Neon

Head Mounted Eye Tracking System

Pupil Labs GmbH, Sanderstr. 28, 12047, Berlin, Germany
www.pupil-labs.com /

Eye tracking for research and beyond.

Neon removes barriers traditionally associated with eye tracking. It's easy to use: no setup, no calibration. NeonNet, our deep learning gaze estimation pipeline, provides you with unprecedented data quality even in the most demanding conditions.

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Overview

Accuracy	1.8 deg uncalibrated 1.3 deg with offset correction
Performance Evaluation	Neon Accuracy Test Report
Eye Tracking Technology	Real-time neural network
Binocular Eye Tracking	Yes
Slippage Compensation	Slippage invariant. Deep learning powered.
Calibration	Calibration-free
Real-time Data	2D gaze points in scene camera coordinates at 200 Hz Full head pose, accelerometer and gyro data at 110 Hz IR eye video showing fused eye regions at 200 Hz RGB scene video at 30 Hz Pupillometry data and eye state at 200 Hz. Real-time data available in the Companion app. Eye position, eye orientation, pupil diameter
Post-hoc Data	Fixation and blink data.
Open Data Format	Freely save and access all data with no restrictions. Data is saved in convenient and fully documented formats. There are no license restrictions limiting your rights to use your data.

Hardware

Module Weight	7 g
Module Dimensions	Width: 40 mm Height: 35 mm Depth: 10 mm
Scene Camera FOV	1600 x 1200 @30 Hz H: 103°, V: 77° Diagonal FOV 128°
Eye Camera	2 IR Eye Cameras 192 x 192 @200 Hz
IMU	Accelerometer, Magnetometer, Gyroscope.
Microphone	Dual Microphones
Battery Recording Time	Up to 4 hours 25+ hours of recording storage
Computing Device	Mobile computing device: Motorola Edge 40 Pro.
Frames	Frames designed to suit your research and application needs.
Cable	USB-C

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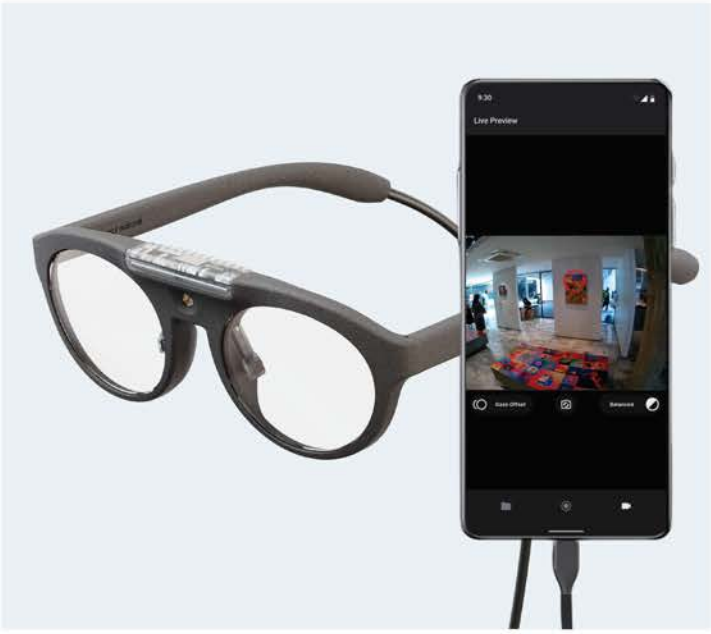

