CED eNews
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Contents

News

O.K. the first newsletter. ANY comments about format or whether on some emailers the images are not visible would be very helpful. I'm feeling my way with this!

I would like to also put in a 'did you know' section to mention things like the Burst analysis script W_Burst for Spike2 that is shipped with Spike2 and can be found in the Spike2\scripts folder. For Signal (and actually for Spike2 too) ToolMake which builds a skeleton script for you. A good aid to getting started. These can also be found in the scripts folders.

Version 5 of Spike2 is now released. A demonstration version of the software is available from http://www.ced.co.uk/pru.shtml

Version 4.15 of Spike2 is freely downloadable for registered v4 users.
Version 2.13 of Signal is also freely downloadable for registered v2 users.

Version 5
One of the main sections that Greg and his team have been working on in this new release is the clustering of spike data. This allows you to 'cluster cut' using ellipses and write back the information to form templates to be used on or off-line. They have also been working on spreadsheet format output. This resamples the data to allow channels possibly at different original sample rates to be placed in columns for import directly into spreadsheets.

User group. See end of newsletter.

UK training days in Cambridge on Monday June 16th and Tuesday 17th. There will also be the usual USN training days later in the year.

SPIKE2

Q. Rate displays always start at zero. How can I change that?

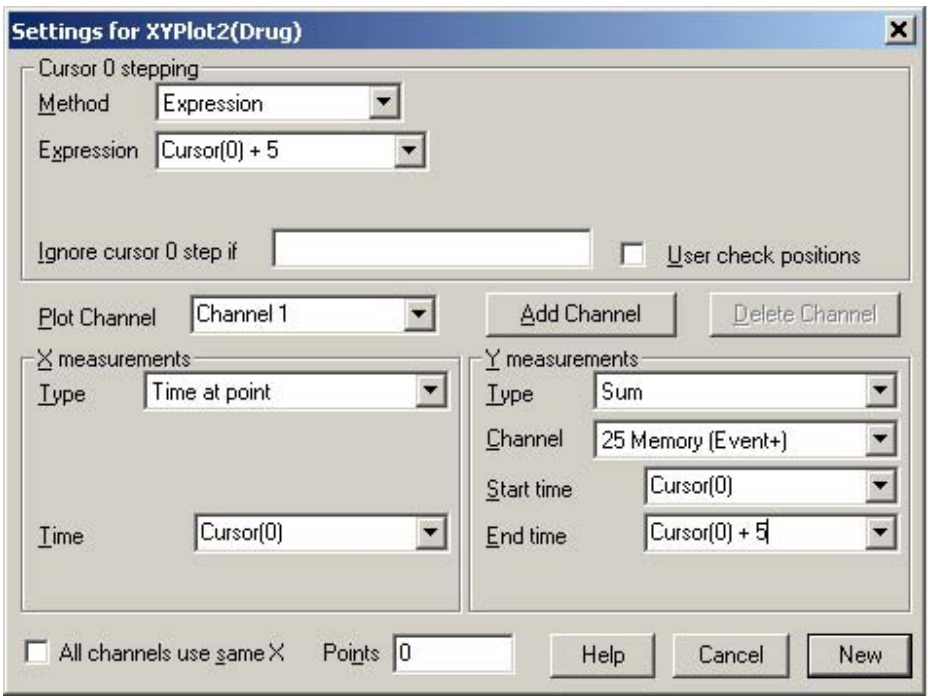
A. There is already a rate display option in Spike2 (view - channel draw mode). This may not be quite what we need though as the first bin of the rate always starts at zero time. By using the active cursor (0) and the XY view from the cursor pull down we can get a plot of time against sum

of the events in a given range and also to start the plot at virtually any time in the file.

Use Analysis - measurements -XY view to plot on the X 'Time at point' where the time is = cursor(0) on the Y 'Sum' where the start is cursor(0) and the end is Cursor(0)+5 indicating a 5 second time window. When you press New this will produce an empty window and a process dialog where you can specify the start and end times to be calculated. The result is a channel of rate data that can now be copied as text.

This method could also be used to down sample a channel if Y 'sum' was replaced with 'value at point' If we were only interested in a view of the rate then we could also use Analysis - Channel process and add Time shift in a positive or negative direction. Handy for aligning bursts of activity with stimulus ramps.

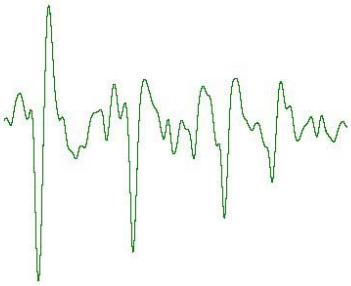
This is a v4 or v5 function.



