

pCLAMP™ Electrophysiology Data Acquisition and Analysis Software

Software Release Notes

v10.7
July 2016



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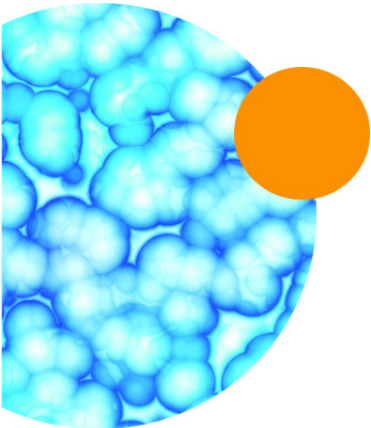
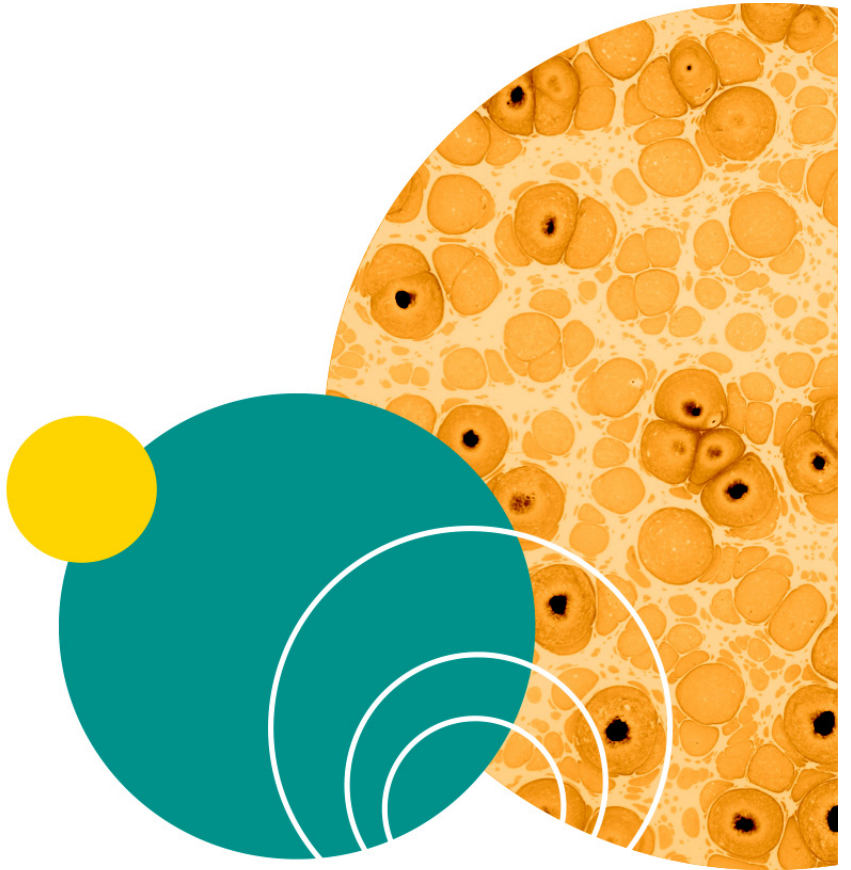
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Introduction

pCLAMP Software is the data acquisition and analysis suite from the Axon Instruments Conventional Electrophysiology product line of Molecular Devices. pCLAMP Software Version 10.7 is the latest version of the standard for electrophysiological experimentation and analysis software. The flexibility that pCLAMP Software offers allows researchers to adapt it to many uses outside its traditional applications in electrophysiology.

The pCLAMP Software Version 10.7 suite consists of:

- Clampex software, for data acquisition and production of stimulus waveforms.
- Clampfit software, for data analysis.
- AxoScope software, for passive recording.

Clampex Software is a versatile and powerful software tool for acquiring digitized data of all types. While excellent for the acquisition of patch-clamp data, it is not limited to measuring voltage- or current-clamp responses. Clampex Software can be used to measure any physical parameter that can be converted to a voltage within +/- 10V.

Clampfit Software is powerful data analysis software with a wide variety of statistics, analyses, transforms and layout tools for electrophysiological data.

Together, AxoScope Software and a digitizer provide the functionality historically performed by a separate chart recorder, for example, for concurrent background recording.

The following topics are included in this chapter:

- [Computer System Requirements on page 8](#)
- [Digitizer Requirements on page 8](#)
- [Software Installation on page 9](#)
- [Resetting Program Defaults on page 11](#)
- [Printing on page 11](#)
- [Obtaining Technical Support on page 12](#)

Computer System Requirements

pCLAMP Software Version 10.7 can be installed on a computer with the following system specifications.

Table 1-1: Computer system requirements.

Minimum System Requirements	Recommended System Requirements
PC with 2 GHz processor	PC with 2 GHz (or faster) Duo Processor
Windows 7 Pro (32-bit)	Windows 10 Pro (32- or 64-bit)
1.2 GB RAM	4 GB RAM or higher
1440 x 900 display	1920 x 1080 display or higher
1 USB 1 port (for security key dongle) 1 USB 2.0 port (for Digidata 1440A or 1550-Series digitizers)	3 USB 2.0 ports

Software Protection Key

A software protection “key”, commonly known as a “dongle”, is provided with Clampex Software. The USB key is a small device that plugs into the computer’s USB port.

The key is required to configure Clampex Software to control the digitizer. If the key is not installed, Clampex Software runs in Demo mode only, restricting you to simulated data.

Digitizer Requirements

pCLAMP Software Version 10.7 supports the Digidata 1440A digitizer and newer digitizers.

Software Installation

Prior to starting the pCLAMP Software installer, you should exit all other Windows programs, especially anti-virus software.

Windows 7/10

Clampex Software Version 10.7 runs under Windows 7 and Windows 10 (32- and 64-bit), for the Pro, Enterprise and Ultimate editions. The Home edition is not supported. The pCLAMP Setup program automatically detects which operating system is running and loads the correct files.



Note: A Windows 10 (32-bit or 64-bit) operating system is recommended.

Installing pCLAMP Software—Standard Installation

The following procedure explains how to install the pCLAMP Software suite for the first time.

1. Run the Setup pCLAMP program.
2. In the **Choose Destination** dialog, you can change the destination drive and directory where pCLAMP Software is installed.

The amount of hard disk space required for this installation and the amount of space available on the hard disk are displayed. The default Molecular Devices Program Folder is created and program icons are added to it. You can rename the Program Folder or select one of the existing folders. Setup will then copy the pCLAMP files to the computer.

3. For Clampex Software to run properly, you might need to restart the computer. Before restarting, if used, remove the pCLAMP CD from the drive.

Updating Software

The following procedure explains how to update the pCLAMP Software suite from an older version.



Note: pCLAMP Software version 10.7 uses a new driver that is not compatible with older versions of the software and some older digitizers.

1. Unplug the digitizer.
2. Uninstall your older version of Clampex or AxoScope using **Start > Control Panel > Programs > Uninstall a program**.
3. Install pCLAMP Software version 10.7, and then connect the digitizer.
4. Go to the Start menu and in the Search field type *Device Manager*.
5. In the **Device Manager** dialog, under Jungo Connectivity, double-click your digitizer model number.
6. In the digitizer **Properties** dialog, from the **Driver** tab, click **Update Driver**.
7. When prompted, select **Search automatically for updated driver software**.
8. After the driver installs, verify that the new **Driver Date** is *5/16/2016* and the new **Driver Version** is *12.1.0.0*.

