

# New Light on Glaucoma



Heidelberg Edge Perimeter

# HEP

**HEIDELBERG  
ENGINEERING**

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The Heidelberg Edge Perimeter (HEP) performs innovative functional testing of the visual system. Not only **Standard Automated Perimetry (SAP)**, but also a **NEW** early detection test - **Flicker-Defined Form (FDF)**; <sup>1,2</sup>.

**HEP is a 2 in 1 perimeter!**

**Now you have the best of both worlds** – whether you are screening for disease or whether you are monitoring established glaucoma patients.

HEP meets all state-of-the-art requirements for static perimetry in a space-saving, compact design.

<sup>1</sup> Rogers-Ramachandran D. et al.; Vision Research 1998;38:71-77.

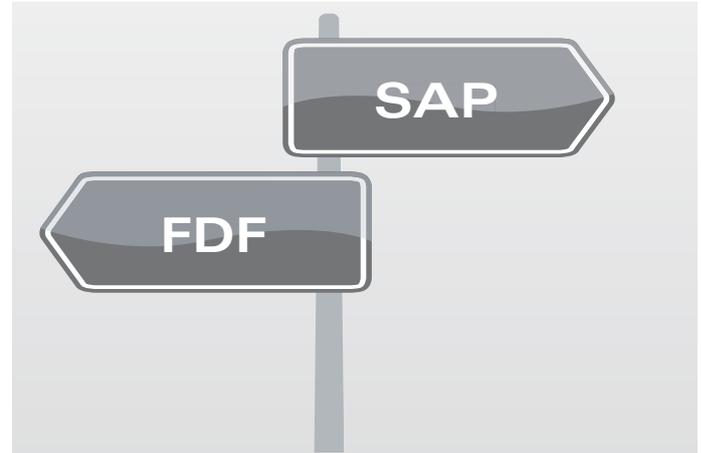
<sup>2</sup> Flanagan JG. et al.; Perimetry Update 1994/1995; 405-409.



## Stage-Specific Perimetry

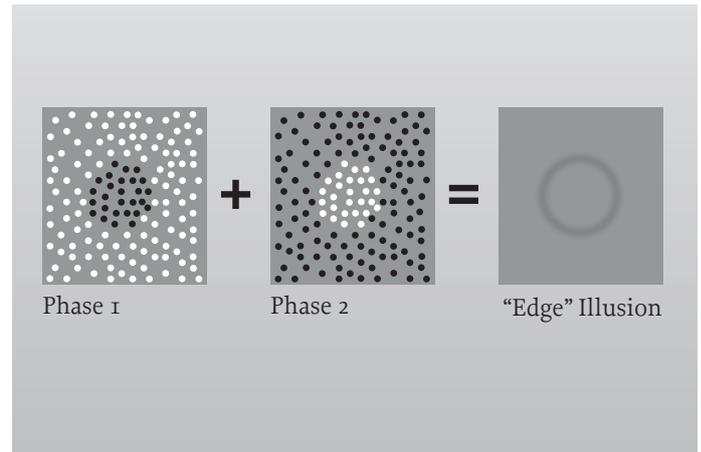
Visual field testing remains the main diagnostic tool to provide information about a patient's visual function, quality of vision and quality of life. Functional testing supports clinicians in early disease detection, staging of disease or trend analysis in progressive glaucoma.

2-in-1 perimetry with HEP offers the most appropriate test for each stage of disease. It allows you to offer the right stimulus to your patient at the appropriate stage of disease.



