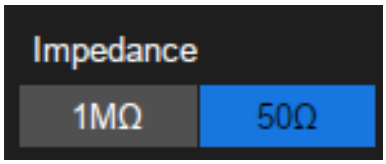



- A Trigger delay
- B Time/div
- C # Samples
- D Sample rate

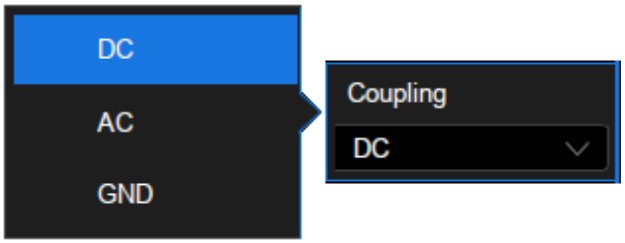

- A Trigger source
- B Trigger coupling
- C Trigger mode
- D Trigger level
- E Trigger type
- F Trigger slope

## To Set Parameters

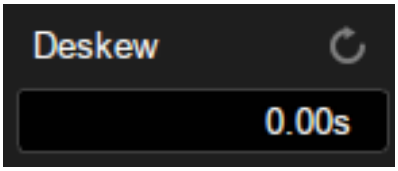
The T3DSO3000 series provides several different ways to set parameters:



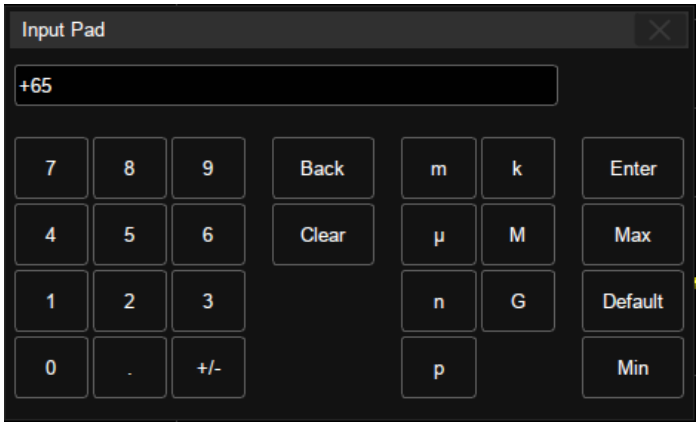

**Switch** - sets parameters with two states, such as to enable or disable a function. Touch the switch region to change from one state to the other




**List** - sets parameters with more than two options, such as coupling mode of channels. Touch the parameter region, and then select the required option from the pop-up list.



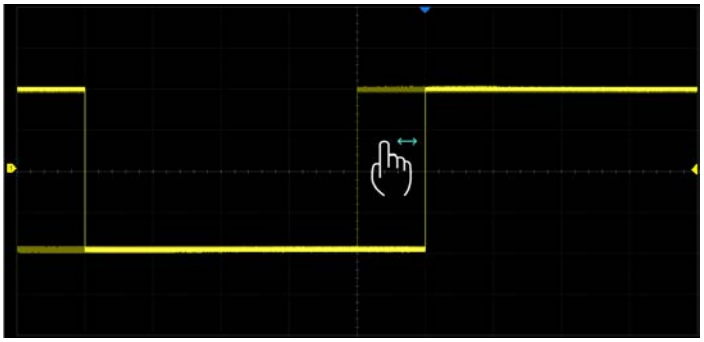

**Virtual Keypad** – Sets parameters with numerical value. Touch the parameter region, and the parameter can be adjusted by the universal knob on the front panel; touch the region again, and the virtual keypad appears.



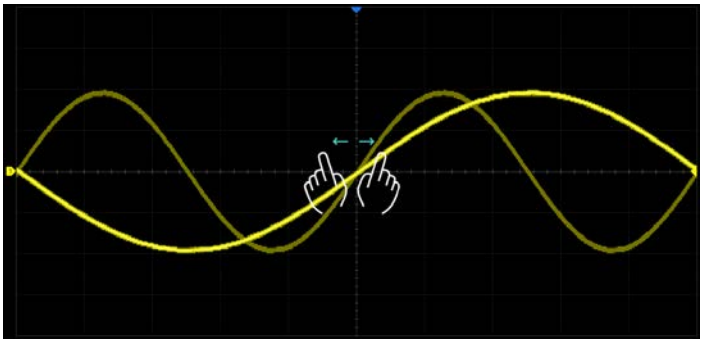

To use the operation “deskew” as an example: If the expected value is 65ns, input “65” on the virtual keypad, and then choose the unit ‘n’ to complete the operation. On the virtual keypad, touching the button Max, Min, and Default, quickly sets the parameter to its maximum, minimum or default value.

## Touch Gestures

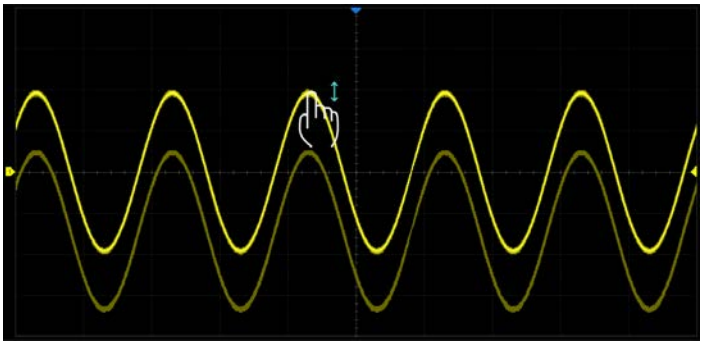
Waveforms, cursors and trigger level can be adjusted by touch gestures in the grid area.



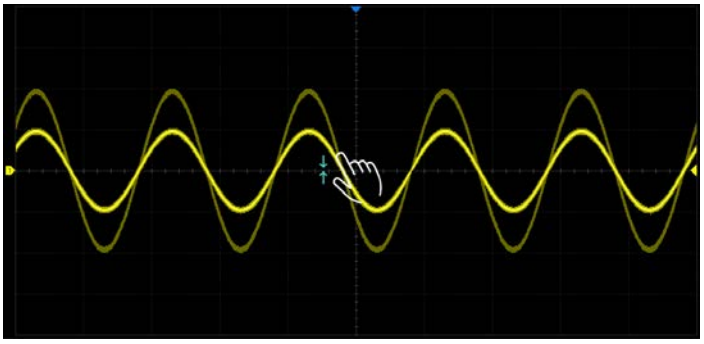
Drag the waveform left and right to move it on the horizontal axis



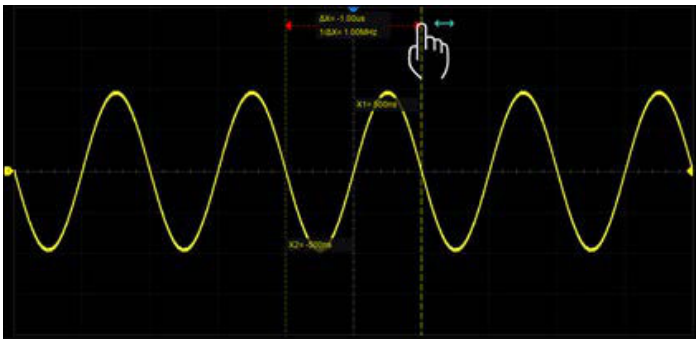
Pinch and spread the waveform horizontally to re-scale the timebase



