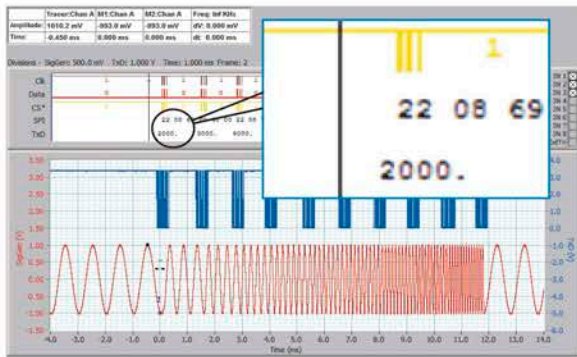


The Cleverscope CS328A is a USB 2.0 mixed signal PC oscilloscope with a high quality signal processor and unrivaled user interface. The innovative approach delivers an unbeatable combination of affordability, flexibility, ease of use and simple documentation of test results that will immediately increase your productivity.

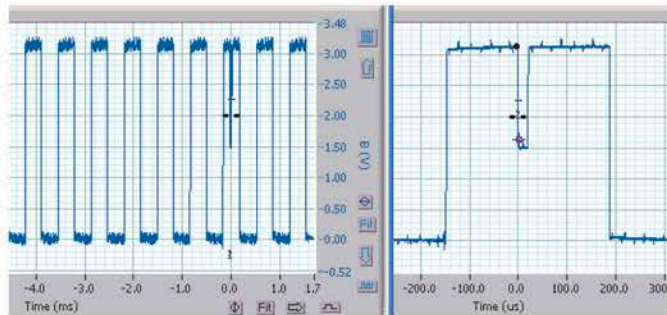
The deep memory ensures the full 10ns resolution is maintained right out to a 40ms capture window. The signal captured can be brought out and explored either in the cleverscope software or exported for analysis in Matlab, Excel or other programs.

The dual independent mixed signal triggers give great flexibility to ensure the exact event you want to see is being captured.

**Protocol Decoding** Decode SPI, I2C, or RS232 based data streams 4M samples long. The decoder is fully configurable, and can save time stamped results to a text file.



**Triggering.** Here is an example of the deep memory and dual trigger in use. Notice the runt pulse on the left which has been captured using the dual trigger, which leads to the zoomed in view on the right.



**Short Specification** (A detailed technical specification and full manual are available on our website)

- Two 10, 12 or 14 bit analog channels sampling simultaneously at 100 MSa/sec. AC or DC coupled.
- USB 2.0 or 100MHz Isolated Ethernet Interface
- Gain automatically set from 20mV full scale to 800V full scale by choosing graph view and probe switch setting.
- Offset automatically set to correspond to the selected amplitude axis view. As an example a graph with amplitude axis of 2.40 to 2.42V automatically chooses a 20mV range offset by +2.40V – good for looking at small signals in single supply op-amp applications.
- Analog triggering of the waveform in view with a resolution of 1% of the display height. The analog trigger may optionally be conditioned with a low pass, high pass or noise filter.
- One external trigger, threshold adjustable from 0 to ±20V in 40 mV increments.
- A dual hardware trigger system based on a rising or falling edge on any input signal, optionally qualified by a user defined digital input combination, triggering when one or both trigger conditions are met, and the time between triggers is less than, in or more than a user defined range, or the trigger count equals a user defined value.
- A rear panel I/O connector with a 100 Mbit/sec bi-directional LVDS/RS422 link, and three RS422 outputs defaulting to sampling started, trigger received and sampling stopped.
- Each channel (two analog, ext trigger and eight digital) includes 8M samples of storage, providing 40 ms of simultaneous storage for each channel, with 10 ns resolution.
- The sample storage may be allocated as between 2 to 3000 frames varying in size from 4M to 2000 samples. These may be used as a history store for reviewing previously captured signals, or to capture up to 3000 trigger events with a minimal inter-frame delay, while maintaining time relative to the first trigger for all succeeding frames.
- 20 MHz 5th order Anti-alias filter for improved Spectrum Analysis performance.
- Input power range from 6 ~ 12V, 6W provided by a universal mains adaptor.
- Low jitter (1 ps rms) sampling clock for 70 dB spurious free dynamic range.
- Self calibration to ensure DC performance specifications are met.

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mixed signal oscilloscope and spectrum analyser

- ♦ 100 MHz Bandwidth
- ♦ Dual mixed sig trigger
- ♦ 2 analog, ext trig and 8 digital inputs
- ♦ 14 bit sampling
- ♦ 8MSamples/channel
- ♦ Charting up to 1.5MS/sec
- ♦ 100 MSamples/sec
- ♦ Simple cut and paste into documents
- ♦ Regular software and firmware updates



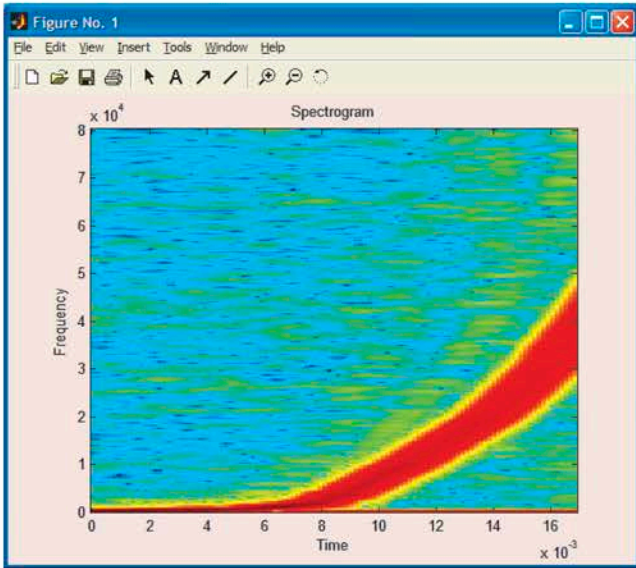
**An engineer's toolbox -**

- ♦ Oscilloscope
- ♦ Tracking Graph
- ♦ Spectrum Analyser
- ♦ Multimeter
- ♦ Maths Equations
- ♦ Matlab interface
- ♦ Function Generator
- ♦ File Storage and Review
- ♦ Drivers for C, Delphi