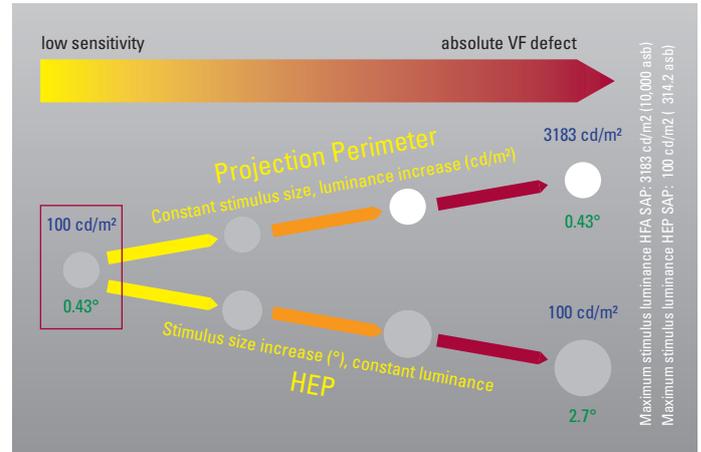
## Flicker-Defined-Form Perimetry

The FDF stimulus or Contour "Edge" Illusion has been shown to be useful for detecting visual field loss in patients with **early glaucoma**<sup>(3)</sup>. A 5-degree circular stimulus is created by a phase reversal of black and white dots that flicker in counter-phase to the background dots. The flicker creates an illusory edge contour that the patient perceives as a gray patch or circle against the mean luminance background<sup>(4)</sup>. FDF Perimetry has been proven to correlate to structural defects detected by HRT or SPECTRALIS® OCT<sup>(5,6)</sup>.

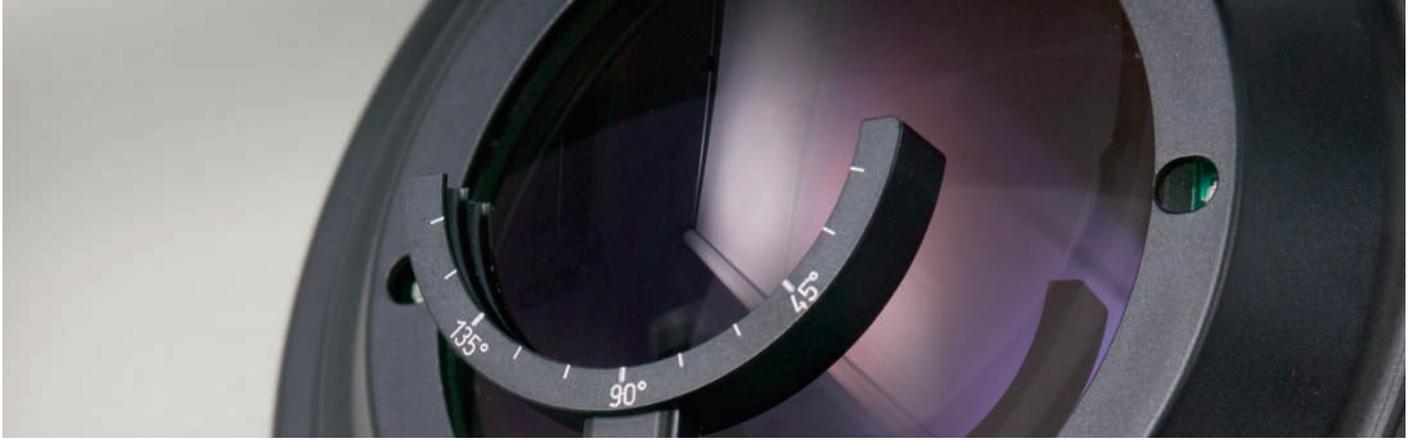


## Standard Automated Perimetry

Standard Automated Perimetry (SAP) or **white-on-white perimetry** is best suited for patients with **moderate to severe progressive disease** and thereby offers continuity of care. The HEP monitor-based system offers full dynamic range perimetry and has proven to deliver equivalent results to a projection-type perimeter<sup>(7,8)</sup>. The HEP offers a unique W/W Perimetry using a Goldmann size III target for the 40 dB to 16 dB range. From 15 dB to 0 dB, the stimulus size is increased following the Goldmann equation to give perceptual equivalence<sup>(9)</sup>. This unique approach enables full-range Standard Automated Perimetry and ensures good test-retest characteristics.