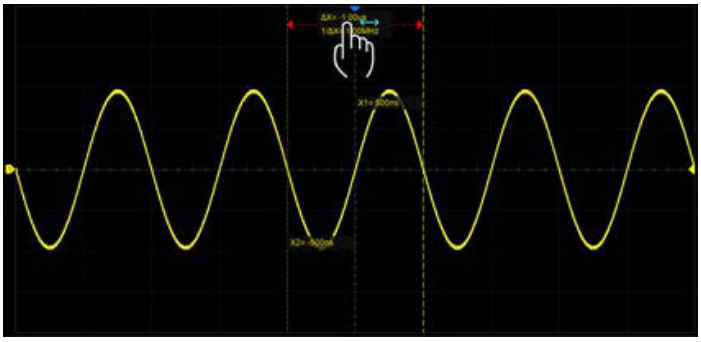
Drag the waveform up and down to move it on the vertical axis



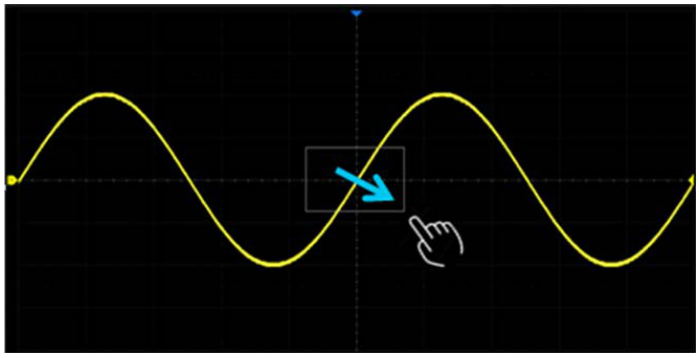
Pinch and spread the waveform vertically to re-scale the vertical gain



Touch and drag the cursor to move it



Touch and drag the cursor information region to move the pair of cursors simultaneously



Draw a rectangular box to create a zone or a histogram region. At the beginning of the gesture keep the angle close to 45° so it can be recognized as the drawing box gesture

## Choosing the Language

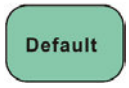
Utility > System setting > Language

## Front Panel


Most of the front panel controls duplicate functionality available through the touch screen display. These are covered in more detail in the Basics section and in the User Manual.

Shortcut buttons give quick access to commonly used functions:


Automatically sets the waveform to adapt the display according to its frequency and amplitude




Resets the oscilloscope to the default configuration.


Enables or disables the touch screen. When the light is on the touch screen is enabled


Rotate the universal knob to set the value of the activated parameter, or to move the selected cursor. Push to select a different cursor.

# Basic Operations

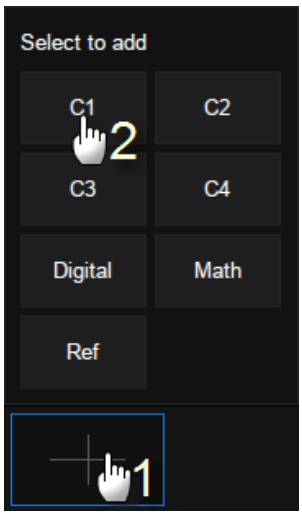
## Turn On / Disable a Channel

### From the Front Panel

Push the channel button (1-4) to turn on the corresponding channel. Its channel descriptor box and dialog box will appear on the display. Push the same button again to disable the channel.

### From the Touch Screen

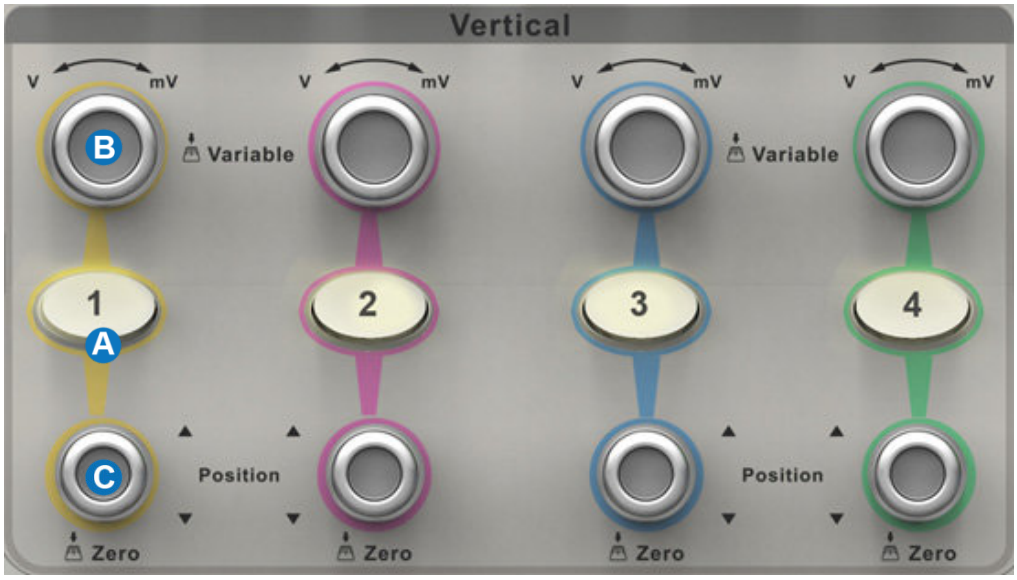
Touch the '+' button and then select a channel to turn it on, its channel descriptor box and the dialog box will appear on the display. Touch the channel descriptor box and then touch the Off button to disable it.




Turn on Channel 1


Disable Channel 1

## Vertical System

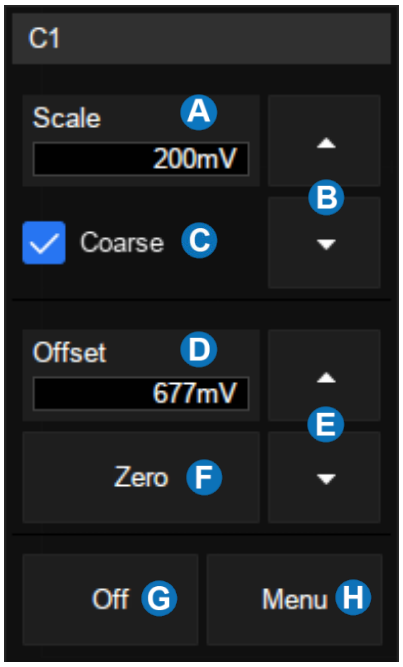



A When the channel is disabled, push the button to turn it on. When the channel is turned on but not activated, push the button to activate it. When the channel is turned on and activated, push the button to disable it.

