

SDS5000X Series

Digital Storage

Oscilloscope

Quick Start

EN01D



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Contents

Overview	1
About the SDS5000X series	1
SPO Technology	1
Specifications	2
Packing List	2
General Safety Summary	3
Safety Terms and Symbols	5
Allgemeine Sicherheitsübersicht	6
Sicherheitsbegriffe und symbole	9
General Care and Cleaning	10
Quick Start	11
Front of Oscilloscope	11
Back of Oscilloscope	12
Connecting to External Devices/Systems	13
User Interface	16
Touch Screen Display	16
Channel descriptor box	17
Timebase and Trigger Descriptor Boxes	17
To Set Parameters	18
Touch Gestures	20

Choosing the Language	21
Front Panel	22
Basic Operations	23
Turn On / Disable a Channel	23
Vertical System	24
Horizontal and Acquisition System	27
Zoom	30
Trigger	31
Math	34
Cursors	35
Measure & Statistics	36
Reference Waveforms	37
Save/Recall	38
Calibration	40
Software Options	40
Contact Us	41

Overview

About the SDS5000X series

SIGLENT's SDS5000X series Digital Storage Oscilloscopes are available in bandwidths of 1 GHz, 500 MHz and 350 MHz. 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 ability.

The SDS5000X series employs Siglent's SPO technology which features a maximum waveform capture rate of up to 110,000 wfms/s (normal mode, up to 500,000 wfms/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, options for a built-in 25 MHz arbitrary waveform generator, as well as serial decoding are also features of the SDS5000X.

The large 10.1" display capacitive touch screen supports multi-touch gestures. With the addition of a user-friendly one-button design for most commonly used functions, the SDS5000X provides the user with enhanced operating efficiency.

SPO Technology

- ▶ Waveform capture rates of up to 110,000 wfms/s (normal mode), and 500,000 wfms/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.

Analog channels	
Bandwidth	350 MHz, 500 MHz, 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)
Date rate	300 Mbps (max)

Packing List

Please check the accessories according to the packing list. If the accessories are incomplete or damaged, please contact your SIGLENT 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 USB cable

General Safety Summary

Carefully read the following safety precautions to avoid any personal injury or damage to the instrument and any products connected to it. To avoid potential hazards, please use the instrument as specified.

Use Proper Power Cord

Only the power cord designed for the instrument and authorized by local government regulations should be used.

Ground the Instrument

The instrument is grounded through the protective earth conductor of the power cord. To avoid electric shock, please make certain the instrument is grounded correctly before connecting its input or output terminals.

Connect the Signal Cable Correctly

The potential of the signal cable ground is equal to the earth ground. Do not connect the signal wire to a high voltage.

Look Over All Terminals' Ratings

To avoid fire or electric shock, please look over all ratings and sign instructions of the instrument. Before connecting the instrument, please read the manual carefully to gain more information about the ratings.

Use Proper Overvoltage Protection

Make sure that no overvoltage (such as that caused by a thunderstorm) can reach the product, or else the operator might be exposed to danger of electrical shock.

Electrostatic Prevention

Operate in an electrostatic-protected area environment to avoid damages induced by static discharge. Always ground both the internal and external conductors of the cable to release a static charge before connecting.

Maintain Adequate Ventilation

Inadequate ventilation may cause an increase of temperature, which may eventually damage the instrument. Maintain suitable ventilation and inspect the fan and intake regularly.

Avoid Exposed Circuits and Components

Do not touch exposed contacts or components when the instrument's power is on.

Use Only the Specified Fuse**Do Not Operate Without Covers**

Do not operate the instrument with covers or panels removed.

Safety Terms and Symbols

Terms used in this product. These terms may appear in the product:

DANGER Indicates direct injury or hazards that may happen.

WARNING Indicates potential injury or hazards that may happen.

CAUTION Indicates potential damage to the instrument or other property that may happen.

Symbols used in this product. These symbols may appear on the product:



Hazardous
Voltage



Protective Voltage
Earth Ground



Warning



Earth Ground



Power
Switch

Allgemeine Sicherheitsübersicht

Lesen Sie die folgenden Sicherheitshinweise sorgfältig durch, um Verletzungen oder Schäden am Gerät und an den daran angeschlossenen Produkten zu vermeiden. Um mögliche Gefahren zu vermeiden, verwenden Sie das Gerät bitte wie angegeben.

Verwenden Sie ein geeignetes Netzkabel

Verwenden Sie nur das für das Gerät vorgesehene und im jeweiligen Land zugelassene Netzkabel.

Erden Sie das Gerät

Das Gerät ist über den Schutzleiter der Netzleitung geerdet. Um einen elektrischen Schlag zu vermeiden, vergewissern Sie sich bitte, dass das Gerät korrekt geerdet ist, bevor Sie die Eingangs- oder Ausgangsklemmen des Geräts anschließen.

