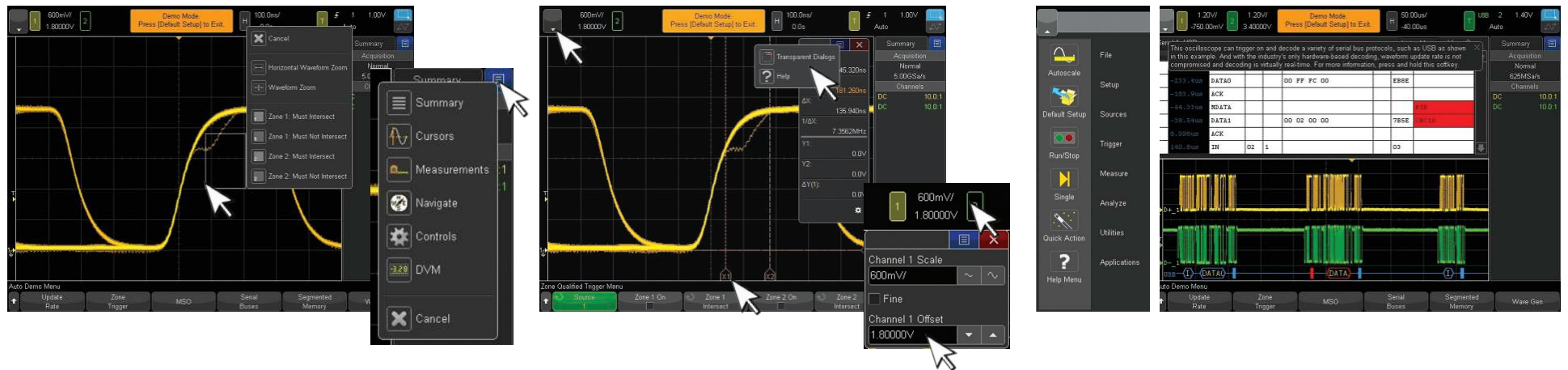


InfiniiVision 4000 X-Series Oscilloscope

Oscilloscope Experience Redefined ~ Experience the Speed, Usability, and Integration

InfiniiVision 4000 X-Series provides three convenient ways to access menus and setups of the oscilloscope: capacitive touch operation, front panel operation, and pull down operation.

Experience the usability: Getting familiarized with the capacitive touch interface on the InfiniiVision 4000 X-Series



1. Turn on your 4000 X-Series.
2. Push **[Help]** button then touch **Auto Demo**.
3. Connect channel 1 probe to demo 1 and channel 2 probe to demo 2 (shown in a diagram).
4. Touch **Zone Trigger** then **Next**.
5. Touch **Exit** and try it for yourself. Draw a zone, then select **“Zone 1: Must Intersect”**. This is the InfiniiScan Zone touch trigger.
6. Turn off “InfiniiScan Zone” by touching **Zone 1 On**.
7. Touch the **Blue List Box** and then select **“Cursors.”**
8. Drag **[X1]** and **[X2]** to measure the width of the glitch (~140ns) (**X1** and **X2** are on top of each other initially).
9. Undock the cursor menu by touching **Cursors** panel section and drag it to an open space. You un-docked the panel to display **Cursors** and **Summary** info simultaneously.
10. Touch the **Blue Box** of the **Cursor** panel. Select **“Transparent Dialogs”** to make it transparent.

11. Touch the **Blue Box** of the side bar and then select **“Measurements.”**
12. Touch **“+”** to add measurements. Slide the scroll bar up and double touch **“Maximum.”**
13. Touch Freq (1) in the list of active measurements. Touch **“Clear Measurement”** to delete the measurement.
14. Touch channel 1 vertical setting **values next to yellow channel “1” icon**. Touch **Channel 1 Offset** number. Note, a numeric pad comes up. Touch **[1]** and **[Enter]** to enter 1V offset.
15. Push **[Label]** on the front panel, then touch **Annotation** **Edit Annotation**. An alphanumeric pad will come up. Type anything and touch **[OK]**. You can now touch and drag this annotation around on the display.
16. Touch the **arrow pull down** in the upper left corner for a pull down menu. You have full control via this menu. Touch **Default Setup** to bring the scope back to its default setup. You can now touch and drag this annotation around on the display.

InfiniiVision 4000 X-Series Keysight Technologies, Inc. and partner demonstration units have a built-in Auto Demo to illustrate their compelling features and benefits.

1. Push **[Help]** button then touch **Auto Demo**.
2. Auto Demo provides following quick demonstrations:
 - **Update Rate** – demonstrate the power of 1-million-waveforms-per-second update rate.
 - **Zone Trigger** – the new InfiniiScan Zone touch trigger means if you can see it, you can trigger on it.
 - **MSO** – quick demo to show both analog and digital channels simultaneously.
 - **Serial busses** – shows trigger, decode, and lister example for a serial bus (USB 2.0 is the example).
 - **Segmented Memory** – shows how segmented memory captures selective signal detail over very long time periods.
 - **WaveGen** – quick tour of signals generated by dual-channel WaveGen, including differential signals.

