



# pCLAMP

Data Acquisition and Analysis

Version 11.2.2

## Software Release Notes

## pCLAMP Software Release Notes

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# Chapter 1: pCLAMP Software Version 11.2.2 Release Notes



The version 11.2.2 update is a minor release. Included are a summary and details of the changes incorporated in this revision as compared to version 11.2, the last general release of the software.

The following topic is included in this chapter:

- [pCLAMP Software Version 11.2.2 Summary](#)
- [New in pCLAMP Software v11.2.2 on page 6](#)
- [Issues Addressed in pCLAMP Software v11.2.2 on page 7](#)

For computer requirements, software update instructions, and other related details, see [pCLAMP Software Suite General Information on page 39](#).

## pCLAMP Software Version 11.2.2 Summary

The version 11.2.2 update incorporates the following changes:

Tracking ID	Status	Functional Area	Description
<a href="#">ST-364</a>	New	Action Potential Search	New Event Frequency Measurement in Action Potential Search
<a href="#">ST-333</a>	New	Action Potential Search	New option in Action Potential Search to retain previous cursor positions
<a href="#">ST-361</a>	Fixed	Action Potential Search	Incorrect Area Measurement in Action Potential Search
<a href="#">ST-371</a>	Fixed	Clampfit software	Incorrect Time in Clampfit Transfer Trace
<a href="#">ST-362</a>	Fixed	Clampfit software	Clampfit crashes when Event Statistics is selected
<a href="#">ST-363</a>	Fixed	Clampfit software	Clampfit crashes when Burst Statistics is selected
<a href="#">ST-369</a>	Fixed	Action Potential Search	In Action Potential Search, Re-arm value cannot be set below the trigger line
<a href="#">ST-370</a>	Fixed	Action Potential Search	Action Potential Search does not complete in some cases
<a href="#">ST-372</a>	Fixed	Clampfit software	Incorrect Histogram Plotting

## New in pCLAMP Software v11.2.2

The following new features are included in version 11.2.2.

### **Frequency Measurement in Action Potential Search**

ST-364

Event Frequency Measurement is added to the Action Potential Search.

### **Action in Potential Search to Retain Previous Cursor Positions**

ST-333

A new option is added to Action Potential Search for users to retain previous cursor position.

## Issues Addressed in pCLAMP Software v11.2.2

The following issues were addressed in version 11.2.2. Unless otherwise noted, the fixes have no impact on current workflow or data.

### Incorrect Area Measurement in Action Potential Search

ST-361

In Clampfit, after running Action Potential Search, the Area Measurement in the Result Sheet displays incorrect value.

### Incorrect Time in Clampfit Transfer Trace

ST-371

In some data files, the Time column of Transfer Traces incorrectly shows zero.

### Clampfit Crashes When Event Statistics is Selected

ST-362

After running Action Potential Search, if user selects Event Statistics under the Event Detection menu item, the software crashes.

### Clampfit Crashes When Burst Statistics is Selected

ST-363

After running Threshold Search, if user runs Burst Analysis in the Results Sheet's Event Tab, the software crashes.

### Re-arm Value Cannot Be Set Below The Trigger Line

ST-369

In Clampfit, the Re-Arm value cannot be set below the trigger line in Action Potential Search.

### Action Potential Search Does Not Complete In Some Cases

ST-370

In Clampfit, the Action Potential Search does not fully complete in certain scenarios.

### Incorrect Histogram Plotting

ST-372

The histogram plotted from the Histogram feature of Clampfit is incorrect.





# Chapter 2: pCLAMP Software Version 11.2.1 Release Notes



The version 11.2.1 update is a minor release. Included are a summary and details of the changes incorporated in this revision as compared to version 11.2, the last general release of the software.

The following topic is included in this chapter:

- pCLAMP Software Version 11.2.1 Summary

For computer requirements, software update instructions, and other related details, see [pCLAMP Software Suite General Information on page 39](#).

## pCLAMP Software Version 11.2.1 Summary

The version 11.2.1 update incorporates the following changes:

Tracking ID	Status	Functional Area	Description
ST-355	Fixed	Clampfit software	Baseline Adjustment on Data Files Acquired in Episodic Stimulation Causes Error
ST-359	Fixed	Clampfit software	Baseline Adjustment on Data Files Acquired in Gap-Free Causes Error

### Baseline Adjustment on Data Files Acquired in Episodic Stimulation, Causes Error

ST-355

Adjusting the Baseline on data files acquired in Episodic Stimulation mode causes an error to display in the Clampfit application.

### Baseline Adjustment on Data Files Acquired in Gap-Free Causes Error

ST-359

Adjusting the Baseline on data files acquired in Gap-Free mode causes an error to display in the Clampfit application.



## Chapter 3: pCLAMP Software Version 11.2 Release Notes



The version 11.2 update is a minor release. Included are a summary and details of the changes incorporated in this revision as compared to version 11.1 the last general release of the software.

The following topics are included in this chapter:

- [pCLAMP Software Version 11.2 Summary](#)
- [Modifications Made in pCLAMP Software v11.2 on page 13](#)
- [Issues Addressed in pCLAMP Software v11.2 on page 13](#)

For computer requirements, software update instructions, and other related details, see [pCLAMP Software Suite General Information on page 39](#).

### pCLAMP Software Version 11.2 Summary

The version 11.2 update incorporates the following changes:

