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NEW! Hints



When you see this icon, double-click it to reveal extra hints or tips relating to the current newsletter article.

News

Spike2 and Signal Training Days

Our US Spike2 and Signal training courses will take place on Thursday 1st and Friday 2nd of November, prior to the Society for Neuroscience meeting in San Diego. The venue will be the Holiday Inn San Diego – On The Bay. These training days are for both existing and prospective users of Spike2 and Signal and are suitable for beginners and advanced users. There is also our popular Workshop thread where you can discuss your particular requirements with a CED engineer or programmer in a small group environment.

If you or any of your colleagues would like to attend, please follow the links to view the [training day program](#) and complete the [registration form](#). Please give a short description of the type of research that you do and analysis that you are interested in. This will allow us to tailor sessions for specific requirements.

NEW! Power1401 mk II



We are pleased to announce the release of the Power1401 mk II, our latest high-performance laboratory interface. Below is a comparison with the Power1401 625:

Power1401 mk II	Power 1401 625kHz
1MHz multi-channel sampling rate	625kHz multi-channel sampling rate
Intel 800MHz XScale® processor	233MHz RISC processor
256MB – 1GB memory	32MB – 256MB memory

Another feature of the Power1401 mk II, due to customer feedback over the years, is that the on/off switch is now a push button located on the front of the unit. This means that users no longer have to crawl behind their hardware rigs to turn the 1401 on or off!

Meetings and events

[European Brain and Behaviour Society \(EBBS\)](#)

Miramare Campus
Trieste, Italy
September 15th – 19th 2007

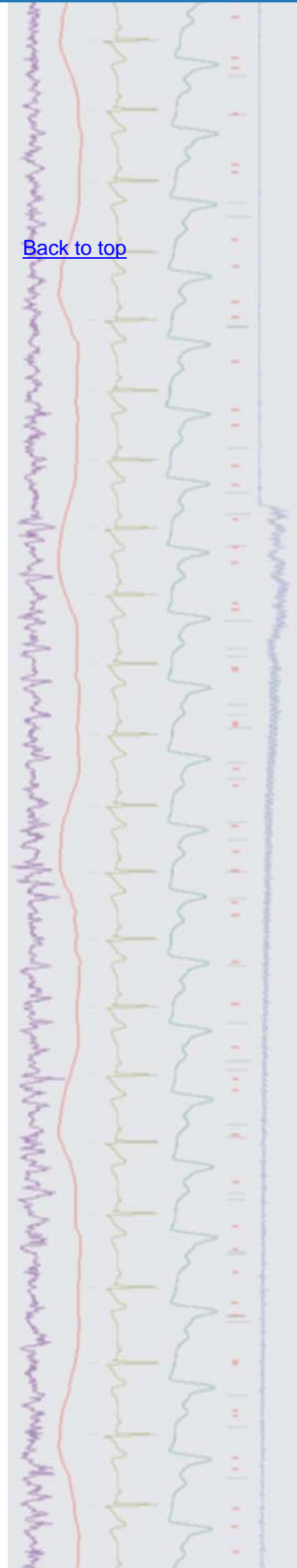
[18th Ion Channel Meeting](#)

Presqu'île de Giens
France
September 23rd – 26th 2007

[Polish Neuroscience Society - 8th International Congress](#)

Jagiellonian University
Krakow, Poland
September 24th – 27th 2007

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[Italian Neuroscience Society 2007](#)

Palazzo della Gran Guardia
Verona, Italy
September 27th – 30th 2007

[International Society of Autonomic Neuroscience 2007](#)

Kyoto Terra
Kyoto, Japan
October 5th – 8th 2007

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 6.05	Signal version 3.10
Spike2 version 5.18	Signal version 2.16
Spike2 demo	Signal demo