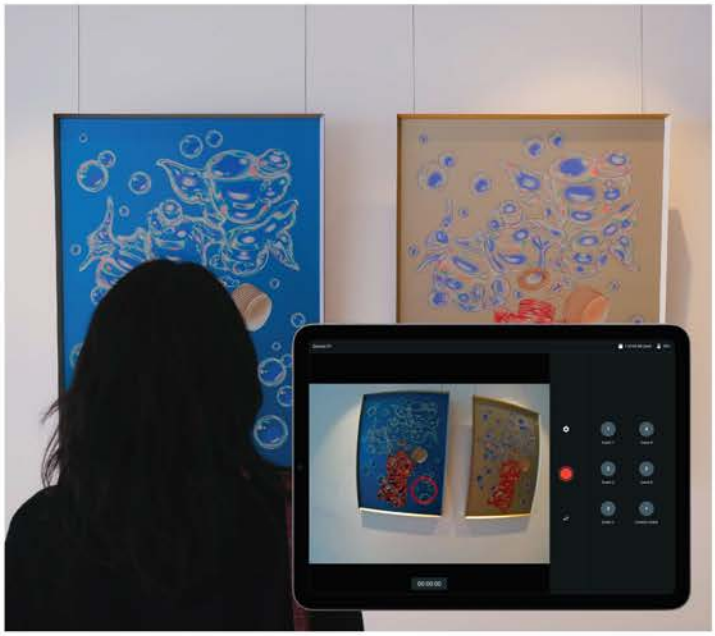

Data Capture and Real-time

Neon Companion App

- Live preview of gaze data, scene video, and eye videos
- Pupillometry and eye state data
- Tracking of metadata like subject demographics via questionnaire
- Subject management
- Instant playback of recordings made on the device
- Automatic upload of recordings to Pupil Cloud for storage and analysis. (Optional/Opt-in)

Monitor App

- Live preview of gaze data and scene video from all available devices in the local network.
- Remote control devices in the local network to start & stop recordings.
- Set events in real-time to mark times of interest during a recording.

Real-time API

- Real-time API allowing access to generated data and to remote control devices programmatically.
- Real-time access to gaze data, scene video, IMU data, eye videos, eye state data, battery level and more.
- Pupillometry and eye state data
- Endpoints to start & stop recordings, and to set events.
- A Python client is available.

Analysis and Data Logistics

Cloud	Pupil Cloud is our web based eye tracking platform for data logistics, analysis, and visualization. We leverage cloud computing power to help gain insight into your eye tracking datasets.
Automated Gaze Mapping	Pupil Cloud provides tools to fully automate the traditionally labor-intensive task of manually mapping gaze to objects in the environment. Learn more about our tools.
Data Visualizations	Flexibly aggregate and explore your data. No code required. Generate traditional heatmaps or configure gaze overlay appearances and export your recording straight from Pupil Cloud. Learn more about visualizations.
Data Export	• Raw data • CSV data for all raw data streams and fixations and blinks • CSV data from enrichments and visualizations
Data Logistics	• Automatic uploads • Collaboration & Sharing • GDPR Compliant • Event annotation
Cloud API	Cloud API is still in alpha stage and not public just yet! If you're looking to build an integration with Pupil Cloud we can provide early access. Just get in touch.

Develop and Integrate

Overview	Neon integrates with many of the tools you are already using in your research. You can easily build new integrations as all data is time stamped and easy to synchronize with other bio-sensors and data streams. Learn more about integrations.
Software Integrations	• Lab Streaming Layer • PsychoPy • iMotions
APIs	Connect with your own tools using our Python Real-time API and Pupil Cloud's API. We have a lot of scripts and examples to help you get started.
Hardware Integrations	Looking to integrate eye tracking into your own hardware or prototype? Neon is modular and ideal for hardware integrations. Send us an email, we are happy to discuss your requirements.

Bundle

Just act natural

Standard: € 5950 / Academic: € 5250

An eye tracker that looks and feels just like normal glasses. Accommodates plano and prescription lenses.

Product ID: ne_jan_hs

Frame Properties

Dimensions (mm):
H52 x W143 x D149 x B21

Weight (with module):
50 g

Material:
PA12 Nylon, CNC machined anodized aluminum

Lens Properties

Dimensions (mm):
LH44 x LW51

Material:
Plano CR-39 Anti-Scratch UV filter, Anti-Reflective, Dust and water repelling coating

Hardware

Machine learning powered eye tracking system and standard adult sized glasses frame.

Android device for real-time gaze estimation, wearer management, recording, and real-time streaming.

Software

Compatible with the Companion App, Monitor App, and Cloud software platform.

Support

Includes 30 minute onboarding video call and standard 12 month hardware warranty.

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Accessory

Head strap

€ 50

Adjustable head strap compatible with ‘Just act natural’ frame. Easy snap-on connection to glasses frame. Adjust the fit by pulling the tabs.

