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News

Last ADC12 top-box for the micro1401

We currently have one remaining ADC12 top-box available for a micro1401 mk I unit. This will expand a micro1401 unit with 12 additional waveform input channels. Anyone interested in expanding their micro1401 with the last ADC12 top-box should contact sales@ced.co.uk.



micro1401 mk I with ADC12 top-box

The ADC12 top-box will still be available for Micro1401 mk II and Micro1401-3 units.

Meetings and events

[ANS Sensorimotor Control Satellite Meeting](#)

Prince Of Wales Medical Research Institute,
Sydney, Australia
January 30th – 31st 2010

[Australian Neuroscience Society/Australian Physiological Society Joint Meeting](#)

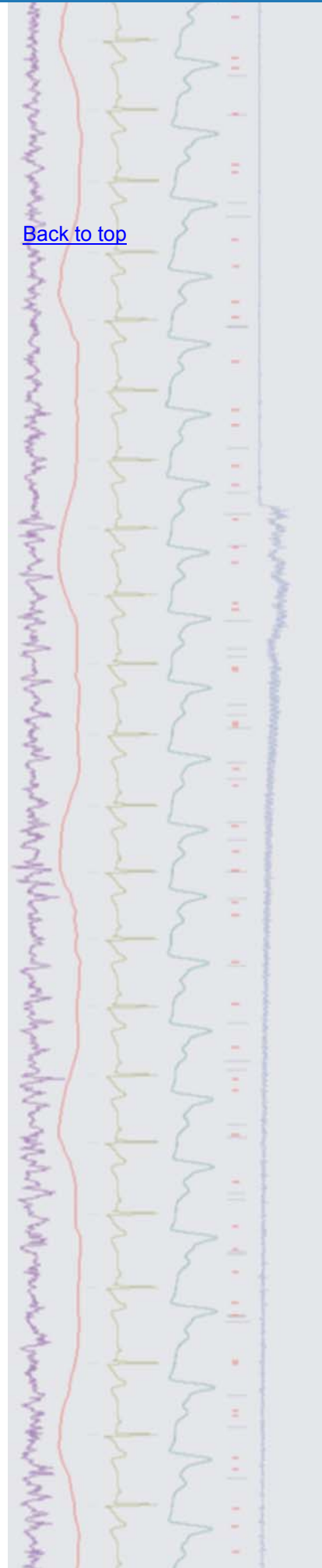
Darling Harbour Convention Centre,
Sydney, Australia
January 31st – February 3rd 2010

Latest versions of Spike2 and Signal

Updates for Spike2 and Signal are available from the [CED downloads](#) page, or by clicking on the links in the table below. Demonstration versions of the latest software are also available.

Spike2 downloads	Signal downloads
Spike2 version 7.02	Signal version 4.06
Spike2 version 6.13	Signal version 3.12
Spike2 demo	Signal demo

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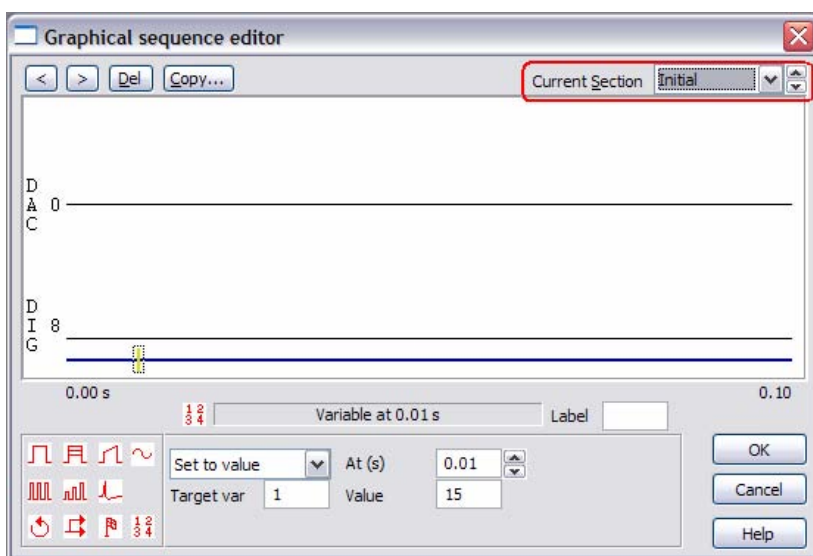




Q. I am using the graphical editor in Spike2 to generate 5 different stimulus protocols, stored in key sections A-E, which repeat a set number of times each and play out one after another. I would like the whole sequence to repeat up to 15 times before stopping.

A. The graphical editor can make use of variables and branch statements for flow-of-control between individual sections in the sequence. For the question above, the use of a variable that acts as a counter along with a branch statement that checks the variable value could be used to repeat the whole sequence a given number of times.

First, create a variable in the `Initial` section of the graphical editor by clicking and dragging the $\frac{1}{3} \frac{2}{4}$ symbol from the palette to the blue control track. Set the variable `Value` field to the number of repeats required to act as a counter.