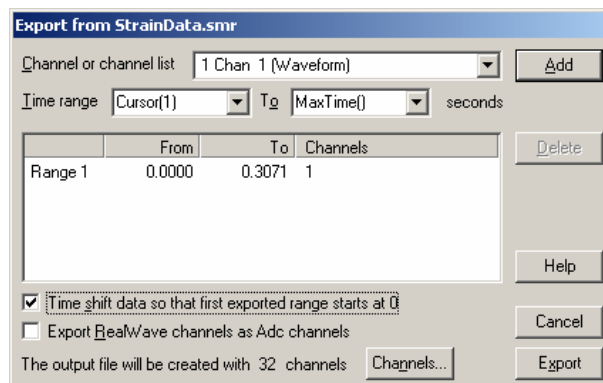


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Q. I am recording EMG data using Spike2 and using a separate telemetry system to capture strain gauge data. The telemetry system does not give any analogue output and is not synchronized to the Spike2 sampling. This leads to a time drift between the two files. Is there any way to synchronize the timing of them for analysis?

A. There is a script command, `FileTimeBase()`, that can be used to change the underlying base time of a Spike2 data file, stretching or shrinking the time axis for all data items. The main use of this function is to compensate for time drift between data sampled by Spike2 and data captured by some other non-synchronized external equipment. The essential requirements are that the data format from the external equipment can be imported into Spike2 and the data recorded from both systems should have a common marker at the start and end of the recording. Spike2 can import a wide range of file formats via the Import command in the File menu. Once the file is in the Spike2 format, it can be modified to match an existing files timebase.

It is likely that there will be a time offset between the start markers in each file. This can be eliminated by using the Export as... function from the File menu to export the data to a new data file and setting the checkbox to time shift the data so that the first exported range starts at 0. The first exported range should be the time of the start marker in the file, which could be found by positioning a cursor on the marker, for example.



Export dialog

Hint:



Next we can work out the time scaling between the two files by getting the interval between the start and end markers. This is the result of the time of the end marker minus the time of the start of the file, which could be found using cursor positions and the Cursor Regions dialog. If this interval is t_1 for the file recorded by Spike2 and t_2 for the imported file, we can then modify our imported file to have the same timebase as the Spike2 recorded file by making the imported file the current view and using the following code in the Script menu Evaluate... window. Simply replace t_1 and t_2 with the interval values measured from the data files:

```
FileTimeBase(FileTimeBase()*t1/t2);
```

The two files could then be amalgamated into one using the ChanSave() command (see eNews 9 or the on-line help for further details).

Signal

Q. The analysis software that I am presently using does not support the detection of more than one action potential in a single sampling sweep. A colleague has recommended Signal as being able to do this and I would like some further information.

A. Signal can import a wide range of data file formats, meaning that you can make use of features in Signal that are not available in other third party software. There is a script available which will detect and take measurements from multiple spikes in a single sweep (see eNews 26 for details).

We hope to have this functionality implemented as a built-in feature in Signal in the very near future using Active Cursors, which will give even greater flexibility and allow a number of different measurements to be taken from multiple action potentials both on-line and off-line.

Scripts: **Spike2** 

Q. I would like an automated method of generating cross correlations between templated spikes, where each spike template is used as a trigger for all other spike templates in turn. Could this be achieved with a script?

A. The attached script, `CrossChanCorrelation.s2s`, can be used to generate multiple spike correlation histograms for all combinations of templated spikes in a channel. Currently it allows for up to 8 spike templates per channel (including code 0) for correlating between channels in the file.

The script is controlled from a toolbar where the user can open a data file for analysis and control the parameters for the correlation as well as the number of correlation result views to display at any one time.

Scripts: **Signal** 

Q. I have been using the script for spike measurements that was included in eNewsletter 26 and have found it extremely useful. I would now like to be able to generate a phase-plane plot based on the time derivative of the membrane voltage versus the membrane voltage. Is this possible?

A. The attached script, `Phase-plane plot.sgs`, generates a phase-plane plot in an XY view based on all action potentials in a user-defined time range which can be set using cursors. The plot updates dynamically so the user can click and drag the cursor positions to update the display.

