The POWER**1401-3A**

The Power1401-3A is our latest high-performance data acquisition interface. It uses advanced processor technology to give you all the power and flexibility you need in a state-of-the-art laboratory interface.

Multi-channel on-line spike discrimination with 'spike monitor' display

Fast data acquisition and analysis

The Power1401 records waveform data, digital (event) and marker information, and can generate waveform and digital outputs simultaneously for real-time, multi-tasking experiment control. The Power1401 features a 1 GHz Marvell processor and up to 2GB of on-board memory to facilitate high speed data capture, independent waveform sample rates and complex on-line analysis, freeing valuable time for the host computer to perform other tasks, such as data manipulation and further analysis.

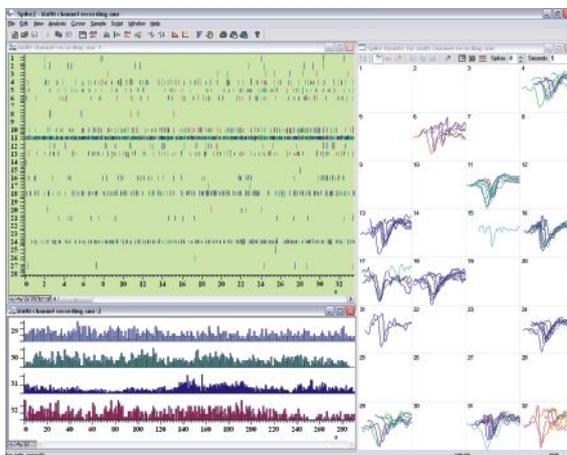## Expandable for advanced applications

The modular design of the Power1401 enables users to upgrade their systems to benefit from new technology with expansion modules for specialist signal processing.

- Up to 48 channels of waveform input
- 1 Gbyte of memory or optional expansion to 2Gbytes
- Dynamically programmable amplifier option
- User-selectable ±5V or ±10V input and output ranges
- Synchronization with other CED 1401s (Powers & Micros) for large numbers of channels, all accurately timed
- USB 2.0 high-speed connection
- Firmware upgrades via CED web site

Dynamic clamping in action

CED application software

CED software packages, such as Spike2 and Signal, customise the system for use in a wide range of research applications, including:

- Single and multi-unit spike processing
- Dynamic clamping
- ECG, EEG, EMG & EOG
- Evoked response
- In-vivo and in-vitro studies
- Gastro-intestinal studies
- Cardiovascular studies
- Tremor analysis
- Sports physiology
    - ...and many more

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CED Power1401-3A technical specifications

Waveform I/O	Processor and memory
16 channels of 16-bit waveform input, software switchable ±5V or ±10V Up to 48 waveform inputs via expansion units Maximum sampling rate: 1 MHz multi-channel, up to 3 MHz single channel System accuracy and noise: 0.05% of full scale ±1.5 bits Optional programmable gain x1, x2, x5, x10 4 waveform output channels, 16-bit, switchable ±5V or ±10V Up to 12 waveform output channels via expansion unit	32-bit Marvell MV78100 1 GHz processor 1 Gbyte of read-write memory, option of 2 Gbytes
	Case and power supply Size: 428 x 48 x 230mm (16.85 x 1.89 x 9.0 inch) (W x H x D) Rack mount for standard 19 inch laboratory racks Low-noise fan cooling for enhanced reliability External 110-240V 50-60 Hz auto-sensing power supply, 45W approx.
Digital I/O 16 digital inputs, 8 with change-of-state detection to μs accuracy 16 digital outputs with handshake lines for byte input and output	**Synchronization** Synchronize (time lock) multiple Power1401s and Micro1401s (mk2 units or later)
Clocks and events 5 programmable clocks with 100ns resolution Connector for clock inputs and events (clock start)	**Host interface** USB 2.0

Rear view of the Power1401-3A

Expansion units

For users who require more inputs and outputs than are available on their Power1401 main unit, we offer several expansions in the form of top-boxes.

Spike2 expansion - (2701-9) 8 additional channels of waveform input, 2 further channels of waveform output and 6 event input BNCs

Signal expansion - (2701-5) 8 additional channels of waveform input, 4 further channels of waveform output and 2 digital output BNCs

ADC 16 - (4001-3) 16 additional channels of waveform input

PGA 16 - (2701-4) 16 additional waveform channels with a wide range of programmable gains

Compatibility

Software compatible with CED Power1401, 1401*plus* and Micro1401 at application level. Drivers for 32-bit and 64-bit versions of Windows XP, Vista, Windows 7, Windows 8 and Windows 10, including Intel Macintosh running Windows. We recommend that the PC has 2GB minimum of RAM.

CED   Cambridge Electronic Design Limited   www.ced.co.uk