1 Release Notes for PcLab2000SE v4.03

Table of Contents

What's New

Driver installation when upgrading from PcLab2000SE v3.08 or earlier version

Workaround to use the PCGU1000 on 64-bit Vista or Windows 7

New features: Trigger Holdoff and Delay

FAQ

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1.1 What's New

What's new in this release

PCSU1000:
- Fixed Transient Recorder timing problem at 1s/div range.

What's new since v4.00

PCSU1000 / PCGU1000:
- Windows Vista and Windows 7 compatibility improved.
- Added 1s/div range to oscilloscope.
- Added 60Hz range to the spectrum analyzer.
- Bode Plotter start frequency is now 0.1Hz.

PCSU1000:
- All the data and image files are saved to the folder Documents\My PCSU1000.
- Added possibility to invert the values for X and Y channels in XY-plot mode.
- USB detection improved.
- "Single" button disabled while running.

PCSU1000, K8031, PCS100, PCS500:
- "Exit to Menu" bug fixed.

What's new since v3.10

K8031, PCS100:
- Added support for the "DataReady" function of the DSOLink.DLL.

K8031, PCS100, PCS500, PCSU1000:
- The waveform data is output to the DSOLink.DLL in the spectrum analyzer mode too.

PCS500 / PCG10
- Bode Plotter frequency range expanded to 5MHz.

PCSU1000 / PCGU1000
- Bode Plotter frequency range expanded to 5MHz.
- Averaging can be used to improve the dynamic range of the Bode Plotter.

PCS500, PCSU1000 / PCG10, PCGU1000
- Added button to clear the last trace in the multiple trace mode of the Bode Plotter.

PCSU1000
- Added to the Waveform Parameters an option to select the thresholds for time measurements
- Waveform data file can be saved and opened in Logic Analyzer mode.
- Added option to clear the old traces automatically when the Run or Single button is pressed.
- Added trigger options Holdoff, Delay-by-Time and Delay-by-Events.

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1.2 Driver installation when upgrading from PcLab2000SE v3.08 or earlier version

To run PcLab2000SE version 4.02 on Windows XP, Windows Vista or Windows 7 you may have to update the device drivers for the PCSU1000 and PCGU1000. The new PCSU1000 driver can be installed and used on 32-bit and 64-bit operating systems. The new PCGU1000 driver can be installed and used on 32-bit operating systems and 64-bit Windows XP but not on 64-bit Vista or Windows 7. There is a workaround to use the PCGU1000 on 64-bit Vista or Windows 7.

How to update the driver

If you installed the PcLab2000SE to the default drive and folder, the new device drivers are in the following folders:

d:\Program Files\Velleman\PcLab2000SE\Drivers**\PCSU1000**
d:\Program Files\Velleman\PcLab2000SE\Drivers**PCGU1000**
where d: is the drive where you installed the PcLab2000SE.

The driver versions are:
PCSU1000: 02/17/2009 2.04.16
PCGU1000: 12/10/2008 5.4.0.0

Windows Vista

You must be logged on as an administrator to perform these steps.
Click the **Start** button.
Right click **Computer**.
Select **Properties** from the popup menu.
In the top left corner select **Device Manager**.
If you are prompted for an administrator password or confirmation, type the password or provide confirmation.
In Device Manager, Double click "**Universal Serial Bus Controllers**"
- When updating PCGU1000 driver double click "**PCGU1000 Function Generator**"
- When updating PCSU1000 driver double click "**PCSU1000 Oscilloscope**"
Click the **Driver** tab, and then click **Update Driver**.
Click on **Browse my computer for driver software.**
Click on **Browse** and locate the driver folder.
Click on **Next** and follow the subsequent instructions given by the installer.

Note: When both of the drivers are updated there should be "PCGU1000 Function Generator (COMx)" under the "Ports (COM & LPT)" and "PCSU1000 Oscilloscope" under the "Universal Serial Bus controllers" in the Device Manager.
Check also the driver version numbers to ensure the new drivers are installed.

Windows XP

Right-click My Computer, click **Properties**, click the **Hardware** tab, and then click **Device Manager**.
In Device Manager, double-click "**Universal Serial Bus Controllers**"
- When updating PCGU1000 driver double click "**PCGU1000 Function Generator**"
- When updating PCSU1000 driver double click "**PCSU1000 Oscilloscope**"
Click **Driver** tab.
Click the **Update Driver** button.
Choose **No, not this time** radio button and then click **Next**.
Choose the **Install from a list or specific location (Advanced)** radio button and click **Next**.

