# CED eNews

## The eNewsletter from Cambridge Electronic Design

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## US Training Days

Our US training days are now confirmed for the 15th and 16th of October at the Embassy Suites Chicago Downtown hotel, prior to the Society for Neuroscience annual meeting. The training days are offered at $250 per day, including continental breakfast buffet and lunch as well as coffee and tea, and are suitable for both existing and prospective users of Spike2 and Signal. They include introductions to the software along with sessions on script writing, stimulus generation and on-line control. Our popular workshop thread, where you can discuss your questions and requirements with a CED engineer or programmer in a small group, will also be available.

If you or any of your colleagues are interested in attending, please follow the links to view the training day program and complete the registration form.

## Meetings and events

**Scandinavian Physiological Society 2009**
Uppsala Biomedicinska Centrum
Uppsala, Sweden
August 14th – 16th 2009

**The 6th Congress of the International Society for Autonomic Neuroscience**
ISAN09 is a joint meeting to be held with the European Federation of Autonomic Societies (EFAS) in Sydney, from September 1st-4th, 2009. Approx. 400 international and national delegates are expected, having clinical and/or basic scientific research interests in autonomic neuroscience.

Plenary speakers: Darwin Berg (UCSD), Hugo Critchley (University of Sussex), Max Hilz (University of Erlangen-Nuremberg) and Elspeth McLachlan (POWRI)

Further details of the meeting can be found at http://www.iceaustralia.com/isan2009/

Proudly supported by Cambridge Electronic Design and the Foundation for High Blood Pressure Research, Australia.

**9th International Congress of The Polish Neuroscience Society**
University of Warsaw
Warsaw, Poland
September 9th – 12th 2009

**Southampton Neuroscience Group (SoNG) Annual Meeting**
University of Southampton
Southampton, UK
September 25th 2009

**Neuroscience 2009 - 39th Annual Meeting**
McCormick Place
Chicago, IL, USA
October 17th – 21st 2009

# 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 7.01 | Signal version 4.05 |
| Spike2 version 6.12 | Signal version 3.12 |
| Spike2 demo | Signal demo |

Q.    I am using E-prime software to generate various stimuli for my psychological experiments and would like to interface this with Spike2 so that the stimulus type is marked in the data file. Is there any way to log markers from E-prime in Spike2?

A.    The 1401 family has 16 digital inputs and 16 digital outputs. Digital input bits 15-8 are the event ports and Digital input bits 7-0 are used for the Digital marker channel as shown by the diagram below.
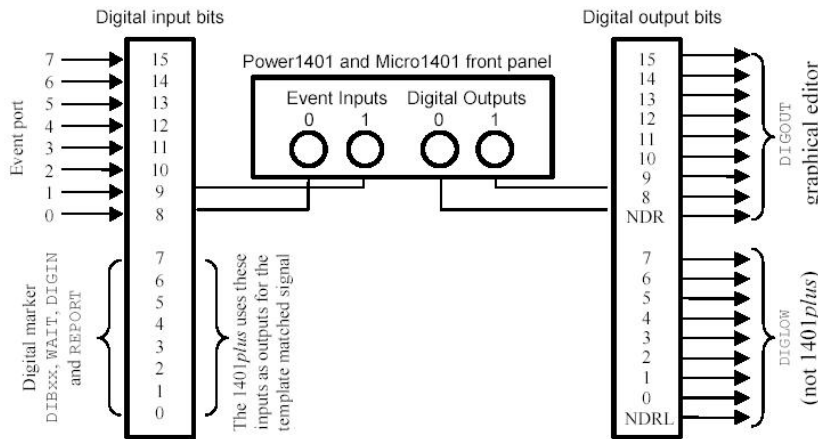


The digital input and output ports are 25-way connectors. The data and ground pins are the same on both. See your *1401 Owners Manual* for full details of all pins.

| Bit | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | GND |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pin | 1 | 14 | 2 | 15 | 3 | 16 | 4 | 17 | 5 | 18 | 6 | 19 | 7 | 20 | 8 | 21 | 13 |

Experiment design programs such as E-prime and Presentation allow the user to generate video and image files as a stimulus and output digital marker information relating to the current stimulus on a 25 way D-type parallel port. This can then be connected to the 25 way digital input connector on the 1401 using an appropriately wired cable.
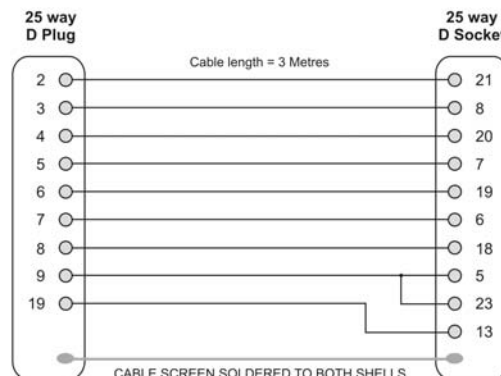


*Wiring diagram from parallel port (left) to 1401 digital input (right)*

To record the E-prime or Presentation marker data to the Spike2 file, set-up a digital marker channel (channel 32) in the sampling configuration. Codes sent by the program will then be displayed in the marker channel during sampling.

