Eyetracking for Laboratory Research

CAMBRIDGE RESEARCH SYSTEMS

LiveTrack Lightning

Affordable 500Hz video eye tracking.

LiveTrack Lightning delivers accurate, precise estimates of eye rotation, Direction of Gaze coordinates and pupil size. Ideal for oculomotor research; it is easy and fast to setup and calibrate. Record saccade metrics, gaze contingent displays, and monitor observer behaviour and pupil response during visual psychophysics and cognitive neuroscience experiments.

LiveTrack Lightning operates as a standalone system but also neatly integrates with the Display++ Touchscreen LCD monitor, AudioFile stimulus processor, and the other *Tools for Vision Science* in our range.

NEW
binocular
500Hz

www.crsltd.com/lightning

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LiveTrack Lightning

500 Hz Eyetracker for Laboratory Research

Presto: Dedicated eye tracking hardware

The remote Lightning imaging module is designed to be sited a short distance away from the observer. Its optical configuration supports monocular and binocular tracking, and is designed to work with a chinrest to provide very high quality data.

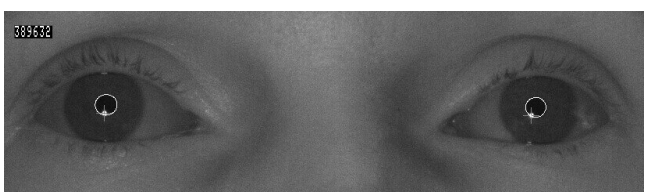
Lightning connects to the LiveTrack Presto unit to generate the data; this is a compact embedded eye tracking system which interfaces to the stimulus computer by USB.

In real-time, Presto automatically identifies the dark pupil and corneal reflections in each eye, then calculates eye rotation and Direction of Gaze.

Video images, tracked eye position and pupil size data are transferred to the stimulus computer via a high-speed, low latency USB interface. This approach means no extra processing load on the stimulus computer and no complicated real time programming is required.

LiveTrack Lightning Module

LiveTrack Presto Unit



Binocular eye tracking at 500Hz in each eye

Monitor observer performance via live video

The live video from the Lightning module is combined with the tracking data from the Presto unit, then the composite stream made available to view on the Presto HDMI and USB interfaces. Get instant feedback to learn how the observer is performing by plugging a standard LCD monitor into the Presto HDMI output. The USB video output is provided in UVC format just like a webcam; it can be viewed with the LiveTrack host software tools and captured by a range of third-party utilities.

Very easy integration and synchronisation

The LiveTrack USB data interfaces are simple to integrate with MATLAB, Python and C on any computer regardless of the operating system; a simple API is provided to facilitate development of custom software. Also works with Presentation and ePrime and other third-party software. Plug&Play installation on Windows, MacOS or GNU/Linux with no proprietary drivers required.

The Presto unit includes a full array of digital and analogue I/O to make it easy to trigger, synchronise and transfer the eye movement data to other equipment.

Performance

Measurement technique: Video. Dark pupil and first Purkinje image
Guaranteed sampling frequency: 60 - 500Hz with no dropped frames
Resolution: Down to 0.05°
Accuracy: 0.25° - 0.5°
Horizontal range: 30°
Allowable head movement: ±20mm
Measurement units: Fick, Helmholtz coordinates in degrees, and screen position in mm. Uncalibrated raw data is also available for your own custom calibration.

Imaging

Camera type: Digital CMOS sensor with integrated IR illumination
Infrared illumination wavelength: 940nm

Supplied Software

LiveTrack Viewer for camera alignment, Direction of Gaze calibration, and pupil size calibration. Supports data logging to file and real-time plots.
Toolbox for MATLAB
C API

Host System Requirements

USB 2 port
Windows 7 64-bit or later, Mac OS X 10.11 or later, GNU/Linux

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