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Choose the **Don't search. I will choose the driver to install** radio button and then click **Next**.
Click the **Have Disk** button
Click the **Browse** button on the Install From Disk dialog box
Locate the driver folder.
Click the INF file that displays in the file list and click the **Open** button.
Click the **OK** button on the Install From Disk dialog box then click **Next**

If you're prompted with a message "has not passing the Windows Logo testing...", click the **Continue Anyway** button.

Note: When both of the drivers are updated there should be "PCGU1000 Function Generator (COMx)" under the "Ports (COM & LPT)" and "PCSU1000 Oscilloscope" under the "Universal Serial Bus controllers" in the Device Manager.
Check also the driver version numbers to ensure the new drivers are installed.

Windows 98SE, Windows ME and Windows 2000

There are no driver updates for Windows 98SE, Windows ME and Windows 2000. The original drivers have to be used with PcLab2000SE version 4.00.
PCSU1000 driver 10/15/2004 1.06.20
PCGU1000 driver 02/22/2007 4.40.1.0

1.3 Workaround to use the PCGU1000 on 64-bit Vista or Windows 7

Run the attached program **CP210x_VCP_Win2K_XP_S2K3.exe**
Run it with all the default settings.
This program installs the Silicon Labs CP210x USB to UART Bridge Virtual COM Port (VCP) driver version 5.4.0.0.

Plug in the PCGU1000 and install its driver version 5.4.0.0 (if not yet installed).

When done, run PcLab2000SE and check the PCGU1000 is running well.

If everything OK, you can remove the Silicon Labs driver and its removal program using Control panel: Programs / Uninstall a program option.

Important:
If the User Account Control (UAC) is on, then the PcLab2000SE has to be run under administrator account.
Right-click on the PcLab2000SE either on the desktop or in the programs list, choose Properties, switch to the Compatibility tab, and select "Run this program as an administrator".

2 Trigger Holdoff and Delay

Use the Delay tab to set the Holdoff and Delay for the triggering.
Turn these options on or off by toggling the checkboxes.
Press Enter key when the data is entered into the edit box.

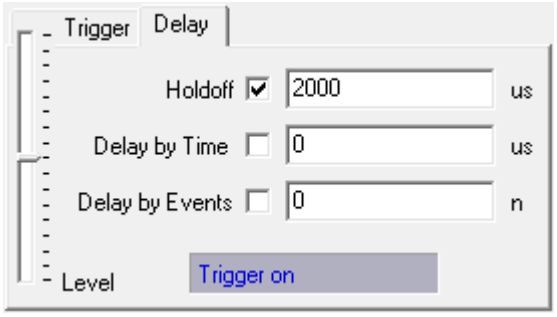
Holdoff
Trigger holdoff helps ensure a stable display.
Holdoff is a specified amount of time after a trigger signal that elapses before the trigger circuit will

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accept another trigger signal.
Holdoff time is adjustable from 0.01 us to 21 seconds.

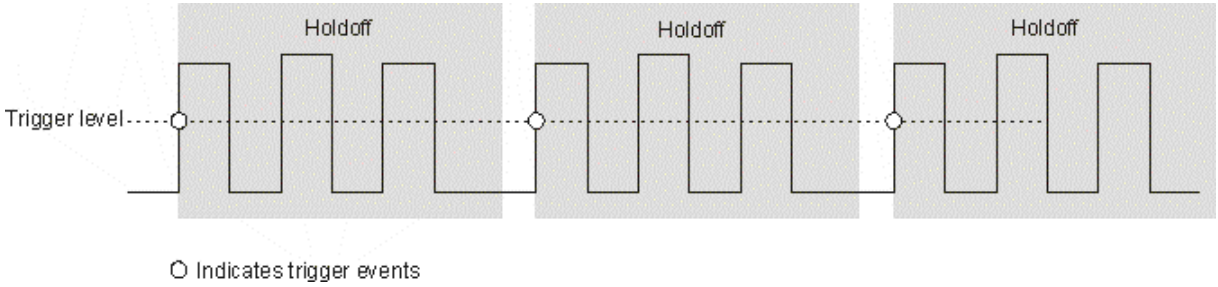
Delay by Time
In the Delay by Time triggering mode, the start of signal acquisition is delayed from the main trigger point by a user-defined period of time.
Delay time is adjustable from 0.01 us to 21 seconds.