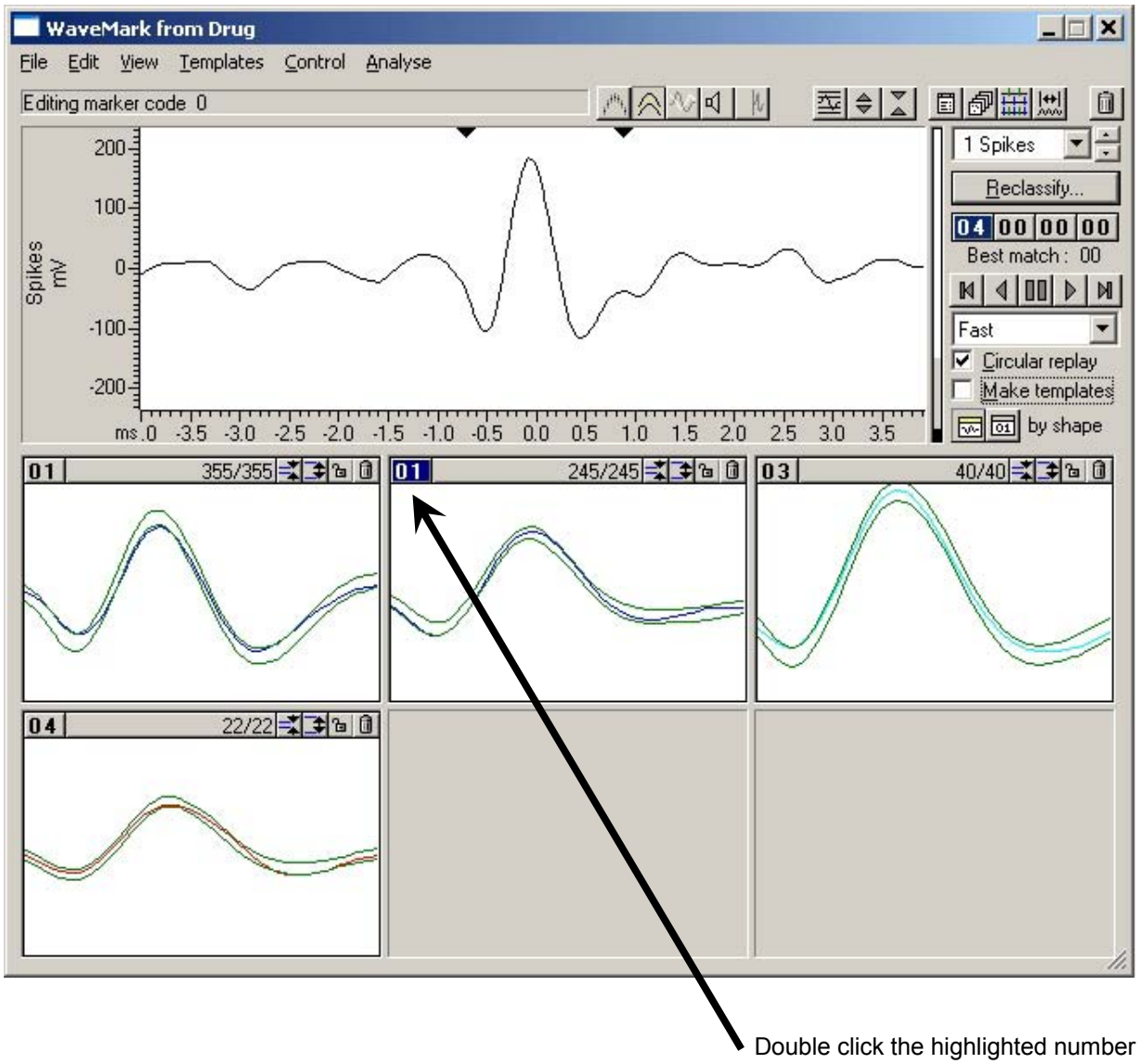
Spike templates

Q. I know that it is the same spike but over time the amplitude has changed and I get another template formed even though I have set the parameters to ‘track’.

A. The spike program may not detect the perhaps sudden change in the amplitude of a spike shape. We can track gradual changes but on occasion it is better to use multiple templates per spike. In the New or Edit Wavemark dialog. Double clicking on the template ‘number’ can change it’s code. If as in the case below the code is changed to match the first template then both spikes will be stored in the file as 01 and coloured accordingly. The other benefit of doing this is that you do not create a much wider amplitude template that may allow other unwanted spikes to match. You may find this particularly helpful if you have a short burst of 4 or 5 spikes that rapidly change their amplitude. An example of this may look like…..



This is available in all Spike2 versions.



SIGNAL

Fast triggers and fast fixed interval sweep modes

During sampling with Signal, as well as the data being transferred from the 1401 interface to the host computer there is generally also a great deal of other information flowing in both directions, including details such as the state to be used for the next sweep and any changes to pulse outputs. This causes a delay between the end of one sweep and Signal being 'armed' to wait for the next trigger resulting in a lower possible sweep rate than you may think is possible. For many complex recording protocols this is absolutely necessary, however if a simple protocol requiring high repetition rates is needed it can cause problems.

Using 'Fast triggers' sweep mode, significantly shorter intervals are possible, resulting in Signal being ready for the next trigger virtually instantaneously. This is done by limiting the amount of features available thereby stopping the need to communicate with the host computer other than for data transfer. The limitations of using this are that multiple states and incremental pulse outputs are disabled.

For applications requiring a very fast repetition rate but which are required to be timed from within Signal itself 'Fast fixed interval' sweep mode is available. This gives the same limitations as 'Fast triggers' but enables the user to set the sweep length and inter sweep interval within Signal rather than relying on an external trigger.

Scripts. Spike2  Right mouse click the script icon and save file to disk.

We've been asked recently to produce a script and sequencer which will output a digital TTL pulse when a waveform threshold is reached. Can be useful for pulsing when a burst of activity is detected or marking ECG R waves. More information can be found on our Spike Online Script page.

Scripts Signal  Right mouse click the script icon and save file to disk.

Output Signal data files .CFS as Windows .WAV format. This allows you to import the channel or channels into Matlab amongst other software. More information can be found on our Signal Display Script page.

Recent questions

Something simple to start I think.

Q. When forming averages I would like to know how many sweeps of data have been added to the mean display.

A. From the view pull down select info and this will give you the sweep count. It is possible to reset this using the script and indeed reset the average at n sweeps if you want.

User group

It will take a short time to set up an archive message board on our web site. As soon as this is done I will use this newsletter to announce that it is available. This seems to be the most sensible route to go rather than direct emailing both for security and for minimising spam.