



## Head Fixed Eye Tracking System Specifications

Item	Specs
Tracking Method	Infrared video. Bright pupil or dark pupil. Monocular or binocular options.
Software	PC
Measurement principle	The user can select between three methods: Pupil only, corneal reflection only, or both together for greater tolerance to head movements.
Accuracy*	Approximately 0.25° - 1.0° visual arc
Spatial resolution*	Approximately 0.15° visual arc
Temporal resolution	selectable by the user between 60 Hz and 30 Hz.
Allowable head movement	Small movements allowed. Subject's pupil and corneal reflection must remain within the camera image.
Visual range	Horizontal: +/- 44° of visual arc Vertical: +/- 20° of visual arc
Pupil size resolution	Measures pupil height and width to better than 0.03 mm instantaneous (no averaging).  ViewPoint starts in a roughly calibrated state that is adequate for determining screen quadrants or other relative movement measurement such as objective preference-of-looking tasks.
Calibration	For accurate position of gaze, calibration is required only once per subject. New subject setup time between 1-5 minutes. Calibration settings can be stored and reused each time a subject returns.  Easy Slip Correction feature and re-presentation of stray calibration points.
Auto threshold	The program scans over the video image for the pupil and / or for the corneal reflection. The luminance threshold for discriminating these can be adjusted. The auto threshold feature provides good threshold levels automatically. Little or no manual adjustment required.
Blink suppression	Automatic blink detection and suppression.
Data recorded	Eye data: X, Y position of gaze, pupil height and width, ocular torsion, delta time, total time, and regions of interest (ROI).  Asynchronous records include: State transition markers, key presses, data from other programs.  Data is stored in ASCII files.  Same computer: Software Developers Kit (SDK) supplies everything you need for seamless interface between ViewPoint and your program. This includes: DLL with shared memory, .h and .lib files plus sample source code written in C Language.  Serial port: Sends eye data packets and asynchronous packets equivalent to information in ASCII data files at rates of up to 56K. Receive real time data from other programs and store it asynchronously into data files.
Real-time communication	AnalogOut option: Selectable unipolar or bipolar voltage ranges: +/- 10, 5, 2.5 Selectable data items: position of gaze (x,y), pupil (h,w), velocity (dx,dy), and raw pupil, glint or vector data. TTL capabilities. 2, 4 or 8 channel options.  TTL in/out option: Eight TTL input channels are interfaced to place marker codes into the ViewPoint data file. Eight TTL output channels that indicate when the position of gaze is inside ViewPoint region of interest areas ROI-0 to ROI-7.  Ethernet: full real-time synchronization across machines via the ethernet.
Real-time display	Gaze point history, gaze trace, fixation duration, pupil size and ROIs, can be graphically displayed over stimulus image. Visible to the user and / or the subject.  Real-time pen plots of X and Y position of gaze, velocity, ocular torsion, pupil width and pupil aspect ratio.
Stimulus Presentation	Pictures and movies can be displayed in full stimulus windows or in user specified ROIs. Auditory cues can be integrated. Gaze contingent stimulus presentation via state logic.
System requirements:	OS: Windows XP, Vista Machine: Pentium compatible