3 Fingeret M. et al.; ARVO 2010; Program/Poster: 5509/A564.  
 4 Quaid P. et al.; Vision Research 2005;45:1075-1084.  
 5 Butty Z. et al.; ARVO 2011; Program/Poster: 4145/A598.  
 6 Ho Y.-H. et al.; ARVO 2011; Program/Poster: 5076/A56.  
 7 Goren D. et al.; ARVO 2010; Program/Poster: 4335.  
 8 Ferreras A. et al.; ARVO 2011; Program/Poster: 5524/A325.  
 9 Anderson D.R. and Patella V.M.; Automated Static Perimetry. 2nd Edition (1999). Mosby. pp 26-27.



FDF	SAP III	SAP V
IO-3	IO-2	IO-2
24-2	24-2	24-2
30-2	30-2	30-2
30-60N	30-60N	
30-60	30-60	

## Visual Field Tests

HEP is a monitor-based perimeter designed to test central and peripheral vision. It offers a full set of standard tests for the central 10°, 24° and 30° visual field as well as an extension to the periphery up to 60° (100 points).

A **ptosis specialty test** is additionally offered to document disability secondary to blepharoptosis. And the **HEP Driving specialty test** is offered to cover a field of 120° on the horizontal measured using the Goldmann III 4e equivalent.

## Thresholding Strategies

The Heidelberg Edge Perimeter uses three different kinds of **Adaptive Staircase Thresholding Algorithm (ASTA)** strategies covering a broad range of applications.

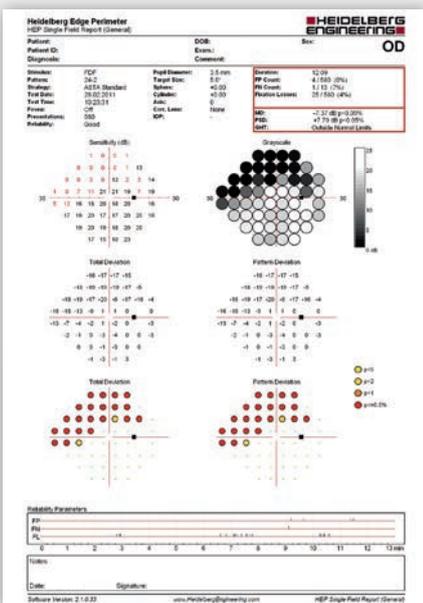
The **ASTA Standard** algorithm for baseline examinations uses a 4-2-2 staircase approach as well as neighboring test target information and a quick termination methodology to reduce test time.

### UNIQUE:

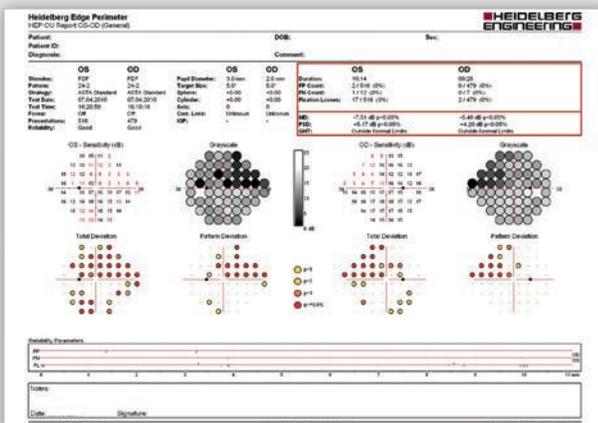
**ASTA Follow-Up** further reduces the test time during follow-up examinations. Results of previous tests are used to seed each location of the field. Test time reductions resulting in a 3 minute test are typically achieved while maintaining the same test sensitivity.

**ASTA Fast** is a short test protocol advised for patients expected to be “within normal limits” or those who have previously shown unusual levels of fatigue. Starting values are based on age-matched normal values.