Delay by Events
In the Delay by Events triggering mode, the start of signal acquisition is delayed from the main trigger point by a user-defined number of triggering events.
Delay by Events range is from 1 to 2100000000 events.



2.1 Holdoff

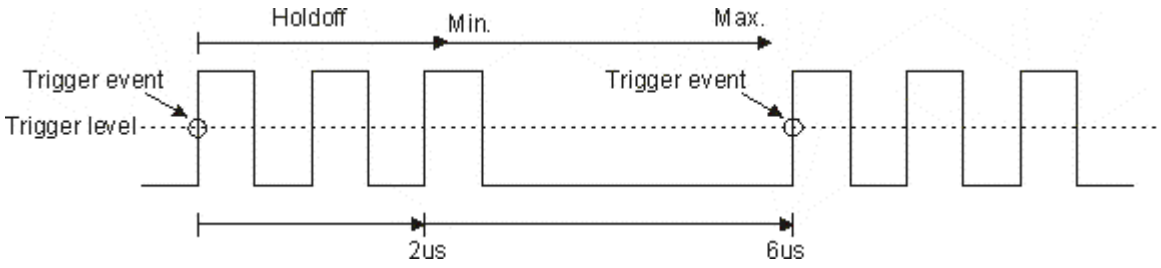
Sometimes getting an oscilloscope to trigger on the correct part of a signal requires great skill. Trigger holdoff is an adjustable period of time during which the oscilloscope cannot trigger. This feature is useful when you are triggering on complex waveform shapes, so that the oscilloscope only triggers on the first valid trigger point.



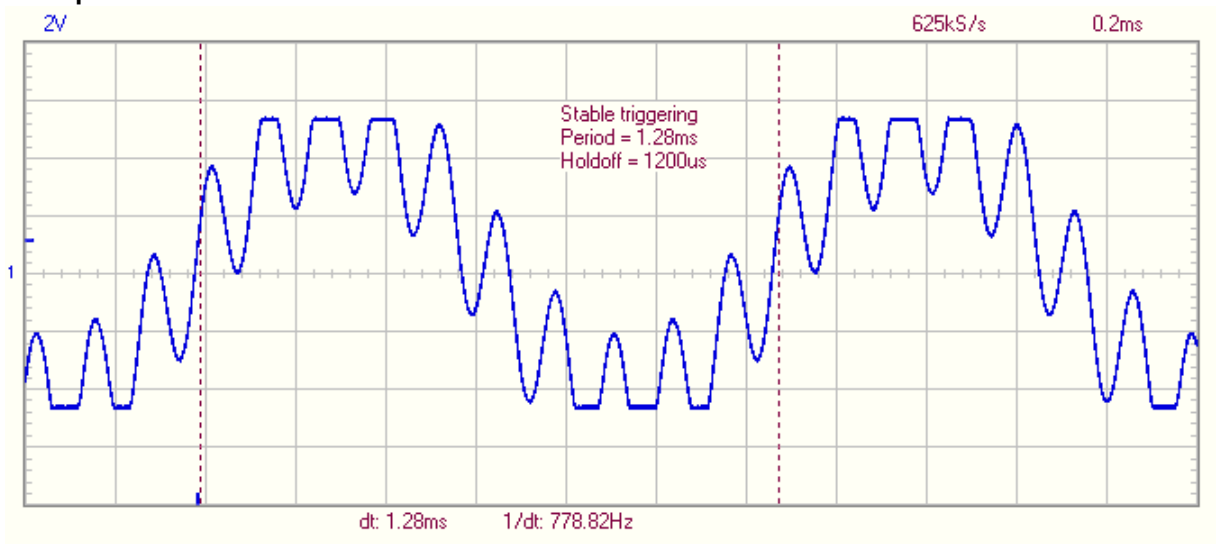
Holdoff sets the amount of time that the oscilloscope waits before rearming the trigger circuitry. Use Holdoff to stabilize the display of complex waveforms. To get a stable trigger on the pulse burst shown below, set the holdoff time to be >2us but <6us. By setting the Holdoff, you can synchronize triggers. The oscilloscope will trigger on one edge of the waveform, and ignore further edges until the holdoff time expires. The oscilloscope will then rearm the trigger circuit to search for the next edge trigger.