Uninstalling Software

This procedure works similarly for previously installed AxoScope software and pCLAMP Software. The file locations are similar, but the **AxosScope** or **pCLAMP** folders are identified by a different version number.

To uninstall the software:

1. Go to Windows **Start > All Programs > Molecular Devices**.
2. Open the folder for the software version to be uninstalled, such as **pCLAMP 10.5**.
3. Select the version-appropriate **Uninstall** file, such as **Uninstall pCLAMP 10.5 Software**.
4. Follow the procedures on-screen to finish uninstalling the software.

File Locations

File locations depend on the software version.

- **pCLAMP Software Version 10.x:**
User-related files, such as data and parameter files, are stored in their own folders in:
\Documents and Settings\[user name]\My Documents\Molecular Devices\pCLAMP\...
- **pCLAMP Software Versions 10.3 through 10.7:**
System-related files, such as for the Lab Bench, System Lab Book, and user-defined telegraphs, are stored in the hidden folder:
C:\ProgramData\Molecular Devices\pCLAMP
Program application files are stored by default in the folder:
C:\Program Files\Molecular Devices\pCLAMP 10.7
- **pCLAMP Software Version 10.2 and earlier:**
Program application files and system-related files, such as for the Lab Bench, System Lab Book, and user-defined telegraphs, are stored in:
C:\Axon\pCLAMP X

Resetting Program Defaults

The **Start > All Programs > Molecular Devices > pCLAMP 10.7** folder contains the utility **Reset to Program Defaults**, which resets pCLAMP Software settings back to their default values. This is useful when you feel that you have diverged from the normal setup to a point beyond your control, and you would like to return to the factory defaults. Note that settings for other programs may be displayed in the list of registry items—select the item(s) relevant to your situation.

Printing

pCLAMP Software supports all printers and plotters that have been installed through the Microsoft Windows operating system.

Obtaining Technical Support

The Molecular Devices support web site, <http://www.moleculardevices.com/Support.html>, has a link to the knowledge base with technical notes, software upgrades, and other resources. For more help, follow the links to the Technical Support Service Request Form to send an email message to a technical support representative.

Contact your local representative or contact Molecular Devices Technical Support by telephone at 800-635-5577 (U.S. only) or +1 408-747-1700.

When you contact Technical Support, have the following information ready:

- A description of the problem including when it happened and what the system was doing when it happened.
- Screen captures of any error messages displayed.
- A description of any changes made to the system recently, such as updates, patches, or configuration changes.
- Your contact information.
- The full 4-field software version number, see **Help > About**.
- The model of the Digidata digitizer you are using.

pCLAMP™ Software Version 10.7 Software Release Notes



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Introduction

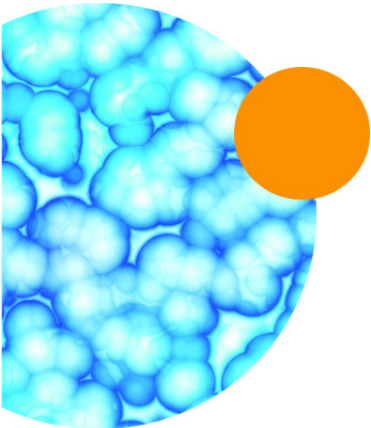
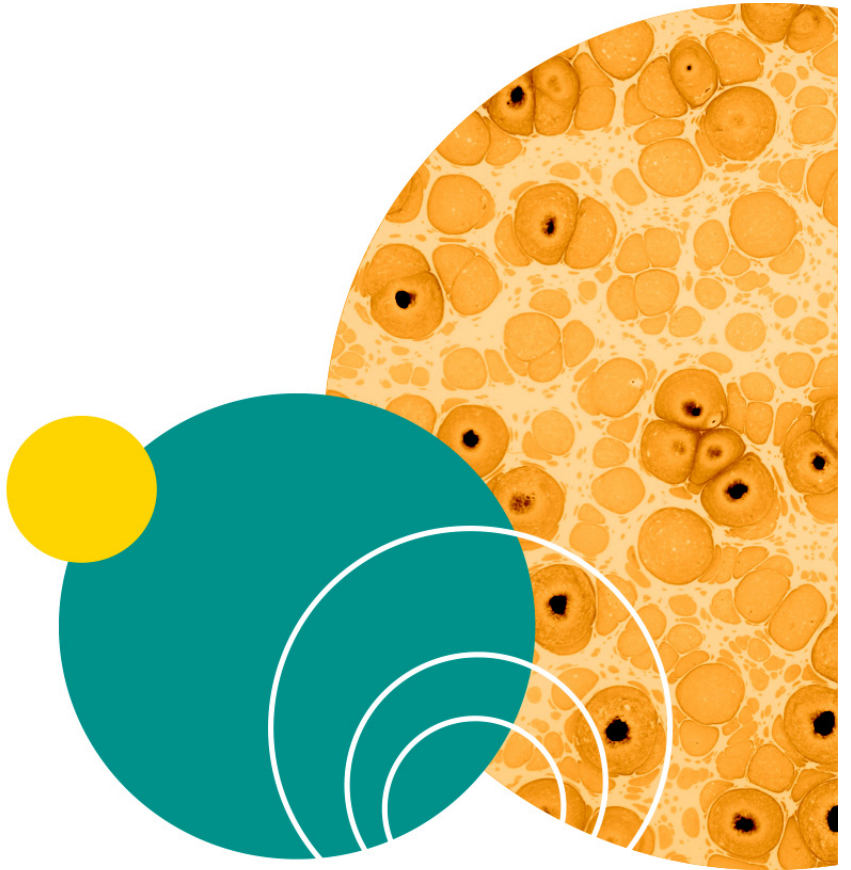
The pCLAMP™ Electrophysiology Data Acquisition and Analysis Software Version 10.7 update is a minor release. The following is a summary of the changes incorporated in this update as compared to version 10.6.1, the last general release of the pCLAMP Software.

- [New](#)

New

Windows 10 Operating System Support

Adds software support for Windows 10 (32 and 64 bit) operating system. Discontinues software support for Windows XP operating system.



pCLAMP™ Software Version 10.6.1 Software Release Notes



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Introduction

The pCLAMP™ Electrophysiology Data Acquisition and Analysis Software Version 10.6.1 update is a minor release. The following is a summary of the changes incorporated in this update as compared to version 10.6, the last general release of the pCLAMP Software.

- [Issues Addressed](#)

Issues Addressed

LTP Baseline Protocol Settings Errors With Digidata 1550 Series Digitizers

Tracking ID: 4732

An error message that the maximum trial length has been exceeded can incorrectly display when LTP Start-to-start is set to 4 seconds or 5 seconds and the Waveform length is set to 50 ms.

Workaround:

Set the **LTP Assistant > Baseline > Stat-to-start** setting to two seconds or less.

Resolution:

Error message situation is corrected.

Impact of fix:

This fix has no impact on current workflow.