Schließen Sie das Messkabel richtig an

Die Kabelschirmung (Masse) des Messkabels ist gleich dem Potential der Erde, schließen Sie das Messkabel also nicht an eine hohe Spannung an.

Überprüfen Sie die Nennwerte aller Klemmen

Um Feuer oder einen elektrischen Schlag zu vermeiden, beachten Sie bitte alle Angaben und Hinweise auf dem Gerät. Bevor Sie das Gerät anschließen, lesen Sie bitte das Handbuch sorgfältig durch, um weitere Informationen über die Nennwerte zu erhalten.

Verwenden Sie einen ordnungsgemäßen Überspannungsschutz

Stellen Sie sicher, dass keine Überspannung (z. B. durch ein Gewitter) an das Gerät gelangen kann, da sonst die Gefahr eines elektrischen Schlages besteht.

Schutz vor Elektrostatik

Betreiben Sie das Gerät in einer Umgebung, die vor elektrostatischer Entladung geschützt ist, um Schäden durch statische Entladung zu vermeiden. Erden

Sie vor dem Anschließen immer sowohl den Innen- als auch den Außenleiter des Kabels, um statische Aufladung abzubauen.

Für gute Belüftung sorgen

Eine unzureichende Belüftung kann zu einem Temperaturanstieg führen, der schließlich das Gerät beschädigt. Sorgen Sie daher für eine gute Belüftung und überprüfen Sie regelmäßig die Ansaugung und den Lüfter.

Vermeiden Sie freiliegende Schaltkreise oder Komponenten

Berühren Sie keine freiliegenden Kontakte oder Bauteile, wenn das Gerät eingeschaltet ist.

Richtige Sicherung verwenden

Verwenden Sie nur die angegebene Sicherung.

Betreiben Sie das Gerät nicht ohne Abdeckungen

Betreiben Sie das Gerät nicht, wenn Abdeckungen oder Verkleidungen entfernt sind.

Betreiben Sie das Gerät nicht bei vermuteten Defekten

Wenn Sie vermuten, dass das Gerät beschädigt ist, lassen Sie es vor dem weiteren Betrieb von qualifiziertem Servicepersonal überprüfen. Jegliche Wartung, Einstellung oder Austausch, insbesondere von Schaltkreisen oder Zubehör, muss von SIGLENT autorisiertem Personal durchgeführt werden.

Nicht in feuchter Umgebung betreiben

Um einen Kurzschluss im Geräteinneren oder einen elektrischen Schlag zu vermeiden, betreiben Sie das Gerät nicht in feuchter Umgebung.

Betreiben Sie das Gerät nicht in explosionsgefährdeten Umgebungen

Um Schäden am Gerät oder Personenschäden zu vermeiden, ist es wichtig, das Gerät nicht in explosionsgefährdeter Umgebung zu betreiben.

Halten Sie die Produktoberflächen sauber und trocken

Um den Einfluss von Staub und/oder Feuchtigkeit in der Luft zu vermeiden, halten Sie die Oberfläche des Geräts bitte sauber und trocken.

Sicherheit bei der Handhabung

Bitte behandeln Sie das Gerät während des Transports vorsichtig, um Schäden an Tasten, Drehknopfschnittstellen und anderen Teilen auf den Bedienfeldern zu vermeiden.

Es dürfen nur Tastköpfe verwendet werden, die den Spezifikationen des Herstellers entsprechen

Bei Verwendung von 2X/.../10000X-Sondenbaugruppen müssen die Sondenbaugruppen durch eine doppelte oder verstärkte Isolierung von den gemessenen Stromkreisen isoliert sein.

Alle Sondenbaugruppen sollten die Anforderungen von UL 61010-031 und CAN/CSA-C22.2 Nr. 61010-031-07 erfüllen.

Das Gerät darf nicht so positioniert werden, dass es schwierig ist, die Trennvorrichtung (abnehmbarer Stecker) zu bedienen.

Wenn das Gerät auf eine Weise verwendet wird, die nicht vom Hersteller angegeben ist, kann der Schutz, den das Gerät bietet, beeinträchtigt werden.

Sicherheitsbegriffe und symbole

Begriffe in diesem Handbuch. Diese Begriffe können in diesem Handbuch vorkommen:



WARNUNG

Warnhinweise weisen auf Bedingungen oder Praktiken hin, die zu Verletzungen oder zum Verlust des Lebens führen können.



VORSICHT

Vorsichtshinweise weisen auf Bedingungen oder Praktiken hin, die zu Schäden an diesem Produkt oder anderen Gegenständen führen können.

Begriffe auf dem Produkt. Diese Begriffe können auf dem Produkt erscheinen:

GEFAHR

Weist auf direkte Verletzungen oder Gefahren hin, die auftreten können.

WARNUNG

Weist auf mögliche Verletzungen oder Gefährdungen hin, die auftreten können.

VORSICHT

Weist auf mögliche Schäden am Gerät oder an anderen Gegenständen hin, die eintreten können.