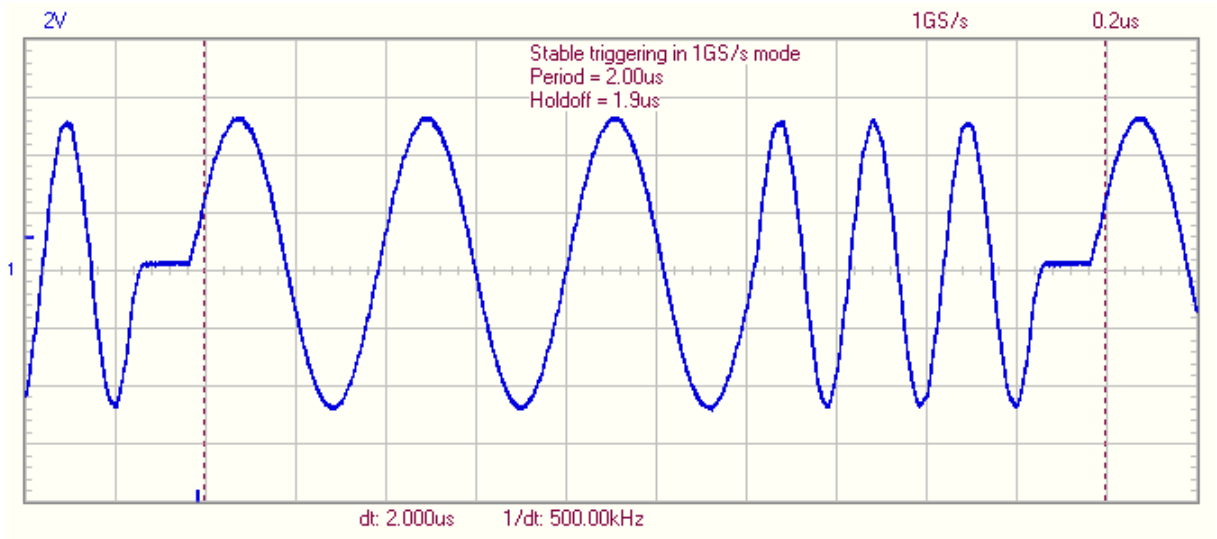
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This allows the oscilloscope to trigger on a repeating pattern in a waveform.



Examples:





These images show how the trigger holdoff helps to obtain a clear, stable display of a complex waveform.

Hint:
Holdoff keeps a trigger from occurring until after a certain amount of time has passed since the last trigger. This feature is valuable when a waveform crosses the trigger level multiple times during one

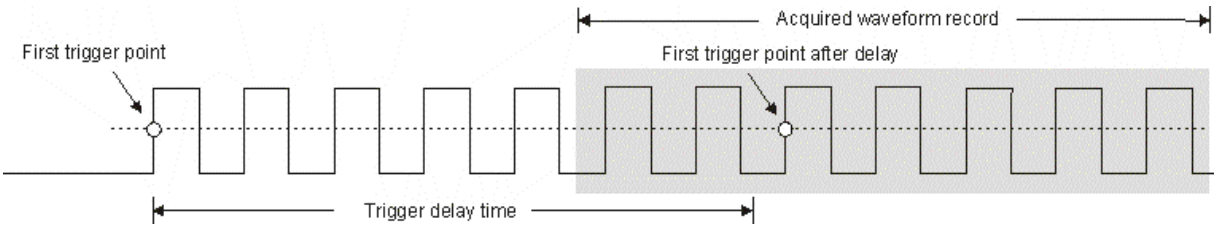
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period of the waveform. Without holdoff, the oscilloscope could trigger on each of the crossings, producing a confusing waveform. With holdoff set correctly, the oscilloscope always triggers on the same crossing. The correct holdoff setting is typically slightly less than one period. Measure this time using the markers, then set the holdoff. Set the holdoff to this time to generate a unique trigger point. This action works even though many waveform periods pass between triggers, because the holdoff circuit operates on the input signal continuously. Changing the time base settings does not affect the holdoff number.

2.2 Delay by Time

You can use the Delay by Time triggering mode when you want to acquire a waveform record that is separated from the trigger event by a significant interval of time. The delay function can be used mainly in Single mode. The delay function is not usable in 1GS/s mode.

The first trigger arms the instrument.
Posttrigger acquisition starts on the first edge after the trigger delay time.