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Hint: 

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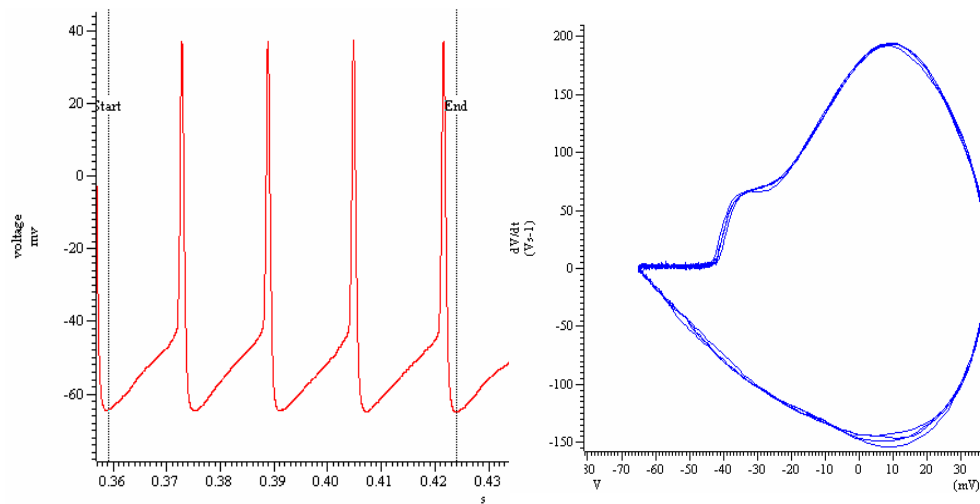
Right-click the script icon and save to disk.

If you have any problems opening the embedded scripts in this newsletter please let us know.

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If you have any problems opening the embedded scripts in this newsletter please let us know.



Phase-plane plot of action potentials

Did you know...?

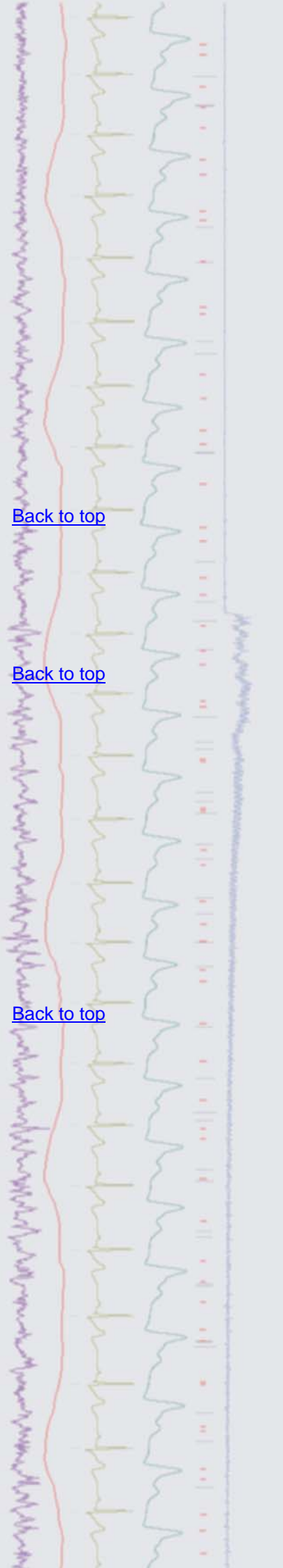
The new Power1401 mk II interface now has $\pm 5\text{V}$ or $\pm 10\text{V}$ input and output ranges that can be selected using the Try1401 diagnostic software which is installed along with the Spike2 and Signal applications. By contrast, the Micro1401 mk II, as with previous Power1401 units, is set-up for $\pm 5\text{V}$ or $\pm 10\text{V}$ operation at time of order.

Recent questions

- Q. We would like to use a total of three monitors to visualize our data collection during an experiment. The first screen would be assigned to the incoming data, the second to online averaging and the third to subject feedback. Is it possible to position the application across the three screens and position the various windows accordingly?
- A. Both Spike2 and Signal support multiple monitor setups. The `window()` script command allows you to position the main application window in relation to multiple monitors and other window types relative to monitors or the position of the main application window. You can find further details and some example code in the on-line help page of the `window()` command. Most PC's have up to two available monitor outputs so you may find that a system with multiple graphics cards is required to use more than two monitors simultaneously.

User group

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