# Signal

Q.  I would like to be able to take data from multiple average result views and display them overdrawn in a single view.

A.  It is possible to add 'blank' frames onto the end of Signal data files and memory views by using the Append frame command from the Analysis menu. Data can then be copied from any file that includes the same number of channels and same sample rate using the standard `Ctrl+C` keyboard shortcut, and pasted into the new 'blank' frame by clicking on the view and using the `Ctrl+V` shortcut (or the Edit menu Copy and Paste commands). Once you have added the frames from all average result files into the original result view simply select the frames you want to include in the overdraw using the Overdraw settings dialog and then use the Overdraw frames command (both available from the View menu) to apply these to the current file.
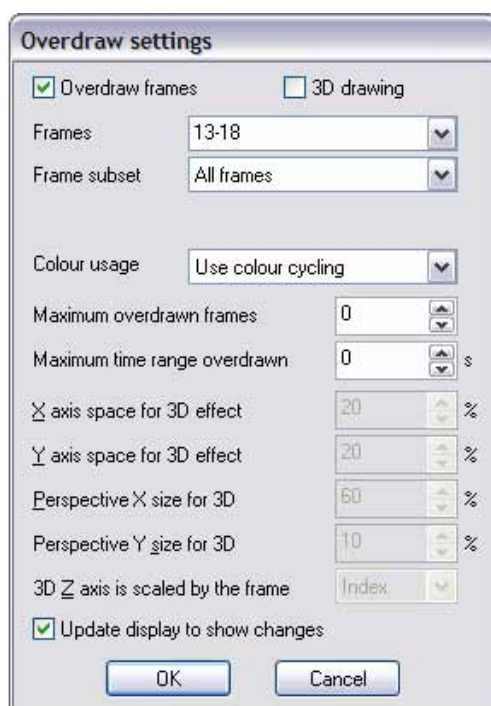


*Overdraw settings dialog*

**Scripts:** Spike2

Spike2 version 7.01 includes new script commands that give access to the mouse positions and mouse button clicks in data files, result and XY views when using a script toolbar or user-defined dialog. The attached script, `MouseEvent.s2s`, is an example that allows the user to add TextMark items to a data region interactively by holding `Shift` and clicking and dragging the mouse pointer.

**Scripts:** Signal

Q.  I use Signal to give subject feedback during experiments by generating a trend plot over multiple frames based on the response. What I would like to do is display this trend plot at the end of a frame for a short period and then hide it from view so the subject only has a brief time to see their progress. Is this possible using a script?

A.  The attached script, `FlashTrendPlot.sgs`, is an example that pauses sampling at the end of each sweep and displays an associated trend plot for a user-defined length of time, before hiding it and continuing with sampling. This example trend plot is set to take a peak to peak measurement between cursor 1

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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and cursor 2 on the selected channel, but could easily be modified to give other measurement options.

## Did you know…?

You can adjust the sampling rate of a data channel off-line using the Channel Process Interpolate or Match channel commands. This is useful if you want to create a multi-channel result view, as all included channels need to be sampled at the same rate.

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## Recent questions

Q.      Is there any way to add text, such as stimulus type or current experiment conditions, to a Spike2 data file during sampling?

A.      The TextMark data channel allows the user to insert timed comments into a data file while sampling. Simply select TextMark from the Type drop-down list when adding a new channel in the sampling configuration to enable channel 30 as a TextMark channel.

When sampling, use the Ctrl+T keyboard shortcut to open the Create TextMark dialog. There are two modes for adding TextMark data to the file: clicking the Save button adds a TextMark to the file at the current time. You can edit the text and code of a TextMark at anytime by double-clicking on the TextMark in channel 30. The Set Time button records the time of the button press and allows the user to set the text string and code. Clicking the Save button after Set Time writes the TextMark at the recorded time.
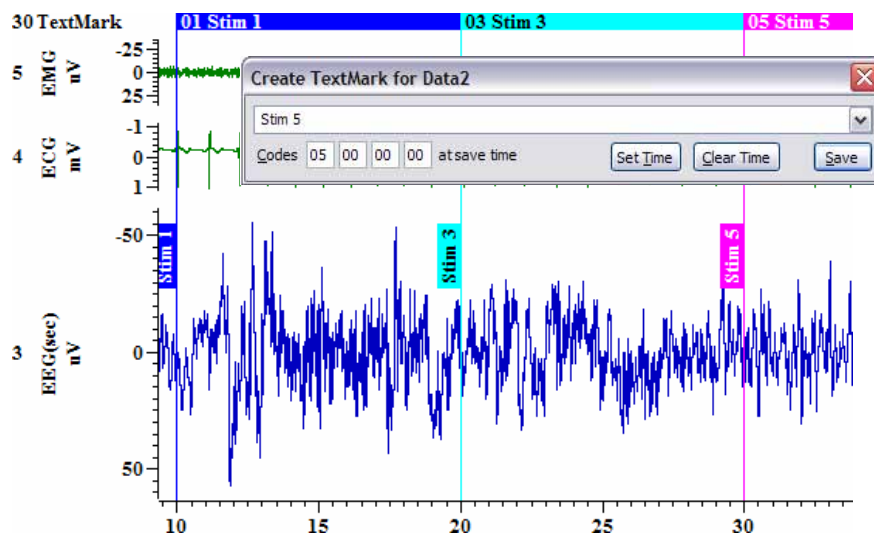


*TextMark data drawn in States mode with Vertical Markers*

TextMark data can be drawn in state mode and also displayed as vertical markers to show the included text, as above.

## User group

Try the new CED Forums bulletin board for software and hardware support

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.

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