

## Contents

- [News](#) – Updates & meetings
- [Spike2](#) – Timing and controlling stimulators
- [Signal](#) – MultiClamp 700 support
- [Spike2 Script](#) – Randomise tone output
- [Signal Script](#) – Auto-optimize frame data
- [Did you know...?](#) – ADC64 top-box for Micro1401-3
- [Recent questions](#) – Grand average of every *n*th frame

## News

### Meetings and events

#### [ANS Sensorimotor Control Satellite Meeting](#)

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

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

Darling Harbour Convention Centre  
Sydney, Australia  
January 31<sup>st</sup> – February 3<sup>rd</sup> 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
<a href="#">Spike2 version 7.02</a>	<a href="#">Signal version 4.06</a>
<a href="#">Spike2 version 6.13</a>	<a href="#">Signal version 3.12</a>
<a href="#">Spike2 demo</a>	<a href="#">Signal demo</a>



Q. How can I trigger stimulators from Spike2 during a recording?

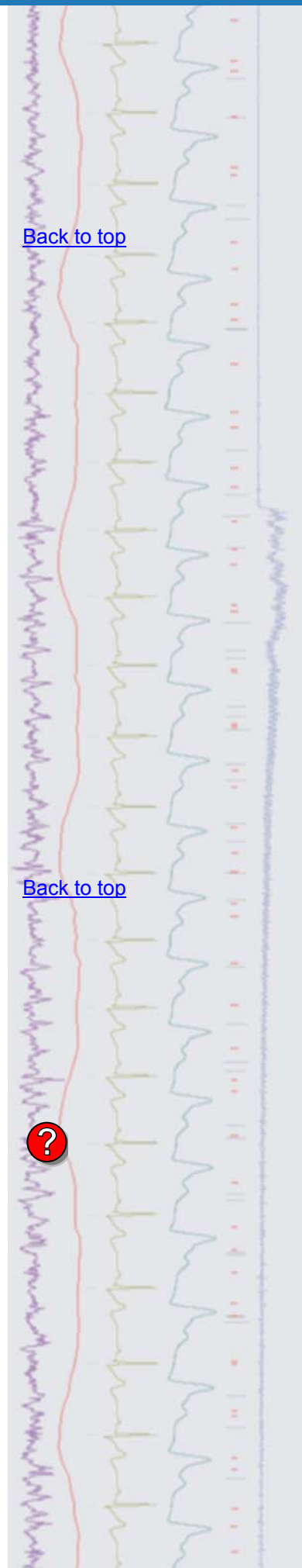
A. Many stimulators can be triggered by a 5 volt TTL input and will generate a constant current or constant voltage output in response. The parameters of the stimulator output are usually defined using hardware controls on the stimulator.

The Spike2 output sequencer, via the graphical editor or a text sequence file, can play precisely timed TTL pulses from the 1401 digital outputs during sampling which can be used to trigger these stimulators. Some units that do not support 5 volt TTL compatibility, such as the Grass S44 which requires a 6 volt input, can be triggered using a combination of a 1401 digital output and a circuit that produces a 9V trigger pulse (contact us for details).

Other constant current stimulators, such as the DS4 and DS5 units available from Digitimer, are controlled by an analog voltage waveform input which they then convert into a constant current stimulus output of proportional value. The 1401 DAC outputs can be used to generate waveform outputs to drive these types of voltage-following stimulus isolators.

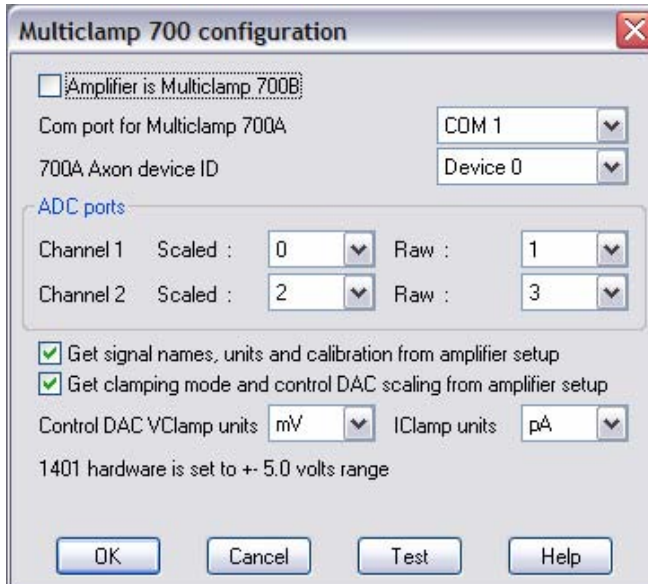
[Back to top](#)

[Back to top](#)



# Signal

- Q. In the previous eNewsletter (eNews 47) you mentioned that Signal can interface with the Axon MultiClamp 700A which is controlled by its own software program. Could you give me further details?
- A. MultiClamp telegraph support can be chosen as an alternative to the standard telegraph support during installation and allows Signal to read information such as changes to the amplifier gain, low-pass filter settings, membrane capacitance and series resistance direct from the MultiClamp command software. In addition, the clamping support features in Signal are integrated to automatically select between voltage clamp and current clamp, depending on the amplifier controls, and set up the scaling and units of the DAC used for external amplifier control.



