OCTOPUS 600

See the new pulse in perimetry

Tradition and Innovation – Since 1858, visionary thinking and a fascination with technology have guided us to develop innovative products of outstanding reliability: Anticipating trends to improve the quality of life.

HAAG-STREIT DIAGNOSTICS

OCTOPUS 600
Perimetry simplified

In 1972 Franz Fankhauser and others developed the principles and concepts of automated perimetry which resulted in the design of the first automated static perimeter, the Octopus 201, in 1974. Since then, Octopus has pioneered many significant innovations like the G-pattern, the direct projection system, fast strategies and outstanding software for visual field analysis.

Detecting visual field loss at the earliest possible stage, defining the optimum treatment and following up the patient to decide on the necessity of treatment changes or surgery are the main tasks of every glaucoma specialist. Addressing these basic needs, Haag-Streit has introduced the Octopus 600 that combines early diagnosis and follow-up in a single compact-sized, standalone device with improved ergonomics both for operator and patient.

The device makes it possible to run standard central fields with minimum test duration, seamlessly integrated into your practice environment. This supports high patient throughput and effective practice management. With its built-in reliability features, the Octopus 600 is easy to use and delivers results you can trust.

Fast and reliable Pulsar test method for early glaucoma detection

The Octopus 600 is the first perimeter incorporating the fast and reliable Pulsar method for early glaucoma detection. Pulsar is an easy test for patients and thus shows low test-retest variability.

Central field standard white-on-white perimetry

The Octopus 600 performs standard white-on-white threshold testing in just 2–4 minutes in the central visual field. A wide range of commonly used static test patterns, including G, 32, 30-2, 24-2, M, and 10-2 are also incorporated into the Octopus 600.

Perimetry simplified

The compact Octopus 600 can be operated reliably outside of a darkroom and fits almost anywhere. With its improved usability and ergonomics, it truly simplifies perimetry both for the operator and the patient.