Episodic Stimulation Error With Digidata 1550 Series Digitizers

Tracking ID: 4874

An error message that the maximum sample count for a single acquisition has been reached can incorrectly display when some Episodic stimulation protocols with several hundred sweeps run.

Resolution:

Error message situation is corrected.

Impact of fix:

This fix has no impact on current workflow.

pCLAMP™ Software Version 10.6 Software Release Notes



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Introduction

The pCLAMP™ Electrophysiology Data Acquisition and Analysis Software Version 10.6 update is a minor release. The following is a summary of the changes incorporated in this update as compared to version 10.5.2, the last general release of the pCLAMP Software.

- [New](#)
- [Issues Addressed](#)
- [Known Issues](#)

New

Digidata 1550B Digitizer

Supports the Digidata 1550B digitizer, which can provide four channels of HumSilencer adaptive noise cancellation. There are three models of the Digidata 1550B digitizer, one of which excludes the HumSilencer Adaptive Noise Cancellation System (ANC). The other two models of the Digidata 1550B digitizer with ANC provide configuration through Analog Input Channels #0, or Analog Input Channels #0, #2, #4 and #6 to eliminate 50 Hz or 60 Hz line-frequency noise and associated high-frequency harmonics.

Adapt Between Sweeps

The **Adapt between sweeps** check box is available from the **Stimulus** tab in the **Edit Protocol** dialog during the configuration of an Episodic stimulation acquisition protocol. Use this function to enable inter-sweep learning while using the HumSilencer Adaptive Noise Cancellation System during long experiments to counteract the potential of noise pattern changing over time.

Issues Addressed

Noise Returns in a Few Hours When Running Back-to-Back Acquisitions

Tracking ID: 4725

With HumSilencer enabled, when a single Gap-free protocol runs in a loop using Sequencing Keys, after continuously running for 3 to 5 hours, HumSilencer stops working and the noise returns to the signal.

Resolution:

HumSilencer continues to work uninterrupted.

Impact of fix:

This fix has no impact on current workflow.

Adapt Check Box Deselects After Repeating Episodic Stimulation Acquisition

Tracking ID: 4733

When an Episodic stimulation protocol is repeated more than 2 times, the HumSilencer Adapt check box deselects.

Resolution:

The HumSilencer Adapt check box stays selected.

Impact of fix:

This fix has no impact on current workflow.

Overrides Dialog Does not Open in Clampex Software

Tracking ID: 4882

In Clampex Software, the **Configure > Overrides** dialog does not open.

Resolution:

The **Configure > Overrides** dialog opens as expected.

Impact of fix:

This fix has no impact on current workflow.

Known Issues

LTP Baseline Protocol Settings Errors With Digidata 1550 Series Digitizers

Tracking ID: 4732

An error message that the maximum trial length has been exceeded can incorrectly display when LTP Start-to-start is set to 4 seconds or 5 seconds and the Waveform length is set to 50 ms.

Workaround:

Set the **LTP Assistant > Baseline > Stat-to-start** setting to two seconds or less.

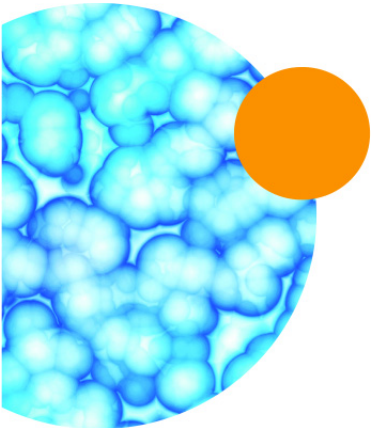
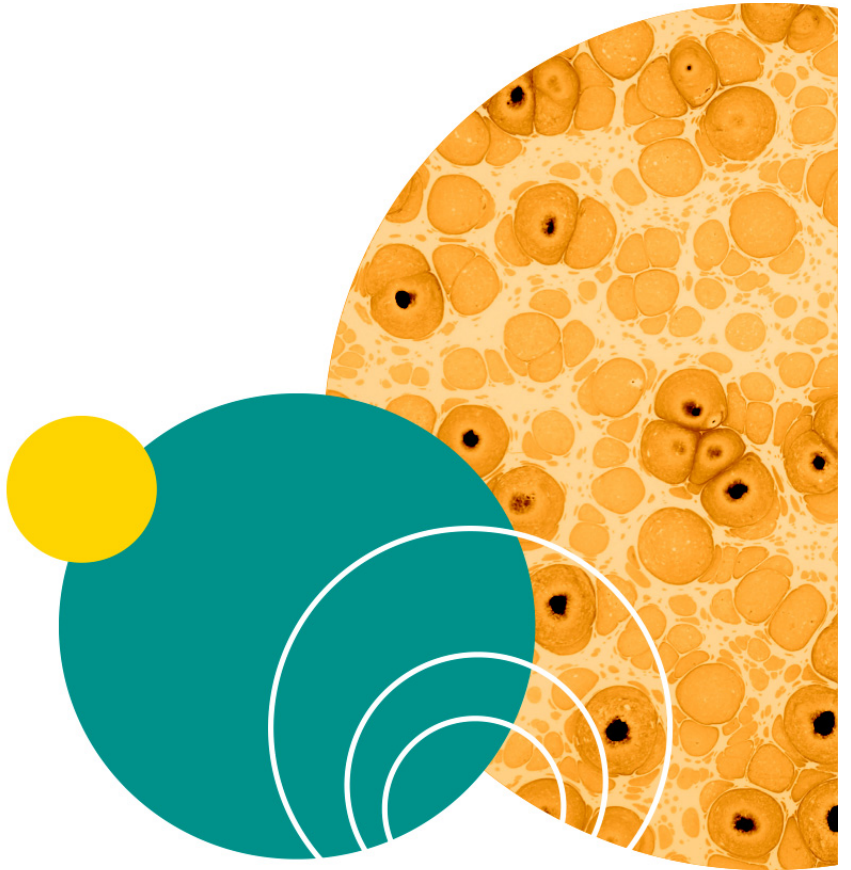
Episodic Stimulation Error That Protocol Exceeds Maximum Sample Count

Tracking ID: 4874

An error message that the maximum sample count for a single acquisition has been reached can incorrectly display when some Episodic stimulation protocols with several hundred sweeps run.

Workaround:

None.



pCLAMP™ Software Version 10.5.2 Software Release Notes



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Introduction

The pCLAMP™ Electrophysiology Data Acquisition and Analysis Software Version 10.5.2 update is a minor release. The following is a summary of the changes incorporated in this update as compared to version 10.5.1, the last general release of the pCLAMP Software.

- [Modified](#)
- [Issues Addressed](#)

Modified

A batch conversion tool has been added to Clampfit allowing you to convert ABF files to ATF files.

Tracking ID: 4836

Issues Addressed

Multiple Active Output Channels Cause Pre-Sweep Train Error

Tracking ID: 852

When **Pre-sweep train** is enabled and more than one output channel is active, the pre-sweep train generates incorrect waveforms.

Resolution:

Fixed. The pre-sweep train generates the correct waveform.

Impact of fix:

This fix has no impact on current workflow.

Wrong Data in Clampfit Statistics Slope Measurements Instead of "Not Found"

Tracking ID: 1706

When performing a Statistics rise/decay analysis, if the data do not completely span a percentile range, and a measurement cannot be

calculated, the related cell in the Results sheet Statistics tab incorrectly copies the previous measurement.

