CED eNews

The eNewsletter from Cambridge Electronic Design

Contents

News

Future meetings and events

Young Life Scientists Symposium: Autonomic Control in Health and Disease
University of Birmingham
Birmingham, UK
May 26th 2011

UCL Neuroscience Symposium 2011
University College London
London, UK
July 1st 2011

Physiology 2011
University of Oxford,
Oxford, UK
July 11th – 14th 2011

Ion Channels:Structure,Function & Therapeutics
Shanghai Jiaotong University School of Medicine
Shanghai, China
July 24th – 27th 2011

CED Chinese Training Day
Venue: Shanghai - exact details TBA
July 23rd

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	Released	Signal downloads	Released
Spike2 version 7.06	02/11	Signal version 5.02	05/11
Spike2 version 6.16	03/11	Signal version 4.08	10/10
Spike2 demo		Signal demo	

Q.   I am using Spike2 to record spike activity and quite often the spike amplitude of individual units shows a gradual decrease over time. Is there anyway to track these changes so that spikes from later in the recording are still added to the correct template?
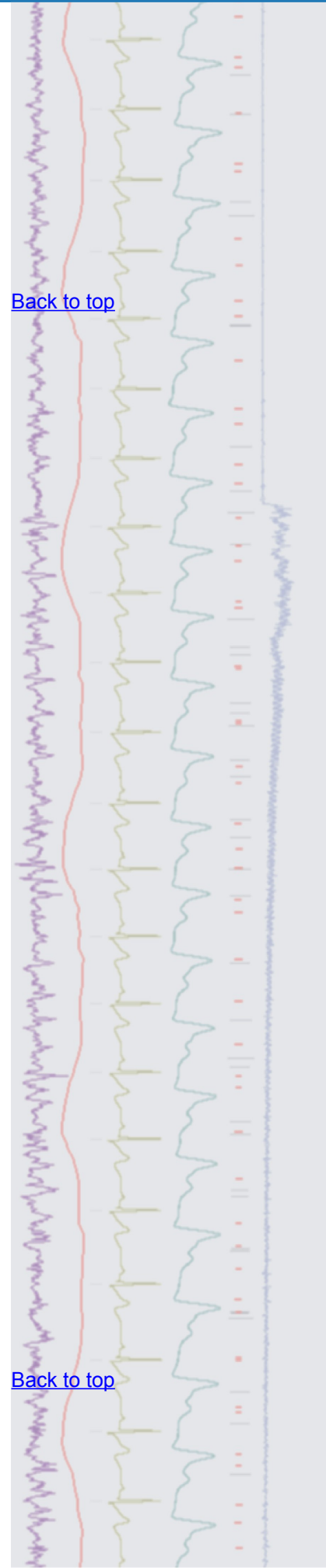
A. The settings that control how incoming spikes are used to form new templates or matched to existing templates can be accessed from the Template parameters menu in the main WaveMark dialog. Spike2 can be set to scale each detected spike up and down by the value specified in the Maximum percent amplitude change for match field when comparing spikes to stored templates. It can also track the shape of the spike by modifying the matching template for each spike added using the Template maintenance option
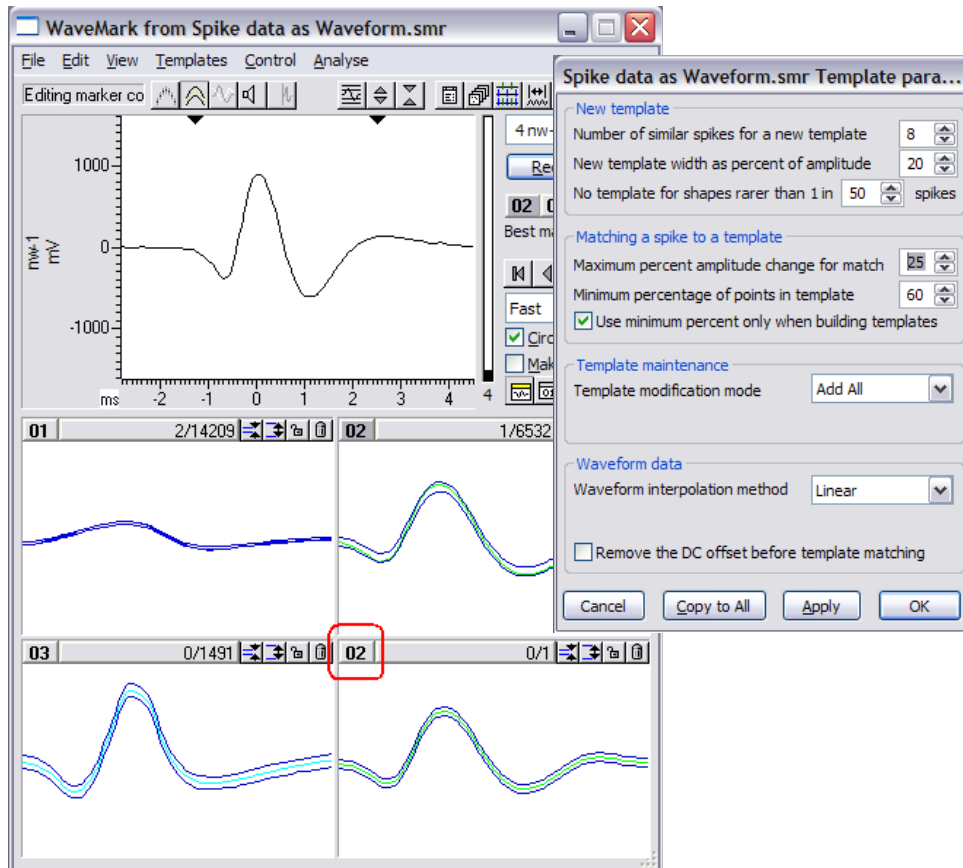

