

# The InfiniiVision 7000B Quick Demo Guide

## Engineered for the BEST signal visibility

**Attractive** The largest display in its class

**Fast** The fastest waveform update rate let's you to see more signal detail. Capture infrequent events

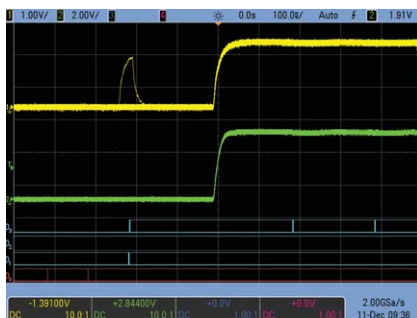
**Smart** Insightful measurement applications with hardware acceleration help speed your debug

## Initial Connections

1. Connect the MSO ribbon cable between the demo board (N2918A) and the scope's logic inputs (back panel).
2. Connect channel-1 probe to CH1 test point, and channel-2 probe to CH2 test point.

## Detecting an Infrequent Glitch with Fast Waveform Update Rate

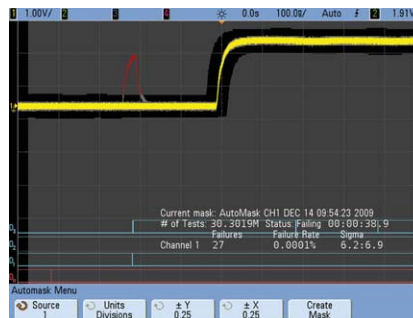
1. Set demo board mode switch to "2" (Data w/Glitch signal).
2. Press **[Default Setup]**; then **[Auto Scale]**.
3. Set Horizontal timebase to **100.0 ns/div**.
4. Set Waveform Intensity to **100%**.



With an update rate of 100,000 waveforms/sec, InfiniiVision scopes will capture infrequent events that other scopes miss.

## Capturing an Infrequent Glitch with Hardware-based Mask Testing

1. Create a Pass/Fail mask around the channel-1 waveform.
  - a. Turn off channel-2 (Press channel-2 key two times)
  - b. Press **[Analyze]**; then press **Features** two times to turn on the mask test menu.
  - c. Press **Automask**; then press **Create Mask**.

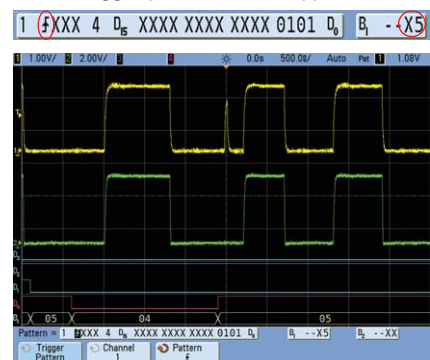


With the scope industry's only hardware-based mask testing, InfiniiVision scopes can test up to 100,000 waveforms/sec based on pass/fail boundaries.

2. Setup a "Stop-on-failure" test criteria.
  - a. Press the **[Back]** front panel key (above power switch).
  - b. Press **Setup**; then press **On Error Stop** two times.

## Triggering on the glitch and then characterizing it

1. Capture the glitch using the scope's mixed-signal pattern triggering mode.
  - a. Press **[Auto Scale]**.
  - b. Press **[Digital]**; then press **Bus**.
  - c. Press **Bus – Bus1** two times to turn on the bus display mode.
  - d. Press **[Trigger]**.
  - e. Press **Trigger Edge** and then select the **Pattern** triggering mode.
  - f. Using the **Channel, Pattern, Digit, and Hex** softkeys, set up the scope to trigger a rising edge of channel-1 while Bus1 (D7-D0) has a hex value of X5<sub>HEX</sub>. The trigger pattern should appear as:



Agilent's InfiniiVision series MSOs provide the most comprehensive set of mixed-signal triggering in the oscilloscope industry

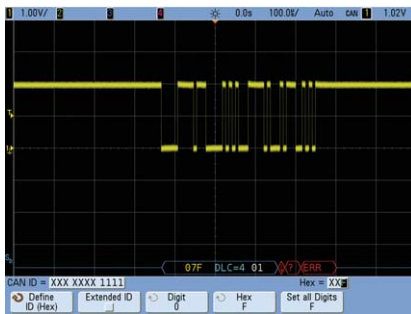
2. Characterize the glitch using the scope's automatic parametric measurements
  - a. Press the **[Meas]** front panel key.
  - b. Set zoom timebase to **20.0 ns/div**.
  - c. Press **[Meas]**.
  - d. Press **Clear Meas**; then press **Clear All**.
  - e. Press **Select**; and then select to measure **Peak-Peak, Fall Time, Rise Time, and +Width**.