Resolution:

Fixed. The Results sheet Statistics tab now shows “Not found” instead of incorrectly copying the previous measurement.

Impact of fix:

This fix has no impact on current workflow.

P/N Leak Subtraction Second Channel Time-Shifted

Tracking ID: 3350

When recording two channels of episodic data with P/N Leak Subtraction, the response of the second channel is time-shifted.

Resolution:

Fixed. P/N Leak Subtraction does not alter the timing of a second leak-subtracted input channel.

Impact of fix:

This fix has no impact on current workflow.

Clampfit Lowpass/Highpass Filtering Validation Error

Tracking ID: 3365

When using the Analyze/Filter command, Clampfit incorrectly validates the cutoff filter limits.

Resolution:

Clampfit now correctly validates the cutoff filter limits against the sampling rate.

Impact of fix:

This fix has no impact on current workflow.

Pre-Sweep Post-Train Duration is Incorrect

Tracking ID: 3935

The protocol of Pre-sweep Train does not execute its Post-train duration correctly. The requested duration is shortened.

Resolution:

The pre-sweep train now generates the correct post-train duration.

Impact of fix:

This fix has no impact on current workflow.

Scope Properties/Signals Does not "Apply to all signals"

Tracking ID: 3944

The option in Scope properties to apply settings to all signals does not work correctly.

Resolution:

The **Apply to all** option correctly applies the settings to all signals.

Impact of fix:

This fix has no impact on current workflow.

Clampex 10 with a Digidata 1550 has a Maximum Acquisition Length Exceeded Error

Tracking ID: 4657

When using Clampex with a Digidata 1550 digitizer, a protocol containing 120 sweeps of 1 second duration generates an error that the maximum acquisition length is exceeded.

Resolution:

The issue is now corrected without any errors.

Impact of fix:

This fix has no impact on current workflow.

Analog Input Channels Display Signals of Other Channels

Tracking ID: 4764

When Analog Input channels are added to a protocol in a mixed or reverse order, the signals display in the wrong channels.

Resolution:

Fixed. The channels display correct signals.

Impact of fix:

This fix has no impact on current workflow.

Clampfit Shows Inaccurate Error Message for Arithmetic Operation

Tracking ID: 4767

Certain arithmetic operations in Clampfit generate an error message which instead of stating that the number of sample points are different, incorrectly states that the number of sample points are different.

Resolution:

The error message is corrected to state that the number of 'Sample Points' are different.

Impact of fix:

This fix has no impact on current workflow.

Jittering Issue with Fast Cosine Episodic Stimulations on Digidata 1550 Digitizers

Tracking ID: 4774

Repeatedly running high frequency cosine episodic stimulations at 2 μ s causes signal jitters.

Resolution:

Fixed. No more signal jittering.

Impact of fix:

This fix has no impact on current workflow.

Cm Text is Misaligned in Clampex

Tracking ID: 4782

When telegraphing is enabled, the measurement for Cm is misaligned and displays incorrectly.

Resolution:

When telegraphing is enabled, the measurement for Cm is aligned and displays correctly.

Impact of fix:

This fix has no impact on current workflow.

pCLAMP™ Software Version 10.5.1 Software Release Notes

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Introduction

The pCLAMP™ Electrophysiology Data Acquisition and Analysis Software Version 10.5.1 update is a minor release. The following is a summary of the changes incorporated in this update as compared to version 10.5.0, the last general release of the pCLAMP Software.

- [Issues Addressed](#)
- [Known Issues](#)

Issues Addressed

Vertical Scale Fluctuates When Telegraphs are Enabled

Tracking ID: 4118

For the Digidata 1550 digitizer and Digidata 1550A digitizer, when cable Telegraphs are used, the Gain value and the data Y-axis scale can intermittently fluctuate.

Impact of fix:

This fix has no impact on current workflow.

Each Click of Clear Cancels Different Amounts of Noise

Tracking ID: 4746

The amount of cancelled noise is inconsistent each time you click **Clear**, which can leave residual noise in the signal.

Impact of fix:

This fix has no impact on current workflow.

Episodes Jitter at 2μs Clock Speed

Tracking ID: 4753

Using a Cosine train Episodic Stimulation at 500kHz (2μs) on a Digidata 1550 digitizer, the signal jitters.

Impact of fix:

This fix has no impact on current workflow.

Known Issues

HumSilencer Adaptive Noise Cancellation Can Stop When Acquiring Data for Several Hours Through Sequencing Keys

Tracking ID: 4725

When a protocol is run in a loop using the Sequencing Keys feature, after several hours of continuous operation, the HumSilencer adaptive noise cancellation can stop functioning.

Workaround:

In the Real Time Controls panel, click **HumSilencer > Clear**.

Adapt Becomes Deselected After Repeated Episodic Acquisitions

Tracking ID: 4733

When **HumSilencer > Adapt** is selected and an Episodic stimulation protocol acquisition is repeated, after the second acquisition, **Adapt** stays deselected. Using Sequencing Keys with the repeated acquisitions works as expected.

Workaround:

In the Real Time Controls panel, select **HumSilencer > Adapt** before the next acquisition.

Analog Input Channels Display Signals Belonging to Incorrect Channels

Tracking ID: 4764

When channels from analog inputs are added to a protocol in a mixed or reverse order, the signals are displayed as coming from an incorrect channel.

Workaround:

Save and then re-open the protocol.

pCLAMP™ Software Version 10.5 Software Release Notes



Introduction

The pCLAMP™ Electrophysiology Data Acquisition and Analysis Software Version 10.5 update is a minor release. The following is a summary of the changes incorporated in this update as compared to version 10.4.2, the last general release of the pCLAMP Software.

- [New](#)
- [Issues Addressed](#)
- [Known Issues](#)

New

Software support added to include the new Digidata 1550A plus HumSilencer™ adaptive noise cancellation digitizer.

Issues Addressed

Digitizer Recorded as a MiniDigi 1A Digitizer in ABF 1.8 Files

Tracking ID: 4715

When the ABF of any digitizer is saved as an ABF 1.8 file, the properties of the ABF file show the digitizer type as a MiniDigi 1A digitizer.

Resolution: ABF 1.8 file structure does not retain the digitizer type. When an ABF 1.8 file is opened in pCLAMP Software Version 10.3 and newer, the digitizer type is now displayed as **Unknown**.

Impact of fix:

This fix has no impact on current workflow.

Digidata 1550 Digitizers Record Wrong Intervals for Some Sampling Rates

Tracking ID: 4720

For sampling rates such as 200 kHz, 300 kHz, 400 kHz, the frequency/timing in recorded data is incorrect.

Resolution: The software now validates sampling rates and only allows multipliers of 2 μ s sampling intervals.

Impact of fix:

This fix has no impact on current workflow.

Known Issues

Vertical Scale Fluctuates When Telegraphs are Enabled

Tracking ID: 4118

For the Digidata 1550 digitizer and Digidata 1550A digitizer, when cable Telegraphs are used, the Gain value and the data Y-axis scale can intermittently fluctuate.

Workaround:

No workaround at this time. View the Gain and Y-axis settings when starting the recording, because these values are stored with a recording.