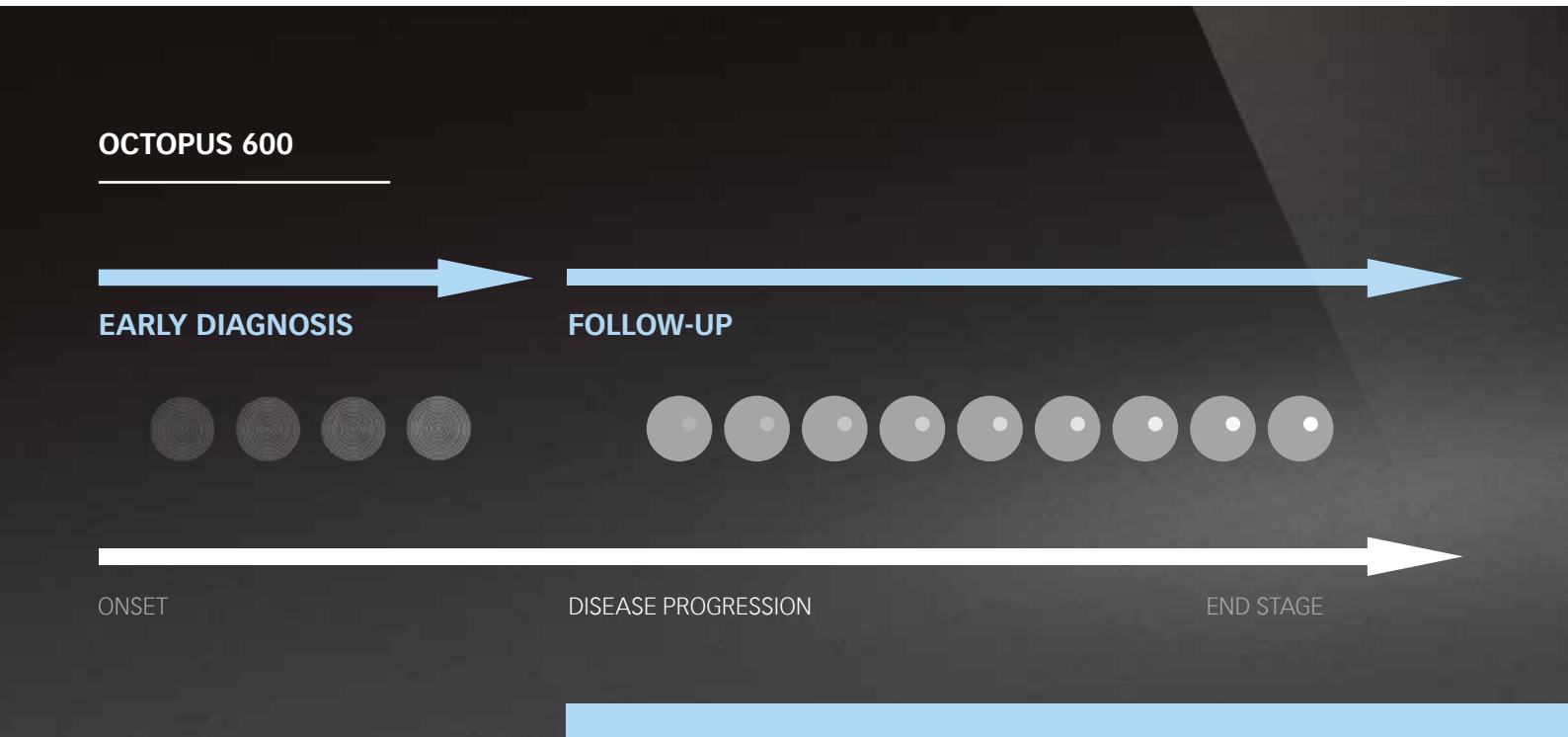
Reliable results made easy

Worry less about patient compliance. The Octopus 600 automatically recognises fixation losses and continously supports the correct patient and eye position for a reliable result you can trust.

OCTOPUS 600
Expert in early glaucoma detection and follow-up

With the Octopus 600, Haag-Streit has introduced a new perimeter that combines both Pulsar for early glaucoma detection and standard white-on-white perimetry in one device. As a result, the instrument is capable of covering the most important stages of disease progression, allowing both for early diagnosis and follow-up.

The Octopus 600 employs a new perimetry technology that makes use of a TFT-based monitor to produce stimuli and background. This allows the instrument to display complex stimuli such as Pulsar, which would otherwise not be possible with cupola-based or projection type perimeters.



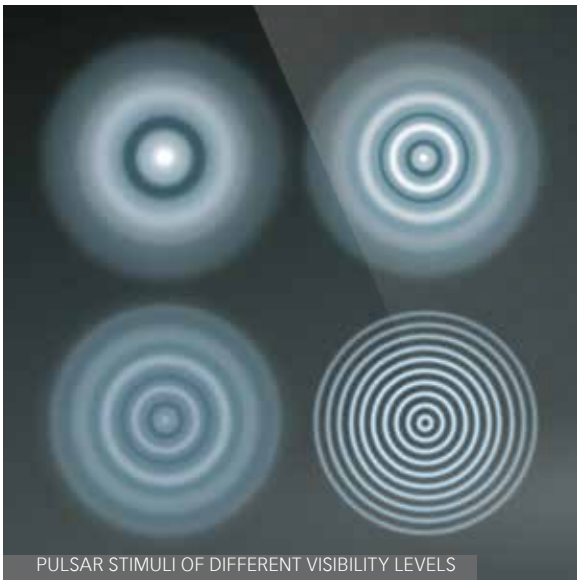
PULSAR METHOD

The new pulse in perimetry

Pulsar is a patented[1] flicker stimulus displaying a ring pattern for early glaucoma detection. The stimulus consists of two images, the phase and counterphase images that alternate with a frequency of 10 Hz over 500 ms. If flicker-sensitivity is reduced, the phase and counterphase images result in an overlapped image that is not visible anymore.

Unlike other early diagnostic methods that challenge patient with hard-to-distinguish answering criteria, pulsar is easy for patients to answer: seen or not seen.

By changing contrast and spatial resolution, full thresholds can be tested. In combination with the proven TOP fast-thresholding stategy, a Pulsar examination only takes 2–4 minutes[2,3].