B Rotate the knob to adjust the vertical scale (volts/div). Push the switch to alternate between coarse and fine adjustments.

C Rotate the knob to adjust the DC offset or vertical position of the channel. Push to set the offset to zero

Touch the channel descriptor box, and a quick dialog will pop up. Vertical scale and offset can also be set from this dialog box.




A Touch the region to set the vertical scale with the universal knob or virtual keypad

B ▲ to increase the vertical scale and ▼ to decrease

C Check to coarsely adjust the vertical scale and uncheck to enable fine adjustment

D Touch the region to set the offset with the universal knob or virtual keypad

E ▲ to increase the offset and ▼ to decrease

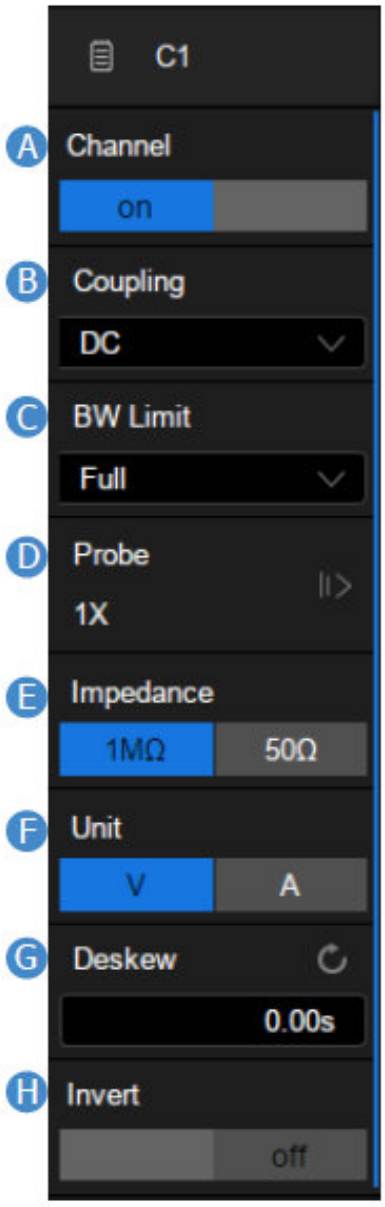
F Set the offset to zero

G Disable the channel

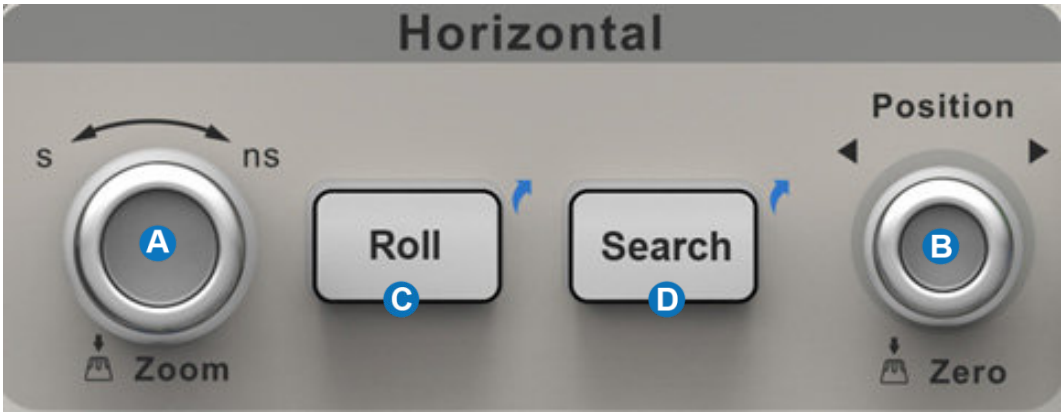
H Open the dialog box on the right side

Activating a channel or touching H in the quick dialog pop up recalls the channel dialog box, displaying more parameters:

- A Turn channel on/off
- B Coupling (DC, AC or GND)
- C Bandwidth limit (Full, 200 MHz or 20 MHz)
- D Probe attenuation (1X, 10X, 100X or custom)
- E Impedance
- F Units for the channel
- G Deskew
- H Enable/disable invert



## Horizontal and Acquisition System



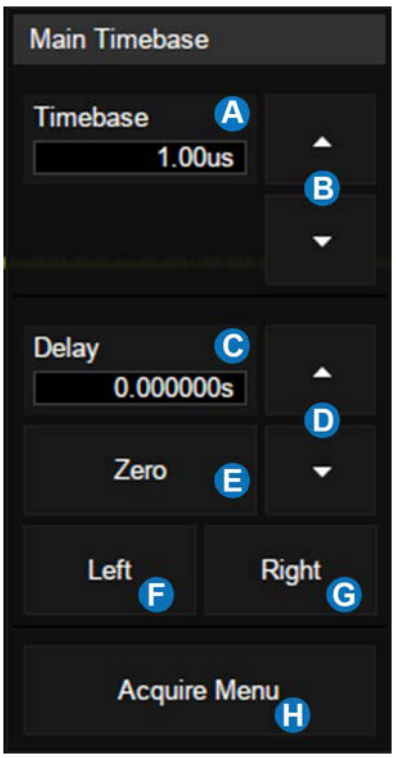

A Rotate to adjust the horizontal scale (time/div); push to enable Zoom, push again to exit Zoom mode.

B Rotate to adjust trigger delay; push to set trigger delay to zero.

C Push to enable horizontal Roll; push again to exit Roll mode. At timebase settings larger than 50ms/div, it is recommended to set the oscilloscope to Roll mode so that the waveform is displayed in real-time.

D Push to enable Search; push again to exit Search.

Touch the timebase descriptor box to display a quick dialog box. Timebase and Trigger Delay can also be set in this dialog box.




A Touch the region to set the timebase with the universal knob or the virtual keypad

B ▲ to increase and ▼ to decrease the horizontal scale

C Touch the region to set the the trigger delay with the universal knob or the virtual keypad

D ▲ to increase and ▼ to decrease the trigger delay

E Set the trigger delay to zero

F Set the trigger delay to the left region of the screen

G Set the trigger delay to the right region of the screen

H Open the Acquire dialog box

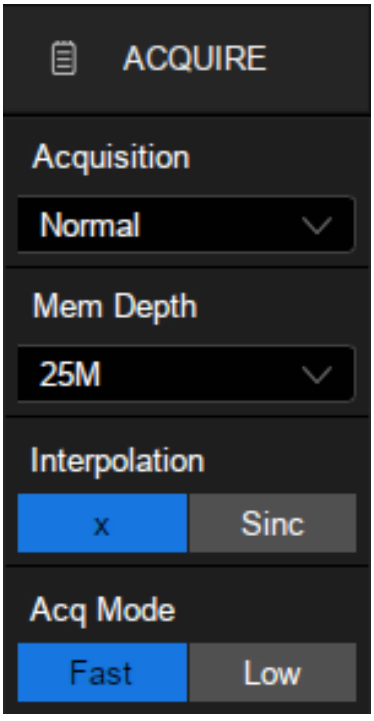
Touch H in the timebase quick menu, or press the Acquire button on the front panel to recall the Acquire dialog box.

