
LogicStudio Training Guide

Summary

This guide provides step by step instructions explaining how to use the LogicStudio software.

LogicStudio can operate in demo mode providing full access to all controls and features when the hardware or demo board is not available.

The LogicStudio software provides tools for viewing, measuring and analyzing digital, serial and analog waveforms. This guide will explain how to use the various tools built-in to LogicStudio such as cursors, waveform magnifier, history mode, serial trigger/decode and viewing analog waveforms from the WaveJet.

The LogicStudio software can be downloaded at:
<http://www.lecroy.com/logicstudio/>

1. Download and install the LogicStudio software appropriate for your computer from the LeCroy website including the instrument drivers.
2. Connect the LogicStudio module to the computer using the USB cable.
3. Launch the LogicStudio software.
4. Use the Help pull down menu in the LogicStudio software to access the User manual. Review the manual briefly to familiarize yourself with its content.
5. Use the file pulldown in the LogicStudio software to load the Default Setup.

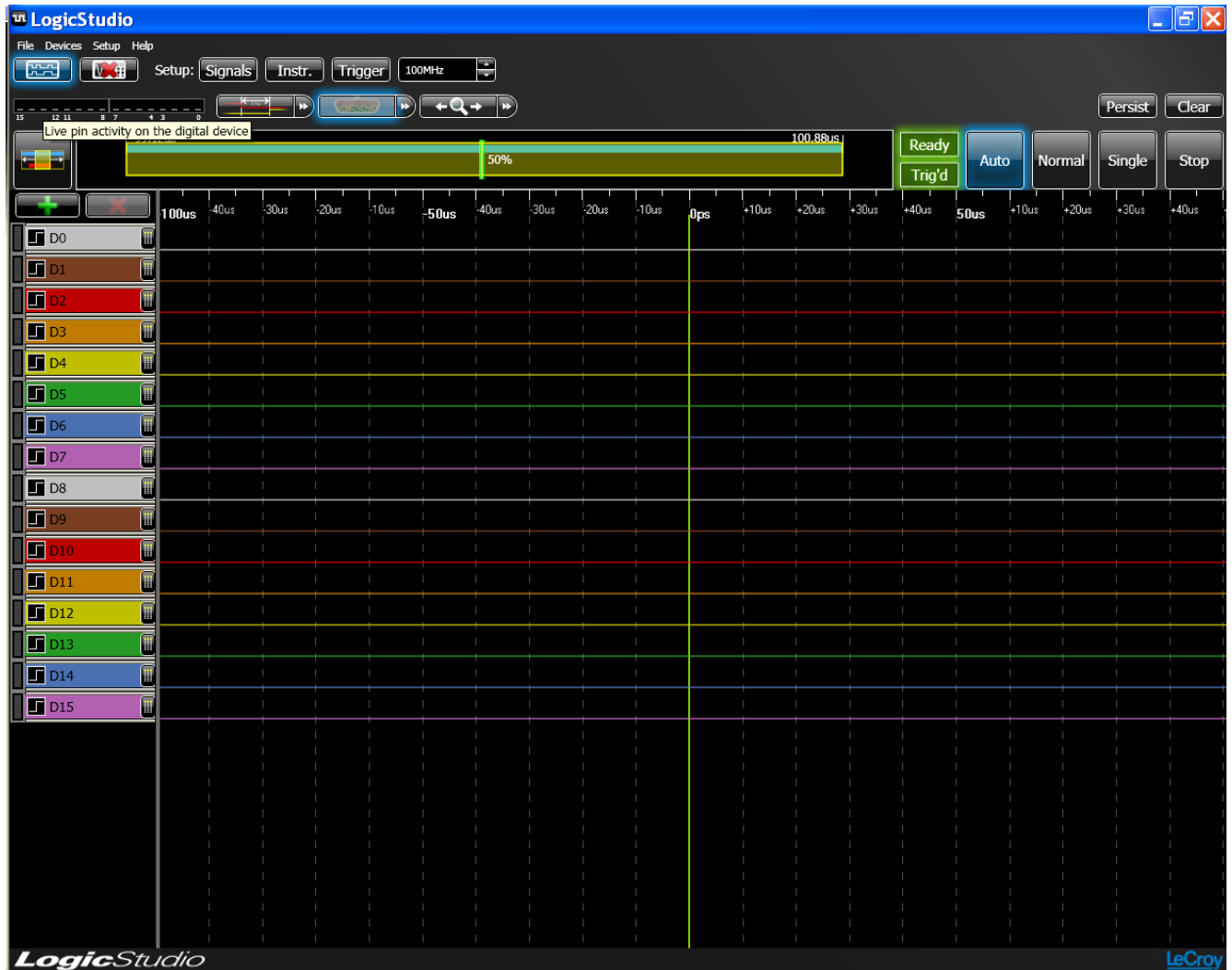


Figure { SEQ Figure * ARABIC }: The Logic Studio default setup

6. Connect the LeCroy WS-100 demo board to an available USB port. If a new hardware found message appears press the Cancel button and continue. The WS-100 only uses the USB port for power.
7. Connect logic pod leads D0 through D4 to the output pins marked D0 through D4, respectively, on the WS-100 demo board using the micrograbber adaptors on the logic pod leads.

(Note do not push the logic pod leads directly over the square pins on the WS-100 digital outputs as they are too large for the pod sockets and will spread them.)

- Point and click the Setup: Signals button on the LogicStudio software. This will open the signal definitions pop up which allows you to define the type of signals and the signal name associated with each of the available inputs. Select D15 and remove it using the red "X" at the top of the pop up. Similarly remove the lines labeled D14 through D5.
- Press the Auto trigger button in the upper left corner of the LogicStudio software display. The device should begin to acquire signals which will appear to be untriggered.
- Press the Setup:Trigger button at the top of the LogicStudio software display. The trigger setup pop up will appear. Set up an edge trigger on the positive going edge of signal D4. Press OK, the signal display of Logic Studio will now appear stable.