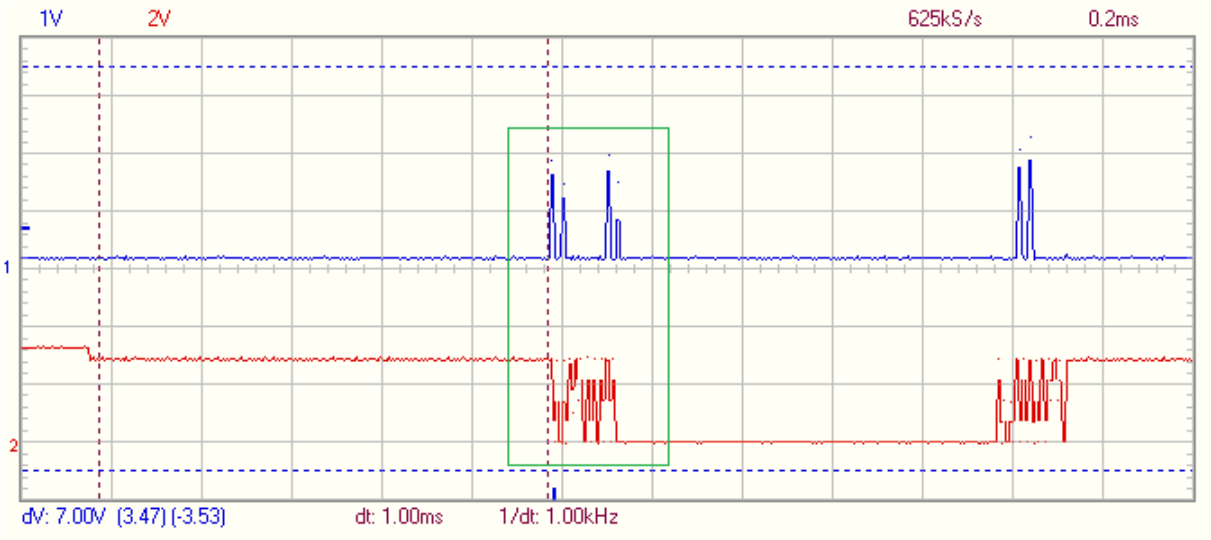
You may toggle the delay on and off to quickly compare signal details at two different areas of interest, one near the trigger location and the other centered at the delay time.

Example:

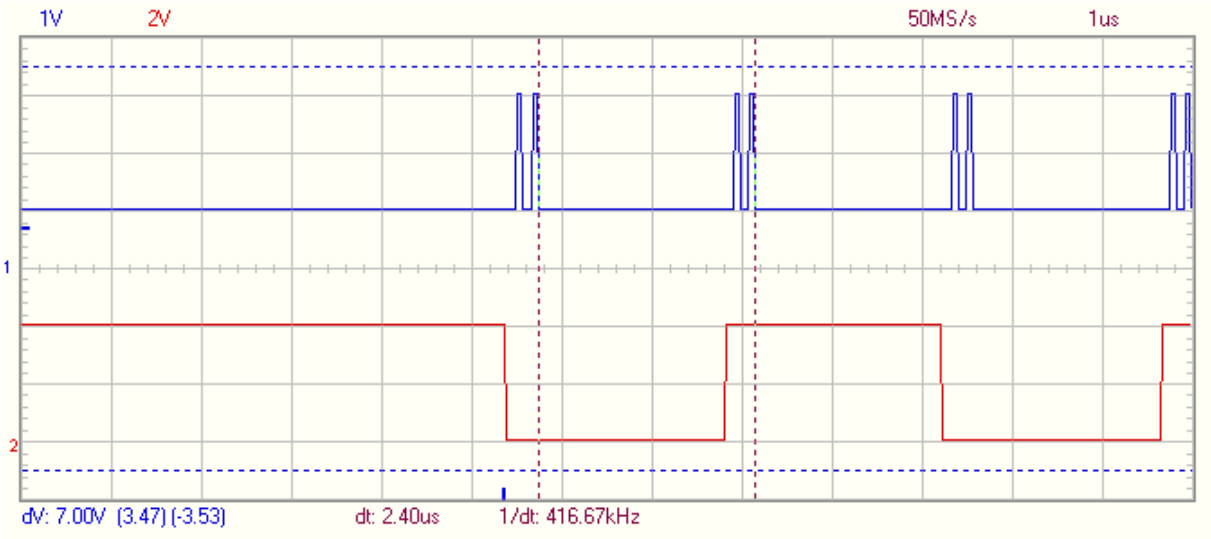


In this example the data of interest is separated from the triggering event by 2ms.