A Acquisition mode (Normal, Peak detect, Average or Eres)

B Sets the maximum memory depth

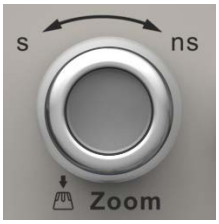
C Interpolation mode

D Acquisition mode

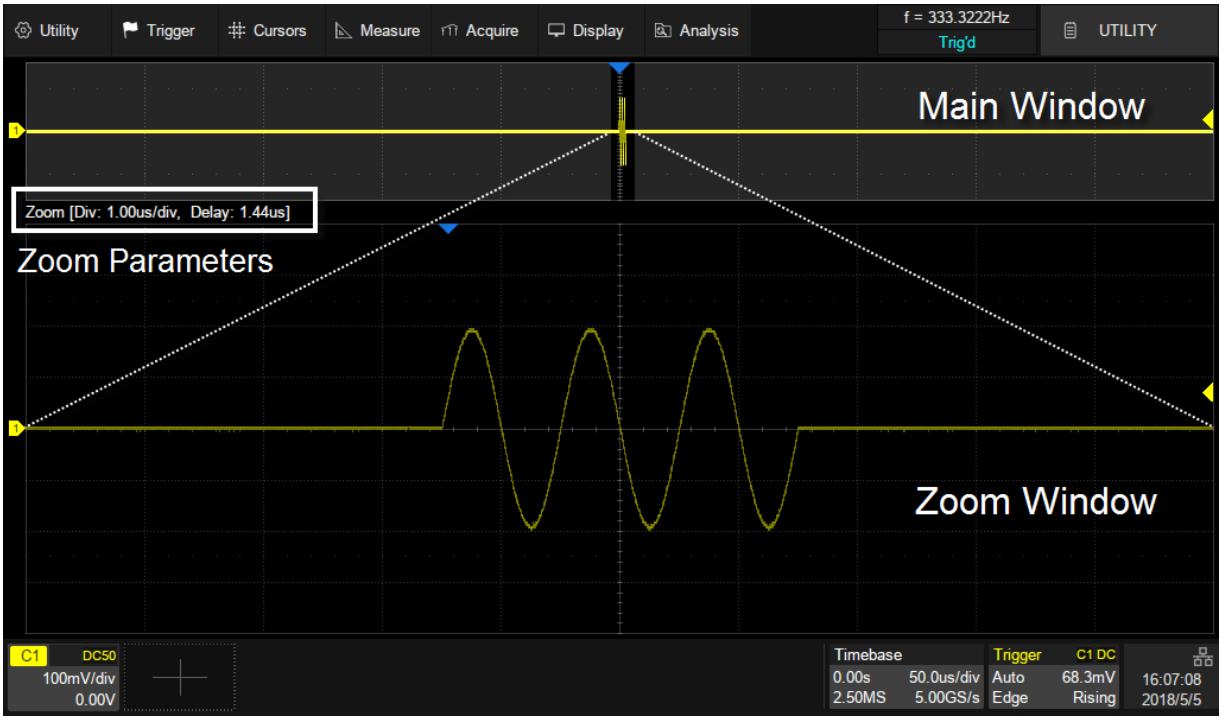


## Zoom

Zooming the traces displays a magnified portion of the enabled channels. Pushing the timebase knob on the front panel zooms in on the traces. In Zoom mode the grid area is divided into two areas, the main window appears on the top and the zoom window on the bottom. The region without the grey background in the main window is the portion of trace that is magnified in the zoom window.




Use the knobs in the Horizontal section on the front panel, or touch gestures on the touch screen to set the zoom parameters.

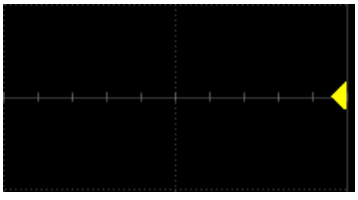


## Trigger

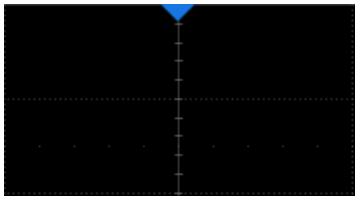

The trigger system supports multiple powerful triggering modes including serial bus triggering, please refer to the User Manual for more details.

- **A** Opens trigger setup dialog box
- **B** Single-mode – triggers once when all conditions are met
- **C** Normal mode – triggers repeatedly when all conditions are met
- **D** Auto mode – triggers after preset period if no valid trigger occurs
- **E** Trigger level adjustment -- push to set the level to 50% of the waveform

### Indicators Relative to Trigger



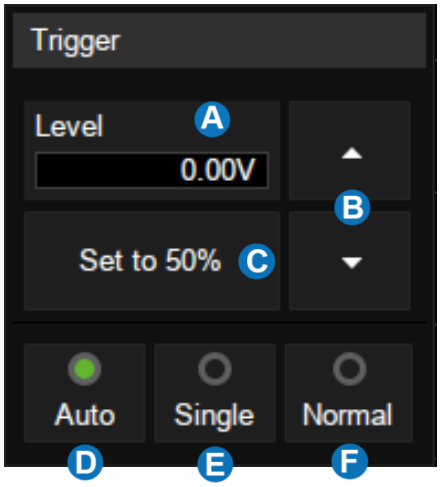
Trigger level indicator



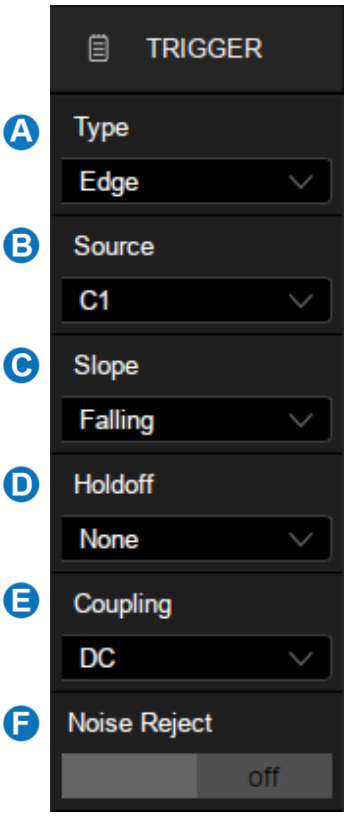
Trigger delay indicator

Trigger delay indicator (outside the screen)

Touch the trigger descriptor box, a quick dialog box will pop up above it and a trigger setup dialog box will appear on the right side of the display.