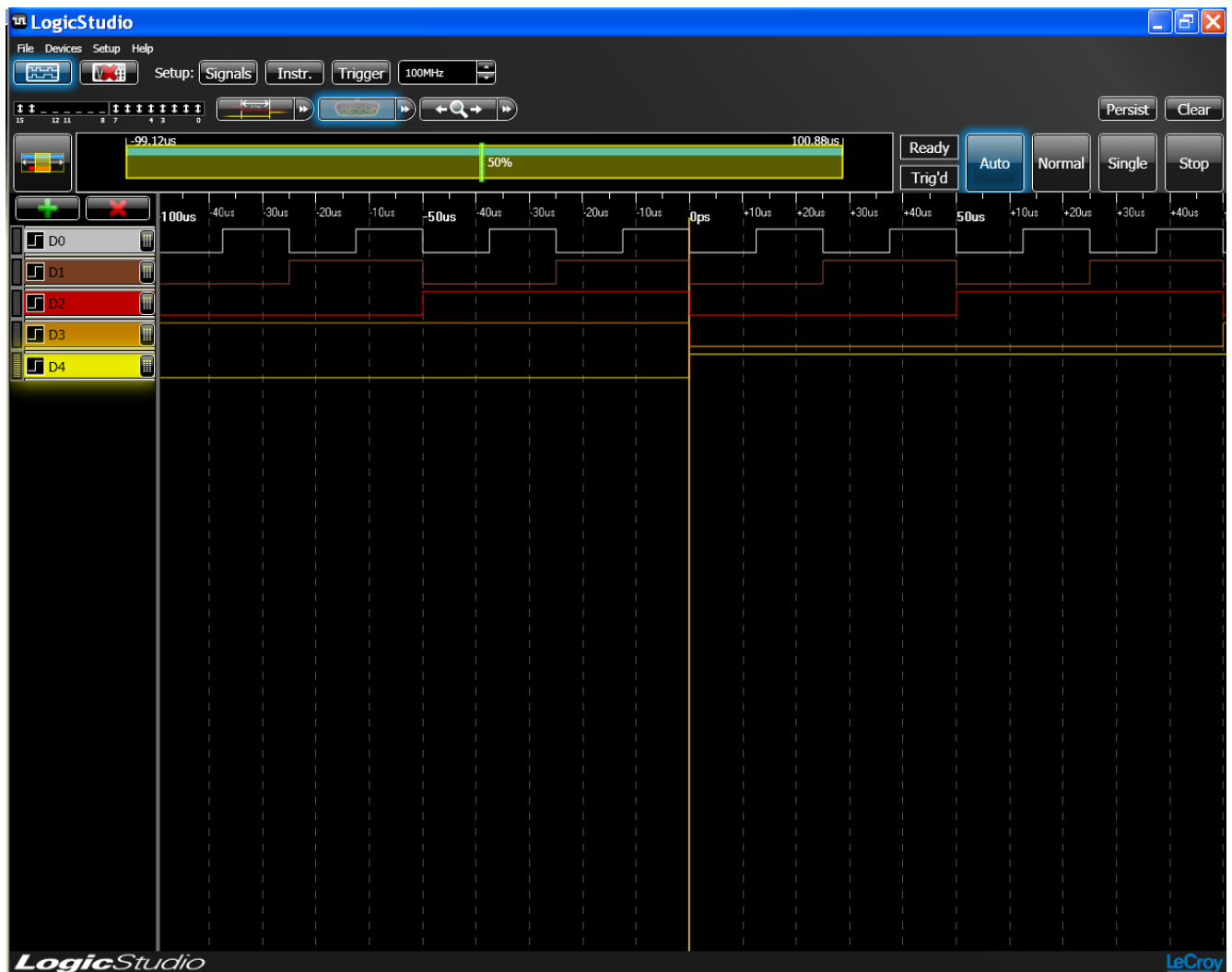


Figure { SEQ Figure * ARABIC }: Logic Studio triggered on positive going edge of D4

11. Investigate the effect of changing the Setup:sampling frequency control.
12. Press the Magnifier button, shown in figure 3, it will be highlighted in blue. Move your cursor into the signal display. This tool provides a quick magnified view to see details in the signal display window. Click the Magnify button again to close the magnifier window.

