CED eNews
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Happy holidays from all at CED!

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News

The latest update for Spike2 is **5.13**, which is available from the CED downloads page for registered v5 users. This revision includes new commands to fit sinusoids and sigmoids to data.

A full list of new features is available from the updates section of the website.

A demonstration version of the current software is also available here.

Version **4.23** of Spike2 is downloadable for registered v4 users.

Version **3.05** of Signal is now available for registered v3 users. Trend plots now have a common x selector so multiple channels can all have the same x values.

A demonstration version of Signal version 3 is available here.

Version **2.15** of Signal is downloadable for registered v2 users.

Spike2

Q. I have a number of RealMark channels that hold the results of various measurements from my raw data and would like to know if there is any way to convert these to waveforms for further analysis such as power spectra or correlation. I know that there are functions to create waveforms from event channels but can you also do this with RealMark data?

A. Virtual channels can be used to generate waveforms derived from existing data channels by a user-supplied expression. These can range from simple channel arithmetic using Waveform and RealWave data, to applying arithmetic functions (for example, square and square root). Virtual channels can also generate waveforms based on event times and RealMark data times. These are a special type of marker that can also hold a data value, and are most commonly used to hold results from the Measure to channel command in Spike2.

Expressions can be composed of a combination of functions, numbers, channel data and arithmetic operators. Functions are available to access waveform channel data for arithmetic operations, or event data to convert to waveform. The special function $Rm(n,w,i)$ is used to display a waveform calculated by linear interpolation of the RealMark data values where n denotes the channel number, w is the maximum gap, in seconds, to interpolate over and i is the data item to interpolate (the first item is 0). You can omit w and i, in which case they are treated

as 0, and use the Sample interval field in the Virtual channel dialog to set the sample rate of the generated waveform channel.
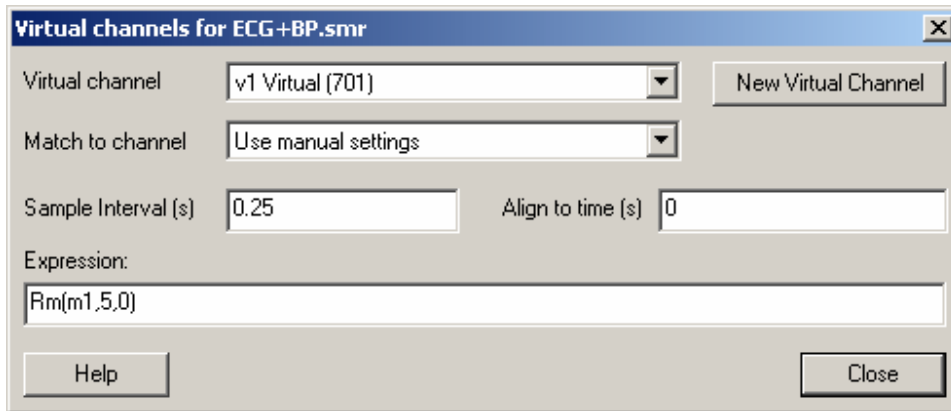