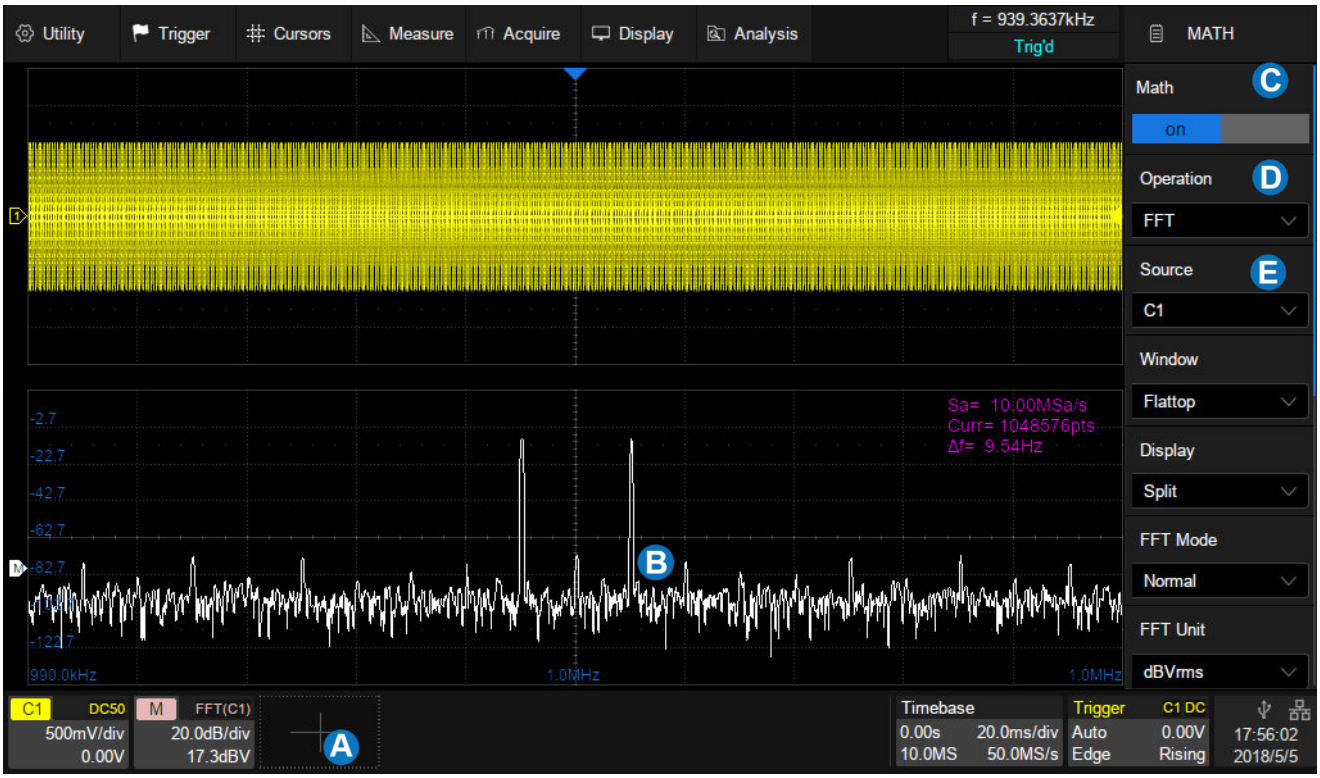

- **A** Touch the region to set trigger level with the virtual keyboard
- **B** ▲ to increase trigger level and ▼ to decrease
- **C** Set trigger level to 50% of the waveform
- **D** Auto mode
- **E** Single mode
- **F** Normal mode




- **A** Trigger type
- **B** Trigger source
- **C** Trigger slope
- **D** Set hold-off condition (None/Time/Events)
- **E** Trigger coupling (DC, AC, HFR, LFR)
- **F** Enable/disable Noise Rejection. When Noise Reject is enabled the trigger hysteresis is increased, hence the noise immunity of the trigger circuit is improved. However, this will degrade the trigger sensitivity.

## Math

Math creates a new trace that displays the result of applying a mathematical function (e.g. Sum, Product, FFT) to one or more source traces.




A Touch the + > Math or push the Math button on the front panel to create a math trace and open the math setup dialog box C

B Math trace

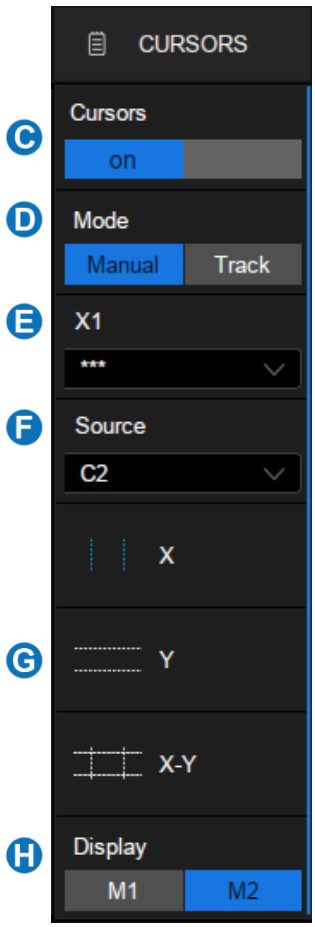
C Math setup dialog box

D Selects the type of math operation

E Selects the source of the math operation

## Cursors

Cursors set measurement points on the Vertical or Horizontal axis of a trace (or both). For more information please refer to the User Manual.




A Push the button to open the cursors setup dialog box

B Rotate the knob to move the selected Cursor, push to select a different cursor

C Enable/disable cursors

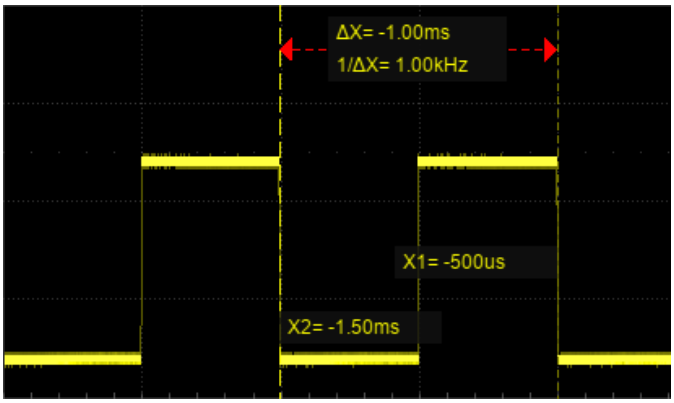
D Cursor mode. In Track mode the vertical cursors track the waveform automatically

E Select cursor and set its position (by touch, universal knob or virtual keypad)

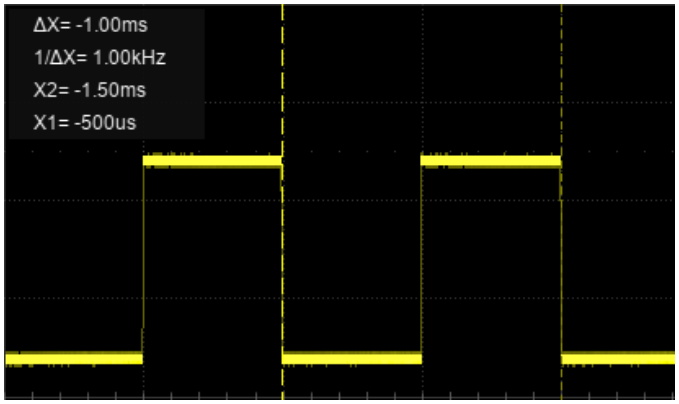
F Selects the source

G Cursor type (Horizontal, Vertical or Horizontal+Vertical).