Tracking ID	Status	Functional Area	Description
ST-303	Modified	Membrane Test	Clampex Software Membrane Test Window is Enlarged
ST-336	Modified	Action Potential Search	Improved Action Potential Search
ST-340	Modified	Installer	HASP Driver Update
ST-207	Fixed	Analog Waveform Tab	Clampex Software Crashes Without Analog Inputs Selected
ST-209	Fixed	Membrane Test	Edit Protocol Menu Option Broken in Membrane Test
ST-210	Fixed	Clampfit Help file	Help Button Broken in the Fit Dialog Data/Options Tab in Clampfit Software
ST-225	Fixed	Membrane Test	Membrane Test Auto Scaling Only Works on Top Channel of Multi-Channel Test
ST-270	Fixed	ATF Files	Some ATF Files do not Open in Clampex Software
ST-302	Fixed	Acquisition	Clampex Software Random Short Pulses in Data
ST-304	Fixed	Telegraphing	Wrong Axopatch 200B Amplifier Telegraphing Cm Membrane Test Value
ST-307	Fixed	Telegraphing	Membrane Test Second Channel Gain Fails When MultiClamp700B Amplifier Telegraphing
ST-308	Fixed	Action Potential Search	Wrong Maximum Decay Slope in Action Potential Search in Clampfit Software
ST-309	Fixed	Clampfit Analysis	Clampex Software 10 Data Files Open Wrong in Clampfit Software
ST-312	Fixed	Stimulus abf File Import	Missing Stimulus File Name After ABF File Import

pCLAMP Software Release Notes

Tracking ID	Status	Functional Area	Description
ST-311	Fixed	I-V Graph	Wrong I-V Graph Values When Axes Re-size in Clampfit Software
ST-313	Fixed	Membrane Test	Membrane Test Problem With Values for Cm in Cell Mode
ST-314	Fixed	Threshold Search	No Event Frequency Values in Some Threshold Searches
ST-316	Fixed	Clampfit Analysis	Clampex-Style Statistics Display Crash Clampfit Software
ST-318	Fixed	Membrane Test	Membrane Test Values for Out 0 Display Wrong
ST-320	Fixed	Clampfit Analysis	Filtering Traces Recorded in Gap-Free Mode Crashes Clampfit Software
ST-321	Fixed	Telegraphed Instrument	Missing User Defined Option in Telegraphed Instrument Menu
ST-326	Fixed	Waveform	Missing Slow Sampling Rate in Waveform
ST-327	Fixed	Clampfit Analysis	Opening Some Gap-Free Data Files Crashes Clampfit Software
ST-330	Fixed	HumSilencer	Whole Cell Selection De-Selects HumSilencer Adapt Check Box
ST-335	Fixed	Clampfit Analysis	Issue With Setting Cursor Decimal Value

## Modifications Made in pCLAMP Software v11.2

The following modifications were made in version 11.2.

### Clampex Software Membrane Test Window is Enlarged

ST-303

In Clampex software the Membrane Test window is now enlarged for better use.

### Improved Action Potential Search

ST-336

In the Action Potential Search dialog, the Amplitude, Area, and Action Potential Duration (APD) are now measured with respect to both the specified baseline and the calculated threshold potential with the option to display the measurements relative to the baseline or to the threshold potential.

### HASP Driver Update

ST-340

The HASP driver in the installer is updated to be compatible with the latest versions of Windows 10 (versions 1809, 1909, 2004, and 20H2).

## Issues Addressed in pCLAMP Software v11.2

The following issues were addressed in version 11.2. Unless otherwise noted, the fixes have no impact on current workflow or data.

### Clampex Software Crashes Without Analog Inputs Selected

ST-207

Fixed the issue in the Clampex software Edit Protocol dialog where switching to the Analog Waveform tab without having selected any analog input channels causes the software to crash..

### Edit Protocol Menu Option Broken in Membrane Test

ST-209

Fixed the issue in the Clampex software Membrane Test where the right-click menu option for Edit Protocol did not launch the Protocol Editor.

### Help Button Broken in the Fit Dialog Data/Options Tab in Clampfit Software

ST-210

Fixed the issue in Clampfit software where clicking the Help button in the Analyze > Fit > Data/Options tab causes an error message.

### Membrane Test Auto Scaling Only Works on Top Channel of Multi-Channel Test

ST-225

Fixed the issue in the Clampfit software Membrane Test window, where the auto-scaling only works for the top channel.

### **Some ATF Files do not Open in Clampex Software**

ST-270

Fixed the issue in the Clampex software where some ATF files do not open for use as stimulus files.

### **Clampex Software Random Short Pulses in Data**

ST-302

Fixed the issue in the Clampex software where the acquisition triggered by the Digidata Start Trigger causes random short pulses in the data.

### **Membrane Test Second Channel Gain Fails When MultiClamp700B Amplifier Telegraphing**

ST-307

Fixed the issue in the Clampex software telegraphing with the MultiClamp 700B amplifier where the Gain setting for the second channel fails in the Membrane Test window.

### **Wrong Axopatch 200B Amplifier Telegraphing Cm Membrane Test Value**

ST-304

Fixed the issue in the Clampex software telegraphing with the Axopatch 200B amplifier where the Cm value in Membrane Test is one tenth of the actual value.

### **Wrong Maximum Decay Slope in Action Potential Search in Clampfit Software**

ST-308

Fixed the issue in the Clampfit Advanced Analysis where the analyzed values for maximum decay slope in Action Potential Search were wrong.

### **Clampex Software 10 Data Files Open Wrong in Clampfit Software**

ST-309

Fixed the issue where properties of some data files acquired in the Clampex software version 10, display incorrect name and incorrect data in the Clampfit software version 11.1.

### **Wrong I-V Graph Values When Axes Re-size in Clampfit Software**

ST-311

Fixed the issue in the Clampfit software where the I-V graph shows the wrong values when the axes are re-sized.

### **Missing Stimulus File Name After ABF File Import**

ST-312

Fixed the issue in the Clampex software where the file name of the ABF file imported as a Stimulus file, is undefined..

### **Membrane Test Problem With Values for Cm in Cell Mode**

ST-313

Fixed the issue in the Clampfit software where the value for Cm in Cell Mode is reduced by half when a new protocol is loaded in Membrane Test.

### **No Event Frequency Values in Some Threshold Searches**

ST-314

Fixed the issue in the Clampfit software where in Event Detection > Threshold Search there are no values for Event Frequency in Event Statistics.

### **Clampex-Style Statistics Display Crash Clampfit Software**

ST-316

Fixed the issue in the Clampfit software where with an open data file, selecting Analyze > Statistics > Clampex-style statistics display causes the software to crash.

### **Membrane Test Values for Out 0 Display Wrong**

ST-318

Fixed the issue in the Clampex software where when telegraphing from a MultiClamp 700B amplifier with two headstages, the values for Out 0 at Cell stage are not displayed correctly when Out 1 is enabled in the Membrane Test window.

### **Filtering Traces Recorded in Gap-Free Mode Crashes Clampfit Software**

ST-320

Fixed the issue in the Clampfit software where running Filters in analyzing traces recorded in Gap-Free mode causes the software to crash.