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Set the Delay value to 2000us.
Now you get the triggering to occur on the first pulse of the data of interest.



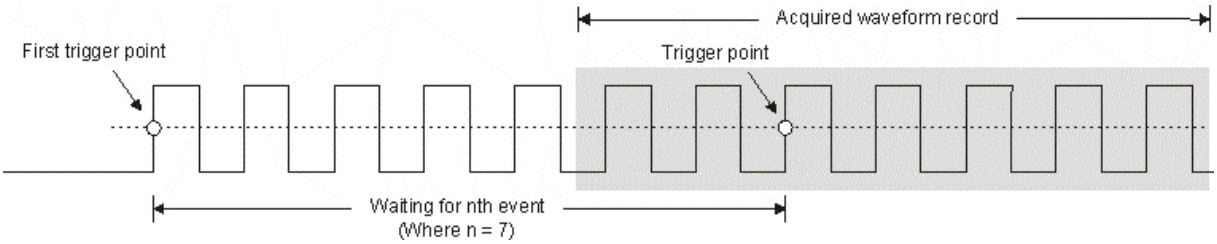
You can use lower Time/div setting to see the details.

2.3 Delay by Events

You can use the Delay by Events triggering mode when you want to acquire a waveform record that is separated from the trigger event by a significant interval of time. The delay function can be used mainly in Single mode. The delay function is not usable in 1GS/s mode.

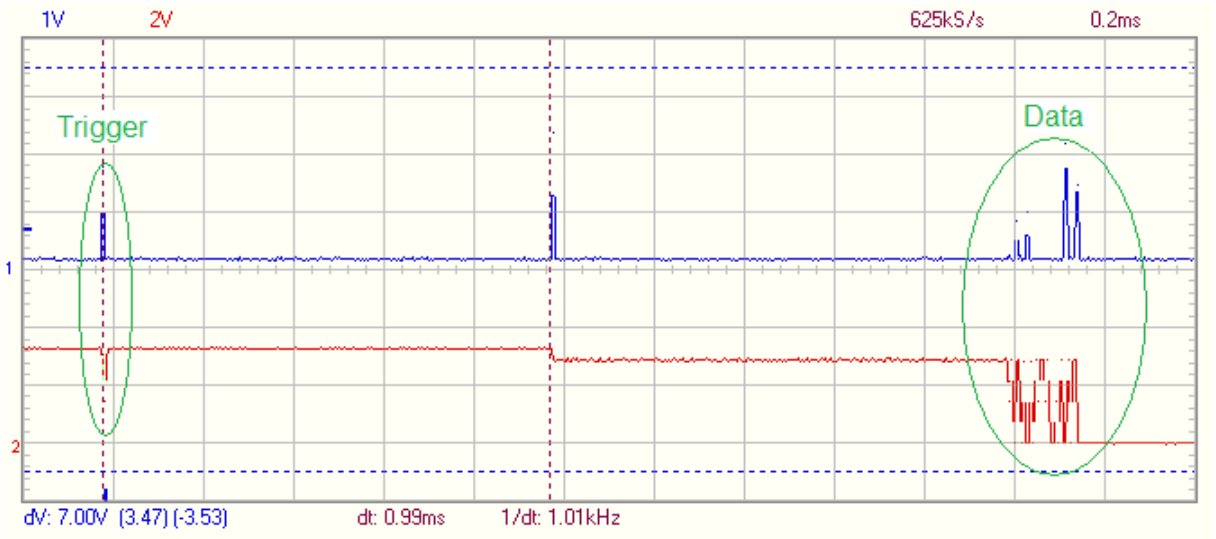
The first trigger arms the instrument.
Posttrigger acquisition starts on the nth event.