HumSilencer Adaptive Noise Cancellation Can Stop When Acquiring Data for Several Hours Through Sequencing Keys

Tracking ID: 4725

When a protocol is run in a loop using the Sequencing Keys feature, after several hours of continuous operation, the HumSilencer adaptive noise cancellation can stop functioning.

Workaround:

In the Real Time Controls panel, click **HumSilencer > Clear**.

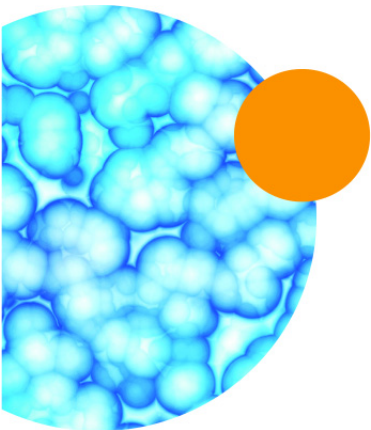
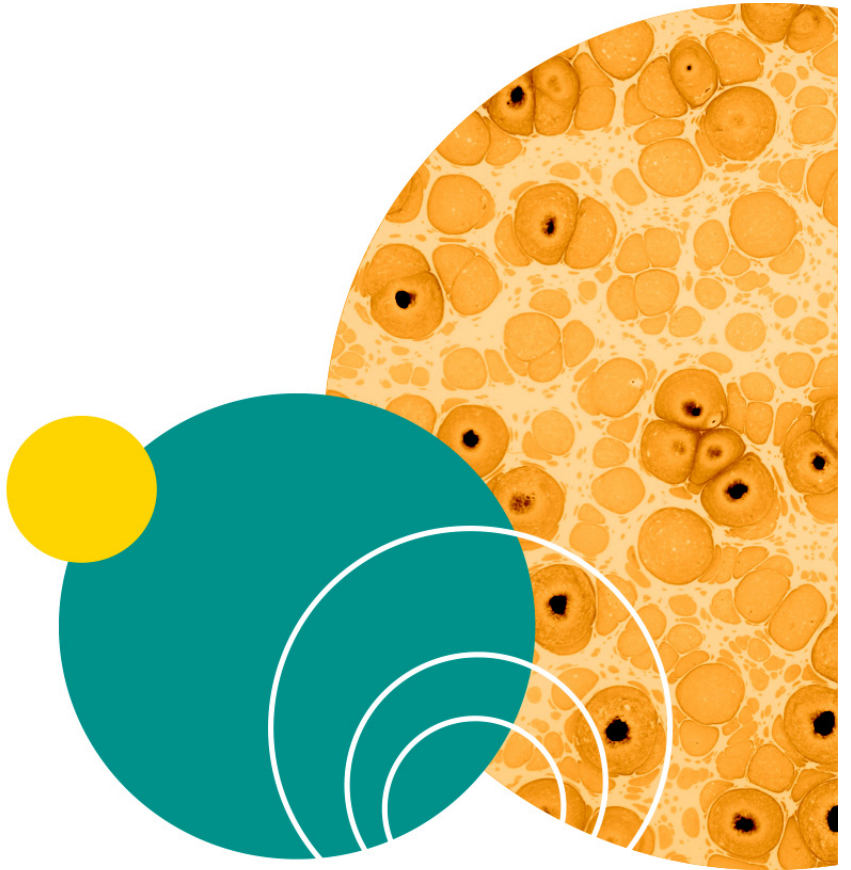
Adapt Becomes Deselected After Repeated Episodic Acquisitions

Tracking ID: 4733

When **HumSilencer > Adapt** is selected and an Episodic stimulation protocol acquisition is repeated, after the second acquisition, **Adapt** stays deselected. Using Sequencing Keys with the repeated acquisitions works as expected.

Workaround:

In the Real Time Controls panel, select **HumSilencer > Adapt** before the next acquisition.



pCLAMP™ Software Version 10.4.2 Software Release Notes



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Introduction

The pCLAMP™ Electrophysiology Data Acquisition and Analysis Software Version 10.4.2 update is a minor release. The following is a summary of the changes incorporated in this update as compared to version 10.4.1, the last general release of the pCLAMP Software.

- [Issues Addressed](#)

Issues Addressed

Digidata 1550 Analog Input Offset Calculation Differs Between pCLAMP Software v. 10.4.1 and v. 10.4.0

Tracking ID: 4630

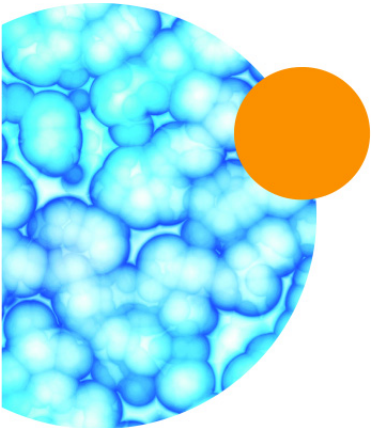
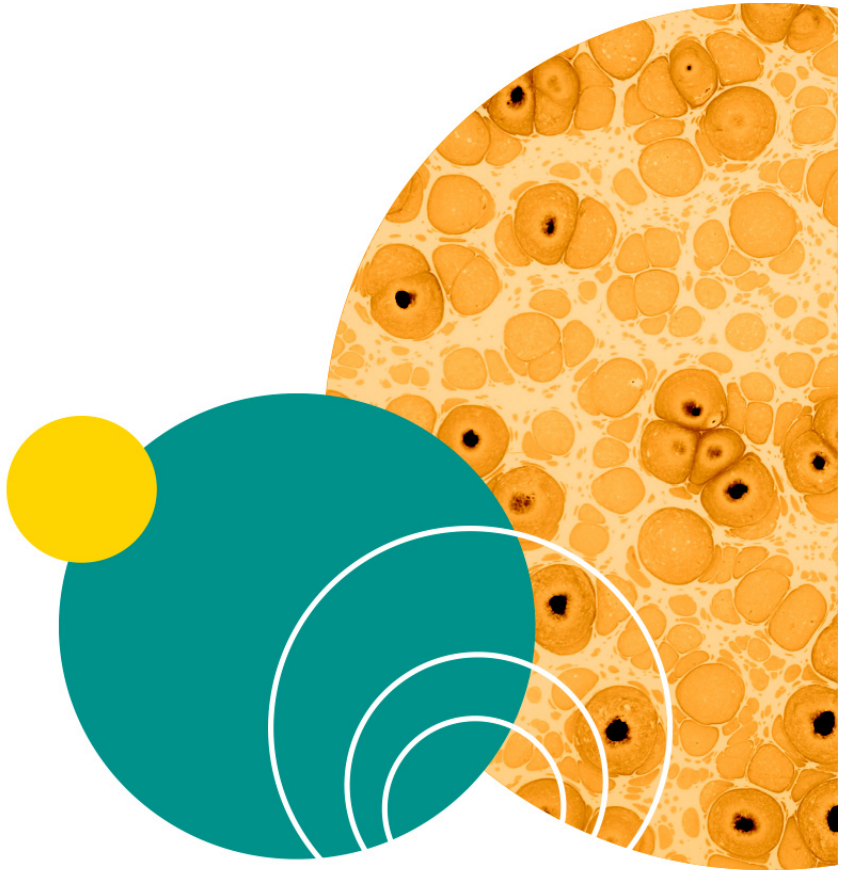
pCLAMP Software version 10.4.1 includes a firmware update that incorrectly applies the factory-calibration to the offset parameters for the analog input. In some cases this causes the measurements of small signals to be less accurate than specified.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.



pCLAMP™ Software Version 10.4.1 Software Release Notes



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Introduction

The pCLAMP™ Electrophysiology Data Acquisition and Analysis Software Version 10.4.1 update is a minor release. The following is a summary of the changes incorporated in this update as compared to version 10.4.0, the last general release of the pCLAMP Software.