HEP also offers time-saving screening tests. The **screening** strategy balances the demand for a quick visual field assessment with the need for sufficient accuracy.



Examination Report – Single Eye and OU Report



Choose your favorite report format; either single eye OS-OD or OD-OS or the OU report in portrait or landscape format.



## Trend Analysis

HEP's **Functional Change Analysis (FCA)** applies existing knowledge of the random variability of visual field analyses and flags progressive visual field loss that exceeds the normal level of repeatability. FCA is compatible with ASTA Standard and ASTA Follow-Up examinations.

The FCA is the first trend analysis to provide information on significant change in probability maps for Total Deviation as well as for Pattern Deviation.

Easy-to-read symbols are used to indicate a worsening visual field and assist with interpretation.

FCA is the only trend analysis that can either monitor both slight changes in early disease with FDF Perimetry as well as long-term follow-up with SAP in advanced glaucoma patients.

## Structure-Function Integration

The integration of Heidelberg Engineering devices through the joint HEYEX software platform allows for combined analysis of structural damage of **optic nerve head (ONH)** or **retinal nerve fiber layer (RNFL)** and visual field defects. Data from HRT or SPECTRALIS® OCT can be linked with HEP visual field results to arrive at a conclusive glaucoma diagnosis more easily.

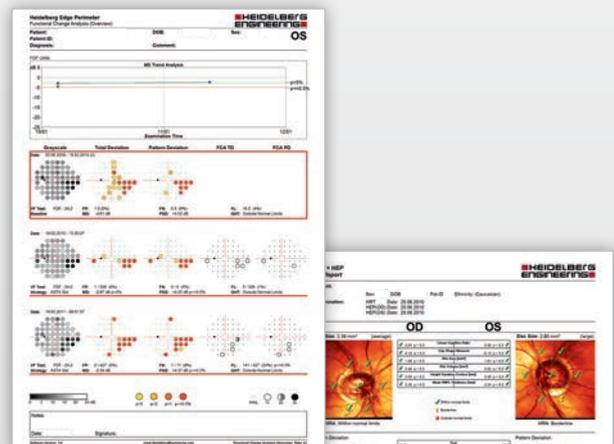
- All relevant information on one report
- Automatically generated in HEYEX
- Improved time and patient management
- Facilitates patient education

## Connectivity

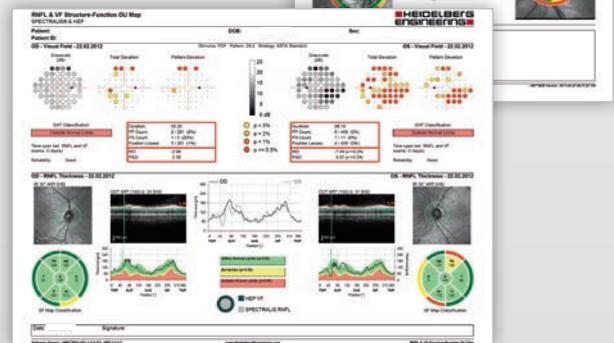
The Heidelberg Eye Explorer (HEYEX) software platform provides flexible solutions from a solo practice to a large clinic environment. The integrated patient database facilitates storage and management of image files from all existing Heidelberg Engineering devices, such as SPECTRALIS, HRT and HEP. Network-viewing software gives easy and reliable access to patient image files on most networked computers supporting seamless consultation and diagnosis.

- HEYEX compatible with SPECTRALIS, HRT and HEP
- Centralized data storage
- Online data access
- Easy retrieval and viewing
- DICOM gateway
- PeriData integration

Image Courtesy Dr. Fritz Dannheim and Dr. Juergen Heine, Germany.



Examination Report – FCA - Trend and Event Analysis Report



Examination Reports - Joint Structure-Function Display - HRT or OCT and VF





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