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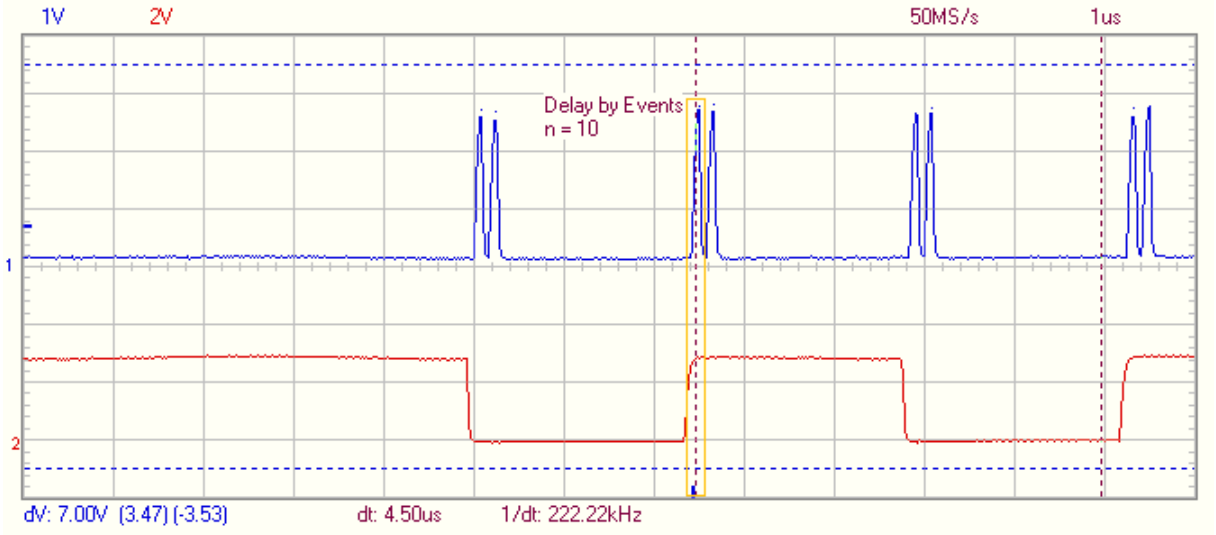


You may toggle the delay on and off to quickly compare signal details at two different areas of interest, one near the trigger location and the other centered at the delay time.

Example:

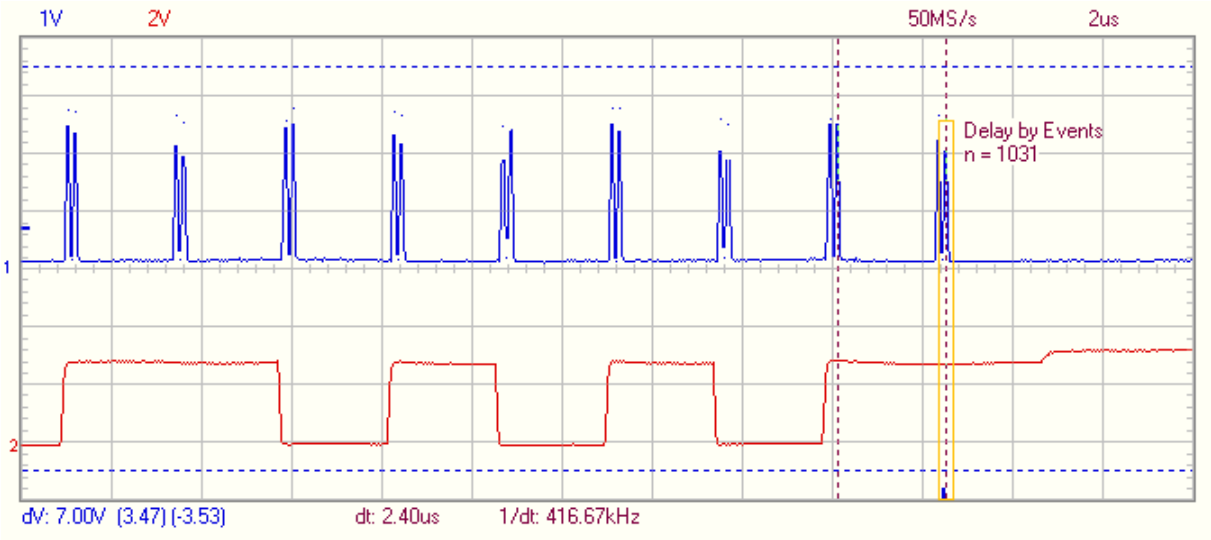


In this example the data of interest is separated from the triggering event by a number of pulses.



Select proper value for the Delay-by-Events count to get the triggering to occur on the data of interest. In this example (n = 10) the triggering occurs on the third pulse of the data of interest.