- [Modified](#)
- [Issues Addressed](#)

Modified

In all **Acquisition Modes**, except Gap-free, in the **Trigger** tab of the **Edit Protocol** dialog, when the **Trigger source** is set to **Digitizer START Input**, the **Timeout (ms)** field now displays. Use it to set the maximum time the system polls for an external START trigger before it checks for user-intervention, such as clicking Stop, and responds to the intervention or resumes polling. Set this polling duration longer than your trigger interval.

Issues Addressed

Manual Adjust Baseline Greater than the Allowable Clampfit Limit Causes Crash

Tracking ID: 99

In Clampfit, manually adjusting the baseline beyond the allowable limit of 100 causes a software crash.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.

Space Bar Trigger Incorrectly Sets Intersweep Holding on Analog Out Channel 0

Tracking ID: 2284

With certain protocols, Analog Out #0 incorrectly goes to a saturating negative value between triggers.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.

Data Appear in Incorrect Channels

Tracking ID: 2296

Once in several trials, the data is displayed to be coming from an incorrect channel and the timing looks shifted.

Resolution:

The software now validates protocols and verifies the number of acquisition channels. Protocols that use an external START trigger may require the activation of additional acquisition channels in order to run. The number of analog input channels acquired must be 1 or a multiple of 2, for example, 2, 4, 8, or for Digitdata 1440A, 16 channels.

Impact of fix:

Existing protocol files may need modifying.

Invalid Protocol Timings Cause the Software to Crash

Tracking ID: 3209

A protocol that contains wrong timing causes the software to crash.

Resolution:

Invalid User list values for Epoch Duration in protocols are now prevented from being saved.

Impact of fix:

Existing protocol files may need modifying.

Older Clampex Data Re-saved in Clampfit 10.3 Cannot be Concatenated

Tracking ID: 3293

Data files acquired in Clampex 9.2 as ABF 1.83 and then re-saved in Clampfit 10.3.1.4 as ABF 2.00 cannot be concatenated.

Resolution:

The concatenation problem has been fixed.

Impact of fix:

This fix has no impact on current workflow.

Incorrect Unit for Protocol Mode/Rate Throughput

Tracking ID: 3355

The unit that is used to display data throughput is incorrect. It should be samples per second.

Resolution:

Samples per second is now correctly labelled.

Impact of fix:

This fix has no impact on current workflow.

P/N Leak Subtraction Does Not Completely Compensate Signals During Step Transitions

Tracking ID: 3964

Using P/N leak Subtraction, extra spikes are detected in the data.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.

EEPROM CRC Error on a Digitizer is not Recognized by the Software

Tracking ID: 4060

If there is an EEPROM CRC error on the digitizer, the software is not aware of the error.

Resolution:

The software now detects the digitizer EEPROM CRC error and displays an error message.

Impact of fix:

This fix has no impact on current workflow.

Waveform Preview Does not Display Digital Channels Correctly

Tracking ID: 4074

When the protocols are updated, the Waveform Preview dialog does not display digital channels correctly.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.

Membrane Test Freezes the Software

Tracking ID: 4106

After running the Membrane Test for 15 to 30 minutes, when you use the MultiClamp 700 Commander to switch between voltage-clamp (VC) and current-clamp (IC) modes, Clampex freezes for several minutes.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.

Create Stimulus Waveform in Clampfit Shows Disabled Digital Outputs

Tracking ID: 4126

In Clampfit, in the **Create Stimulus Waveform Signal** dialog the Digital Output channels 0 thru 4 are disabled and unselectable.

Resolution:

All of the Digital Output channels are now available for selection.

Impact of fix:

This fix has no impact on current workflow.

6 Micro Second Delay at the Start of Acquisition

Tracking ID: 4134

There is 6 micro second delay at the start of an acquisition.

Resolution:

The 6 micro second delay has been removed and the data is being acquired correctly.

Impact of fix:

This fix has no impact on current workflow.

ABF 1.8 File Conversion Compatibility Issue

Tracking ID: 4224

Data files acquired in pCLAMP 10.4.0 as ABF 2.03 and re-saved as ABF 1.8 files cannot be opened in earlier versions of pCLAMP.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.

Episodic Demo Does not Work in pCLAMP 10.4

Tracking ID: 4243

When trying to run the Episodic Demo a blank screen is displayed.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.

Some pCLAMP 9 Protocols Do Not Work Properly in pCLAMP 10.4

Tracking ID: 4278

Certain pCLAMP 9.x protocols used in Clampex 10.4 cause warning messages to display that say two or more signals are allocated to the same physical channel, or that say the Waveform Tab has an error.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.

ABF 1.8 Files Recorded with Clampex 10.4 Have Incorrect Scaling

Tracking ID: 4366

Files recorded with Clampex 10.4.0, when re-saved as ABF 1.8 (integer), have incorrect scaling.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.

ABF 2.03 Files Re-Saved in Clampex 10.4 to ABF 1.8 do not Open in Clampex 10.3

Tracking ID: 4402

pCLAMP 10.4.0 ABF 2.03 data files are not compatible with earlier versions of pCLAMP. Even when re-saved to the older compatible ABF 1.8 file format, the data files cannot be opened in pCLAMP software versions 10.0 through 10.3.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.

ABF File Support Pack Not Updated for ABF 2.03

Tracking ID: 4422

The ABF File Support Pack is not updated to support pCLAMP version 10.4.0 of ABF version 2.03 with 8 analog outputs.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.

Initial Holding Level Sample Point from Last Epoch

Tracking ID: 4512

Using a Digidata 1550, if the holding voltage is set to **Use last Epoch**, the first sample point does not use the expected last Epoch holding level.

Resolution:

Fixed.

Impact of fix:

This fix has no impact on current workflow.

pCLAMP™ Software Version 10.4.0 Software Release Notes



Introduction

The pCLAMP™ Electrophysiology Data Acquisition and Analysis Software version 10.4.0 update is a minor release. The following is a summary of the changes incorporated in this update as compared to version 10.3.2, the last general release of the pCLAMP Software.

New

Software support added to include the new Digidata 1550 Digitizer.