PULSAR STIMULI OF DIFFERENT VISIBILITY LEVELS

HIGH SPECIFICTIY AND SENSITIVITY

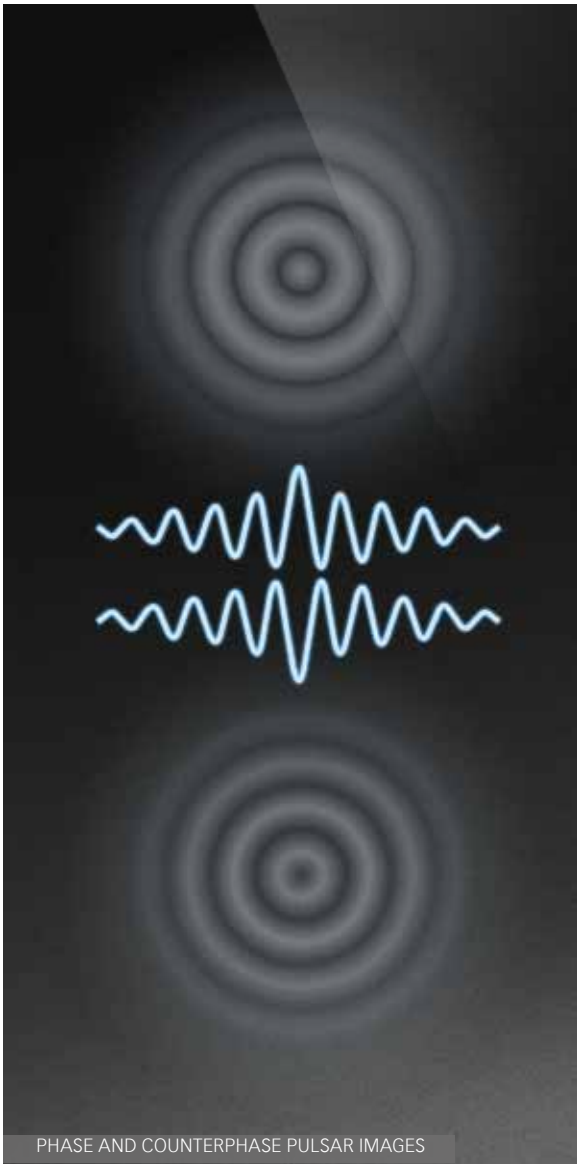
Proven early glaucoma detection method

The proven Pulsar method tests flicker and contrast sensitivity that are affected in early glaucoma. The method has been shown to be both sensitive and specific in the detection of early glaucoma and has even shown higher sensitivity than standard automated perimetry [3,4].
This supports your correct diagnosis and allows you to start treatment in adequate time.

LOW TEST-RETEST VARIABILITY

Made easy for patients

Unlike other early diagnostic methods that challenge patients with hard-to-distinguish answering criteria, Pulsar is easy for patients to answer: seen or not seen. Additionally, thanks to its design, it is relaxing to look at. This makes Pulsar a simple – even pleasant – test to take for patients. As a result, it shows low test-retest variability and only a minimal learning effect[5,6].
This allows you to achieve two major objectives at a the same time: a reliable field you can trust and a patient happy to come back for follow-up testing.