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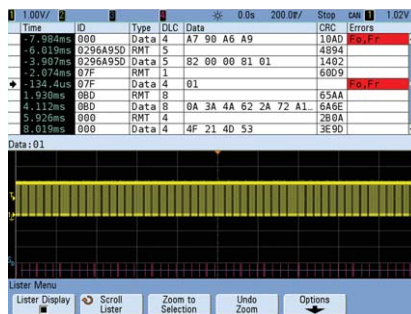
## Serial Bus Hardware-based Decode and Triggering

- Initial Setup
  - Set demo board mode switch to "8" (CAN).
  - Press **[Default Setup]**.
  - Set Chan-1 to **1.0 V/div**.
  - Press the **[Trigger Level]** knob to set level at 50%.
  - Press the **[Waveform Intensity]** knob to set intensity at 50%.
- Turn on CAN protocol decoding
  - Press **[Serial]**; then select the **CAN** decode mode.
- Trigger on a Data Frame with ID = XXF
  - Press **[Trigger]**; then select Trigger = **CAN**.
  - Press **Trigger: SOF**; then select **Data Frame ID (~RTR)** as the CAN trigger mode.
- Press **Bits**.
- Press **Hex**; then select to trigger on ID = **XXF**.



Notice the flashing red "ERR" error message in the decode trace. With the scope industry's only hardware-based serial decoding, InfiniiVision scopes capture infrequent serial communication errors that other scope miss

- Turn on the Lister decode table
  - Set the timebase to **200.0 ms/div**; then press **[Single]** to capture more than 800 consecutive CAN frames.
  - Press **[Serial]**.
  - Press **Lister**; then press **Lister Display** to turn it on.
  - Scroll through the captured data using the selection knob.



Notice that when scrolling through the decode list that the waveform in the lower half of the display "tracks" with direct time-correlation.

## Serial Bus Search & Navigation

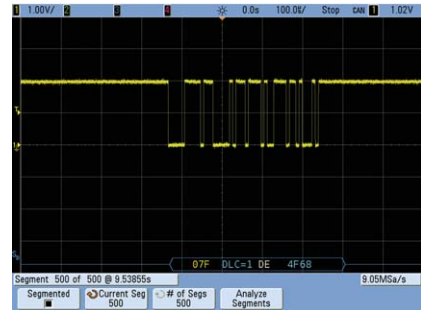
- Manually/visually find an error frame and then zoom-in on the waveform packet that produced this error.
  - As you are scrolling through the list, point to a specific frame/packet that contains an error.
  - Either press the selection knob or press **Zoom to Selection**.
- Automatically find and "mark" all error frames in the decode list.
  - Press **[Search]**.
  - Press **Search for**; then select **Error Frame** as the search criteria.
- Automatically navigate to the "marked" error frames.
  - Press the **[▶]** and **[◀]** navigation keys



With the InfiniiVision 7000B's automatic Search & Navigate feature, finding specific serial communication events is fast and easy.

## Capture more serial data with Segmented Memory Acquisition

- Initial Setup (continued from previous demo).
  - Press the horizontal delay knob to position the trigger event back to center-screen
  - Press **[Run/Stop]** to begin repetitive acquisitions again.
  - Set timebase to **100.0 μs/div**.
- Capture 500 consecutive occurrences of just Data Frame ID = XXF.
  - Press **[Acquire]**; then press **Segmented**.
  - Press **# of Segs** and then select to capture **500** segments.
  - Press **Segmented** to begin a segmented memory acquisition.
- Review all 500 captured segments.
  - Press **Current Seg**; then rotate the selection knob. Note the time-tag of Segment #500.



Segmented Memory acquisition conserves valuable acquisition memory by only capturing important segments of input signals. This is useful for low duty cycle signals such as laser pulses, and packets of serial data.