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You can easily select the actual triggering point by changing the value of the Delay-by-Events count. Here the triggering occurs on the last pulse of the sequence (n = 1031).

2.4 FAQ

This FAQ section can answer some questions, related to the installation of the scope / generator.

Q: Self calibration problems. The scope doesn't display correct waveform (if any) after the "Calibrate & Exit" File menu option is selected.
A: Exit the program. Delete the WinDSO.INI file and run the PCLAB2000SE program again.

Q: Does PCLAB2000SE work under NT, Win2000, XP, Vista 32-bit or Windows 7 32-bit ?
A: Yes after installing the "driverlinx" driver. Run 'INSTALL_DRV' after installation to install the NT Kernel I/O driver. See also the Loaddrv.hlp help file. Do not forget to "reboot" your computer after installing the driver.

Q: Using Windows XP/Vista I get signal interruption on the screen, what to do ?
A: Disable the printer port; see below

Q: I have missing or wrong pixels on my screen, what can I do ?
A: Try to reinstall the display driver or install the latest display driver (check your display driver vendor)

Q: Sometimes I get missing samples on the screen, or the signal is interrupted, using slow communication does not help, what can I do ?
A: Check your power supply, if you are using switch mode power supplies, then capacitive coupling through the AC power lines can causes interference with the computer input filter, this can cause signal interruptions. Only use regular transformer adaptors.

Q: I get something like a ripple on the signal even if no input signal is connected and the input is at ground, what can I do ?
A: Your adaptor is too low in voltage, please check if your adaptor has 9V voltage, a lower voltage can also be caused by too low AC power. The standard adaptor is designed for 230V, at 215V the output is no longer 9V, this can cause signal distortion.

Q: Oscilloscope's calibration fails repeatedly.
A: Delete WINDSO.INI file and run the PCLAB2000SE program again.

Q: The PCGU1000 doesn't run under limited user account.

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A: You have to change the COM port number to COM3.
Here are instructions how to change the COM port number in Device Manager:
- Double-click Ports (COM & LPT).
- Double-click the "PCGU1000 Function Generator (COMx)".
- On the Port Settings tab, click Advanced.
- In the COM Port Number box, click the appropriate number (from 1 to 9).
- Click OK.

This section concerns only the LPT-connected oscilloscopes and function generators: PCS100, PCS500, K8031, PCG10 and K8016

Windows XP/Vista
If you are running the LPT-connected oscilloscope or the function generator software, then it might be necessary to disable the Plug and Play detection of the LPT port.
The Plug and Play detection system of Windows periodically checks the presence of attached devices to the parallel port. This operation interferes with the operation of the PC oscilloscope and the function generator and may cause trace jumps on the oscilloscope screen and may turn off the function generator.

For XP:
To disable the Plug and Play detection of the LPT ports (XP only):
- Select the "Disable LPT Plug-and-Play" check box on the PcLab2000SE startup screen.
- If the setting has changed, you'll be prompted to restart the computer for the changes to take effect.
- This selection is allowed to be done using an account with administrator privileges.
- You can any time restore the Plug and Play detection by clearing this check box before you click the OK button on the startup screen of the PcLab2000SE.

HINT: For prolonged measurements, prevent the computer to go into sleep or standby mode.

For Vista and Windows 7:
- Check the LPT port settings in the "Device manager" and disable "Plug and Play" if necessary.
- Set "PcLab2000se.exe" in the "...Velleman\PcLab2000SE" directory to "Windows XP compatibility mode"
- Select also "Run this program as administrator"

LPT port driver
If you are running this software under an administrator account in Windows NT or newer operating system, no driver installation is needed.
Only you have to make sure that DLPORTIO.DLL and DLPORTIO.SYS files are located in the same directory where you installed the oscilloscope and function generator program files.

However, if you are going to run this software under a user account without administrator privileges, you need to install the DriverLINX driver before this software can be used by such accounts.
The driver installation can only be done in an administrator account due to Windows NT security.

Installing DriverLINX, DLPORTIO driver NT/2000/XP/Vista x32/Windows 7 x32
- Run INSTALL_DRV.EXE, located in the same directory where you installed the oscilloscope program files.
- Make sure that the files DLPORTIO.DLL and DLPORTIO.SYS are in the same directory as the install program.
- The driver installation can only be done in an administrator account due to Windows security.

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