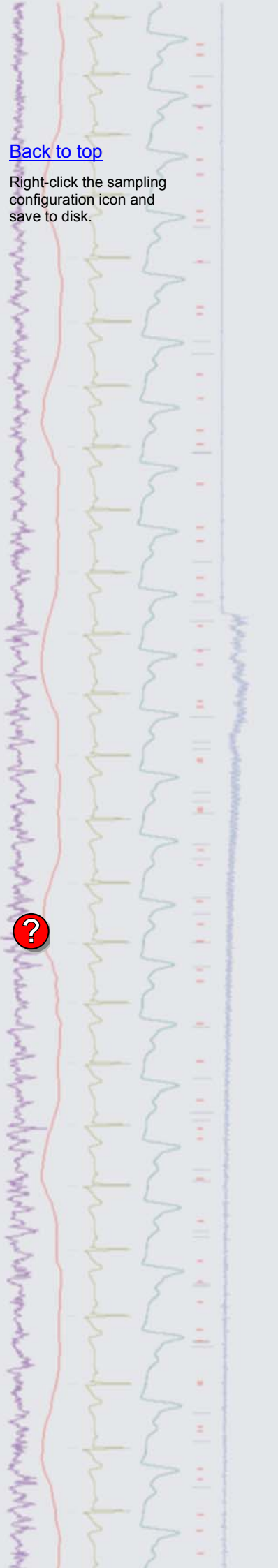
Initial section of the graphical editor

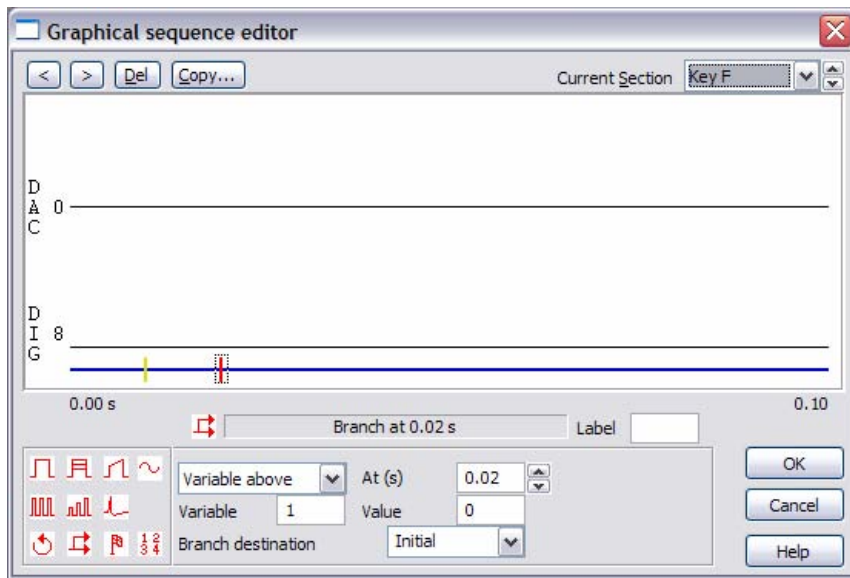
Next, select `Key F` from the `Current Section` drop-down list (this is the next 'free' section after the defined pulse protocols held in A-E) and place another variable on the control track. Select `Sub value` from the drop-down list, set `Target var` to 1 and `Value` to 1. This will subtract 1 from our variable counter each time the sequence has run.

Finally, place a branch command after the variable, by clicking and dragging the \rightarrow symbol to the control track. Select `Variable` above from the drop-down list, set the `Variable` field to 1 and the `Value` field to 0. Then set the branch destination to `Key A`. Each time the sequence reaches the end of this section the counter variable is decreased by 1 and checked by the branch statement. If the variable is above 0, the sequence repeats, otherwise it proceeds to the end of the last section where it halts. The attached sampling configuration file, `SeqRepeat.S2C`, contains the above example in the graphical editor.

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Right-click the sampling configuration icon and save to disk.