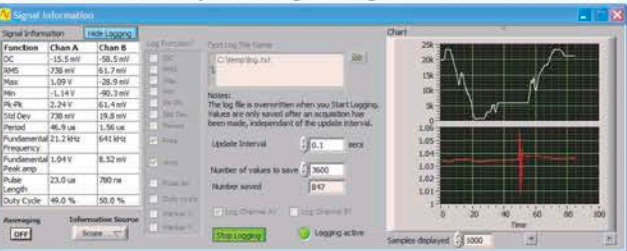


**Charting.** Capture waveforms continuously to hard disk at up to 1.5MS/s. Snappy zoom and review even with 10G samples. Use the tracking graph to look at any portion of the signal, with any zoom, while capture continues.

**Matlab Processing.** Use the maths equation builder to call a Matlab function for further processing—for example this spectrogram plot of a frequency chirp.



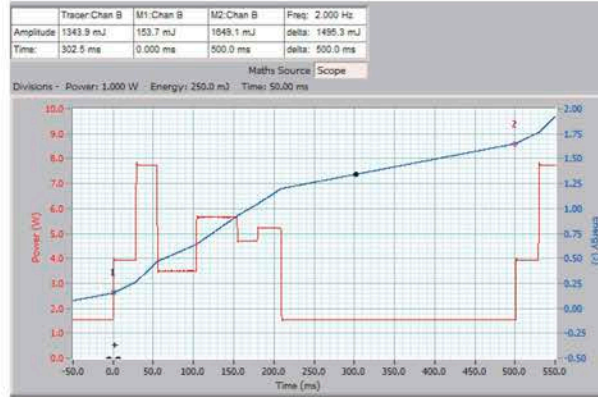
**Signal Information** displays many signal derived values such as Freq, RMS amplitude and THD. Log to disk at up to 10Hz indefinitely, viewing the signal chart in real time.



**Maths Equation Builder.** Use the maths functions to present the information in useful real-world units such as Watts and Joules. Includes integration, filtering, trig functions and multiline maths.

For example, by measuring voltage, and using a small inline resistor to measure current, you can calculate and display current, voltage, power and energy, all in real-world units.

Custom units on all graphs allow you to scale and give meaningful names to the axes of the display.



Visit our website for in-depth information, free demonstration software, training videos and examples. You can also send us an email or contact one of the distributors listed on our website.

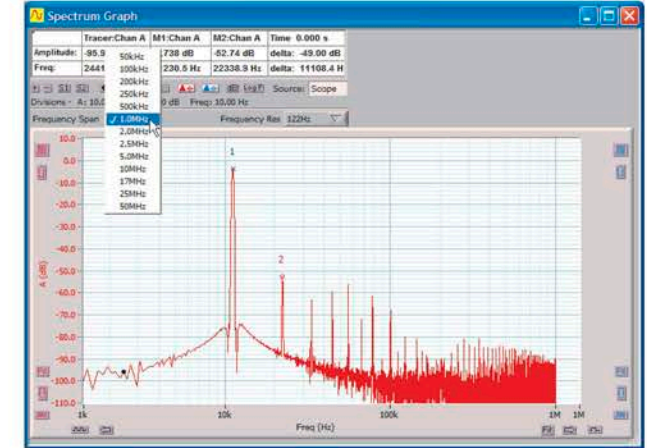
**options**

- ◆ 10, 12 or 14 bit samplers
- ◆ 4 or 8 MSamples of memory depth per channel
- ◆ USB 2.0 or isolated ethernet
- ◆ Sine, square and triangle swept Signal Generator
- ◆ External sampler clock interface
- ◆ Link cable for four channel operation
- ◆ Language selection for tool tips and menus
- ◆ 100:1, 1000:1 and Differential probes available
- ◆ Windows or Linux - also OSX in a virtual machine

Compatible with XP, Vista, Windows 7 and Linux



The **Spectrum Graph** allows you to set frequency span and resolution. Frequency can be linear or logarithmic - especially useful for bode plots. Tracking cursors allow you to measure key points on all graphs, with the display giving deltas between them in both axes.



**testimonials**

unsolicited comments from users

*"I find your CS328A to be a very nice product, perhaps the best in its market segment."*  
M Linden, USA

*"I can comment on the Cleverscope. I've been using it for about one year and it's simply great. Will probably buy another one next month. Linking two of them you have a four channel analog and 16 bit analyzer."*

E Brusque - Brazil

*"Scope has been going well, bloody impressed with it."*  
H Rawnsley, New Zealand

*I have 3 different digital Oscilloscopes, two of them USB types and of all of them, this is the one I work with"*

R Dunn, Australia

*"This CS328 is absolutely wonderful, I'm thrilled to bits with it. The software is light years in front of your opposition. The Maths function make me almost believe I'm using a LeCroy."*

R Marmion, UK