smart eye

Pilot Training

Enhancing Pilot Performance with Precision Eye Tracking

Mastering visual scanning techniques is critical for pilot training and flight safety. Smart Eye's real-time eye tracking technology provides unparalleled insights into a pilot's focus, attention patterns, and reaction times — helping instructors identify strengths and areas for improvement.

Our pilot training package integrates seamlessly into simulators, offering a minimal visual footprint while delivering maximum data insights. The system's infrared-based tracking ensures reliable performance regardless of ambient lighting, with no distractions for the pilot. It can be easily integrated with a tailored training application, developed either by one of our partners or custom-built by the customer, using our core eye tracking solution.

Smart Eye's Pilot Training package is available in two configurations:

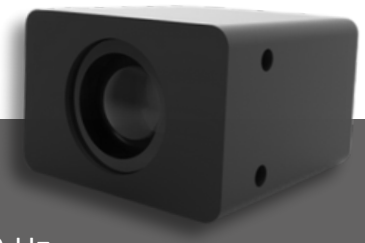
- **Single-pilot system –** optimized for training scenarios with one pilot in a simulator.
- **Pilot and co-pilot system –** tracks both pilots simultaneously for multi-crew training.

General Specifications and Features

Free Placements of Cameras	Flexible system where cameras are located based on customer setup
Eyewear Compatibility	Glasses, contact lenses, and non-IR-blocking sunglasses or visors
Light Independent	Active IR illumination fits all lighting conditions
Multiple Pilot Setup	Single Pilot or Pilot and Co-Pilot setup available



Technical Specifications



Designed for seamless integration, Smart Eye's pilot training solution offers high-precision tracking in a compact form. The small, nearly invisible hardware maintains an authentic training experience while delivering real-time, high-resolution gaze and head tracking.

With a sampling rate of 60 Hz, the system accurately measures head position, rotation, eye gaze, pupil size, and blinks — providing instructors with actionable data to optimize pilot training.

By offering precise, real-time data without disrupting the pilot's field of view, Smart Eye's Pilot Training package brings objective measurement into flight training, ensuring that pilots develop the skills needed for safe and efficient air travel.

Sampling Rate	60 Hz
Camera Dimensions	13 x 20 x 21mm
Visual Footprint of Camera	5 mm in diameter (if mounted behind panel)
IR-Flash Dimensions	13 x 24 x 36mm
IR Wavelength	940nm
Physical Interface	USB3
Head Position Accuracy*	+/-5mm horizontally and vertically, +/-5cm depth
Head Rotation Accuracy*	2 deg.
Gaze Accuracy*	2 deg. (precision gaze), 5 deg. (calibration free gaze)
Camera - Eye Distance	40-80 cm
Head Box	+/-20 cm horizontally, +/10 cm vertically at 60 cm
Precision Gaze FOV (WRT Camera)	+/- 20 deg. horizontally, +25 deg. Up, -10 deg. down
Calibration Free Gaze FOV (WRT Camera)	+/- 75 deg. horizontally, +45 deg. Up, -30 deg. down
Output Data	Head pose, eye gaze
Additional Features	Eye position, pupil size, blinks, automatic pilot profile switch, other biometric signals

** Typical accuracy under normal operation, but may vary between pilots*

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Contact us to schedule a demo or learn more: smarteye.ai/contact