WaveMark window and Template parameters dialog

This automated method can be very effective when the changes in spike amplitude are slow or gradual. If the changes in spike amplitude are sudden then the preferred option is to let Spike2 generate multiple templates and then manually edit the codes of these multiple templates to match the original. Template codes can be changed quickly by double-clicking on the corresponding number in the template area (circled in the image above)

Template codes can also be set interactively if the spikes are displayed in Overdraw WM, waveform or wavemark modes and then by holding down `Alt+Ctrl` and left-clicking the mouse to draw a line. Any spike that crosses the line in the display can then be re-classified according to the code entered in the dialog.
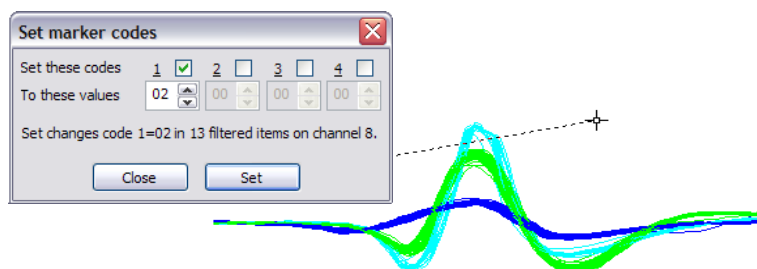
*Editing marker codes in Overdraw WM channel draw mode*
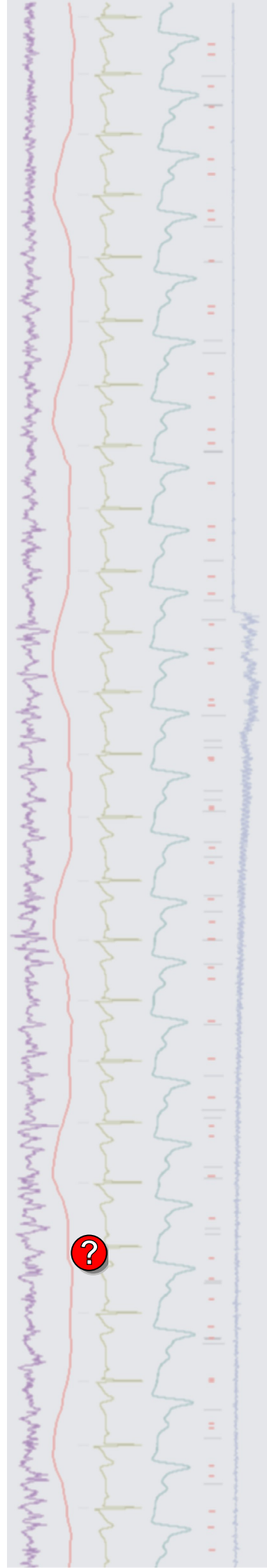
Scripts: Spike2