The settings in the dialog above create waveform channel v1, with a sample interval of 0.25 (4Hz sampling rate) from the RealMark measurement data in channel m1 (below). The waveform is drawn using cubic spline draw mode to give a smoother appearance and distinguish it from the RealMark data for our display purposes. This channel can now be analysed using any of the waveform analysis functions available in Spike2, or via a script.
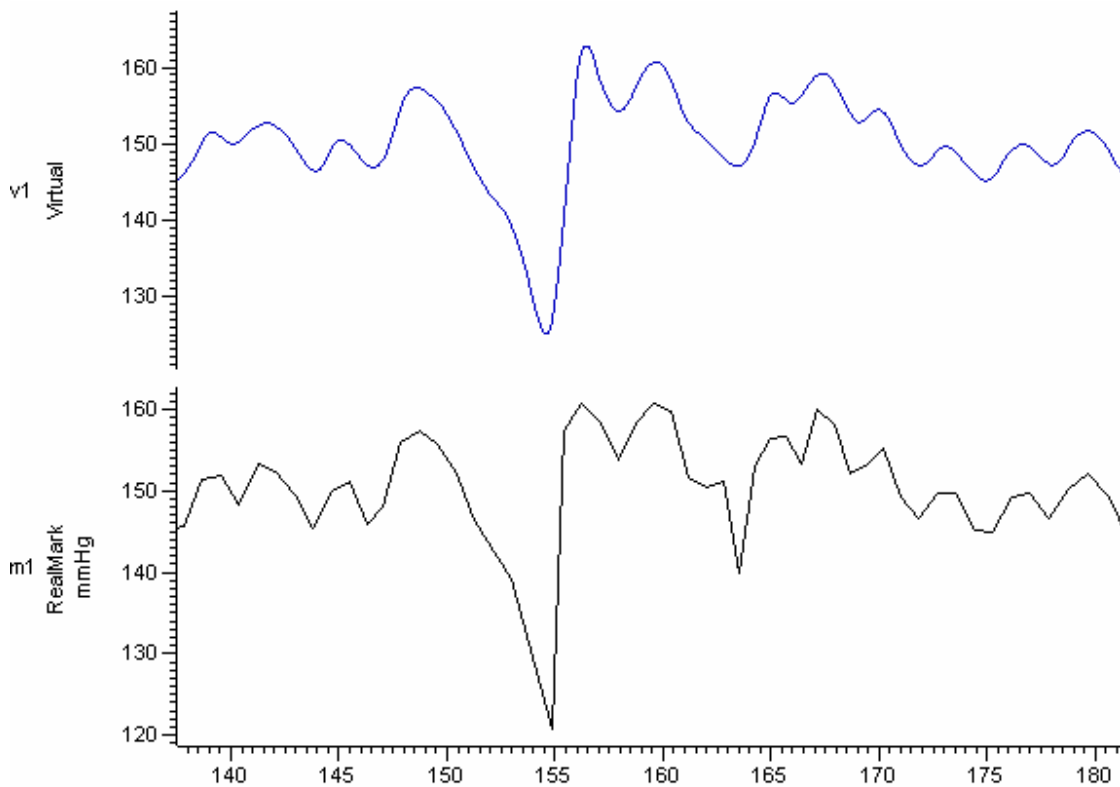
*Virtual waveform channel created by interpolating RealMark data values*

Signal

Q.   I am using Signal for patch clamp experiments and was wondering if there was a script available to allow easy adjustment of holding potential during an experiment? I know that you can edit the DAC values from the pulse dialog on-line but this would be much easier with a dedicated dialog control.

A.   Signal is currently being expanded to include new controls that are specific to whole cell voltage and single channel patch clamp work. This includes the ability to setup particular recording states for seal and membrane resistance measurements, with easy adjustment of holding potentials and display of seal resistance included in a single clamp control dialog
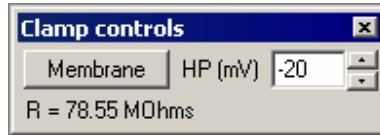
Clamp controls with adjustable holding potential