Symbole auf dem Produkt. Diese Symbole können auf dem Produkt erscheinen:



Hazardous
Voltage



Protective Voltage
Earth Ground



Warning



Earth Ground



Power
Switch

Wenn Sie solche Symbole auf dem Produkt finden, ziehen Sie das Handbuch zu Rate, um die Art der potenziellen Gefahr und die zu ergreifenden Maßnahmen zu erfahren

General Care and Cleaning

Care

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

To avoid damages to the instrument or probes, please do not expose them to fog, liquid, or solvents.

Cleaning

Please perform the following steps to clean the instrument and probes regularly in accordance with its operating conditions.

1. Disconnect the instrument from all power sources and then clean with a soft wet cloth.
2. Clean the loose dust on the outside of the instrument and probe with a soft cloth. When cleaning the LCD, 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 cleansers.

Make sure that the instrument is completely dry before restarting it to avoid potential short circuits or personal injury.

Quick Start

Front of Oscilloscope



- A. **Touch Screen Display** The display and major 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 / 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 / keyboard for control.
- E. **Digital Input Connector** Receives digital signals from the SPL2016 digital probe.
- F. **Analog Input Connectors**
- G. **Power Switch**
- H. **Supporting Legs** Adjust the supporting legs properly to use them as stands to tilt the oscilloscope upwards for stable positioning of the oscilloscope.

Back of Oscilloscope



- A. **Auxiliary Output** Outputs the trigger indicator. When Pass / Fail is enabled, outputs the pass / fail signal.
- B. **External Trigger Input**
- C. **10 MHz IN/OUT** Receives or outputs 10 MHz reference clock for synchronization between the oscilloscope and other instruments.
- D. **VGA Video Output** Connects the port to an external monitor. The resolution is 1024 * 600.
- E. **LAN Port** Connect the port 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.

Press the power switch to power on the oscilloscope after the AC power supply is connected. Pressing the power switch for approximately 2 seconds will force the oscilloscope into the Standby mode. In Standby mode the oscilloscope still consumes ~ 4 W power. To shut off the oscilloscope please disconnect the AC power supply.

The SDS5000X provides a “Power on Line” option. When enabled, the oscilloscope powers on once the AC power supply is connected. Follow the steps below to enable this option:

Utility > System Settings > Auto Power On

LAN

Connect the LAN port to the network with a network cable with RJ45 head for remote control.

Follow the steps below to set LAN connection:

Utility > I/O > LAN Config

USB Peripherals

Connect a USB storage device to one of the USB host ports for data transfer, or connect USB mouse / keyboard to one of the USB host ports for controlling 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

SAG1021 Waveform Generator

Connect the SAG1021 USB function / arbitrary waveform generator module to any USB host port on the oscilloscope. The oscilloscope can now control the USB module to output specified waveforms.

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

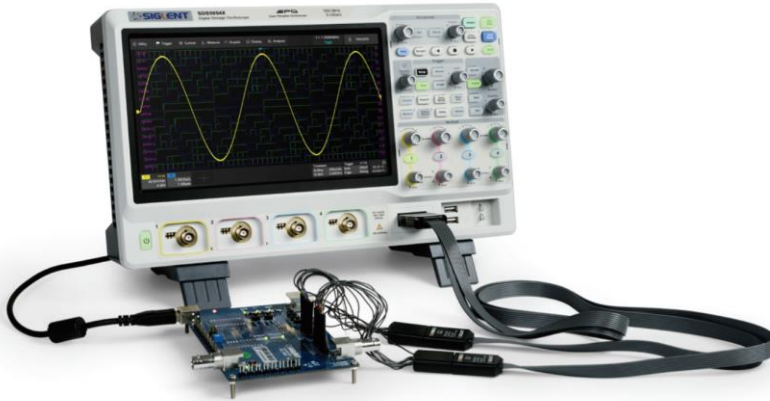
Probes

The SDS5000X series supports passive probes and active probes. The 500 MHz passive probe SP3050A is a standard accessory (1 probe / channel). The 1 GHz active probe SAP1000 is an optional accessory. Please go to www.siglent.com for more details on SIGLENT's probes.

Logic Probe

The logic probe SPL2016 is designed to probe up to 16 digital signals at once. The 16 digital channels are separated into two groups and each group has its own threshold, making it possible to simultaneously view data from different logic families.





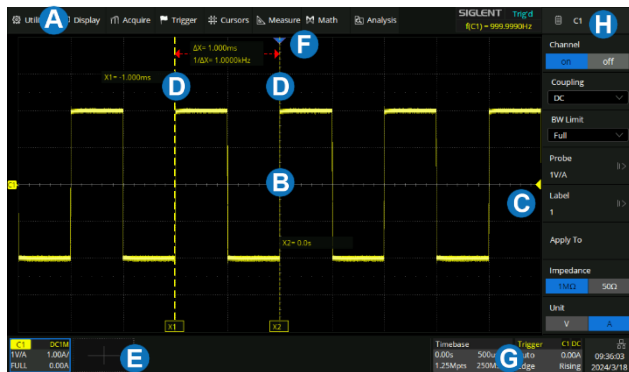
To connect the logic probe: Insert the probe, with the correct side facing up, until you hear a “click”.