### **Missing User Defined Option in Telegraphed Instrument Menu**

ST-321

Fixed the issue in the Clampfit software where the user defined options were missing from the Telegraphed Instrument menu.

### **Missing Slow Sampling Rate in Waveform**

ST-326

Fixed the issue in the Clampfit software where the slow sampling rate was not available for selection in the Waveform tab.

### **Opening Some Gap-Free Data Files Crashes Clampfit Software**

ST-327

Fixed the issue in the Clampfit software where opening certain Gap-Free data files causes the software to crash.

### **Whole Cell Selection De-Selects HumSilencer Adapt Check Box**

ST-330

Fixed the issue in the Clampex software where while using the MultiClamp 700B amplifier Commander software to switch the Whole Cell selection, the HumSilencer Adapt check box automatically de-selects.

### **Issue With Setting Cursor Decimal Value**

ST-335

Fixed the issue in the Clampfit software where the cursor value does not persist when using more than two decimal places.





## Chapter 4: pCLAMP Software Version 11.1 Release Notes



The version 11.1 update is a minor release. Included are a summary and details of the changes incorporated in this revision as compared to version 11.0.3, the last general release of the software.

The following topics are included in this chapter:

- [pCLAMP Software Version 11.1 Summary](#)
- [New in pCLAMP Software v11.1 on page 19](#)
- [Modifications Made in pCLAMP Software v11.1 on page 19](#)
- [Issues Addressed in pCLAMP Software v11.1 on page 19](#)

For computer requirements, software update instructions, and other related details, see [pCLAMP Software Suite General Information on page 39](#).

### pCLAMP Software Version 11.1 Summary

The version 11.1 update incorporates the following changes:

Tracking ID	Status	Functional Area	Description
ST-294	New	Clampfit Batch Analysis	Clampfit Software Batch Analysis Divide by Maximum or Minimum Value Column Normalization Function
ST-255	Modified	Clampex software	Clampex Software Edit Protocol Window is Resizable
ST-258	Modified	Clampex software	Added Clear Values in Clampex software Edit Protocol Waveform tab and in Gap-Free Mode
ST-265	Modified	Clampex software	Clampex Software Edit Protocol Waveform Epoch Cell is Wider
ST-298	Modified	Clampfit software	Clampfit Software Batch Analysis Menu Option Moved
ST-221	Fixed	Clampfit Batch Analysis	Exporting Results to Excel Creates Tabs With Random Numbers in Clampfit Batch Analysis
ST-248	Fixed	Clampfit software	Event Statistics for Some Data Shows Wrong Units in Clampfit Software
ST-259	Fixed	Clampfit software	Wrong Latency Measurement in Population Spike Search in Clampfit Software
ST-260	Fixed	Clampex software	Typing % in Comment tag Crashes Clampex Software
ST-271	Fixed	Clampfit software	ATF Files Generated Through Transfer Trace Fail to Open in Clampfit Software
ST-272	Fixed	Clampfit software	STA Files Fail to Open in Clampfit Software
ST-273	Fixed	Clampex software	Clampex Software Restarts When Parameters Change Through the MultiClamp 700B Microelectrode Amplifier

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Tracking ID	Status	Functional Area	Description
ST-274	Fixed	Clampfit Batch Analysis	Analysis Results Sheet Displays Random Names for Selected Files in Clampfit Batch Analysis
ST-275	Fixed	Clampfit Batch Analysis	Exported Data to Excel is not Displayed in Chronological Order in Clampfit Batch Analysis
ST-276	Fixed	Clampfit software	Action Potential Search With Some Noisy Data Crashes Clampfit software
ST-277	Fixed	Clampfit software	Some of the Event Statistics Data in Clampfit Software Fail to Display
ST-279	Fixed	Clampfit Batch Analysis	Exported Data to Dataset Results Sheet not Displayed in Chronological Order in Clampfit Batch Analysis
ST-281	Fixed	Clampex software	Incorrect Digital Output When Analog Output is Enabled in Clampex Software
ST-282	Fixed	Clampfit software	Column Arithmetic is Broken in Clampfit Software
ST-285	Fixed	Clampfit software	Double-clicking a data file does not open it in Clampfit Software
ST-286	Fixed	Clampfit software	Low Pass Gaussian 1000Hz Filter Sometimes Crashes Clampfit Software
ST-288	Fixed	Clampfit software Help	The Link for Action Potential Search in Clampfit Software Help is Broken
ST-289	Fixed	Clampfit software	Quick Graph Printing Problem in Clampfit Software
ST-290	Fixed	Clampfit software Help	Wrong Link for Action Potential Search Window Help Button in Clampfit Software
ST-291	Fixed	Clampfit software	Clampfit Software Graph Axes Titles are Distorted
ST-292	Fixed	Clampfit Batch Analysis	Clampfit Software Batch Analysis Normalized Column Plots Missing in Dataset Results
ST-293	Fixed	Clampfit Batch Analysis	Incorrect IV Graph Plotting in the Clampfit Batch Analysis Dataset Analysis
ST-297	Fixed	Clampfit software	Error Exporting Clampfit Software Indexed Data Files

## New in pCLAMP Software v11.1

The following new features are included in version 11.1.

### Clampfit Software Batch Analysis Divide by Maximum or Minimum Value Column Normalization Function

ST-294

In Clampfit Batch Analysis, added two new functions in the **Batch Analysis Arithmetic** menu to normalize values of a column by dividing those values by either the maximum value 'normax()' or the minimum value 'normin()' of the column.

## Modifications Made in pCLAMP Software v11.1

The following modifications were made in version 11.1.

### Clampex Software Edit Protocol Window is Resizable

ST-255

In Clampex software the Edit Protocol window is now resizable.

### Added Clear Values in Clampex software Edit Protocol Waveform tab and in Gap-Free Mode

ST-258

In Clampex software in the Edit Protocol > Waveform tab and in Gap-Free mode, you can **Clear Values** from a right-click menu.

### Clampex Software Edit Protocol Waveform Epoch Cell is Wider

ST-265

In Clampex software the Edit Protocol > Waveform Epoch cell is wider.