*MultiClamp 700 configuration*

The MultiClamp configuration dialog is accessed from the Port Setup tab of the sampling configuration. Clamp settings can be read from the amplifier software using the associated button in the Clamp tab of the sampling configuration.

For more details on the telegraph configuration, see the MultiClamp section of the on-line help.

Scripts: **Spike2** 

- Q. I would like to generate two tones to play as a stimulus and to randomize delivery of these waveforms. In addition it would be very useful if I could create new tones on-line to replace either of the existing outputs.
- A. The attached script, `RandomiseTones.s2s`, is an example script that allows the user to create a tone A and tone B output waveform and then play these in a randomised order during sampling. From the script toolbar the user can generate a new tone during sampling and replace the existing tone outputs if required.

Scripts: **Signal** 

- Q. When stepping through a data file in Signal, it would be very nice if the data was automatically optimised for each frame. Is there a setting for this?
- A. The attached script, `AutoOptimise.sgs`, is an example script that will automatically optimise the Y-axis display for each frame off-line when stepping through frames in a data file. We plan to add this feature in a future release.

## Did you know...?

The Micro1401-3 can be expanded up to a maximum of 128 channels using the new ADC64 top-box.

The `HumRemove.s2s` script, available from our website, can be used in conjunction with a 50Hz mains synchronization generator to reduce 50Hz mains noise. Please contact us for details.

[Back to top](#)



[Back to top](#)

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.

[Back to top](#)

Right-click the script icon and save to disk.

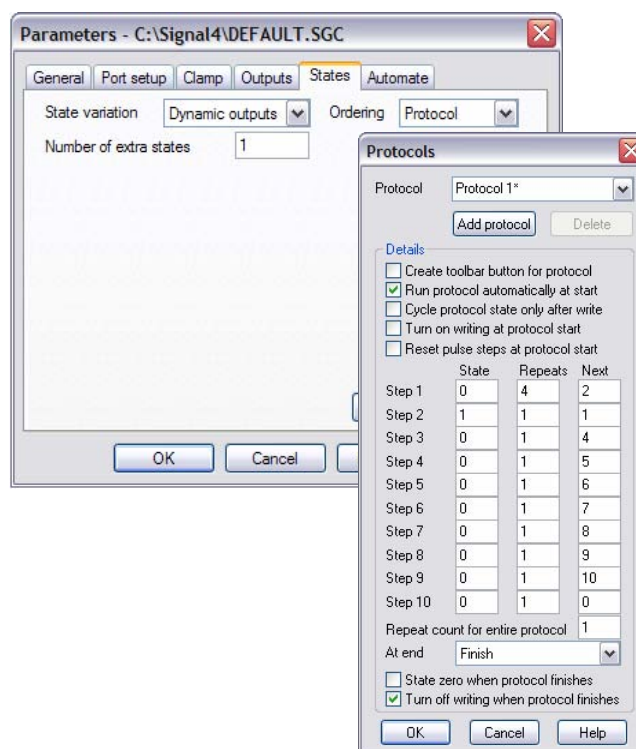
If you have any problems opening the embedded scripts in this newsletter please let us know.

[Back to top](#)

## Recent questions

- Q. I would like to process every  $n$ th frame to an average in Signal to form a grand average of every  $n$ th response. In this case, I am using a simple square pulse stimulus, but I would like to only add every 5<sup>th</sup> response to my average window.
- A. Using Signal multiple states it is possible to set-up an average that only processes frames of a certain state. For this example we can create an additional state to represent every 5<sup>th</sup> output pulse used, and only average the response of that particular state.

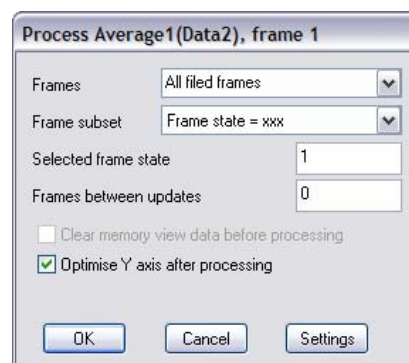
The multiple states checkbox in the General tab of the sampling configuration enables the States tab. For our example above we can select Dynamic outputs from the State variation list, set Number of extra states to 1, which will be used to represent our 5<sup>th</sup> output, and Ordering to Protocols. Click the Protocols... button to set a protocol that will run during sampling. As in the example below, simply set Step 1 to State 0, Repeats to 4 and Next to 2. For Step 2 set State 1, Repeats 1 and Next to go back to Step 1 in the protocol. Selecting the Run protocol automatically at start option will start the protocol running as soon as sampling begins.



*States tab and Protocol setup dialog*

In the Configure pulses dialog from the Outputs tab, simply copy the existing pulse output from Basic 0 to State1 using the Copy button in the dialog.

When sampling with multiple states you can then select which frame states should be included in the average in the Process dialog, shown below with state 1 selected. In this example, every 5<sup>th</sup> output is marked as state 1 and is added to the average window.



*Process settings dialog*

[Back to top](#)



**User group**

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[Back to top](#)