Q.   Is there any way to apply marker filter settings to multiple WaveMark channels in a file?

A.   The attached script, `ApplyMarkerFilters.s2s`, can be used to copy marker filter settings from a nominated channel to any selected WaveMark or marker channels in a data file. You select the channels to copy to by holding down the `Ctrl` key and then clicking on the channel numbers to the left of the Y-axis.

Signal

Q.   Can I set up a sampling configuration in Signal that uses a random interval ranging from 5 and 10 seconds between each sampled sweep?

A.   You can set varying intervals between sampled frames using the `Fixed Interval` sweep mode, which can be selected from the `General` tab of the sampling configuration.
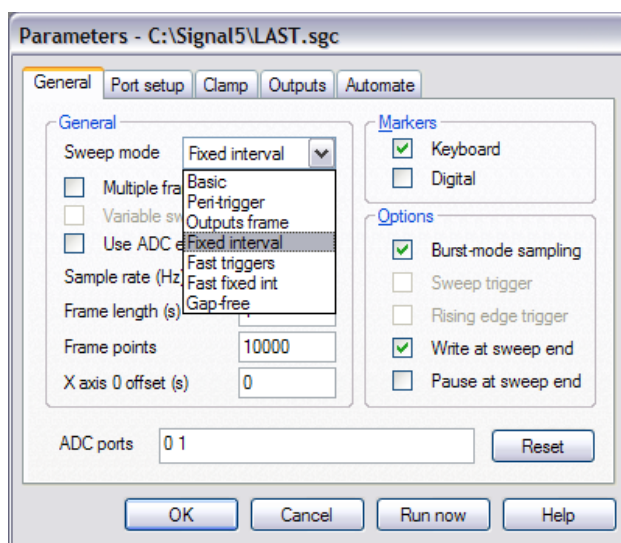
Fixed Interval sweep mode