### Clampfit Software Batch Analysis Menu Option Moved

ST-298

The Clampfit Batch Analysis menu option moved out of the **Analyze** menu to a top-level menu position.

## Issues Addressed in pCLAMP Software v11.1

The following issues were addressed in version 11.1. Unless otherwise noted, the fixes have no impact on current workflow or data.

### Exporting Results to Excel Creates Tabs With Random Numbers in Clampfit Batch Analysis

ST-221

In Clampfit Batch Analysis when the results are exported to Excel, tabs generate with random numbers in a spreadsheet .

#### **Resolution:**

Fixed.

### Wrong Latency Measurement in Population Spike Search in Clampfit Software

ST-259

In Clampfit software in some data files, the Population Spike Search latency measurement calculation is wrong.

**Resolution:**

In the Population Spike Search dialog, a new option called **Stimulus rise time** is now available for you to manually adjust the settings.

### Event Statistics for Some Data Shows Wrong Units in Clampfit Software

ST-248

In Clampfit software, when the data file contains pA units, the Event Statistics window displays mV.

**Resolution:**

Fixed.

### Typing % in Comment tag Crashes Clampex Software

ST-260

In Clampex software, during data acquisition, typing % in the Comments tag crashes the software.

**Resolution:**

Fixed.

### ATF Files Generated Through Transfer Trace Fail to Open in Clampfit Software

ST-271

ATF transfer traces files do not open in Clampfit software.

**Resolution:**

Fixed.

### STA Files Fail to Open in Clampfit Software

ST-272

When you save online statistics data in Clampex software, you cannot open it again in Clampfit software.

**Resolution:**

Fixed.

### Clampex Software Restarts When Parameters Change Through the MultiClamp 700B Microelectrode Amplifier

ST-273

During an acquisition in the Clampex software, if whole cell capacitance or resistance changes through MultiClamp™ 700B Microelectrode Amplifier, the acquisition stops and restarts.

**Resolution:**

Fixed.

### Analysis Results Sheet Displays Random Names for Selected Files in Clampfit Batch Analysis

ST-274

In Clampfit Batch Analysis, after a data analysis, the Analysis Results sheet displays random file names for the selected data files.

**Resolution:**

Fixed.

### Exported Data to Excel is not Displayed in Chronological Order in Clampfit Batch Analysis

ST-275

In Clampfit Batch Analysis, after analyzing data and exporting it to Excel, the exported dataset is not in a chronological order.

**Resolution:**

Fixed.

### Action Potential Search With Some Noisy Data Crashes Clampfit software

ST-276

Running Action Potential search with some noisy data files crashed Clampfit software.

**Resolution:**

Fixed.

### Some of the Event Statistics Data in Clampfit Software Fail to Display

ST-277

In Clampfit software, after an Event Detection search, some of the values fail to display.

**Resolution:**

Fixed.

### Exported Data to Dataset Results Sheet not Displayed in Chronological Order in Clampfit Batch Analysis

ST-279

In Clampfit software Batch Analysis, after analyzing data and exporting it to Dataset, the dataset is not in a chronological order.

**Resolution:**

Fixed.

### Incorrect Digital Output When Analog Output is Enabled in Clampex Software

ST-281

In Clampex software, enabling digital output in combination with multiple analog outputs, causes the digital output signal to malfunction.

**Resolution:**

Fixed.

### Column Arithmetic is Broken in Clampfit Software

ST-282

In Clampfit software, Column Arithmetic expressions cause an error message that the list of columns on the variable 'CB' is not properly formatted.

**Resolution:**

Fixed.

### Double-clicking a data file does not open it in Clampfit Software

ST-285

Double-clicking a data file does not open it in Clampfit software.

**Resolution:**

Fixed.

### Low Pass Gaussian 1000Hz Filter Sometimes Crashes Clampfit Software

ST-286

In Clampfit software, the software crashes using the Low Pass Gaussian 1000Hz filter with certain data files.

**Resolution:**

Fixed.

### The Link for Action Potential Search in Clampfit Software Help is Broken

ST-288

In the Clampfit software Help file, the link for Action Potential Search in the Event Detection Menu topic is broken.

**Resolution:**

Fixed.

### Quick Graph Printing Problem in Clampfit Software

ST-289

In Clampfit software, printing a Quick Graph page has an unwanted gridded background.

**Resolution:**

Fixed.

### Wrong Link for Action Potential Search Window Help Button in Clampfit Software

ST-290

In Clampfit software, the Action Potential Search Window Help button links to the wrong page.

**Resolution:**

Fixed.

### Clampfit Software Graph Axes Titles are Distorted

ST-291

In Clampfit software, the titles for the x and y axes are distorted.

**Resolution:**

Fixed.

### Clampfit Software Batch Analysis Normalized Column Plots Missing in Dataset Results

ST-292

In Clampfit software Batch Analysis, the option to plot normalize columns exists in the Analysis Results tab, but is missing in the Dataset Results tab.

**Resolution:**

Fixed.

### Incorrect IV Graph Plotting in the Clampfit Batch Analysis Dataset Analysis

ST-293

In Clampfit software Batch Analysis, the IV graph plotting of multiple trials adds incorrect lines in the graphs.

**Resolution:**

Fixed.

### Error Exporting Clampfit Software Indexed Data Files

ST-297

In Clampfit software, exporting indexed data files causes an error.

**Resolution:**

Fixed.





# Chapter 5: pCLAMP Software Version 11.0.3 Release Notes



The version 11.0.3 update is a minor release. Included are a summary and details of the changes incorporated in this revision as compared to version 11.0.2, the last general release of the software.

The following topics are included in this chapter:

- [pCLAMP Software Version 11.0.3 Summary](#)
- [Modifications Made in pCLAMP Software v11.0.3](#)

For computer requirements, software update instructions, and other related details, see [pCLAMP Software Suite General Information on page 39](#).

## pCLAMP Software Version 11.0.3 Summary

The version 11.0.3 update incorporates the following changes:

Tracking ID	Status	Functional Area	Description
ST-253	Modified	Clampfit software	Removed Software License Protection Key Requirement for Clampfit Software Standard Version

## Modifications Made in pCLAMP Software v11.0.3

The following modifications were made in version 11.0.3.