Issues Addressed

Scope Trigger BNC Output Not Sending Correct Output for Episodic Mode

Tracking ID: 2285

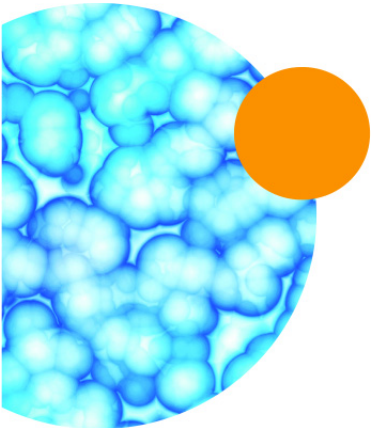
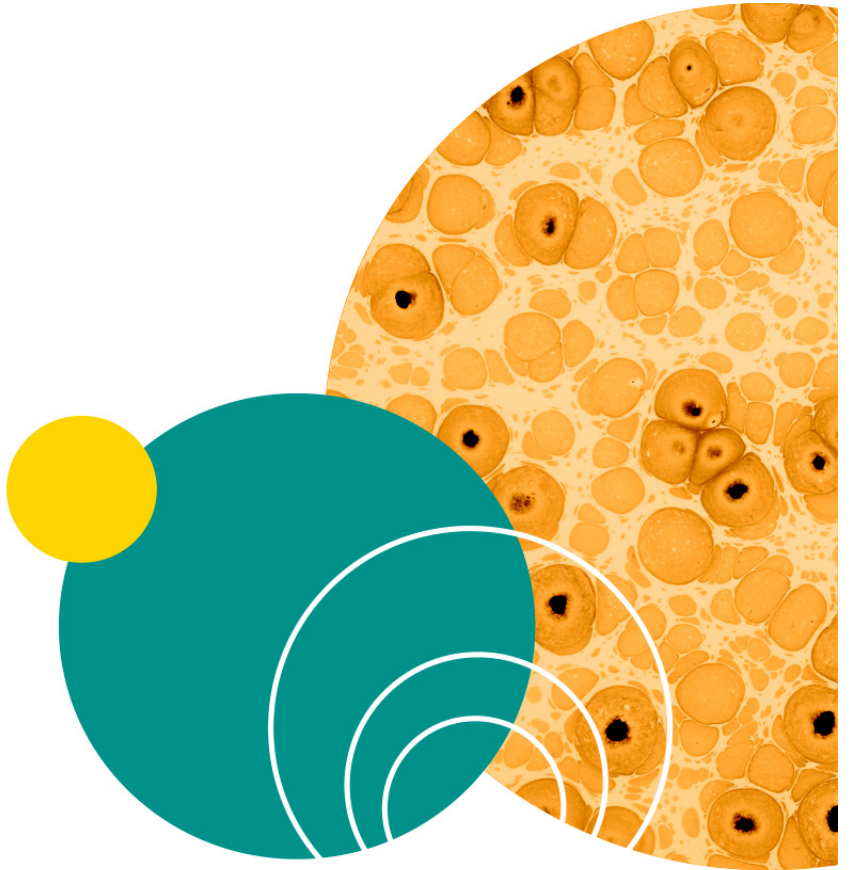
The Scope trigger output in Clampfit software goes low at the end of the last holding period (H2) instead of at the beginning, which fails to always give a correct timing signal per episodic sweep.

Resolution:

The Scope trigger in Clampfit software goes low at the beginning of holding period (H2), which always gives a correct timing signal per episodic sweep when using Digidata 1550 Series, Digidata 1440A Series, and Digidata 132x Series digitizers.

Impact of fix:

This fix has no impact on current workflow.





Introduction

The pCLAMP™ Electrophysiology Data Acquisition and Analysis Software version 10.3.2 update is a minor release. The following is a summary of the changes incorporated in this update as compared to version 10.3.1, the last general release of the pCLAMP Software.

Issues Addressed

PatchXpress Acquired Data with P/N leak Subtraction Enabled, Display Incorrectly in Clampfit

Tracking ID: 3930

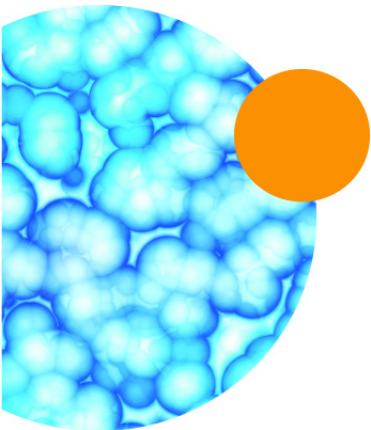
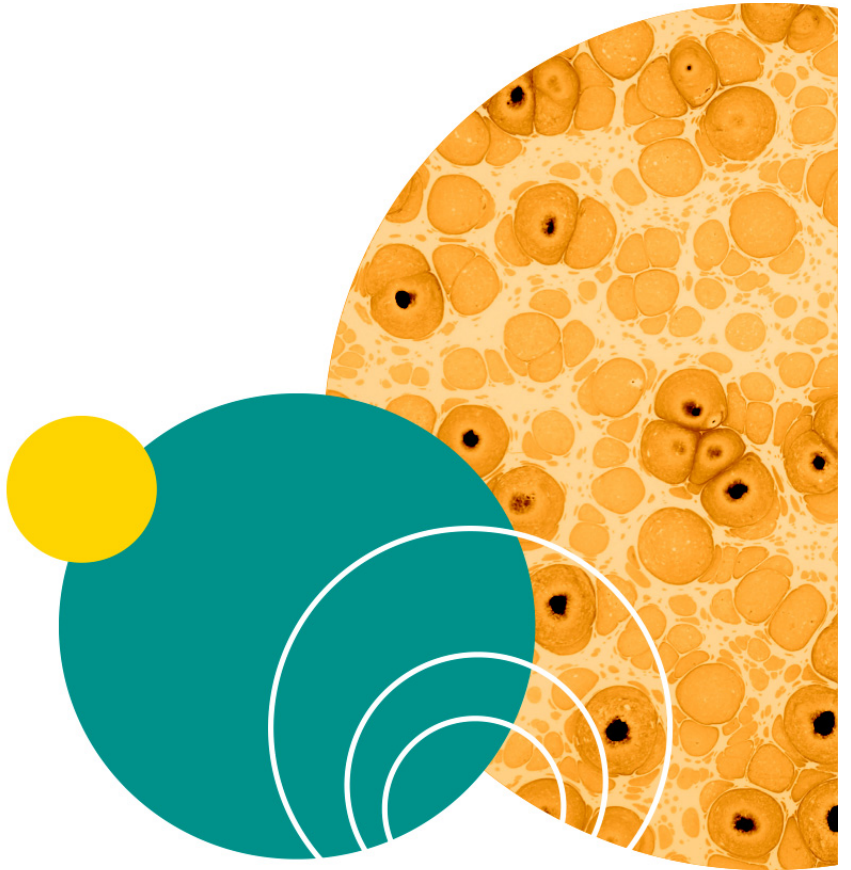
In Clampfit software, data acquired by PatchXpress 2.0 or 2.0.1 with the P/N Leak Subtraction enabled, the sweep duration displays half of the actual value and the sampling rate displays double the actual value.

Resolution:

The issue is fixed in PatchXpress software version 2.0.2. Data sets acquired in PatchXpress software version 2.0 or 2.0.1 with the P/N Leak Subtraction enabled display correctly in the Clampfit software in the pCLAMP software version 10.3.2.

Impact of fix:

This fix has no impact on current workflow.



pCLAMP™ Software Version 10.3.1 Software Release Notes



Introduction

The pCLAMP™ Electrophysiology Data Acquisition and Analysis Software version 10.3.1 update is a minor release. The following is a summary of the changes incorporated in this update as compared to version 10.3.0.2, the last general release of the pCLAMP Software.