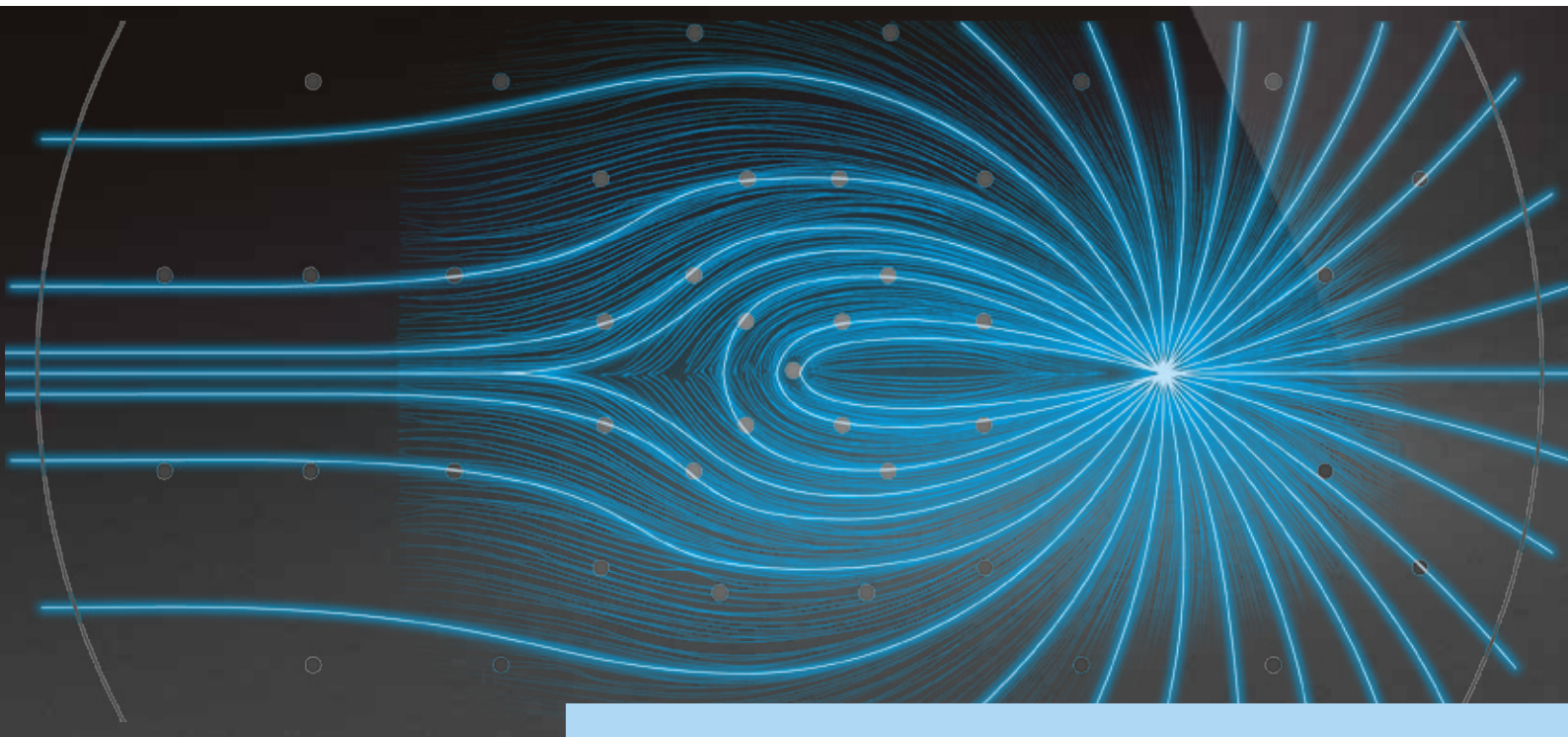
PHASE AND COUNTERPHASE PULSAR IMAGES

OCTOPUS 600
Central field standard white-on-white perimetry

The Octopus 600 offers a wide range of static test patterns, including 32 (which corresponds with 30-2), 24-2, and 10-2. In addition, there are two unique physiology-based patterns: the G-Program (a 30-degree field for glaucoma assessment) and the M-Program (a 10-degree field for analysing the macula). They are both correlated with a nerve fibre bundle map and thus make it possible to test the points which are most important for a structure-function correlation. These examination patterns offer a higher density of stimuli in the centre, which supports the discovery of paracentral scotomas that are often missed by the common 32 pattern.

Combining the standard white-on-white perimetry with the Pulsar method for early glaucoma detection, the instrument is capable of covering the most important stages of disease progression, allowing for early diagnosis and follow-up.

Being the first perimeter employing a flicker-free TFT monitor, stimuli can be soundlessly presented for increased reliability of the visual fields.