To remove the logic probe: Depress the buttons on each side of the probe, then pull out it.

User Interface

Touch Screen Display

The entire SDS5000X display is a capacitive touch screen. Use your fingers to touch, drag, pinch, spread, or draw a selection box. Many controls that display information also work as “buttons” to access other functions. If you using any mouse, you can click anywhere – that you can touch - to activate a control; in fact, you can alternate between clicking and touching the control, whichever is convenient.



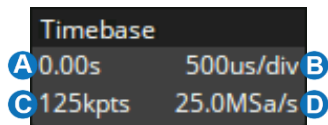
- A. **Menu Bar** with drop-down menus lets you access set-up dialogs and other functions. All functionality can be accessed through the menu bar.
- B. **Grid Area** displays the waveform traces. Traces can be moved by dragging, and re-scaled by pinch and spread.
- C. **Trigger Level Indicator** shows the level where the waveform triggers on the vertical axis.
- D. **Cursors** show where measurement points have been set. Move the cursors to quickly reposition the measurement point.
- E. **Channel descriptor boxes** include analog channels (C1 ~ C4), digital channels (D), math (F) and reference (Ref). They are located under the grid area, showing the parameters of the corresponding traces. Touching the boxes creates a dialog box.
- F. **Trigger Delay Indicator** locates where the waveform triggers on the horizontal axis.
- G. **Timebase and Trigger Descriptor** Boxes show the parameters of timebase and trigger respectively. Touching the boxes creates a dialog box.
- H. **Dialog Box** is the main area to select the parameters for a chosen specific function.

Channel descriptor box

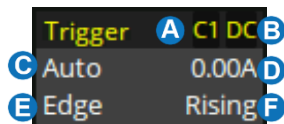


- A. Channel index
- B. Coupling and input impedance
- C. Vertical scale
- D. Vertical offset
- E. Bandwidth information
- F. Probe attenuation factor

Timebase and Trigger Descriptor Boxes



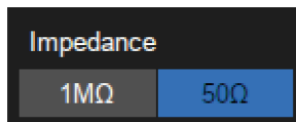
- A. Trigger delay
- B. Horizontal scale (timebase)
- C. # Samples
- D. Sample rate



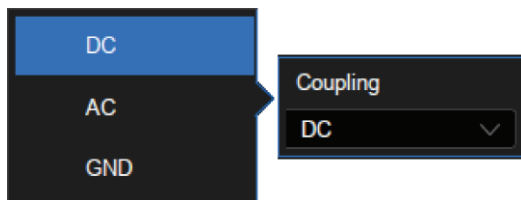
- A. Trigger source
- B. Trigger coupling
- C. Trigger mode
- D. Trigger level
- E. Trigger type
- F. Trigger slope

To Set Parameters

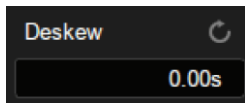
The SDS5000X provides several different ways to set parameters:



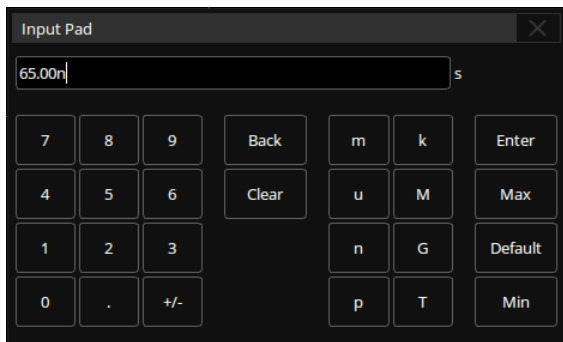
Switch – sets parameters with two states, such as to enable or disable a function. Touch the switch region to change from one state to the other.



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



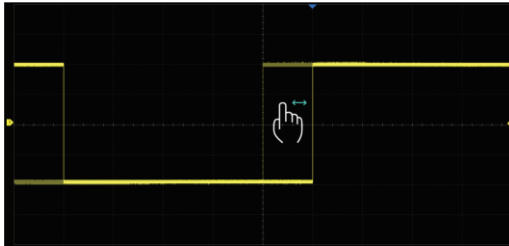
Virtual Keypad – Sets parameters with numerical value. Touch the parameter region, and the parameter can be adjusted by the universal knob on the front panel; touch the region again, then the virtual keypad appears;