The parameters to determine the interval between sweeps are then set within the `Pulses configuration` dialog, which can be found in the `Outputs` tab of the sampling configuration. When `Fixed Interval` mode is selected, two additional fields are enabled in the dialog, one to set the default interval between sweeps and a `Vary %` field that can be used to add a random variation to the interval time.
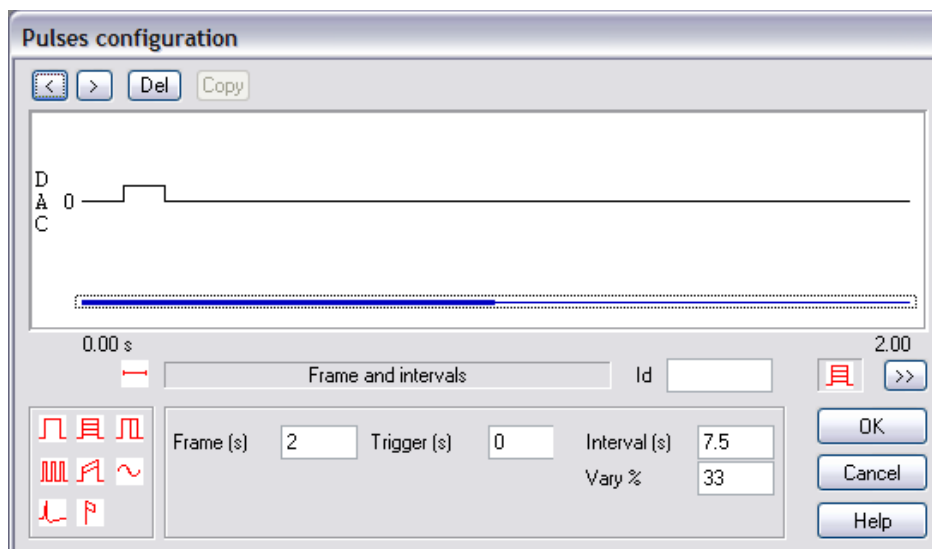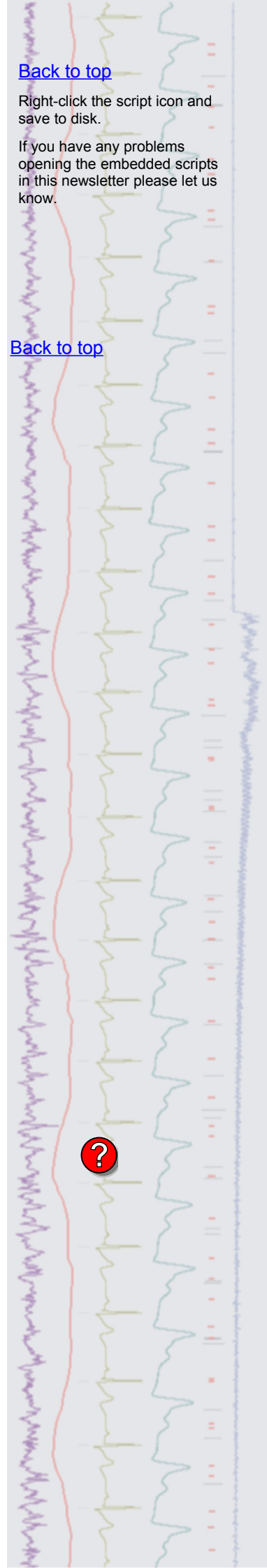

Pulse configuration dialog settings

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.

For the example above, an `Interval` setting of 7.5 (s) and a `Vary %` setting of 33 would set a random interval of 5 to 10 seconds, as 33% of 7.5 is 2.5. This then gives a random time delay from 7.5-2.5 to 7.5+2.5 seconds between each sampled sweep.

Scripts: Signal

Q.   Is there a script available that will monitor incoming data and output a digital pulse from the 1401 in response to a positive threshold crossing?

A.   The script, `RisingThreshPulse.sgs`, when used along with the associated sequence, `RisingThreshPulse.pls`, will monitor a selected waveform channel during sampling and output a TTL pulse from Digital Output 0 when the channel data rises through a threshold. The threshold is defined in the channel with a horizontal cursor and can be adjusted by the user at any time during sampling. You must load the sequence into the Outputs tab of the sampling configuration before running the script. Additional setup information can be found at the beginning of the script.

Did you know…?

You can select channels by clicking within the area around the channel number. Multiple channels can be selected by holding `Ctrl` and clicking individual channels or by using `Shift` to select all channels within a range. If channels are selected they will appear together as an option in any appropriate channel selection dialog (e.g. waveform average settings or Y axis range dialog).