Membrane analysis options are available to give total resistance, membrane conductance and capacitance measurements during recording. Signal already includes functions for leak subtraction, trend plots, curve fitting and single channel analysis that can be utilised on-line and off-line.
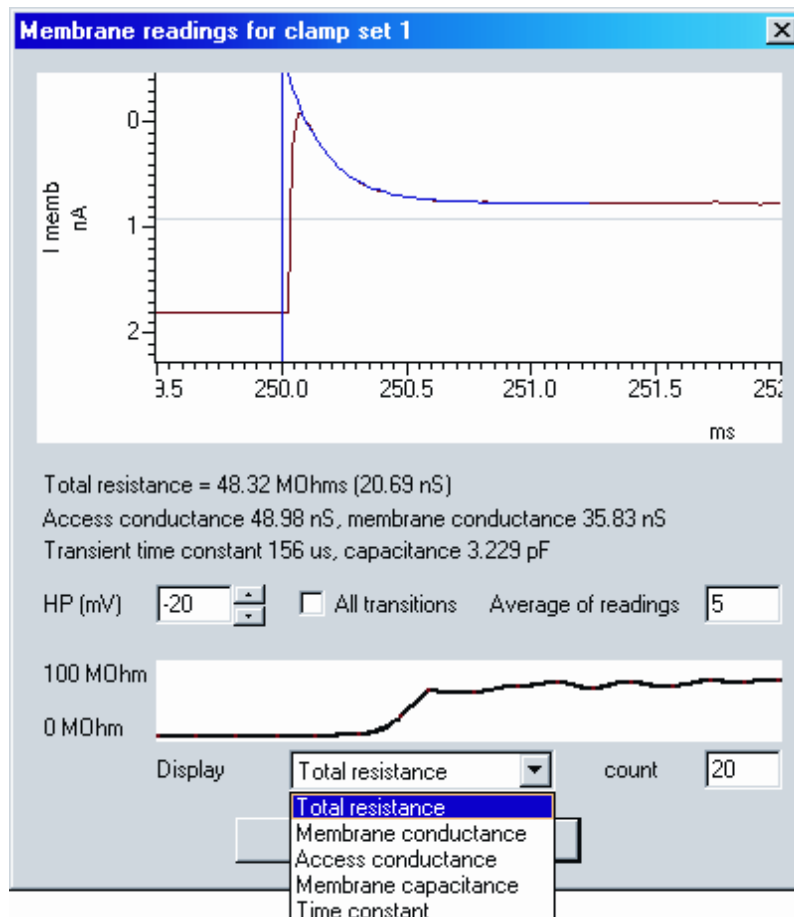
Membrane analysis during sampling

Please feel free to contact us if you would like further information on using Signal for patch clamp electrophysiology, or have any suggestions regarding new features.

Scripts: Spike2

Q.   Is there any way to control the display of multimedia files using an X-axis time or cursor position?

A.   The attached script, `VideoShow.s2s`, allows you to display the current frame in a Spike2 multimedia video file in relation to a cursor position in the data file. Simply drag the cursor to show the associated frame for that section of data. By default the displayed multimedia frame is relative to the right-hand edge of the data view.

Scripts: Signal

Q.   I would like to be able to display messages as a cue to the subject in an experiment but rather than use the standard `Message()` function in a script, where you must select OK to proceed, I would like to display certain messages for 2 seconds as a cue before automatically proceeding. Is there any way to generate such an 'automated cue' message?

A.   The attached script `NewsFlash.sgs` is an example script that will display a message for five seconds before continuing. The time to display the given message can be set by changing the value of the variable `dispTim` in the script.

Did you know…?

When using the Overdraw WM drawing mode to superimpose all the spike shapes in a time view, you can find any individual spike by right clicking on it and selecting the Find with Cursor 0 function in the pop-up menu.

Recent questions

Q.   Can Spike2 be used with a multiple monitor display? During on-line spike sorting I would like to be able to display the raw data file on one monitor, with the Spike monitor window, cluster and templating dialog on a separate screen.

A.   The latest versions of Spike2 and Signal include support for multiple monitor displays. The application window can be positioned over the entire desktop area, or relative to a specific monitor depending on your display setup. In addition, the spike monitor window, spike template and cluster dialogs can be positioned outside of the Spike2 application window, giving a separate display on a second monitor.

Additional control over the application and file windows in a multiple monitor display can be achieved with the script language and full descriptions of the associated functions can be found in the on-line help.

The set-up of multiple monitors in Windows is configured from the Display section of the Control Panel, and requires a suitable graphics card.

User Group

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