

## Contents

News – Updates & General news  
Spike2 – Simultaneous arbitrary waveform output  
Signal – Time shifting of data  
Spike2 Script – Sampling Configuration information  
Signal Script – Example text report  
Did you know...? – Power down requests while sampling  
Recent questions – Copying sequence sections

## News

The latest version of Spike2 is **5.12**, which is available to download from the [CED updates](#) page for registered v5 users. This revision includes changes to eliminate the flickering display that could occur with frequently updated windows, for example during sampling. Process scheduling tasks have also been improved to stop Spike2 taking a lot of the CPU time during sampling, and a scheduler page has been added to the Preferences dialog to control how Spike2 allocates time for background processing tasks.

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 **4.22** of Spike2 is downloadable for registered v4 users.

Version **3.03** of Signal is now available. This revision includes a frame subset selection for multiple frame operations and memory view processing. This allows specific groups of frames from a data file to be processed.

A demonstration version of Signal version 3 is available [here](#).

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

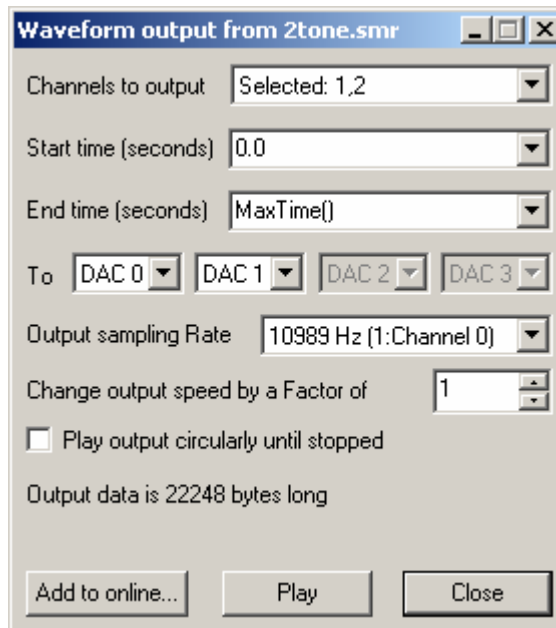
We will be exhibiting at the following forthcoming meetings:

- International Society of Autonomic Neuroscience: Marseille, France, 12<sup>th</sup> – 16<sup>th</sup> July
- Physiological Society Meeting: Bristol, U.K., 20<sup>th</sup> – 23<sup>rd</sup> July

If you are attending either meeting, please feel free to stop by our booth.