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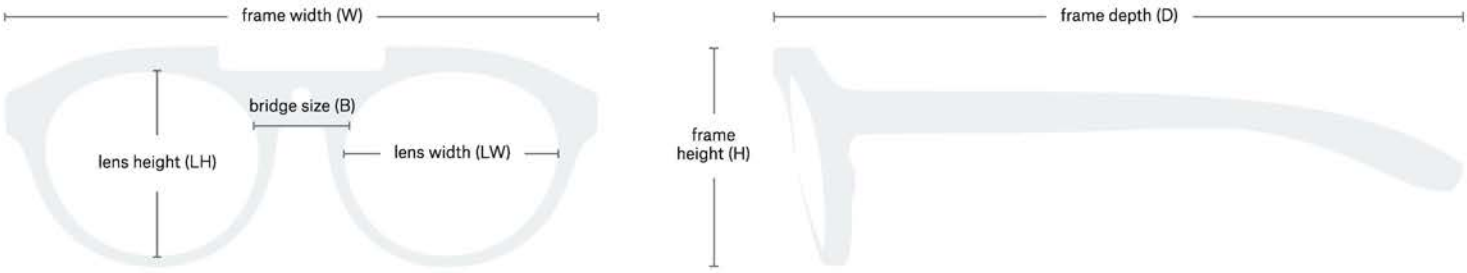
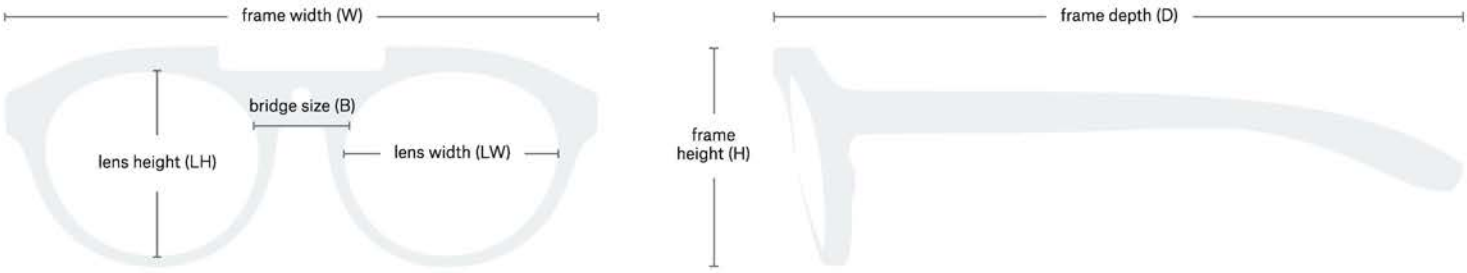
Frame Dimensions



Frame	Frame Properties	Lens Properties	Notes
Just act natural Product ID: ne_jan_hs	Dimensions (mm): H52 x W143 x D149 x B21 Weight (with module): 50 g	Dimensions (mm): LH44 x LW51	
Better safe than sorry Product ID: ne_bsts_hs	Dimensions (mm): H46 x W152 x D135 x B21 Weight (with module): 45 g	Dimensions (mm): LH34 x LW52	
All fun and games Product ID: ne_afag_hs	Dimensions (mm): H49 x W124 x D128 x B19 Weight (with module): 39 g	Dimensions (mm): -	For Kids (Aged 2-8)
I can see clearly now Product ID: ne_icscn_hs	Dimensions (mm): H54 x W143 x D135 x B21 Weight (with module): 66 g	Dimensions (mm): LH46 x LW52	
Is this thing on? Product ID: ne_itto_hs	Dimensions (mm): H46.5 x W152 x D148 x B21 Max. circumference: 760 Weight (with module): 35 g	Dimensions (mm): -	
Ready set go Product ID: ne_rsg_hs	Dimensions (mm): H41.5 x W155 x D145 x B21 Max. circumference: 670 Weight (with module): 30 g	Dimensions (mm): -	

Frame Dimensions



Frame	Frame Properties	Lens Properties	Notes
Crawl walk run Product ID: ne_cwr_hs	Dimensions (mm): H41 x W142 x D115 x B21 Max. circumference: 585 Weight (with module): 33 g	Dimensions (mm): -	
Nothing to see here Product ID: ne_ntsh_hs	Dimensions (mm): H52 x W143 x D149 x B21 Weight (with module): 52 g	Dimensions (mm): LH44 x LW51	
Every move you make Product ID: ne_emym	Dimensions (mm): H46.5 x W152 x D148 x B21 mm Max. circumference: 760 mm Max. width: 330mm Weight (with module): 40 g	Dimensions (mm): -	
Bare metal Product ID: ne_bm	Dimensions (mm): H35 x W40 x D10 Weight (with module): 8 g	Dimensions (mm): -	