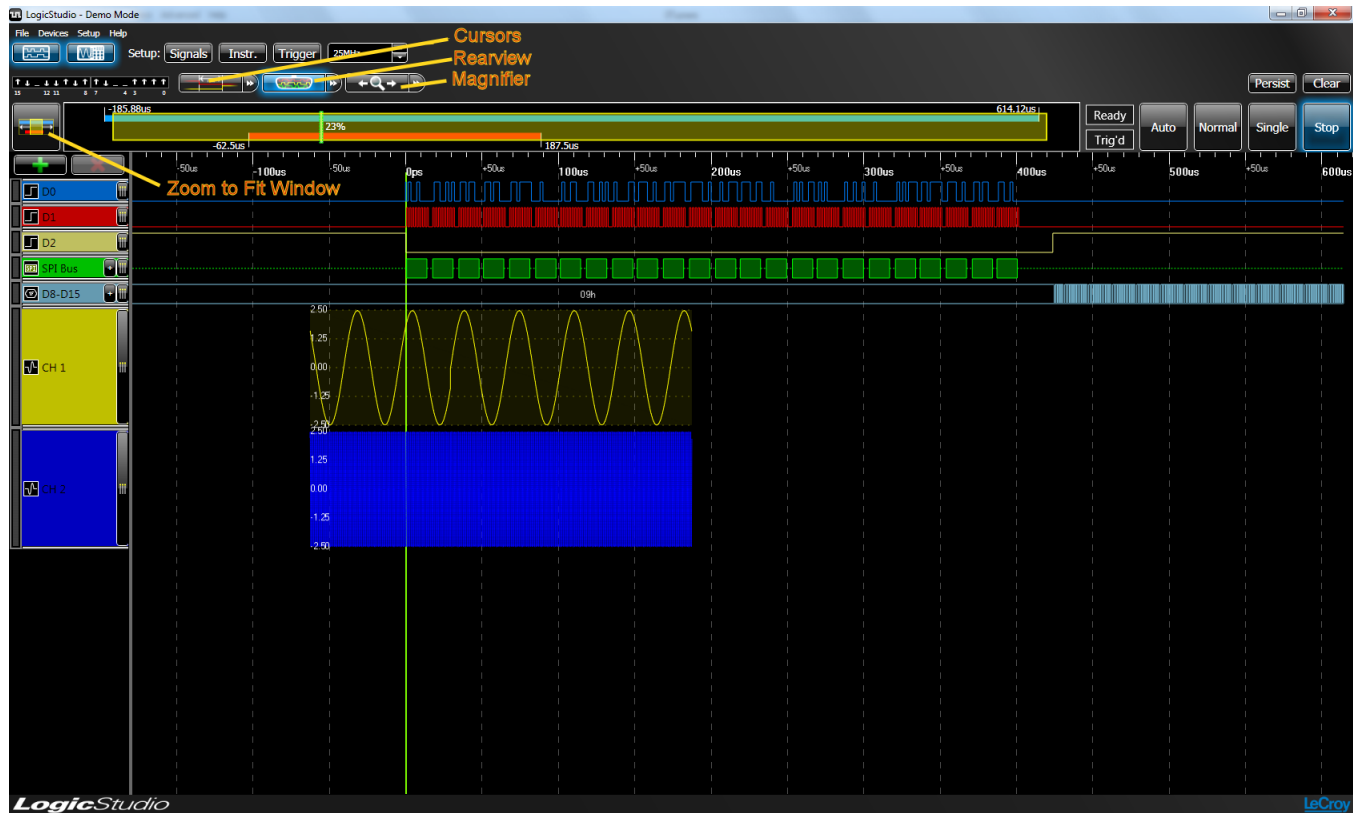


Figure { SEQ Figure * ARABIC }: The Cursors, Rearview, Magnifier, and Zoom to Window icons

13. Press the cursor tool, it will be highlighted in blue. Click in the signal display, a vertical cursor will appear. Click on the cursor line and drag your mouse horizontally from the cursor, this will cause a dotted line with the time between the cursor line and the mouse position to be displayed. The time difference between the cursor line and the mouse cursor is shown above the line the reciprocal of the time difference (frequency) appears below the dotted line.
14. Click on the double arrow symbol on the right hand side of the cursor tool. A pop up box will allow you to define a total of 4 cursors. Exercise this feature so that you are familiar with cursor operations. Measure the frequency of signal D0. When done turn off all the cursors.
15. Press the Single button. The Logic Studio will take a single sweep and then stop, indicated by the Stop button being highlighted in blue. The RearView button should also be highlighted in blue. Press the double arrow on the RearView button. A pop up slide control will appear. By moving the slider it allows you to display the history of data acquisitions. Close the slider and return to Normal trigger.
16. Select signal D4 in the signals control panel, press the red "X" to remove D4. Do the same for D3-D1.
17. Click on the signal D0 in the signals control panel. You should see a signal definition box at the bottom of the LogicStudio software display. Change the signal type to Digital Bus, Radix – Hex, Name: Bus, and

change the color to orange. Check the Data boxes 0-4.

18. Press the Expand signal button on the Bus label in the signal control panel. You should see the bus view of the signal along with the five signals making up the bus. Use the magnifier to expand the display of the bus so you can see the bus values in hex. Use the zoom control to expand the signal display so the bus values are visible without the magnifier.