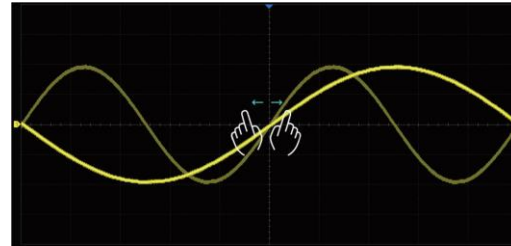
To use the operation of setting “Deskew” of channel as an example: If the expected value is 65 ns, input “65” on the virtual keypad, and then choose the unit **n** to complete the operation. On the virtual keypad, touching the button **Max** , **Min** , and **Default** quickly sets the parameter to its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

Touch Gestures

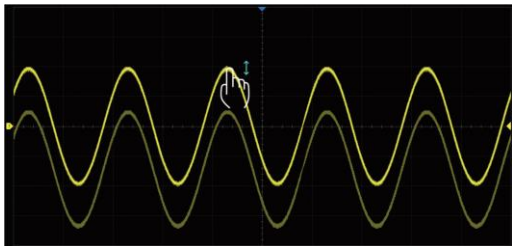
Waveforms, cursors and trigger level can be adjusted by touch gestures in the grid area.



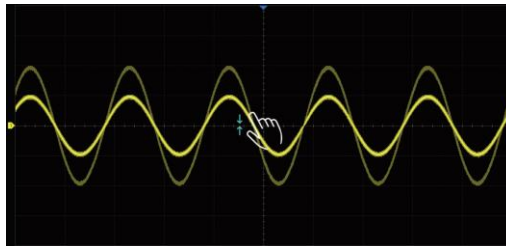
Drag the waveform left and right to move it on the horizontal axis



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.

Choosing the Language

Utility > System settings > Language

Front Panel



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

Shortcut buttons give quick access to commonly used functions, such as:  automatically sets the waveform to adapt the display according its frequency and amplitude.

 enables or disables the touch screen. When it is lighted the functionality is enabled.



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

Basic Operations

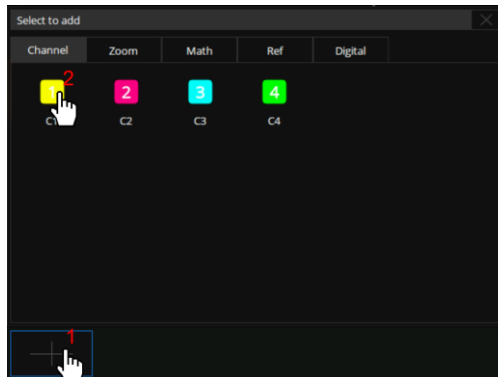
Turn On / Disable a Channel

From the Front Panel

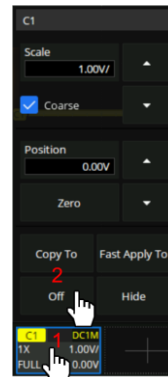
Push the channel button (1-4) to turn on the corresponding channel. Its channel descriptor box and dialog box will appear on the display. Push the same button again to disable the channel.

From the Touch Screen

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

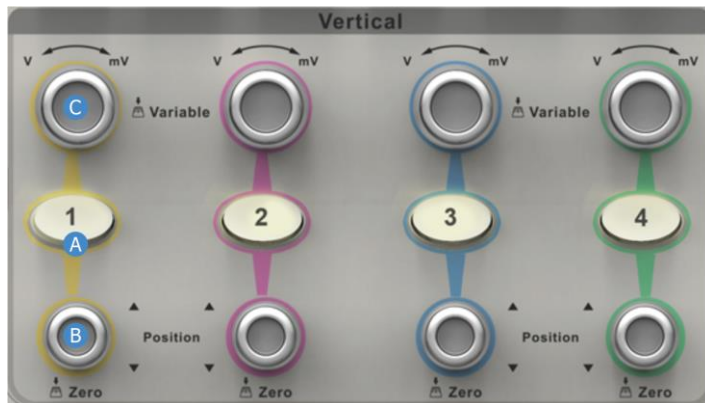


Turn on C1



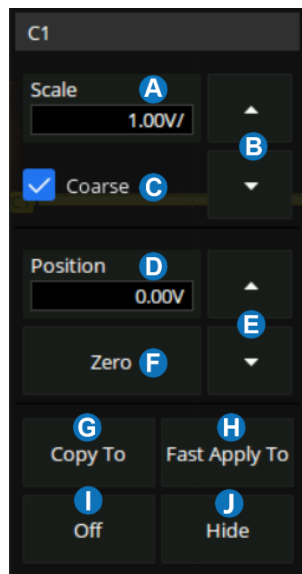
Turn off C1

Vertical System

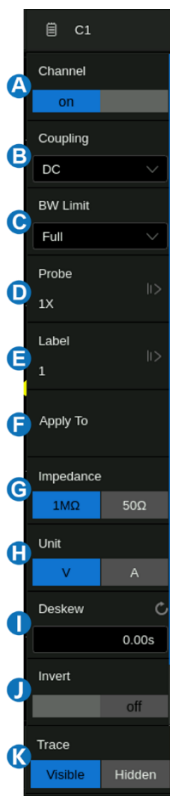


- A. When the channel is disabled, push the button to turn it on. When the channel is turned on but not activated, push the button to activate it. When the channel is turned on and activated, push the button to disable it.
- B. Rotate the knob to adjust the DC offset or vertical position of the channel. Push to set the offset to zero.
- C. Rotate the knob to adjust vertical scale (volts/div); push to switch to alternative between coarse adjust and fine adjust.