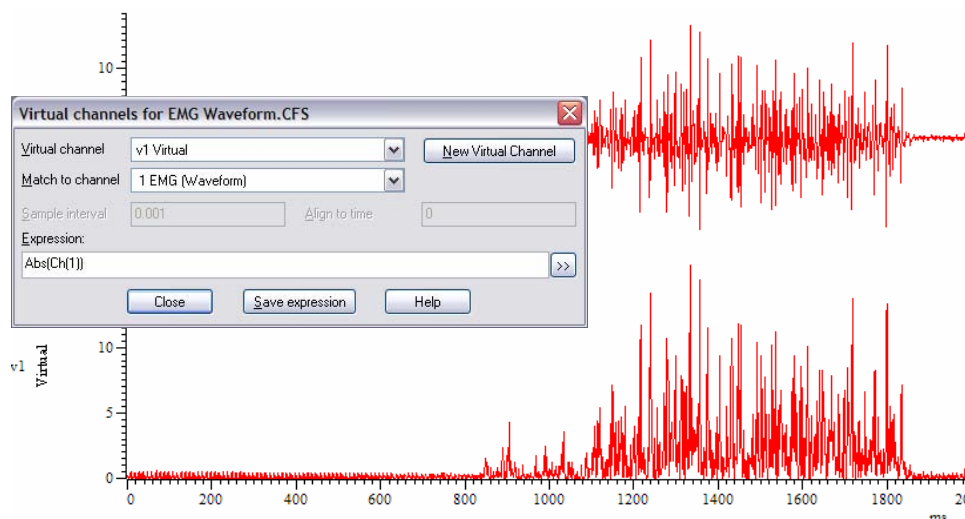


Key F in the example sequence

Signal

- Q. Is there any way to add channel modifications, such as rectify and smooth, to a copy of an existing channel so that the original data is not permanently modified?
- A. Virtual channels can be used to carry out a wide variety of channel arithmetic (for example, sums and differences of channels), generate new waveforms based on sine, square or triangle envelopes, and add channel processes such as DC offset removal, rectification and smoothing to copies of raw data channels both on-line and off-line. Virtual channels are created from the Analysis menu > Virtual channel command. The new virtual channel requires a sampling rate and can be matched to an existing waveform channel using the drop-down list or you can specify a sample interval and align time.

There are a number of expression functions that can be typed into the Expression field of the dialog to generate virtual channels (a full list of these can be found in the on-line help) or you can build expressions using the \gg button and selecting the operation to perform from the menu. For this example, select **Waveform from channel** from the menu and select the channel you want to process from the resultant dialog. This creates the expression $Ch(n)$, where $Ch()$ is the function to copy a waveform channel and n is the channel number. To add a channel process to the channel, select the text $Ch(n)$ in the main Virtual channels dialog by clicking and dragging with the mouse. Next, click \gg and select **Rectify** from the Channel process functions sub-menu. This creates the expression $Abs(Ch(n))$ in the dialog and generates the result of this expression in the virtual channel displayed in the data file.



Virtual channel showing rectified EMG data from channel 1

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Channel process functions can be applied in sequence. For example, to add a 3 point smooth to the rectified data simply select the text `Abs(Ch(n))` in the dialog and select the 3 point smooth option from the Channel process functions menu.

Scripts: **Spike2** 

- Q. It would be very useful to be able to create your own arbitrary waveforms for output in Spike2 just using the mouse. Are there any plans to include this as an option?
- A. The attached script, `DrawPlayWave.s2s`, is an example script that allows the drawing of an arbitrary waveform for output from the 1401 DAC's using the mouse pointer. The user specifies the output rate, waveform duration and associated key for the waveform before drawing the shape required in a result view window by holding down shift together with the left mouse button and dragging the mouse. The waveform can be added to the play wave area of the sampling configuration by clicking the Add button in the script toolbar.

This script requires Spike2 version 7.01 or later.

Scripts: **Signal** 

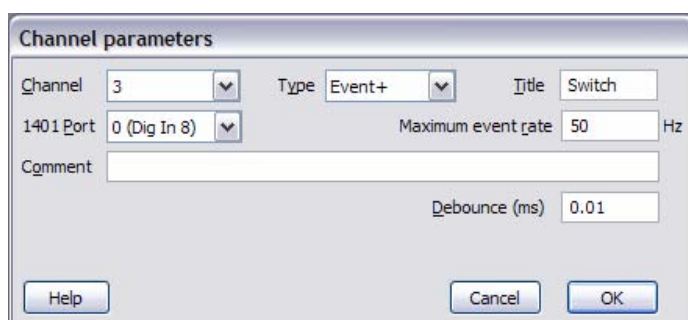
- Q. I would like to be able to export the number and times of occurrence of action potentials in a Signal data file as text.
- A. The attached script, `APcount.sgs`, is an example script that gets the time and count of action potentials that cross a user defined threshold from nominated frames in a Signal data file and prints the results to the Log window. The script uses the `ChanSearch()` function to find all threshold crossings in each frame.

Did you know...?

The Power1401 and Power1401 mkII interfaces both have 16 waveform input channels as standard. Of these, 8 are available as BNC inputs on the front panel with the further 8 available as pin inputs on the rear analogue expansion port. We supply patch panels and break-out boxes that allow connection to the rear input ports via BNC connections if required.

Recent questions

- Q. I'm using a mechanical switch to log events during a recording but I find that the switch is generating multiple markers each time it is used. Is there any way to remove these extra events so that I only get one each time the switch is activated?
- A. There is a Debounce field in the channel parameters dialog for Event and Digital Marker channels that will set the minimum acceptable interval (ms) between consecutive events so that events closer than this to the previous event are not saved to disk. This is useful when switches have bouncy contacts and generate multiple switch closures in a short period of time.



Channel parameters dialog

If you have this problem with a Level event channel, you must fix it by using an electronic switch debouncer as the Debounce option is not available in this case.

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Right-click the script icon and save to disk.

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