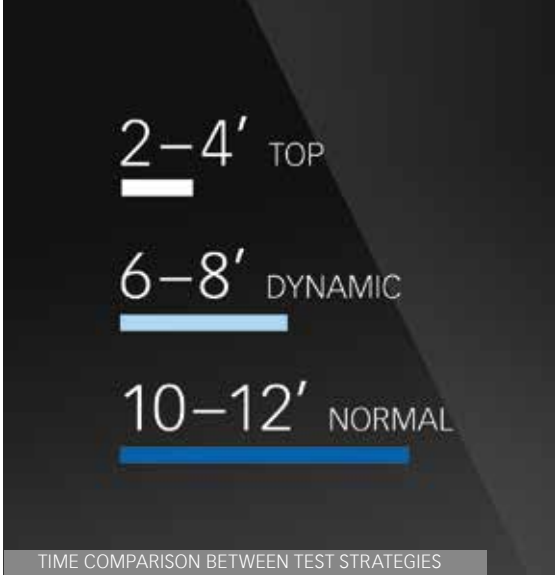


TOP FAST-THRESHOLDING STRATEGY

Increased efficiency

Tendency Oriented Perimetry (TOP) presents a further optimisation in fast-threshold testing by reducing the examination time by nearly 80% to just 2–4 minutes[7,8] compared to 6–8 minutes (Dynamic strategy) or 10–12 minutes (Normal strategy). The TOP algorithm is a systematic method which takes the correlation of the threshold values in neighbouring locations into account.

Since the first test points are presented at a supra-threshold level, even inexperienced patients quickly understand the nature of the test.

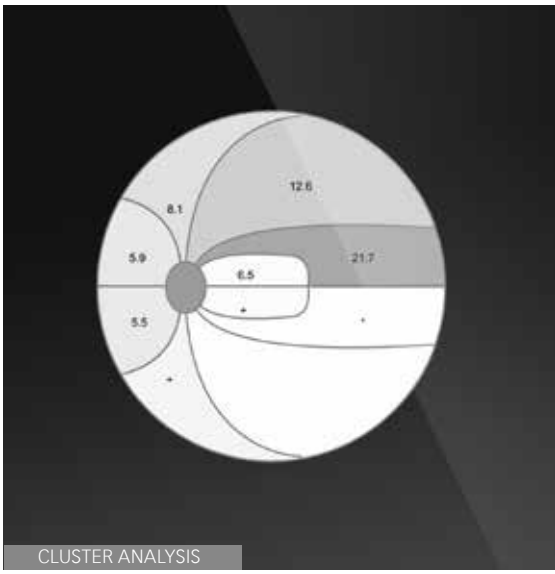


TIME COMPARISON BETWEEN TEST STRATEGIES

CLUSTER ANALYSIS

Providing meaningful results

Cluster analysis combines high sensitivity with good specificity[9]. Test locations are grouped (clustered) along nerve fibre bundles, to better analyse changes in crucial areas such as the nasal step or the macula. This eliminates the time-consuming method of counting isolated points. A combined probability/deviation graph highlights pathological regions.