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



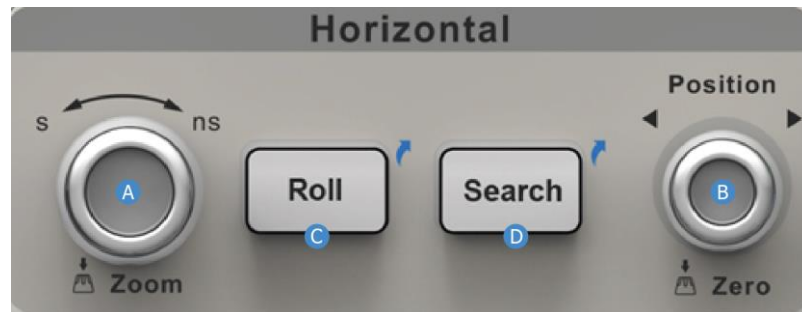
- A. Touch the region to set the vertical scale with the universal knob or virtual keypad
- B. ▲ to increase the vertical scale and ▼ to decrease
- C. Check to coarsely adjust the vertical scale and uncheck to enable fine adjustment
- D. Touch the region to set the offset with the universal knob or virtual keypad
- E. ▲ to increase the offset and ▼ to decrease
- F. Set the offset to zero
- G. Copy the setting of the current channel to another channel
- H. Quickly select the current channel as the source of a specified operation (Trigger, FFT, Simple Measure, Cursor, Search, DVM and Counter)
- I. Disable the channel
- J. Hide the trace



- A. Turn channel on/off
- B. Coupling (DC, AC or GND)
- C. Bandwidth limit (Full, 20 MHz or 200 MHz)
- D. Probe attenuation (1X, 10X, 100X or custom)
- E. Set the label text. Click to recall the label setting. Users can customize the text and display of the label
- F. Quickly apply a specified operation (Trigger, FFT, Simple Measure, Cursor, Search, DVM, Histogram, Mask Test, Counter, and Wave Gen) to the current channel
- G. Impedance
- H. Unit for the channel
- I. Deskew
- J. Enable/disable invert
- K. Trace visible/hidden

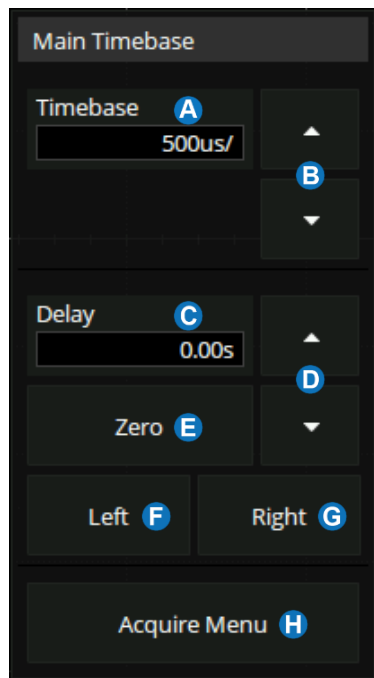
Horizontal and Acquisition System

Horizontal controls adjust traces along the X axis. The horizontal setting applies to all channels.



- A. Rotate to adjust 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 50 ms/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 close Search.

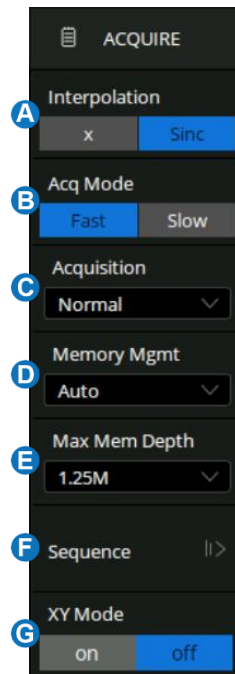
Touch the timebase descriptor box to display a quick dialog box. Timebase and Trigger Delay can also be set in this dialog box.



- A. Touch the region to set timebase with universal knob or virtual keypad
- B. ▲ to increase vertical scale and ▼ to decrease
- C. Touch the region to set trigger delay with universal knob or virtual keypad
- D. ▲ to increase vertical scale and ▼ to decrease
- E. Set trigger delay to zero
- F. Set trigger delay to left region of the display
- G. Set trigger delay to right region of the display
- H. Open the Acquire dialog box

Touching **H** in the timebase quick dialog or pushing **Acquire** button on the front panel recalls the Acquire dialog box:

- A. Select the interpolation mode
- B. Select the Acq mode
- C. Select the acquisition mode (Normal / Peak / Average / Hi-Res)
- D. Select the Memory Management mode (Auto, Fixed Sample Rate, and Fixed Memory)
- E. Select the maximum memory depth
- F. Enter the sequence menu
- G. XY mode on/off



Zoom

When the Zoom mode is enabled, press down the horizontal knob to switch between the main window and zoom window. Currently activated window is high-lighted by dash line.