H Display mode of cursors

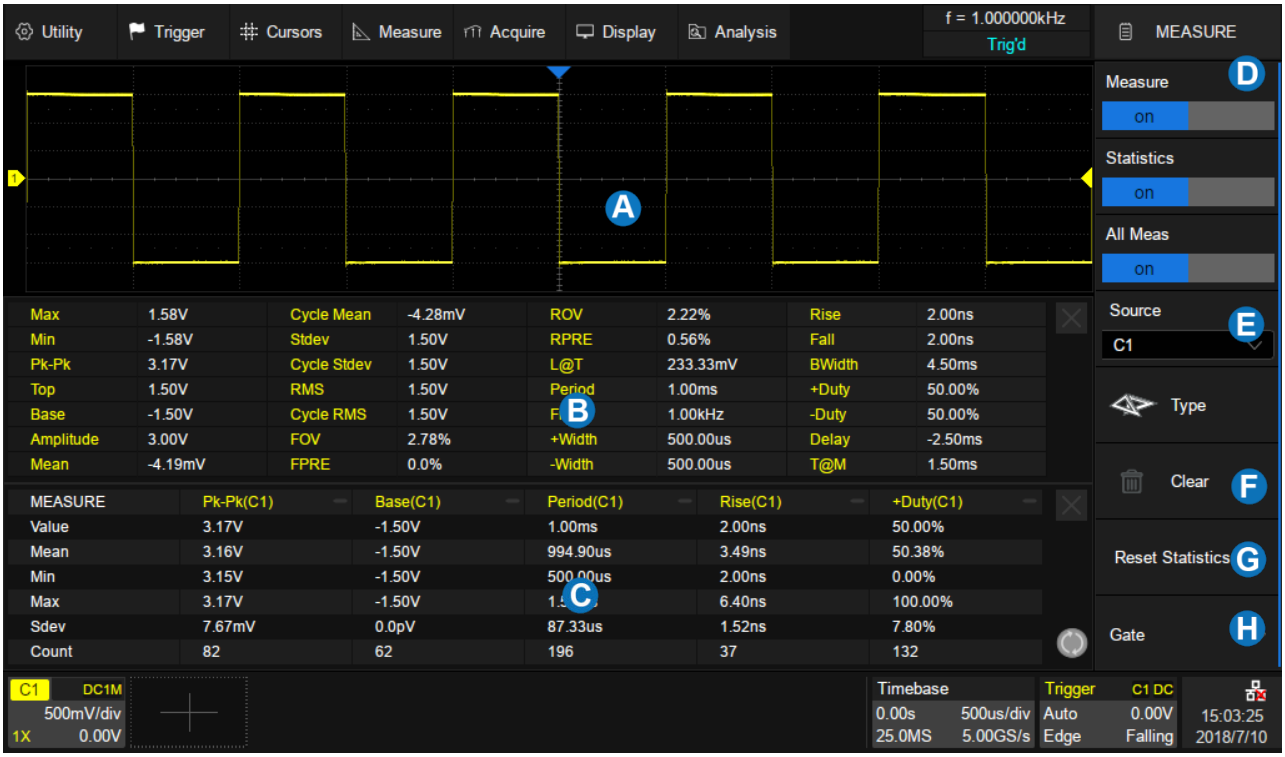

Display mode 1




Display mode 2

## Measure & Statistics

You can set up to five simultaneous measurements on one or more traces, and view the active readout in a table below the grid. Statistics can be added to the readout. You can also use Gate to limit the measurements to a specific portion of the trace.




A Grid area is compressed automatically when measurement parameters are displayed

B "All measure" region

C Statistics region of specified measurements

D Measurement setup dialog box. Push the Measure button on the front panel or touch Measure > Menu to open it

E Sets the source and measurement parameters

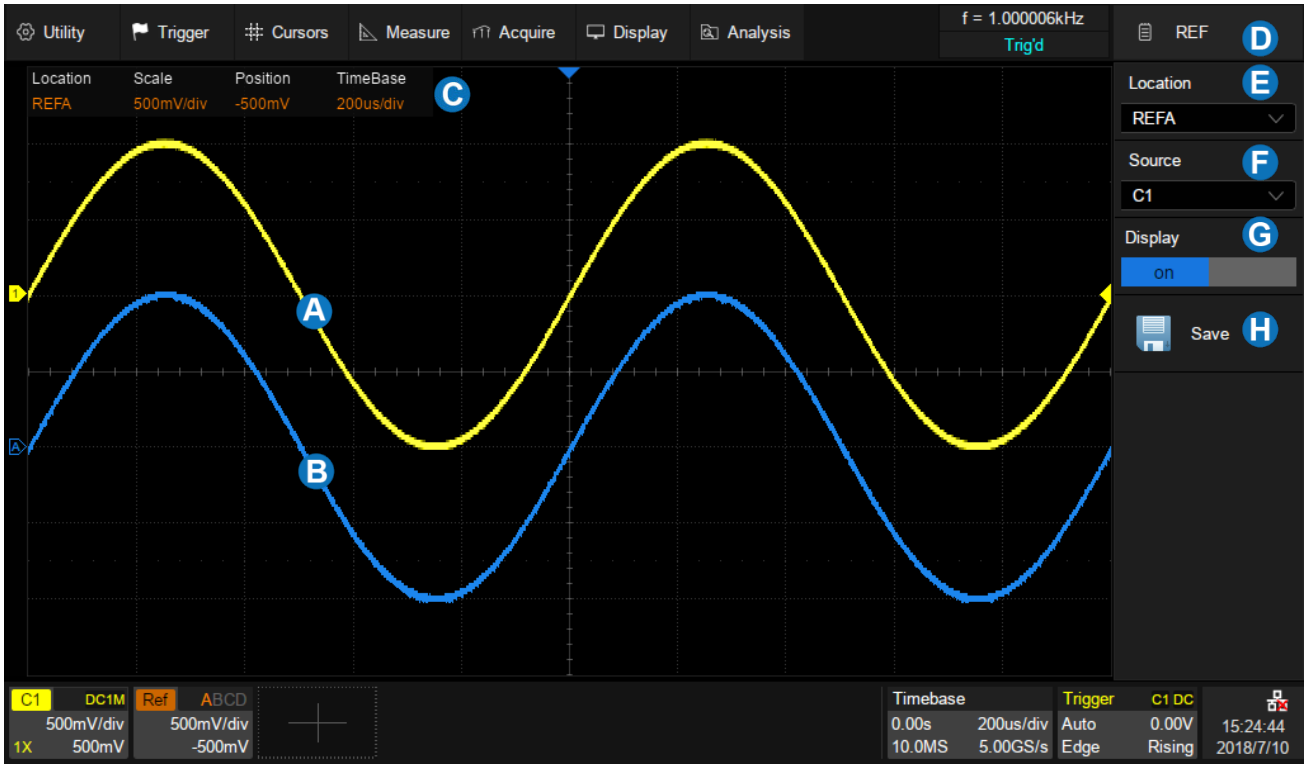
F Clears all the measurement parameters

G Resets the Statistics. It is equivalent to pushing the Clear Sweeps button on the front panel

H Gating measurement setup

## Reference Waveforms

Reference waveforms (REFA, REFB, REFC, and REFD) are analog or math traces stored in the non-volatile memory. They can be recalled to the display for comparison with other traces.