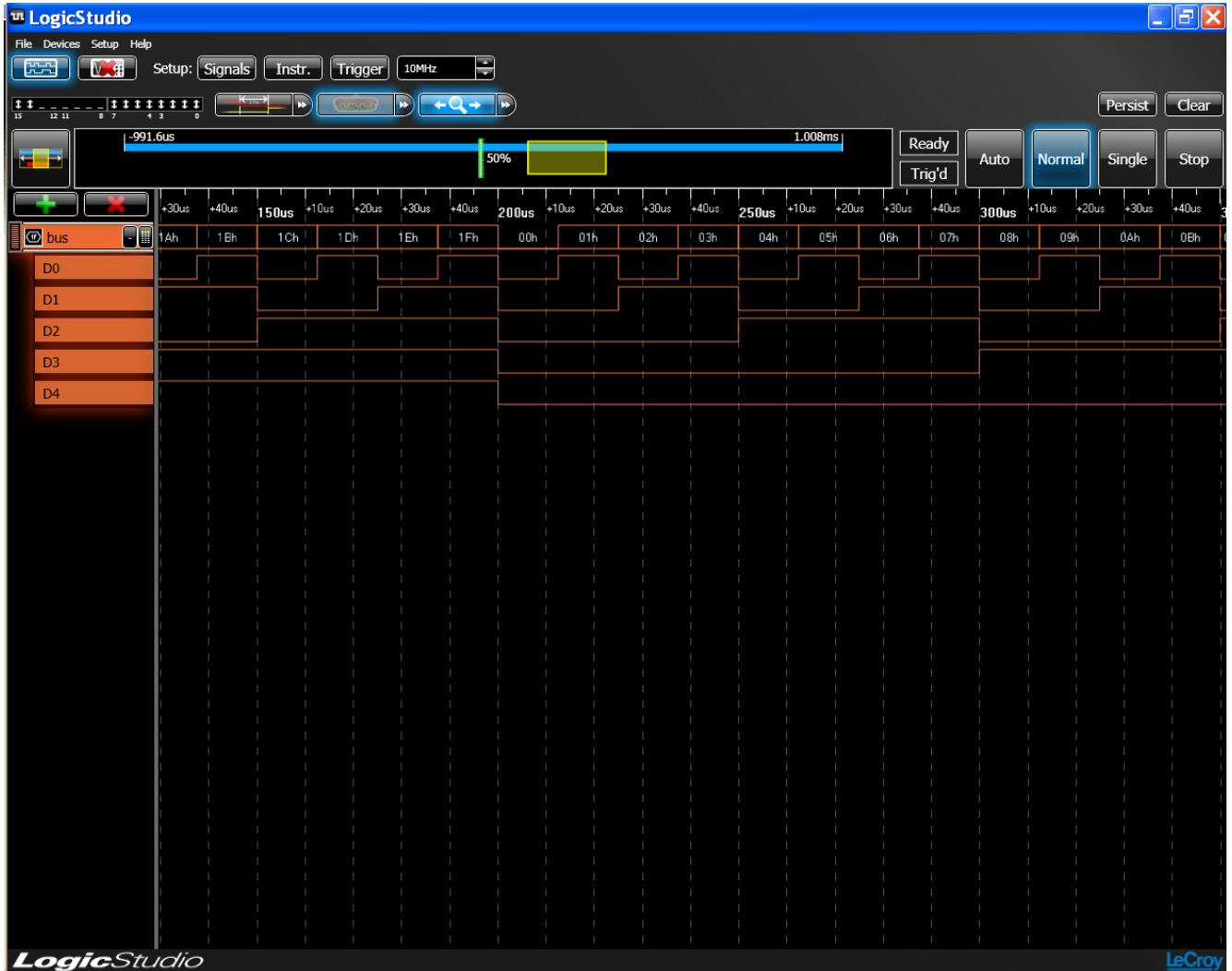


Figure { SEQ Figure * ARABIC }: The bus view setup

19. Remove the data bus from the signals control panel. Press the “+” sign and add a signal. Define it as I2C decode, RADIX:ASCII, Name I2C, Data assigned to 15, Clock assigned to 14. Connect the D15 logic pod lead to the CH1 test point on the WS-100 demo board. Similarly, connect the D14 line to the CH2 test point on the WS100. Push the selection button on the WS-100 until the LED marker S2 is flashing. This will output signals from the WS-100.