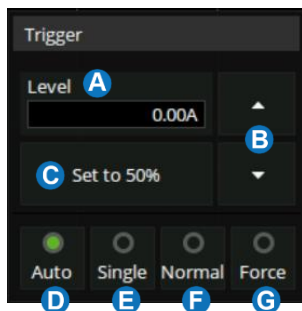
In Zoom mode the grid area is divided into two areas. The main window appears on the top and the zoom window on the bottom. The region without the gray background in the main window is the portion of trace that is magnified in the zoom window. Please refer to the User Manual for detailed operation instructions of Zoom mode.

Trigger



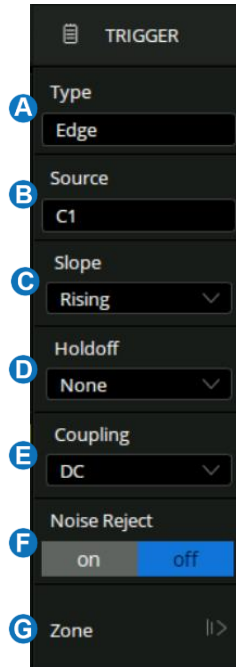
- A. Opens trigger setup dialog box
- B. Single mode – triggers once when all conditions are met
- C. Normal mode – triggers repeatedly when all conditions are met
- D. Auto mode – triggers after preset period if no valid trigger occurs
- E. Trigger level adjustment -- push to set the level to 50% of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

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

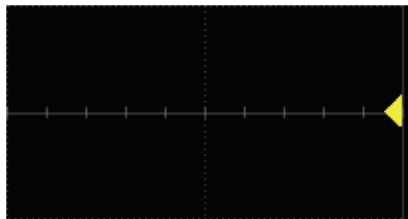


- A. Touch the region to set trigger level with virtual keypad
- B. ▲ to increase vertical scale and ▼ to decrease
- C. Set trigger level to 50% of waveform
- D. Set trigger mode to “Auto” mode
- E. Set trigger mode to “Single” mode
- F. Set trigger mode to “Normal” mode
- G. Set trigger mode to “Force” mode

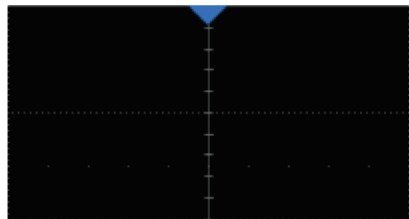
- A. Select trigger type
- B. Set the trigger source
- C. Select the trigger slope (When the trigger type is "Edge", "Slope" and other specific types)
- D. Set holdoff (None/Time/Events)
- E. Set trigger coupling mode (DC/AC/LF Reject/HF Reject)
- F. Enable/disable Noise Rejection. When noise reject is on, the trigger hysteresis is increased, so the noise immunity of the trigger circuit is better. As a compromise, the trigger sensitivity degrades
- G. Set the Zone trigger



Indicators Relative to Trigger



Trigger level indicator



Trigger delay indicator



Trigger delay indicator (outside the screen)

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 **+** or push the **Math** button on the front panel to create math trace and open math setup dialog box
- B. Math trace
- C. Math setup dialog box
- D. Selects the trace (F1 ~ F4)
- E. Selects the operator and source of math operation (C1~C4, Z1~Z4, F1~F4)

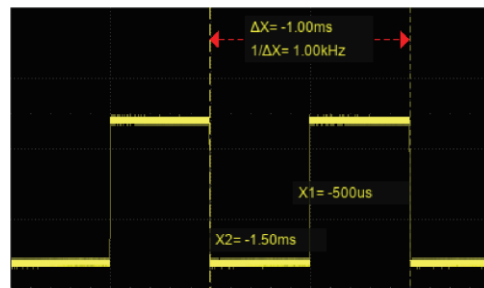
Cursors

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

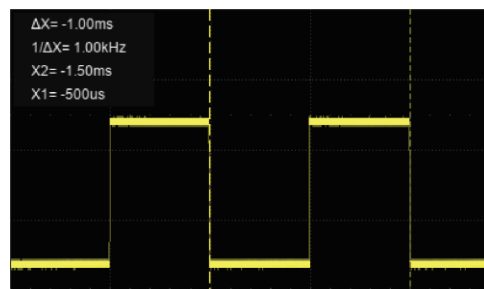


- A. Push the button to open the cursors setup dialog box
- B. Rotate the knob to move selected cursor; push to select different cursor

