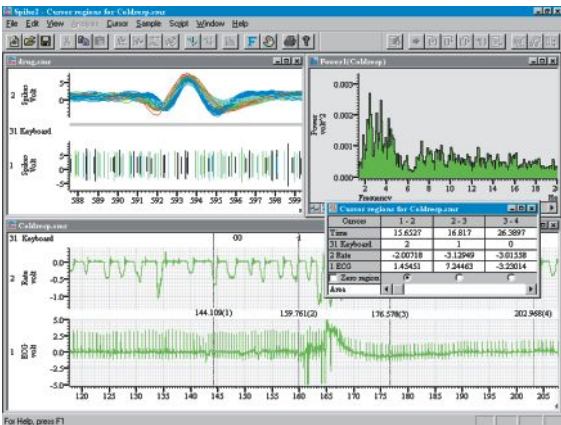
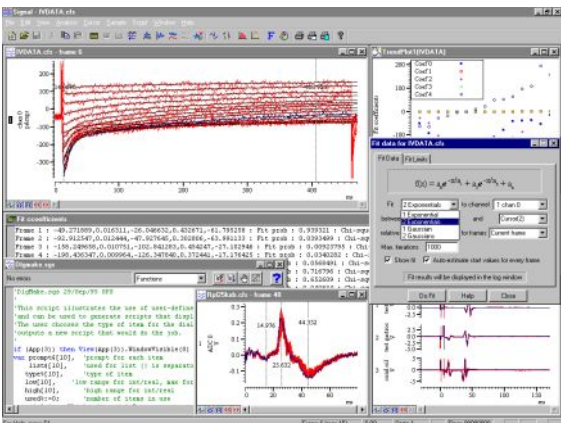


# The Micro1401-3



Spike2 – continuous data acquisition and analysis



Signal – sweep-based data capture and analysis



A selection of expansion units allows enhancement of the Micro3 to suit your application

The Micro1401-3 is a low-cost, versatile data acquisition unit. The on-board processor with high-speed memory is optimised for real-time processing, free from the constraints of the host computer operating system. Fast and accurate sampling coupled with simultaneous output offers extensive on-line experiment control.

## Fast data acquisition and analysis

The Micro3 records waveform data, digital (event) and marker information and can simultaneously generate waveform and digital outputs in real-time for multi-tasking experiment control. It features high-speed waveform data capture at sampling rates up to 500 kHz with 16-bit resolution. The 32-bit RISC processor allows complex on-line analysis while freeing time for the host computer to perform other tasks, such as data manipulation and further analysis.

## Expandable for advanced applications

The expandable design of the Micro3 enables users to configure their systems to suit specific requirements. For more demanding applications, options include:

12 or 24 additional channels of BNC terminated waveform input

128 channels of mass terminated waveform input

Time lock (synchronization) of multiple Micro1401s and Power1401s

Event channels (time stamp) expansion

## CED application software

The CED Spike2 and Signal applications customize the system for use in a wide range of research areas. Advanced software features such as on-line spike sorting in Spike2 and fast sweep modes in Signal are enhanced when using the Micro3.