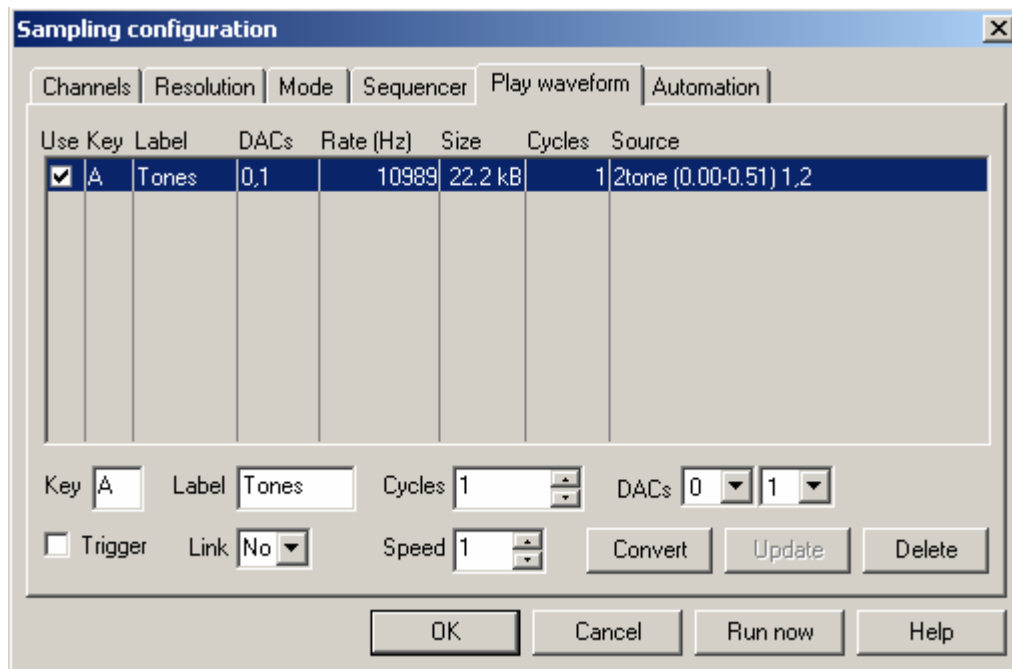
## Spike2

- Q. How do I go about playing two (or more) waveforms simultaneously from the 1401 DAC's on-line?
- A. In order to play out simultaneous waveforms from the 1401, the selected waveforms need to be specified in a single 'Play wave' area of the on-line play waveform list. Waveforms in this list are copied to the 1401 memory when you open a new data file for sampling, and the number of play wave areas that can be copied to the 1401 depends on their size and the type of 1401 you are using. Spike2 always reserves 256kB of 1401 memory for sampling so you can use the remaining available 1401 memory to store waveforms for replay. 1401 memory can also be updated during sampling using the script language to give greater flexibility.



*Output waveform dialog*

The simplest way to load waveforms into the Play wave list is by selecting channels in a data file (holding down `Ctrl` and clicking on the channel numbers) and using the Output Waveform... command from the Sample menu in Spike2. Each play wave area will hold up to 4 data channels for output and the time range of data and the DAC outputs to use are selected from the dialog. Clicking the Add to online button will set aside memory to hold the selected channels and the label and key code that are used to define the play wave area are set here. Further options for play wave output such as number of cycles to play, the output speed and whether the play wave area is to be triggered (from the 1401 Trigger or E3 input) or linked to other play wave areas defined in the list, are available from the Play waveform tab of the sampling configuration, as below.




When you open a new data file ready to sample, any play wave areas are copied to the 1401 memory ready for output. There are several ways to start output of a wave during sampling; use the associated button in the Play waveform toolbar, or press the associated key code to start the output manually. Waveform output can also be triggered from a script (using the `SampleKey()` command), or from the output sequencer (using the `WAVEGO` command). See the Spike2 help pages or manual for further information about interactive and scripted arbitrary waveform output.


## Signal

- Q. It would be useful to be able to use reference times when using the Time shift data channel modification rather than working out the number of data points needed to shift the data by the desired amount. Are there any plans to change this?
- A. The latest version of Signal includes changes to the `Shift data..` option which is now done by specifying a reference time and a new time. This means that, for example, data can easily be time shifted relative to the position of a Cursor.

## Scripts: Spike2

- Q. Is there any way to print out information about the current sampling configuration? Something like a report text file holding information such as number and type of channels, sample rates and defined sequencer outputs, for example.
- A. The attached script, `PrintConfig.s2s`,  prints the current sampling configuration information to the Log view and displays it on the screen. You must have a 1401 connected to get channel information before running the script. This script is currently for version 5 of Spike2 only, but could be modified for earlier versions of Spike2 if needed. Please contact us if you need the script modified for earlier versions.

