



Display++

Calibrated LCD display with integrated touchscreen provides precision and control for visual-motor studies.

Display++ makes it simple to display calibrated visual stimuli with precision timing, and provides robust and reliable synchronisation of the stimulus presentation with external data collection equipment, at an affordable price.

- Assess visual-motor integration with synchronised visual stimuli and reach/touch measurements.
- Assess reaction times, motor error and adaptation with the integrated clock and touchscreen.
- Assess eye-hand coordination with optional eye tracker.

Built-In
Touchscreen
Technology

www.crs ltd.com/display++

M0250 & M0251

Display++ with Touchscreen

Get your timing right - time and time again...

→ Robust glass IR touchscreen

We selected high quality infra-red touch screen technology, and built it directly into Display++. This gives a streamlined, easy-to-clean design with a durable glass surface and no additional layers to obscure your stimulus.

It's sensitive enough to detect contact from rodents, and robust enough to withstand repeated impacts from NHPs.

- High spatial accuracy: 3-4 mm
- Synchronous deterministic timing: 10ms resolution
- Toughened glass surface: no sensitive coating, high durability
- Optical clarity: near 100 % optical transmission
- Touch methods: bare or gloved finger or any solid object, with no pressure required
- No calibration needed

→ Trusted CRS technology

Cambridge Research Systems ViSaGe and Bits# visual stimulators are ubiquitous in vision labs all over the world, trusted for precise control of colour, contrast and timing.

Display++ integrates all the benefits of our proven technology with a display device designed from the ground up for science. It's as easy to use as a normal computer monitor, and compatible with community tools like Psychtoolbox and PsychoPy, and commercial tools like Presentation and Psykinematix, or your own software.

As always, we are transparent about the advantages and limitations of the technology, so you can understand which features really affect the quality of your stimulus. There are no secrets to Cambridge Research Systems' products - just great engineering, which we are happy to explain.

→ Sensibly priced - from £6250 including touchscreen

→ Precision internal timing

Full integration delivers precise timing of visual stimuli and touch registration. All touches are time stamped internally, and therefore unaffected by non-deterministic host computer uncertainties.

Touch coordinates and time stamp are returned to the host computer on USB. The optional analogue I/O module provides positional information directly encoded on 2 DACs. The internal timer can also register visual stimuli (e.g. onset or offset), response box presses and external triggers.

Fully loaded specification

Configurable contrast resolution combined with fast panel drive rate, custom lag free electronics, and a strobing, scanning LED backlight are some of the tools that make Display++ ideal for cognitive, psychophysical and neurophysiological investigations of vision and the brain.

- High quality 32" 1920x1080 IPS LCD
- 120Hz panel drive
- 10-bit RGB native, configurable up to 16-bit using temporal dithering algorithms
- Real time calibration ensures accurate luminance, regardless of the effects of warm up and ageing
- Hardware gamma correction tables and CRS colour management system ensure accurate colour reproduction over the entire gamut
- Light output is synchronous and lag-free
- Strobing, scanning backlight to minimise transition artifact
- Contrast ratio 1400:1
- 5ms grey-to-grey response time
- Multiple synchronous TTL trigger outputs
- 2 stereo modes: alternate frame with active shutter glasses, or optional flicker free with passive FPR glasses
- Optional integrated synchronous analogue I/O
- Integrates with CRS audio, eye tracking and behavioural response devices, and compatible with solutions from other vendors.

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