Tetrode and *n*-trode recording

Sports physiology

Single and multi-unit spike processing

Tremor analysis

Evoked response, TMS and rTMS

ECG, EEG, EMG and EOG

In-vivo and in-vitro studies

Patch and Voltage clamp

Gastro-intestinal studies

LTP, LTD capture and analysis

Cardiovascular studies

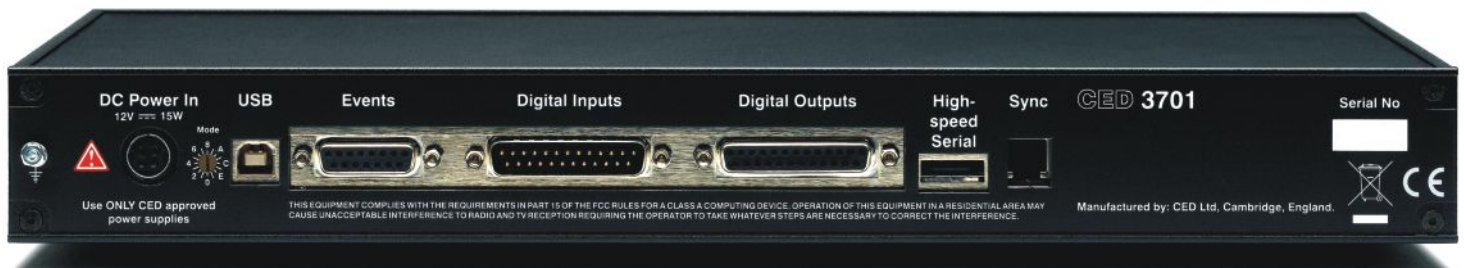
and many more...

Est. 1970

CED

## CED Micro1401-3 technical specifications

<p><b>Waveform I/O</b></p> <p>Waveform input: 4 channels on base unit          Total of 16, 28, 64 or 128 waveform inputs via expansion units          ADC: 16-bit, 500 kHz maximum aggregate sampling rate          Waveform output: 2 channels          DACs: 16-bit, 5 microsecond settling time          Waveform I/O user selectable <math>\pm 5V</math> or <math>\pm 10V</math>          System accuracy and noise: 0.05% of full scale <math>\pm 1.5</math> bits RMS</p>	<p><b>Processor and memory</b></p> <p>32-bit ARM7 processor running at 90 MHz          4 MBytes of fast read-write memory</p>
<p><b>Digital I/O</b></p> <p>Digital inputs and outputs 5V TTL compatible, inputs over-voltage protected          16 digital inputs, 8 with change-of-state detection to microsecond accuracy          16 digital outputs, 8 with clocked outputs for microsecond accurate switching          Handshake lines for byte input and output</p>	<p><b>Case and power supply</b></p> <p>Size: 366 x 48 x 217mm (14.4 x 1.75 x 8.5 ins) (W x H x D)          Rack mount for standard 19 inch laboratory racks          12 Volt DC power option for mobile, trolley or remote applications          External 110-240V 50-60 Hz auto-sensing power supply, 15W approx.</p>
<p><b>Clocks and events</b></p> <p>5 programmable clocks with 100ns resolution          BNC socket for clock inputs and event (clock start) connections</p>	<p><b>Synchronization</b></p> <p>Synchronize (time lock) multiple Micro1401s and Power1401s</p>
	<p><b>Host interface</b></p> <p>USB 2.0</p>



Rear view of the Micro1401-3

## Expansion units

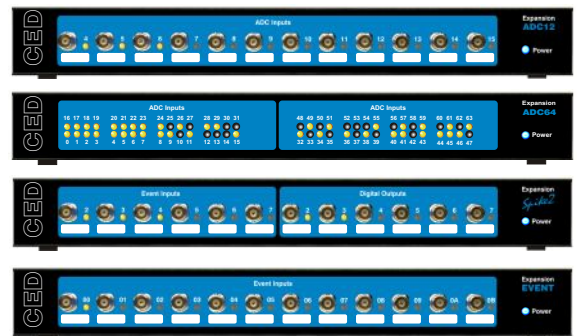
For users who require more inputs and outputs than are available on the standard unit, we offer several expansion options in the form of top-boxes.

**ADC12** – (3001-3) 12 additional channels of waveform input; fit two units for 24 additional channels

**ADC64** – (3701-64) 64 additional channels of waveform input; fit two units for 128 channels

**Spike2** – (3001-9) 6 channels of event input and 6 digital outputs brought to front panel BNC connectors

**Event** – (2501-12M) 12-channel event expansion (expandable to 96 channels) in addition to the 8 dedicated change of state inputs



## Compatibility

Software compatible with CED 1401, 1401*plus* and Power1401 at application level.  
 Runs CED Spike2, Signal and applications written for the CED 1401 family of interfaces.  
 Drivers (32-bit and 64-bit) for Windows XP, Vista and Windows 7/8/10.  
 Intel Macintosh running Windows.



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