## Scripts: Signal

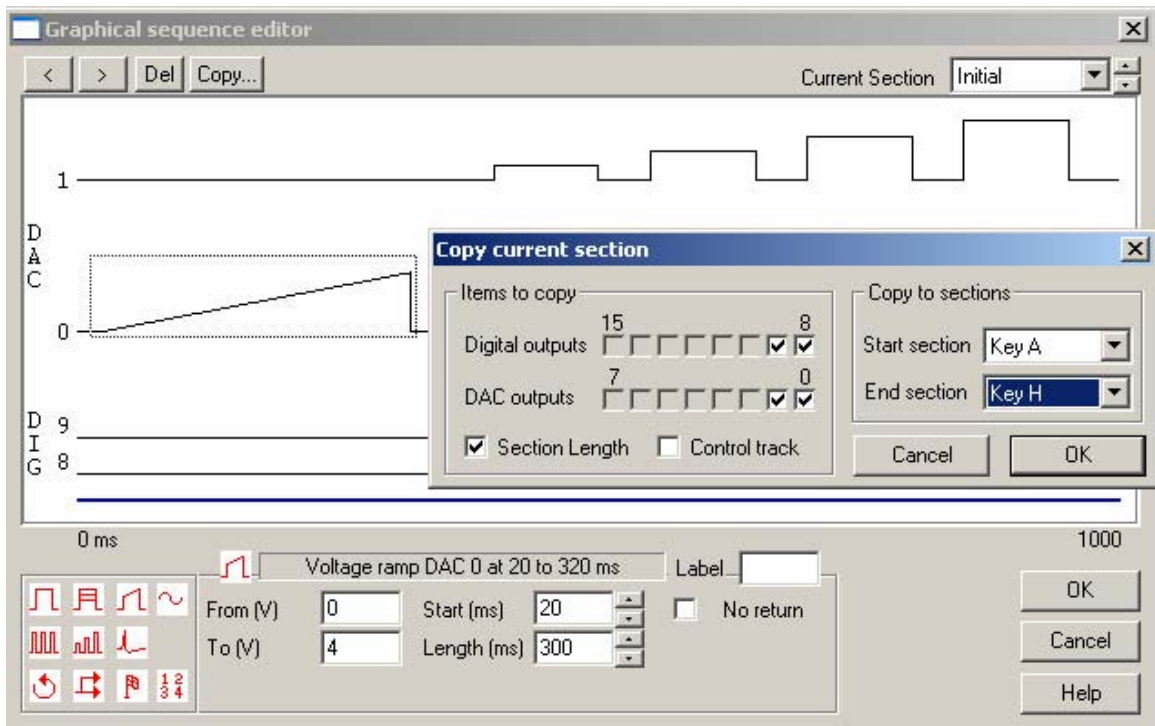
- Q. I would like a way to generate customised text output of measurements where I can add information such as the file name, time range of data and specify the text format. I know that you can use the Trend Plot command and then copy the results as text, but this only gives you the information from the XY-view and there is no way to include information about the data file that was measured.
- A. The attached script, `DoRMS.sgs`,  is an example of customised text output to the Log view. The script prompts you to open a data file and then presents a dialog that allows selection of the time range to measure and either all frames or a frame subset. The script measures the RMS amplitude from visible waveform channels in the nominated frames, and prints out the results for each channel in columns ready for export to a spreadsheet package. It includes the filename and the selected start and end time for measurements along with the RMS values. You could easily modify the script to include additional information such as frame states, for example.

## Did you know...?

The latest versions of Spike2 and Signal now attempt to stop a system hibernating or starting screen savers while sampling or running a script. They will also save any sampling data file if there is a battery low condition or it receives a system powering down now message.

## Recent questions

- Q. I regularly use the graphical sequence editor to define a series of stimuli to for my experiments. Usually my stimulus sections only differ in small ways such as varying pulse lengths and amplitudes so it would be nice to be able to create a 'default' sequence section that could be used as a template and copied to other sections for modification.
- A. The graphical sequence editor in the latest version of Spike2 now allows copying of the current sequence section to a range of other sections. This makes it much easier to prepare a list of similar outputs. Simply press the `Copy . .` button in the graphical editor and then select the outputs to copy, and a range of sections to copy to.



## User Group

If you have any comments about the newsletter format and content, or wish to un-subscribe from the mailing list for this newsletter, please notify [sales@ced.co.uk](mailto:sales@ced.co.uk)