The display mode of cursors:



Following



Fixed

Measure & Statistics



- Touch **Measure** > **Menu** , or push the **Measure** button on the front panel to open measure setup dialog box
- Measurement parameters and statistics display area. If select the mode as "Simple", the "Simple" parameter area is displayed. Touch the **Clear Sweeps** button on the front panel to reset the statistics
- Set the mode of measure: Simple or Advanced. "Simple" shows the specified basic measurement parameters of the selected channel. In "Advanced" of the selected channel. In "Advanced" mode, the measurement parameters can be added one by one as needed
- Measure configuration: amplitude strategy, threshold, measure type and display mode
- Clear all the selected measurements
- Select measurement parameters and source
- Tools including Trend, Track and Measure Cursor
- Turn on or off statistics

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.

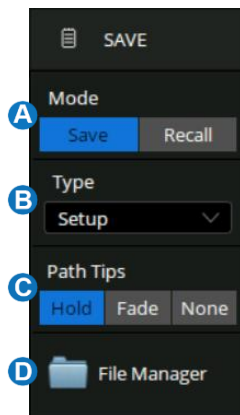


- A. Original trace of analog channel
- B. Reference trace
- C. Reference waveform setup dialog box
- D. Select the location of the reference (REFA / REFB / REFC / REFD)
- E. Select the source (C1~C4 and Math)
- F. Enable/disable Display of the reference waveform
- G. Set the label text of the reference trace
- H. Save the waveform specified in **E** to the specified location in **D**
- I. Trace visible / hidden

Save/Recall

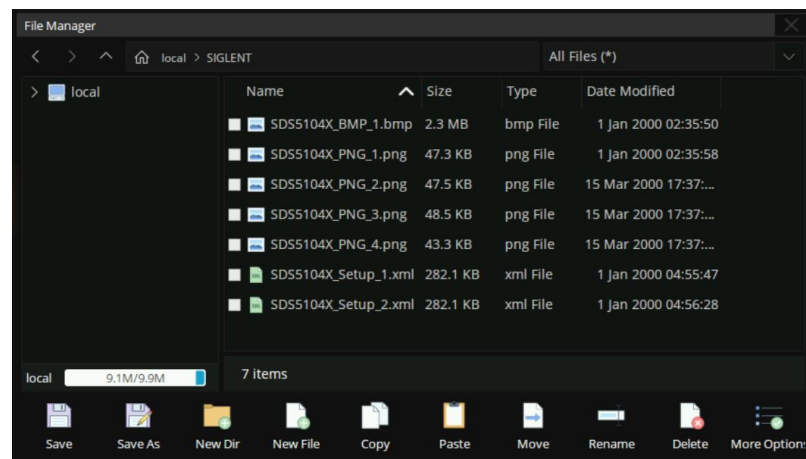
The SDS5000X supports saving and recalling multiple formats of files, including setup, picture, waveform data and reference waveform.

Press the  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. Display mode of the save path tips
- D. Recall the File Manager for further operations

File Manager



Quickly Capture the Screen

Press the **Print** button on the front panel to save the screen to specified path as a .bmp|.jpg|.png picture.

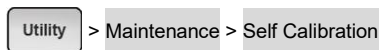
Calibration

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** > **Maintenance** > **Self Calibration** or



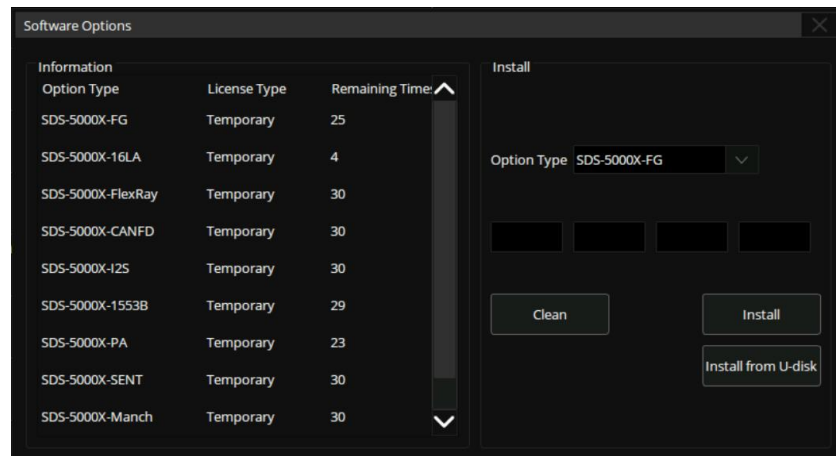
Software Options

Software options are available to enhance the operation of a SDS5000X oscilloscope.

Installing a Software Option

Follow the steps below to install a software option after purchasing it and obtaining the Option Key:

1. Utility > Menu > Software Options or Utility > Software Options
2. Select the correct Option Type
3. Input the option key in the text box
4. Touch **Install** and then restart the oscilloscope



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