20. Setup the trigger on the LogicStudio to trigger on the positive edge of the clock signal.

21. Use the zoom control to expand the I2C signal until the decoded data is visible.

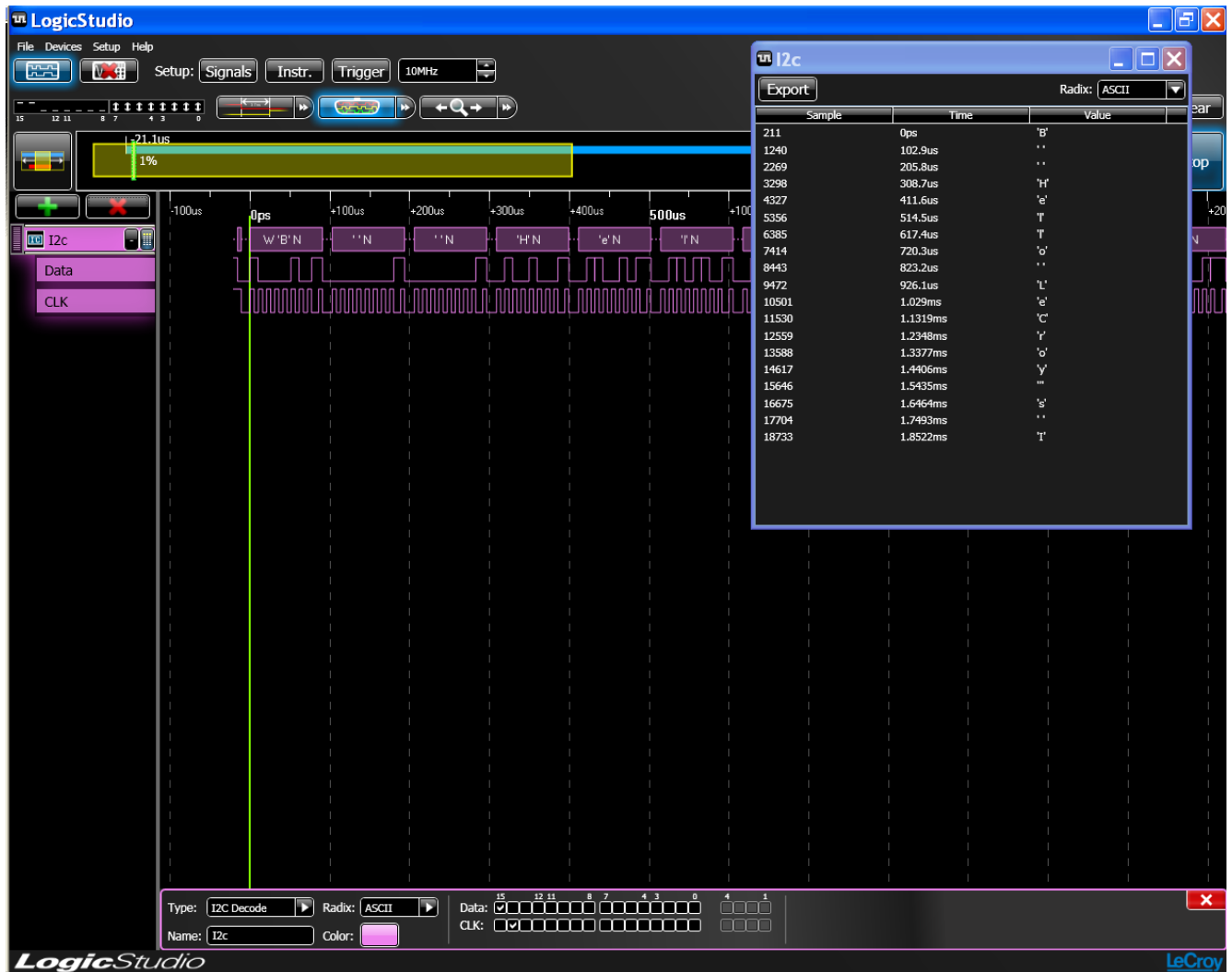


Figure { SEQ Figure * ARABIC }: The I2C decode display with the data table pop up

22. Press the single trigger button, than the open data table button on the I2C signal label. The data table will be shown as a pop up. The data table summarizes the data content seen on the I2C bus.
23. Connect the LogicStudio leads D0 through D4 to the respective digital output pin on the WS-100 using micrograbbers. Trigger the Logic Studio on the positive going edge of D4.
24. Connect the rear panel USB port of a WaveJet oscilloscope to the computers USB port. Connect a coaxial cable from the Trig Out connector on the LogicStudio module to the EXT input of the WaveJet oscilloscope. Turn on the oscilloscope and use the utilities menu to set it for remote control via USB. Set the trigger source to EXT , positive slope with a trigger level of 500 mV.
25. Use the Setup : Signals button to setup up digital lines for D0 – D4. Add another signal and select Type: Analog Channel, Name : Chanel 1 and associate it with channel 1 of the oscilloscope.
26. Use the Devices pull down menu to activate the Scope Device.