### **Removed Software License Protection Key Requirement for Clampfit Software Standard Version**

ST-253

The Standard version of Clampfit software runs without the installation of a USB dongle.



## Chapter 6: pCLAMP Software Version 11.0.2 Release Notes



The version 11.0.2 update is a minor release. Included are a summary and details of the changes incorporated in this revision as compared to version 11.0.1, the last general release of the software.

The following topics are included in this chapter:

- [pCLAMP Software Version 11.0.2 Summary](#)
- [Modifications Made in pCLAMP Software v11.0.2 on page 28](#)
- [Issues Addressed in pCLAMP Software v11.0.2 on page 28](#)

For computer requirements, software update instructions, and other related details, see [pCLAMP Software Suite General Information on page 39](#).

### pCLAMP Software Version 11.0.2 Summary

The version 11.0.2 update incorporates the following changes:

Tracking ID	Status	Functional Area	Description
ST-233	Modified	Clampfit software	Measurement of Cumulative Mean Frequency Per Sweep in Action Potential Search
ST-234	Modified	Clampfit software	Measurements of Maximum Rise and Maximum Decay Slope in Action Potential Search
ST-235	Modified	Clampfit software	Measurements of Maximum Rise and Maximum Decay Slope in Population Spike Search
ST-251	Modified	Clampfit software	Measurements of Number of Action Potentials Per Sweep in Action Potential Search
ST-226	Fixed	Clampex software	Disabling Membrane Test Channel OUT0 Causes Clampex Software to Crash
ST-227	Fixed	Clampfit software	Importing a .CSV File or a Text File in Clampfit Software Causes a Crash
ST-228	Fixed	Clampfit software	Error When Opening a Stimulus File in Episodic Stimulation
ST-229	Fixed	Clampex software	Deselecting a User List Check Box Causes Clampex Software to Crash
ST-230	Fixed	Digitizer	Inconsistent Digitizer START Input Trigger Behavior
ST-240	Fixed	Clampex software	The Scope Window Fails to Open When Clampex Software is Started
ST-245	Fixed	Clampex software	Incorrect Labels for Baseline Cursors in Clampex Software

## Modifications Made in pCLAMP Software v11.0.2

The following modifications were made in version 11.0.2.

### Measurement of Cumulative Mean Frequency Per Sweep in Action Potential Search

ST-233

In Clampfit software Action Potential Search, a new option is added to measure the cumulative mean frequency of traces per sweep.

### Measurements of Maximum Rise and Maximum Decay Slope in Action Potential Search

ST-234

In Clampfit software Action Potential Search, a new option is added to measure maximum rise and decay slopes.

### Measurements of Maximum Rise and Maximum Decay Slope in Population Spike Search

ST-235

In Clampfit software Population Spike Search, a new option is added to measure maximum rise and decay slopes.

### Measurements of Number of Action Potentials Per Sweep in Action Potential Search

ST-251

In Clampfit software Action Potential Search, a new option is added to measure the number of action potentials per sweep.

## Issues Addressed in pCLAMP Software v11.0.2

The following issues were addressed in version 11.0.2. Unless otherwise noted, the fixes have no impact on current workflow or data.

### Disabling Membrane Test Channel OUT0 Causes Clampex Software to Crash

ST-226

In Clampex software, if you disable the membrane test channel OUT0 without enabling other OUT channels, the software crashes.

**Resolution:**

Fixed.

### Importing a .CSV File or a Text File in Clampfit Software Causes a Crash

ST-227

In Clampfit software, if you select to import a .csv file or text file, the software crashes.

**Resolution:**

Fixed.

### Error When Opening a Stimulus File in Episodic Stimulation

ST-228

In Clampex software Episodic Stimulation, when you select a stimulus file for analog waveform, the software displays an error.

**Resolution:**

Fixed.

### Deselecting a User List Check Box Causes Clampex Software to Crash

ST-229

In Clampex software, in Protocol Editor >Stimulus, when the User List check box is selected and then deselected, the software crashes.

**Resolution:**

Fixed.

### Inconsistent Digitizer START Input Trigger Behavior

ST-230

When the protocol is set to use a digitizer START input trigger, if the source digitizer was previously run, the recording is triggered immediately.

**Resolution:**

Fixed.

### The Scope Window Fails to Open When Clampex Software is Started

ST-240

If the software is upgraded from an older version, the Scope window may not open when Clampex software starts.

**Resolution:**

Fixed.

### Incorrect Labels for Baseline Cursors in Clampex Software

ST-245

In Protocol Editor > Statistics, when Shape Statistics is enabled, instead of a pair of cursors B, a pair of cursors 17 appear.

**Resolution:**

Fixed.



# Chapter 7: pCLAMP Software Version 11.0.1 Release Notes



The version 11.0.1 update is a minor release. Included are a summary and details of the changes incorporated in this revision as compared to version 11.0, the last general release of the software.

The following topics are included in this chapter:

- [pCLAMP Software Version 11.0.1 Summary](#)
- [Modifications Made in pCLAMP Software v11.0.1 on page 32](#)
- [Issues Addressed in pCLAMP Software v11.0.1 on page 32](#)

For computer requirements, software update instructions, and other related details, see [pCLAMP Software Suite General Information on page 39](#).

## pCLAMP Software Version 11.0.1 Summary

The version 11.0.1 update incorporates the following changes:

Tracking ID	Status	Functional Area	Description
<a href="#">ST-188</a>	Modified	Clampfit software	Auto-fit Columns in Analysis Results and Dataset Results
<a href="#">ST-185</a>	Fixed	Clampfit software	Save Search Protocol Fails Unless the Analysis Window is in Focus
<a href="#">ST-195</a>	Fixed	Clampfit software	Saving the Search Protocols for Action Potential and Pop Spike Analysis Fails
<a href="#">ST-197</a>	Fixed	Clampex software	Voice Tag Broken
<a href="#">ST-198</a>	Fixed	Clampfit software	Setting Noise Rejection on a Noisy Signal Intermittently Causes Clampfit Software to Crash
<a href="#">ST-199</a>	Fixed	Clampfit software	Intermittent Crash with Column Curve Fit in Batch Analysis
<a href="#">ST-202</a>	Fixed	Clampfit software	Noise Rejection Only Uses the Top Measurement Unit for the Signal
<a href="#">ST-205</a>	Fixed	Clampex software	Changing Recording Threshold for Voice tag Causes Crash
<a href="#">ST-213</a>	Fixed	Clampex software	When Gain Value is Changed, Membrane Test Switches to Bath
<a href="#">ST-214</a>	Fixed	Clampex software	Random Crashes in Membrane Test
<a href="#">ST-217</a>	Fixed	Clampex software	Frequency Setting in Membrane Test Is Incorrect
<a href="#">ST-218</a>	Fixed	Clampex software	Moving the Trigger-Line Causes Crash

## Modifications Made in pCLAMP Software v11.0.1

The following modifications were made in version 11.0.1.