- A Original trace of analog channel
- B Reference trace
- C Information region of the reference waveform
- D Reference waveform setup dialog box
- E Selects the objective location
- F Select the source (C1-C4, Math)
- G Displays or hides the selected reference trace
- H Save the specified waveform to the specified location

## Save/Recall

The T3DSO3000 supports saving and recalling multiple file formats, including waveform data, setups, images and calibration data. Press the Save Recall button on the front panel, or touch Utility > Save/Recall to open the Save/Recall setup dialog box.

- A Choose Save or Recall operation
- B Select the object type
- C Specify the location of the object
- D When the location is “External”, touch this region to recall the file manager for further operations


### Quickly Save a Screenshot

When an external USB storage device is connected, press the Print on the front panel to save the screenshot to the external device as either a .bmp .png or .jpg file type.

## Calibration

The oscilloscope is calibrated at the factory prior to being shipped. The calibration is run at 23 °C (± 2 °C) and is valid for temperatures 23 ± 5 °C. Within this temperature range, the oscilloscope will meet all specifications once warmed up.

Warm up the oscilloscope for at least 20 minutes prior to each use or calibration in order for it to reach a stable operating temperature. Specifications are not guaranteed during the warm-up period.

Whenever the oscilloscope is used in an environment outside 23 ± 5 °C, or when it has been more than one month since the previous calibration, manual calibration is recommended. To perform a self-calibration:

Touch Utility > Menu > Do Self Cal

or 

> Do Self Cal

# Contact Us

## Teledyne LeCroy (US Headquarters)

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(Oscilloscopes, Waveform Generators, Signal Integrity)
**Web Site:** http://teledynelecroy.com/
**Phone Support:** 1-800-553-2769

## Teledyne LeCroy (European Headquarters)

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World wide support can be found at:
https://teledynelecroy.com/support/contact

# Certifications

Teledyne LeCroy certifies compliance to the following standards as of the time of publication. Please see the EC Declaration of Conformity document shipped with your product for current certifications.

## EMC Compliance

### EC DECLARATION OF CONFORMITY - EMC

The instrument meets intent of EC Directive 2014/30/EU for Electromagnetic Compatibility. Compliance was demonstrated to the following specifications listed in the Official Journal of the European Communities:
EN 61326-1:2013, EN 61326-2-1:2013 EMC requirements for electrical equipment for measurement, control, and laboratory use. [1]

#### Electromagnetic Emissions:

EN 55011:2016+A1:2017, Radiated and Conducted Emissions Group 1, Class A [2] [3]
EN 61000-3-2:2014 Harmonic Current Emissions, Class A
EN 61000-3-3:2013 Voltage Fluctuations and Flickers, Pst = 1

#### Electromagnetic Immunity:

EN 61000-4-2:2009 Electrostatic Discharge, 4 kV contact, 8 kV air, 4 kV vertical/ horizontal coupling planes [4]
EN 61000-4-3:2006+ A2:2010 RF Radiated Electromagnetic Field, 3 V/m, 80-1000 MHz; 3 V/m, 1400 MHz - 2 GHz; 1 V/m, 2 GHz - 2.7 GHz
EN 61000-4-4:2012 Electrical Fast Transient/Burst, 1 kV on power supply lines, 0.5 kV on I/O signal data and control lines [4]
EN 61000-4-5:2014+A1:2017 Power Line Surge, 1 kV AC Mains, L-N, L-PE, N-PE [4]
EN 61000-4-6:2014 RF Conducted Electromagnetic Field, 3 Vrms, 0.15 MHz - 80 MHz
EN 61000-4-11:2004+A1:2017 Mains Dips and Interruptions, 0%/1 cycle, 70%/25 cycles, 0%/250 cycles [4] [5]

[1] To ensure compliance with all applicable EMC standards, use high-quality shielded interface cables.

[2] Emissions which exceed the levels required by this standard may occur when the instrument is connected to a test object.

[3] This product is intended for use in nonresidential areas only. Use in residential areas may cause electromagnetic interference.

[4] Meets Performance Criteria “B” limits of the respective standard: during the disturbance, product undergoes a temporary degradation or loss of function or performance which is self-recoverable.

[5] Performance Criteria “C” applied for 70%/25 cycle voltage dips and for 0%/250 cycle voltage interruption test levels per EN61000-4-11.

### European Contact:*

Teledyne GmbH, European Division
Im Breitspiel 11c
D-69126 Heidelberg
Germany
Tel: + 49 6221 82700

### AUSTRALIA & NEW ZEALAND DECLARATION OF CONFORMITY – EMC

The instrument complies with the EMC provision of the Radio Communications Act per the following standards, in accordance with requirements imposed by Australian Communication and Media Authority (ACMA):
AS/NZS CISPR 11:2015 Radiated and Conducted Emissions, Group 1, Class A.

### Australia / New Zealand Contacts:*

RS Components Pty Ltd.
Suite 326 The Parade West
Kent Town, South Australia 5067

RS Components Ltd.
Units 30 & 31 Warehouse World
761 Great South Road
Penrose, Auckland, New Zealand

* Visit teledynelecroy.com/support/contact for the latest contact information.

## Safety Compliance

### EC DECLARATION OF CONFORMITY – LOW VOLTAGE

The instrument meets intent of EC Directive 2014/35/EU for Product Safety. Compliance was demonstrated to the following specifications as listed in the Official Journal of the European Communities:
EN 61010-1:2010 Safety requirements for electrical equipment for measurement, control, and laboratory use –
Part 1: General requirements
EN 61010-2:030:2010 Safety requirements for electrical equipment for measurement, control, and laboratory use –
Part 2-030: Particular requirements for testing and measuring circuits

The design of the instrument has been verified to conform to the following limits put forth by these standards:

- Mains Supply Connector: Overvoltage Category II, instrument intended to be supplied from the building wiring at utilization points (socket outlets and similar).
- Measuring Circuit Terminals: No rated measurement category. Terminals not intended

to be connected directly to the mains supply.

- Unit: Pollution Degree 2, operating environment where normally only dry, non-conductive pollution occurs. Temporary conductivity caused by condensation should be expected.