27. You should now observe both the digital lines as well as the analog signal from channel 1 of the oscilloscope.

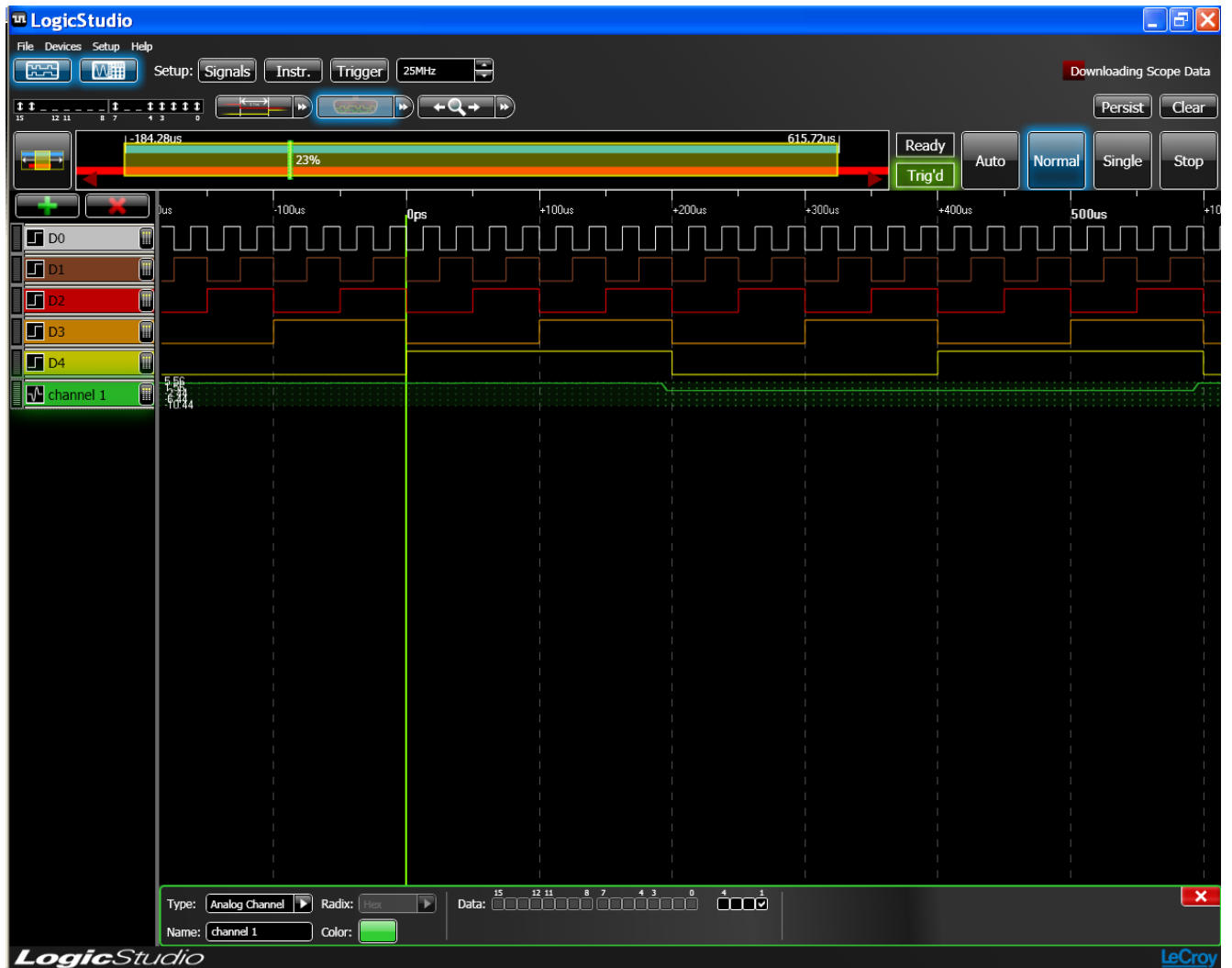


Figure { SEQ Figure * ARABIC }: WaveJet oscilloscope waveform setup