Issues Addressed

Read only files cannot be opened

Tracking ID: 148

When the Clampfit software attempts to open a file marked as read-only, it returns an error that the file is already open.

Resolution:

The Clampfit software can open read-only files without generating an error.

Impact of fix:

This fix has no impact on current workflow or data.

Protocol shows positive durations only

Tracking ID: 855

In the Protocol Editor of the Clampex software, the Waveform tab's Delta duration does not allow negative values.

Resolution:

Negative protocol duration values are allowed.

Impact of fix:

This fix has no impact on current workflow or data.

P/N corrected data is not displayed with long signal names

Tracking ID: 984

If the signal name is ten characters long, then when a file with P/N corrected data is reopened the corrected data is not shown.

Resolution:

P/N corrected data displays properly for 10-character signal names.

Impact of fix:

This fix has no impact on current workflow or data.

Clampex Membrane Test gives incorrect values after Configure menu is used

Tracking ID: 1280

In the Clampex software, opening the Membrane Test Setup from the Configure menu while the Membrane Test is running causes the Membrane Test to return incorrect values.

Resolution:

Correct values appear in the Membrane Test after opening the Membrane Test Setup from the Configure menu.

Impact of fix:

This fix has no impact on current workflow or data.

Math Channel causes crash in AxoScope

Tracking ID: 1687

In the AxoScope software, activating the Math channel while acquiring data crashes the program.

Resolution:

Activating the Math channel while acquiring data runs as expected with no program crash.

Impact of fix:

This fix has no impact on current workflow or data.

User List with longer than 100 characters causes Clampex to crash

Tracking ID: 1813

In the Clampex software, entering a user list of 100 characters crashes the program. The behavior seems to occur only when Epoch Durations are adjusted with the user list.

Resolution:

Entering a long user list does not crash the program.

Impact of fix:

This fix has no impact on current workflow or data.

Slow rate-only saved files with P/N do not open in Clampfit

Tracking ID: 1916

Using the Clampfit software to open a protocol file that uses the Epoch Duration Slow rate and P/N Leak Subtraction at the same time crashes the program.

Resolution:

Opening a protocol file that uses the Epoch Duration Slow rate and P/N Leak Subtraction at the same time does not crash the program.

Impact of fix:

This fix has no impact on current workflow or data.

UserDefinedInstrument.ini file is not being read

Tracking ID: 1932

Modifying the UserDefinedInstrument.ini file does not affect the settings in the Clampex software.

Resolution:

Users can modify the UserDefinedInstrument.ini file and the changes appear in the Clampex software.

Impact of fix:

This fix has no impact on current workflow or data.

Custom Function cannot be entered

Tracking ID: 2002

In the Clampfit software, defining a custom function in the Fit dialog generates an error message stating the a custom function has not been defined.

Resolution:

A custom function can be defined in the Fit dialog without generating the error message.

Impact of fix:

This fix has no impact on current workflow or data.

Non-stationary analysis - wrong formula with parabolic equation

Tracking ID: 2003

In the Clampfit software, the formula used to calculate the parabolic fit to non-stationary data is incorrect.

Resolution:

The parabolic fit to non-stationary data is calculated correctly.

Impact of fix:

This fix has no impact on current workflow or data.

P/N generates ABF files with data points all at zero

Tracking ID: 2009

Saving a file in ABF format from the Clampex software sets data points to zero in the ABF file.

Resolution:

Data points are correctly saved in ABF format.

Impact of fix:

This fix has no impact on current workflow or data.

Protocol with four active analog waveforms crashes Clampex

Tracking ID: 2079

In the Clampex software, stimulating on four analog channels while digital outputs are enabled crashes the program.

Resolution:

Stimulating on four analog channels while digital outputs are enabled does not crash the program.

Impact of fix:

This fix has no impact on current workflow or data.

Save Results in ATF from Clampex 9 does not open in Clampfit 10

Tracking ID: 2204

Results saved in an ATF file from the Clampex 9 software do not appear when the ATF file is opened in the Clampfit 10 software.

Resolution:

The Clampfit 10 software correctly opens ATF files generated using the Clampex 9 software.

Impact of fix:

This fix has no impact on current workflow or data.

Enhance error handling in Data Reduction

Tracking ID: 2206

In the Clampfit software Data Reduction dialog, typing an incorrect Reduction factor generates an error message that displays the incorrect name for the selected Method.

Resolution:

The name of the selected Method appears in the error message.

Impact of fix:

This fix has no impact on current workflow or data.

Create data command, produces wrong values in divide-by zero calculations

Tracking ID: 2207

In the Clampfit software, entering a formula in Create Data that divides by zero generates the number 1 in some of the cells.

Resolution:

Entering a formula in Create Data that divides by zero generates blank cells.

Impact of fix:

This fix has no impact on current workflow or data.

Copying & pasting data from Power Spectrum causes rounding errors

Tracking ID: 2217

In the Clampfit software, copying and pasting from the results spreadsheet rounds the data.

Resolution:

Copying and pasting from the results spreadsheet retains greater than six decimal places.

Impact of fix:

This fix has no impact on current workflow or data.

Fast/Slow rates create files that crash Clampfit

Tracking ID: 2219

Opening a file in the Clampfit software that was generated with data acquired using the Clampex software with Epoch Duration Slow rates crashes the Clampfit program.

Resolution:

Opening a data file that was generated using the Epoch Duration Slow rate does not crash the program.

Impact of fix:

This fix has no impact on current workflow or data.

Membrane Test Pulse and Holding level reverts to Bath 0 Stage settings

Tracking ID: 2677

In a Membrane Test that Enables #0 and #1 channels, the Pulse and Holding settings show the Bath #0 settings when the Membrane Test is reopened, regardless of the selection that was made before it was closed. Users need to click on the current selection to activate the correct Pulse and Holding levels.

Resolution:

When a Membrane test is reopened, the settings reflect the levels for the Output and Stage combination that was selected before the test was closed.

Impact of fix:

If users were clicking on the current selection to activate the correct Pulse and Holding levels, this workaround is no longer needed.

This fix has no other impact on current workflow or data.

Event Statistics inappropriately displays standard deviation for event frequency

Tracking ID: 2743

In the Event Statistics dialog of the Clampfit Software, the Event Frequency has a standard deviation associated with the measurement. The standard deviation should not be displayed.

Resolution:

The Event Frequency no longer displays the standard deviation.

Impact of fix:

This fix has no impact on current workflow or data.

DD1440A outputs incorrect pulse at end of sweep

Tracking ID: 3017

With some protocols, there is an incorrect pulse output after a trial. This affects only the DD1440A instrument.

Resolution:

The incorrect pulse output no longer appears.

Impact of fix:

This fix has no impact on current workflow or data.

Telegraphing for Warner PC-505B instrument causes Lab Bench Inputs to be grayed out

Tracking ID: 3099

In the Clampex software, Lab Bench Input settings are incorrectly disabled for the Warner PC505B instrument.

Resolution:

Lab Bench Input settings are enabled for the Warner PC505B instrument.

Impact of fix:

This fix has no impact on current workflow or data.