### Auto-fit Columns in Analysis Results and Dataset Results

ST-188

In Clampfit software Batch Analysis, the column width for Analysis Results and Dataset Results automatically adjusts according to the length of the output values.

## Issues Addressed in pCLAMP Software v11.0.1

The following issues were addressed in version 11.0.1 .Unless otherwise noted, the fixes have no impact on current workflow or data.

### Save Search Protocol Fails Unless the Analysis Window is in Focus

ST-185

In Clampfit software, if the Analysis window is not in focus, saving the search protocol fails.

**Resolution:**

Fixed.

### Saving the Search Protocols for Action Potential and Pop Spike Analysis Fails

ST-195

In Clampfit software, in Action Potential and Pop Spike Analysis, saving the search protocol fails.

**Resolution:**

Fixed.

### Voice Tag Broken

ST-197

In Clampex software, trying to add a voice tag displays an error.

**Resolution:**

Fixed.

### Setting Noise Rejection on a Noisy Signal Intermittently Causes Clampfit Software to Crash

ST-198

In Clampfit software, in Event Detection, when the signal is noisy and noise rejection is selected, the software sometimes crashes.

**Resolution:**

Fixed.

### Intermittent Crash with Column Curve Fit in Batch Analysis

ST-199

In Clampfit software Batch Analysis, running Column Curve Fit, intermittently crashes.

**Resolution:**

Fixed.



### Noise Rejection Only Uses the Top Measurement Unit for the Signal

ST-202

In Clampfit software, files containing data from multiple IN channels, when the noise rejection is selected, the measurement unit is always from the first signal, regardless which signal is selected or in focus.

**Resolution:**

Fixed.

### Changing Recording Threshold for Voice tag Causes Crash

ST-205

In Clampex software, on Windows 7, changing the voice recording threshold causes a crash.

**Resolution:**

Fixed.

### When Gain Value is Changed, Membrane Test Switches to Bath

ST-213

While Clampex software is telegraphed through Axopatch 200B Capacitor Feedback Patch Clamp Amplifier, and Membrane test is set to Cell or Patch stage, when the gain is changed, the stage changes to Bath.

**Resolution:**

Fixed.

### Random Crashes in Membrane Test

ST-214

In Clampex software, running Membrane Test on Windows 10 intermittently crashes.

**Resolution:**

Fixed.

### Frequency Setting in Membrane Test Is Incorrect

ST-217

In Clampex software, in Membrane Test, when the frequency is changed to a different value, the same value is applied to all stages (Cell, Bath, and Patch), but the software shows different values for each stage.

**Resolution:**

Fixed.

### Moving the Trigger-Line Causes Crash

ST-218

In Clampex software, on Windows 10, in Fixed-Length, Variable Length, or High-speed Oscilloscope Acquisition mode, moving the trigger line causes a crash.

**Resolution:**

Fixed.



# Chapter 8: pCLAMP Software Version 11.0 Release Notes



The version 11.0 update is a major release. Included are a summary and details of the changes incorporated in this revision as compared to version 10.7, the last general release of the software.

The following topics are included in this chapter:

- [pCLAMP Software Version 11.0 Summary](#)
- [New in pCLAMP Software v11.0 on page 36](#)
- [Modifications Made in pCLAMP Software v11.0 on page 36](#)
- [Known Issues in pCLAMP Software v11.0 on page 38](#)

For computer requirements, software update instructions, and other related details, see [pCLAMP Software Suite General Information on page 39](#).

## pCLAMP Software Version 11.0 Summary

The version 11.0 update incorporates the following changes:

Tracking ID	Status	Functional Area	Description
ST-2	New	Clampfit software	Automated Event Detection
ST-3	New	Clampfit software	Action Potential Analysis
ST-4	New	Clampfit software	Population Spike Analysis
ST-68	New	Clampfit software	Batch Analysis
ST-1	Modified	Clampex software	More Epoch Columns in Protocol Editor
ST-10	Modified	Clampex software	Pre-Program Gap-Free Mode Output
ST-11	Modified	Clampfit software	More Analysis Cursor Pairs
ST-13	Modified	Clampex software	Membrane Test on Multiple Channels Displays in One Window
ST-219	Modified	Clampfit software	Clampfit Software Requires License Key Dongle
	Modified	pCLAMP software	No MiniDigi 2-Channel Digitizer Model 1A Support
ST-188	Known	Clampfit software	In Clampfit Batch Analysis, In Analysis Results, Column Width Can Hide Values

## New in pCLAMP Software v11.0

The following new features are included in version 11.0.

### Automated Event Detection

ST-2

In Clampfit software is able to identify events based on a user defined and learned template event, and identify similar events in the data file.

### Action Potential Analysis

ST-3

In Clampfit software in **Event Detection**, the **Action Potential Search** option searches for measurements and enables you to adjust baselines and select measurements such as amplitude, action potential, action potential duration, peak to peak frequency and time, and threshold potential.

### Population Spike Analysis

ST-4

In Clampfit software in **Event Detection**, the **Population Spike Search** option can automatically determine the baseline, Z height, and the area under curve analysis. Adjust parameters manually as needed.

### Batch Analysis

ST-68

In Clampfit software, use **Batch Analysis** functionality when you acquire multiple trials using the same protocol in Clampex software and want to calculate measurements and generate a graph using the collective dataset.

## Modifications Made in pCLAMP Software v11.0

The following modifications were made in version 11.0.