To de-select channels either click again on individual channel numbers or click the rectangular area immediately below the bottom channel number to de-select all.
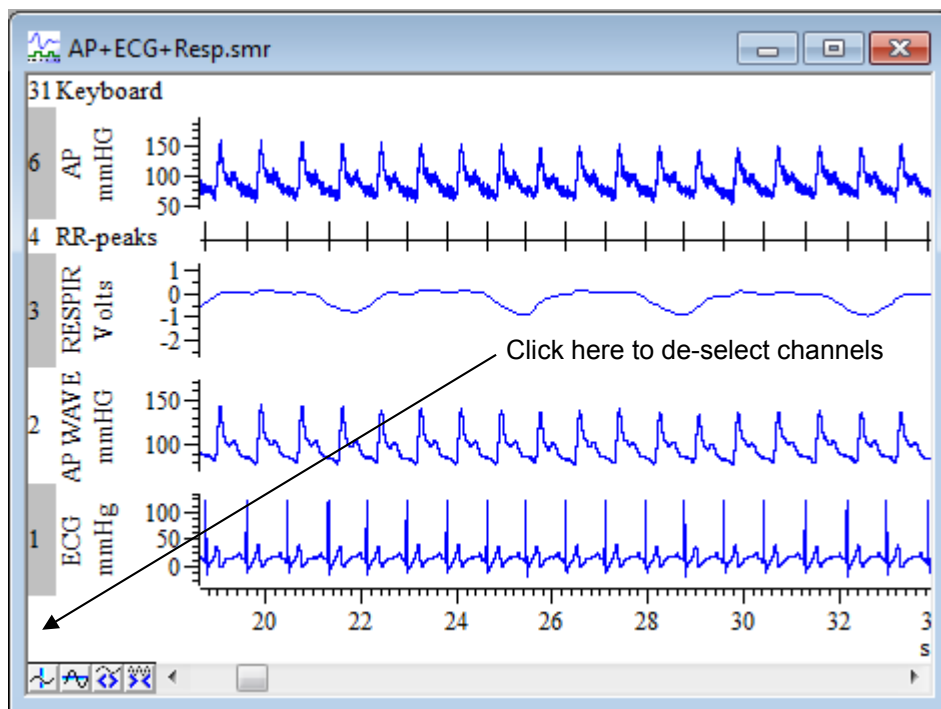

Recent questions

Q.   In order to analyse my data files in Signal I set up active cursors and use the trend plot function. I use 7 cursors and my active mode settings are always the same. Is there a way to save me having to do this for every file?

A.   The recently released Signal version 5.02 now includes the facility to apply resource information to multiple files. This has been possible in Spike2 for some time and was mentioned in ENews #58 in relation to this situation. The resource file (*.sgr) contains additional information about a data file including how it was last displayed, active cursor settings and virtual channels. You can apply saved resource data to the currently open file and set up global parameters to apply particular resources to all files or those opened from a specified location.
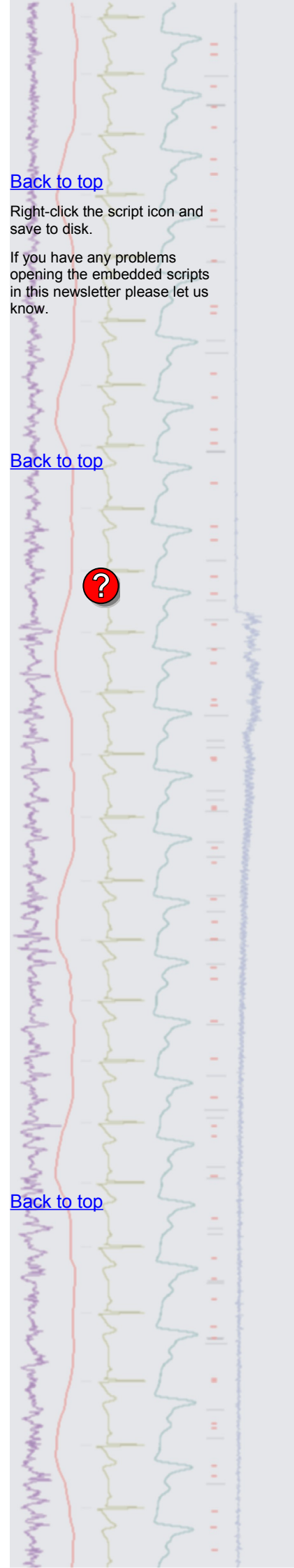
Applying global resources is particularly useful when reviewing data backed up on read only media such as CDs of DVDs which are unlikely to have resource information stored with them unless specifically copied with the data. If no resource file is available the data will be displayed in a default state.

User group

You can now find our eNewsletters archived on the CED website.

Try the 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.