Demo Guide

InfiniiVision 4000 X-Series provides industry leading 1-million-waveforms-per-second update rate, InfiniiScan Zone touch trigger, and standard segmented memory. See the oscilloscope experience redefined.

1-M-wfm/sec update rate InfiniiScan Zone touch trigger Standard segmented memory

“If you can’t see the problem, you can’t fix the problem”

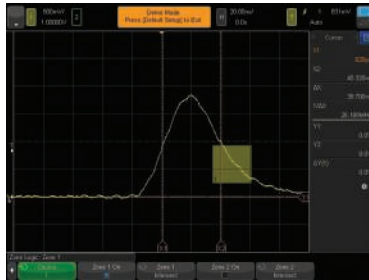


An oscilloscope is first and foremost a signal visualization debug tool. Let’s “see” the anomalies that others miss.

1. Press **[Default Setup]**.
2. Press **[Help]** then touch **Auto Demo**.
3. Connect probes as shown in the diagram. Close the connection diagram.
4. Touch **Update Rate**.
5. You are seeing one glitch signal in one million waveform cycles and how it compares to other scopes in the market.
6. Touch **Exit**.

Only with 1 million waveforms per second are you guaranteed minimum acquisition dead-time. Now let’s trigger on the signal.

“If you can see it, you can trigger on it”

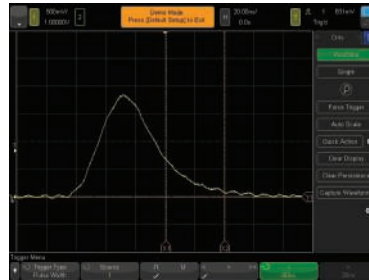


With InfiniiScan Zone touch triggering, even complex triggering is now as easy as finding a signal and drawing a zone.

1. Draw an InfiniiScan Zone around the glitch signal. Select “**Zone 1: Must Intersect.**”
2. InfiniiScan Zone just triggered on a one-in-a-million waveform glitch.
3. Touch the **Blue Box** in the side bar, and select **Cursors**.
4. **Drag X1 and X2** cursors to measure the width of the glitch (should be 40 ~ 50 ns).
5. Touch the **Blue Box** in the side bar, and select “**Controls.**” Now the control panel appears.
6. Press **[Run/Stop]** to stop the acquisition.
7. Press **[Zone]** button on the front panel to turn off InfiniiScan Zone.

By isolating (triggering on) the glitch, you can characterize the entire waveform for the first time. What if you want to capture multiple glitches?

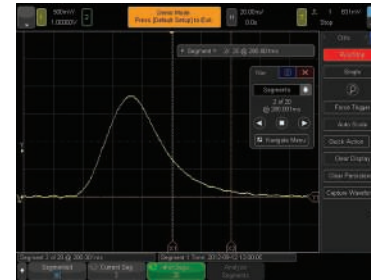
“Smart and efficient way to capture waveforms”




Segmented memory captures greater selective signal detail over very long time periods

1. Touch the **Trigger** icon.
2. Touch **Trigger Type** and double touch **Pulse Width** at the bottom of screen.
3. Double touch **<** softkey and type in “**60**” and “**n.**”
4. Press **[Run/Stop]** to start the acquisition.
5. You will see multiple signals. The scope is auto triggering to other signals, since the glitch is extremely infrequently.
6. Touch **Auto** near the trigger icon in the top right of the display. This toggles the trigger mode from **Auto** to **Normal**.
7. Now the pulse width trigger is triggering on one-in-a-million glitches continuously.

Segmented memory captures selective signal detail over very long time periods. You can turn your oscilloscope into an effective ultra-deep memory oscilloscope with standard Segmented Memory. In this example, if an oscilloscope without Segmented Memory were to characterize this glitch over 20 occurrences, it would require 27 Gpts of acquisition memory, which doesn’t exist in any oscilloscope on the market today.



8. Press **Run/Stop** to stop the acquisition.
9. Push the **[Acquire]** button and then touch **Segmented** at the bottom of the screen.
10. Touch **# of Segs** and type in “**20**” then **[Enter]**.
11. Turn on segmented memory by touching **Segmented** toggle softkey (checkbox becomes blue).
12. Press **[Run/Stop]** to start the segment memory acquisition.
13. Touch the **Blue Box** in the sidebar and select “**Navigate.**”
14. Press the **arrow** to move to the next segment. 

15. Notice the time tag shows **280 ms**, revealing the next glitch occurred 280 ms after the first glitch.
16. Double touch **Current Seg** softkey at the bottom. Touch **[Max]** to go to the last segment.
17. You are now at the last segment. This glitch happened **5.3 seconds** after the first glitch.
18. With the traditional memory architecture, you would need **27 Gpts** of memory to capture the same time duration as a single-shot acquisition.