### No MiniDigi 2-Channel Digitizer Model 1A Support

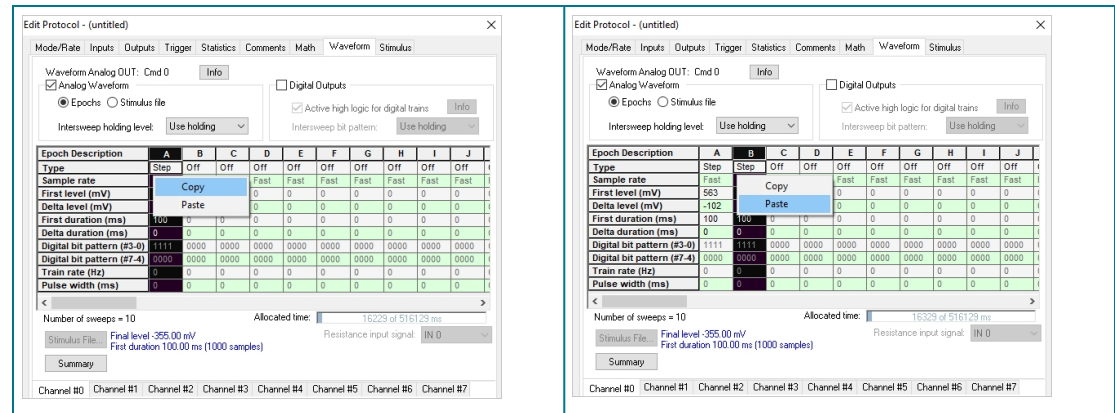
pCLAMP software version 11.0 does not support the MiniDigi Model 1A Digitizer. Contact Molecular Devices Technical Support for a replacement.

## More Epoch Columns in Protocol Editor

### ST-1

In Clampex software, in the Protocol Editor, in Episodic Stimulation mode, in the Waveform tab, the number of voltage segments increases from 10 epochs to 50 epochs. The sweep duration and acquired samples are increased in the Clampex software version 11.0. For example, the sweep duration can be set to 516.129 seconds at 10 kHz sampling rate.

The Epoch Description table in the Waveform tab now includes copy and paste functionality.



## Pre-Program Gap-Free Mode Output

### ST-10

In Clampex software, when you use **Gap-free** mode in the **Real Time Controls** panel, open the pre-programming dialog by clicking the > button. You can pre-program voltage level and holding duration values for each channel, as well as turning the digital bit on or off. You can pre-program up to 50 epochs. You can also manually change values during a recording.

## More Analysis Cursor Pairs

### ST-11

In Clampfit software, up to 25 Cursor Pairs can be used in the Analysis window.

## Membrane Test on Multiple Channels Displays in One Window

### ST-13

In Clampex software, a membrane test with multiple channels displays data for all channels in one window simultaneously. Independent voltage output at different stage configurations enable in each recorded cell.

## Clampfit Software Requires License Key Dongle

### ST-219

The Clampfit software license now requires a USB dongle to run. Clampfit software is disabled if the USB dongle is not installed.

## Known Issues in pCLAMP Software v11.0

The following are known issues in version 11.0.

### In Clampfit Batch Analysis, In Analysis Results, Column Width Can Hide Values

ST-188

In Batch Analysis, in Analysis Results, the column width might be too narrow and measurement values might not show entirely.

**Workaround:**

Manually adjust the column width to view the whole measurement value.

## Chapter 9: pCLAMP Software Suite General Information

# 9

The pCLAMP software suite controls the Digidata® Low-Noise Data Acquisition System instruments. pCLAMP software suite version 11.2 is the latest version of the standard for electrophysiological experimentation and analysis software. The flexibility that pCLAMP software suite offers allows researchers to adapt it to many uses outside its traditional applications in electrophysiology.

The pCLAMP software suite version 11.2 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, see page 40](#)
- [Digitizer Requirements on page 40](#)
- [Installing the Software on page 41](#)
- [Configuring MDC File Server on page 42](#)
- [Resetting Software Defaults on page 44](#)
- [Obtaining Support on page 44](#)

## Computer System Requirements

The pCLAMP software requires the following computer specifications:

**Table 9-1: Computer System Requirements**



Item	Description
Operating system	Windows 10, 64-bit Windows 7, 32-bit and 64-bit
Memory	4 GB RAM or more
Display	1920 x 1080 display or higher
USB ports	3 USB 2.0 ports

## Software License Protection Keys

A software protection “key” device, commonly known as a “dongle”, enables your software for use. The provided key is a small USB device that plugs into your computer USB port. The type of USB key you are provided corresponds to the purchased software license. The available software license packages that require USB keys, include:

- pCLAMP Standard—includes Clampex software (1 dongle)
- pCLAMP Advanced—includes Clampex software and Advanced Clampfit software (2 dongles)
- Clampfit Advanced Only—includes Advanced Clampfit software (1 dongle)

**Table 9-2: Identifying USB License Key Dongles**

Software	Dongle Color	Part Number	
Clampex software	Black	5060221	
Advanced Clampfit software	White	5060223	

If the key is not installed, Clampex software runs in Demo mode only, restricting you to simulated data, if the key is not installed.

## Digitizer Requirements

pCLAMP software version 11.2 supports theDigidata® 1440A Low-Noise Data Acquisition System and newer digitizers.



## Installing the Software

Before starting the pCLAMP software installer, exit all other Windows programs, especially anti-virus software.

### Windows 7/10

Clampex software version 11.2 runs on Windows 7 and Windows 10 (32- and 64-bit), for the Pro, Enterprise and Ultimate editions. 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.

### First Time Installation

All digitizers must be disconnected from your computer during the software installation.

To install the pCLAMP software suite for the first time:

1. Run the **Setup pCLAMP** program and follow the on-screen instructions.
2. In the **Destination Folder** 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 software files to the computer.
3. For Clampex software to run properly, you might need to restart the computer.

### Updating the Software

All digitizers must be disconnected from your computer during the software installation.