### THIRD PARTY AGENCY CERTIFICATION

The instrument has been certified by TUV SUD product Services GmbH for all the applicable European Union (EU) safety requirements per IEC 61010-1 and IEC 61010-2-030 standards.

### U.S. NATIONALLY RECOGNIZED AGENCY CERTIFICATION

As an accredited National Recognized Testing Laboratory (NRTL), TUV SUD Product Services GmbH has certified the instrument to meet all the applicable US safety standards. The instrument is marked with the TUV SUD NRTL mark for U.S.

### CANADIAN CERTIFICATION

The instrument has been certified by TUV SUD Product Services GmbH to meet all the applicable Canadian safety standards and bears the TUV SUD NRTL mark for Canada.

## Environmental Compliance

### END-OF-LIFE HANDLING

The instrument is marked with this symbol to indicate that it complies with the applicable European Union requirements of Directives 2012/19/EU and 2006/66/EC on Waste Electrical and Electronic Equipment (WEEE) and Batteries.

The instrument is subject to disposal and recycling regulations that vary by country and region. Many countries prohibit the disposal of waste electronic equipment in standard waste receptacles. For more information about proper disposal and recycling of your Teledyne LeCroy product, please visit teledynelecroy.com/recycle.

### RESTRICTION OF HAZARDOUS SUBSTANCES (RoHS)

### EC DECLARATION OF CONFORMITY – RoHS

Unless otherwise specified, all the materials and processes are compliant with RoHS Directive 2011/65/EU in its entirety, inclusive of any further amendments or modifications of said Directive.

## CHINA RoHS 2

Unless otherwise specified, all the materials and processes are compliant with the latest requirements of China RoHS 2. The hazardous substances contained in the instrument are disclosed in accordance with the standards SJ/T 11364-2014 (Marking for the restricted use of hazardous substances in electronic and electrical products) and GB/T 26572-2011 (Requirements on concentration limits for certain restricted substances in electrical and electronic products). The instrument is marked with an appropriate Environmental Friendly Use Period (EFUP) symbol. The packaging materials include the appropriate recycling labels. The below substance disclosure tables (in Chinese and English languages) provide the required compliance information.

| 部件名称 | 有毒有害物质和元素 | | | | | |
|---|---|---|---|---|---|---|
| | 铅 (Pb) | 汞 (Hg) | 镉 (Cd) | 六价铬 (Cr6+) | 多溴联苯 (PBB) | 多溴二苯醚 (PBDE) |
| PCBAs | X | 0 | 0 | 0 | 0 | 0 |
| 机械硬件 | 0 | 0 | 0 | 0 | 0 | 0 |
| 金属片 | 0 | 0 | 0 | 0 | 0 | 0 |
| 塑料部件 | 0 | 0 | 0 | 0 | 0 | 0 |
| 电缆组件 | X | 0 | 0 | 0 | 0 | 0 |
| 显示器 | 0 | 0 | 0 | 0 | 0 | 0 |
| 电源 | 0 | 0 | 0 | 0 | 0 | 0 |
| 风扇 | 0 | 0 | 0 | 0 | 0 | 0 |
| 电池 | 0 | 0 | 0 | 0 | 0 | 0 |
| 电源线 | 0 | 0 | 0 | 0 | 0 | 0 |
| 外部电源(如有) | X | 0 | 0 | 0 | 0 | 0 |
| 探头(如有) | X | 0 | 0 | 0 | 0 | 0 |
| 熔丝(如有) | 0 | 0 | 0 | 0 | 0 | 0 |
| 产品外壳(如有) | 0 | 0 | 0 | 0 | 0 | 0 |
| 适配器/模块(如有) | 0 | 0 | 0 | 0 | 0 | 0 |
| 鼠标(如有) | 0 | 0 | 0 | 0 | 0 | 0 |
| 0：表明该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11364-2014标准规定的限量要求之下。 | | | | | | |
| X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11364-2014标准规定的限量要求。 | | | | | | |

EFUP (对环境友好的使用时间): 30年。

使用条件：参阅用户手册“环境条件”部分的规定。

探头EFUP: 10年。

| Part Name | Toxic or Hazardous Substances and Elements | | | | | |
|---|---|---|---|---|---|---|
| | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (Cr6+) | Polybrominated Biphenyls (PBB) | Polybrominated Diphenyl Ethers (PBDE) |
| PCBAs | X | O | O | O | O | O |
| Mechanical Hardware | O | O | O | O | O | O |
| Sheet Metal | O | O | O | O | O | O |
| Plastic Parts | O | O | O | O | O | O |
| Cable Assemblies | X | O | O | O | O | O |
| Display | O | O | O | O | O | O |
| Power Supply | O | O | O | O | O | O |
| Fans | O | O | O | O | O | O |
| Batteries | O | O | O | O | O | O |
| Power Cord | O | O | O | O | O | O |
| Exit Power Supply (if present) | X | O | O | O | O | O |
| Probes (if present) | X | O | O | O | O | O |
| Fuse (if present) | O | O | O | O | O | O |
| Product Case (if present) | O | O | O | O | O | O |
| Adapters/Modules (if present) | O | O | O | O | O | O |
| Mouse (if present) | O | O | O | O | O | O |
| O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement specified in SJ/T11364-2014. | | | | | | |
| X: Indicates that this toxic or hazardous substance contained in at least one of the homogenous materials used for this part is above the limit requirement specified in SJ/T11364-2014. | | | | | | |

EFUP (Environmental Friendly Use Period): 30 years.

Use Conditions: Refer to the environmental conditions stated in the User Manual.

EFUP for Probes: 10 years.

# ABOUT TELEDYNE TEST TOOLS

TELEDYNE TEST TOOLS
Everywhereyoulook™

## Company Profile

Teledyne LeCroy is a leading provider of oscilloscopes, protocol analyzers and related test and measurement solutions that enable companies across a wide range of industries to design and test electronic devices of all types. Since our founding in 1964, we have focused on creating products that improve productivity by helping engineers resolve design issues faster and more effectively. Oscilloscopes are tools used by designers and engineers to measure and analyze complex electronic signals in order to develop high-performance systems and to validate electronic designs in order to improve time to market.

The Teledyne Test Tools brand extends the Teledyne LeCroy product portfolio with a comprehensive range of test equipment solutions. This new range of products delivers a broad range of quality test solutions that enable engineers to rapidly validate product and design and reduce time-to-market. Designers, engineers and educators rely on Teledyne Test Tools solutions to meet their most challenging needs for testing, education and electronics validation.

## Location and Facilities

Headquartered in Chestnut Ridge, New York, Teledyne Test Tools and Teledyne LeCroy has sales, service and development subsidiaries in the US and throughout Europe and Asia. Teledyne Test Tools and Teledyne LeCroy products are employed across a wide variety of industries, including semiconductor, computer, consumer electronics, education, military/aerospace, automotive/industrial, and telecommunications.

Distributed by:

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T3 stands for Teledyne Test Tools.

933408-00 RevA