To install the pCLAMP software suite update:

1. Uninstall your older version of Clampex software or AxoScope software using **Start > Control Panel > Programs > Uninstall a program**.
2. Install pCLAMP software version 11.2, and then connect the digitizer.
3. Go to the **Start** menu and in the **Search** field type **DEVICE MANAGER**.
4. In the **Device Manager** dialog, in the **Molecular Devices** folder, double-click your digitizer model number.
5. In the digitizer **Properties** dialog, from the **Driver** tab, click **Update Driver**.
6. When prompted, select **Search automatically for updated driver software**.
7. 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 the Software

This procedure works similarly for previously installed AxoScope software and pCLAMP software. The file locations are similar, but the 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 10.7**.
3. Select the version-appropriate Uninstall file, such as **Uninstall pCLAMP 10.7 Software**.
4. Follow the procedures on-screen to finish uninstalling the software.

## File Locations

File locations depend on the software version.

- **pCLAMP software version 11.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**

## Configuring MDC File Server



**Note:** The following procedure is for Advanced Analysis Clampfit software only, which includes the Batch Analysis functionality. To run Advanced Analysis Clampfit software, you must have the Advanced Analysis Clampfit software USB dongle installed on your computer.


The MDC File Server runs on Windows 7 and 10 computer operating systems. The computer it runs on requires enough hard drive space to store your data files. The storage location can be changed if it becomes full, and the database keeps track of data files in multiple storage locations. If you set a new storage location, keep the existing data storage location.

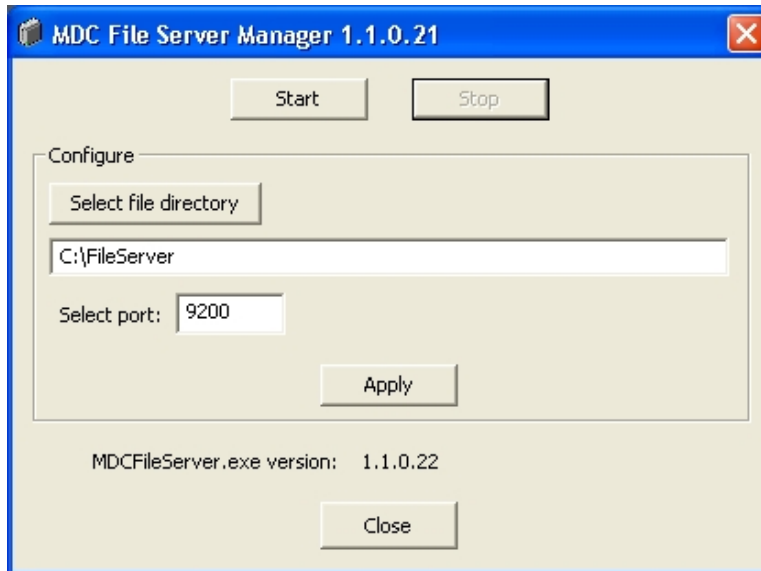
Before starting Clampfit software to run Batch Analysis the first time, you must first configure MDC File Server. MDC File Server is required for managing imported data. It runs quietly in the background while you use Batch Analysis. MDC File Server must be running for Clampfit software Batch Analysis to run.

To configure MDC File Server:


1. After you install the pCLAMP software, open the **MDC File Server Manager** from **Start > All Programs > Molecular Devices > MDC File Server > MDC File Server**, right-click and select **Run as administrator**.

- In the **MDC File Server Manager** dialog, click **Select file directory** to open a **Browse** dialog to select the folder where you want to store data files.

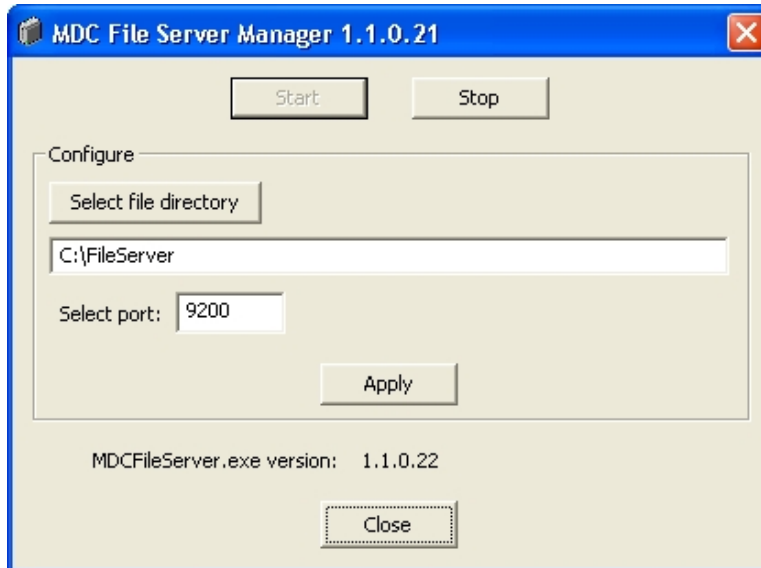
 **CAUTION!** If you select a computer other than the local one, you must have access permissions to the folder location at all times.



- Click **Create new folder**, type the name **FILESERVER**, and click **OK**.

 **Tip:** You can name the new folder something other than **FILESERVER** if needed.

- In the **Select port** field, type **9200**, and click **Apply**.
- Click the **Start** button and wait for the **Start** button to disable.
- When the **Start** button is inactive, click **Close**.



## Resetting Software Defaults

The **Start > All Programs > Molecular Devices > pCLAMP 11** 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:** Settings for other programs might display in the list of registry items, select the settings relevant to your situation.

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## Obtaining Support

Molecular Devices is a leading worldwide manufacturer and distributor of analytical instrumentation, software, and reagents. We are committed to the quality of our products and to fully supporting our customers with the highest level of technical service.

Our Support website—[www.moleculardevices.com/service-support](http://www.moleculardevices.com/service-support)—describes the support options offered by Molecular Devices, including service plans and professional services. It also has a link to the Molecular Devices Knowledge Base, which contains documentation, technical notes, software upgrades, safety data sheets, and other resources. If you still need assistance, you can submit a request to Molecular Devices Technical Support.

Please have your instrument serial number or Work Order number, and your software version number available when you call.



**WARNING! BIOHAZARD.** It is your responsibility to decontaminate components of the instrument before you return parts to Molecular Devices for repair. Molecular Devices does not accept items that have not been decontaminated where it is applicable to do so. If parts are returned, they must be enclosed in a sealed plastic bag stating that the contents are safe to handle and are not contaminated.

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## Contact Us

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