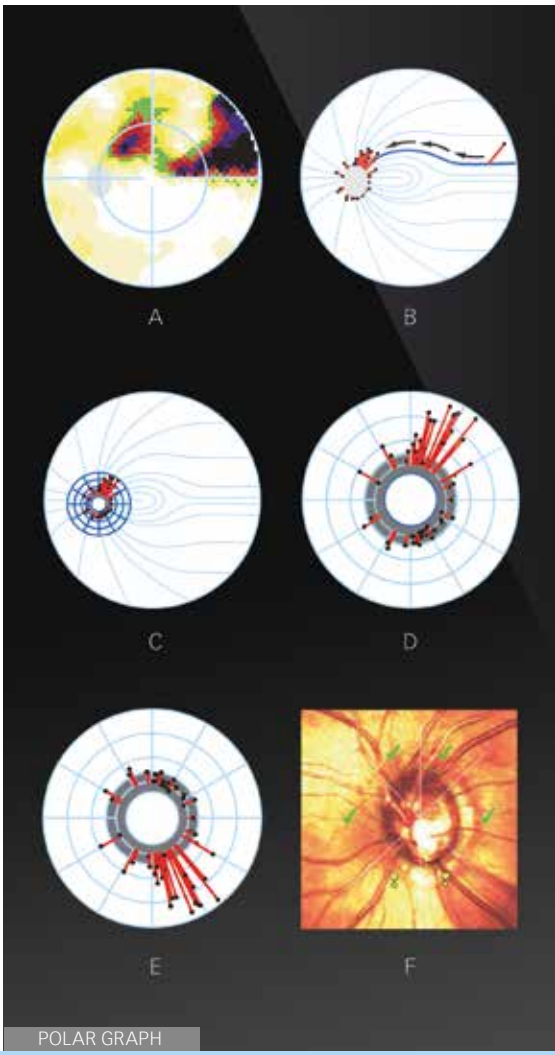


CLUSTER ANALYSIS

POLAR GRAPH

Combining structure and function

Combining the results of both structure and function (see picture: A) is key to obtaining a comprehensive assessment of the onset and progression of Glaucoma. With the Octopus Polar Graph, the nerve fibre bundles that are in danger or defective are easily identified. Local defects are projected along the nerve fibres to the optic disk and are represented as red lines (B). The projected defects (C, D) are vertically mirrored and scaled with rings for 10, 20 and 30 dB deviation (E). The Octopus Polar Graph allows for direct comparison with structural (F) findings.[10]



POLAR GRAPH

Immediately identify levels of change

EyeSuite Perimetry software is included as standard, featuring the most advanced EyeSuite Progression Analysis for following up visual fields. As recommended by the International Glaucoma Society, the global progression rate is calculated in dB per year, including the probability level. Areas for normal range (grey band), impaired vision (15 dB) and legal blindness (25 dB) provide a starting point for further investigation.

Often, progression is local and not noticeable on global progression analysis. No more counting of single points and looking for clusters. EyeSuite does the work for you! The EyeSuite Cluster Trend Analysis is based on specific "clusters" of test points that are matched to the nerve fibre bundles, while the Polar Trend Analysis allows direct comparison with structural findings. With these two local progression analyses, even small local changes that are not visible at a global level can be easily detected and followed up[10,11].

Intuitive colour codes save time by immediately identifying levels of change. A red triangle will always indicate significant worsening, a yellow diamond increased fluctuation and a green triangle significant improvement.

INTUITIVE TRAFFIC LIGHT SYMBOLS

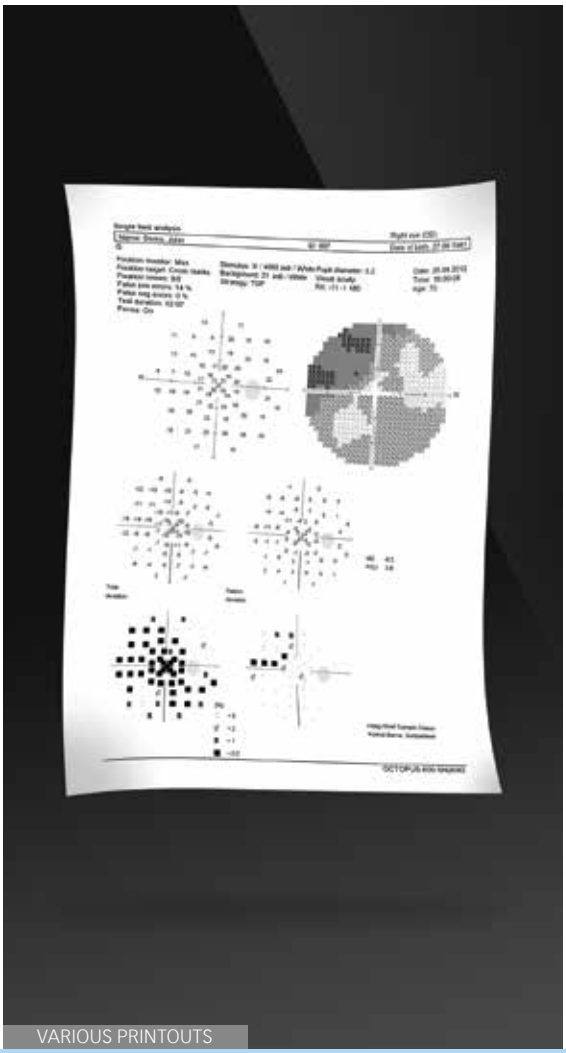
EYESUITE CLUSTER TREND ANALYSIS

VARIOUS PRINTOUTS

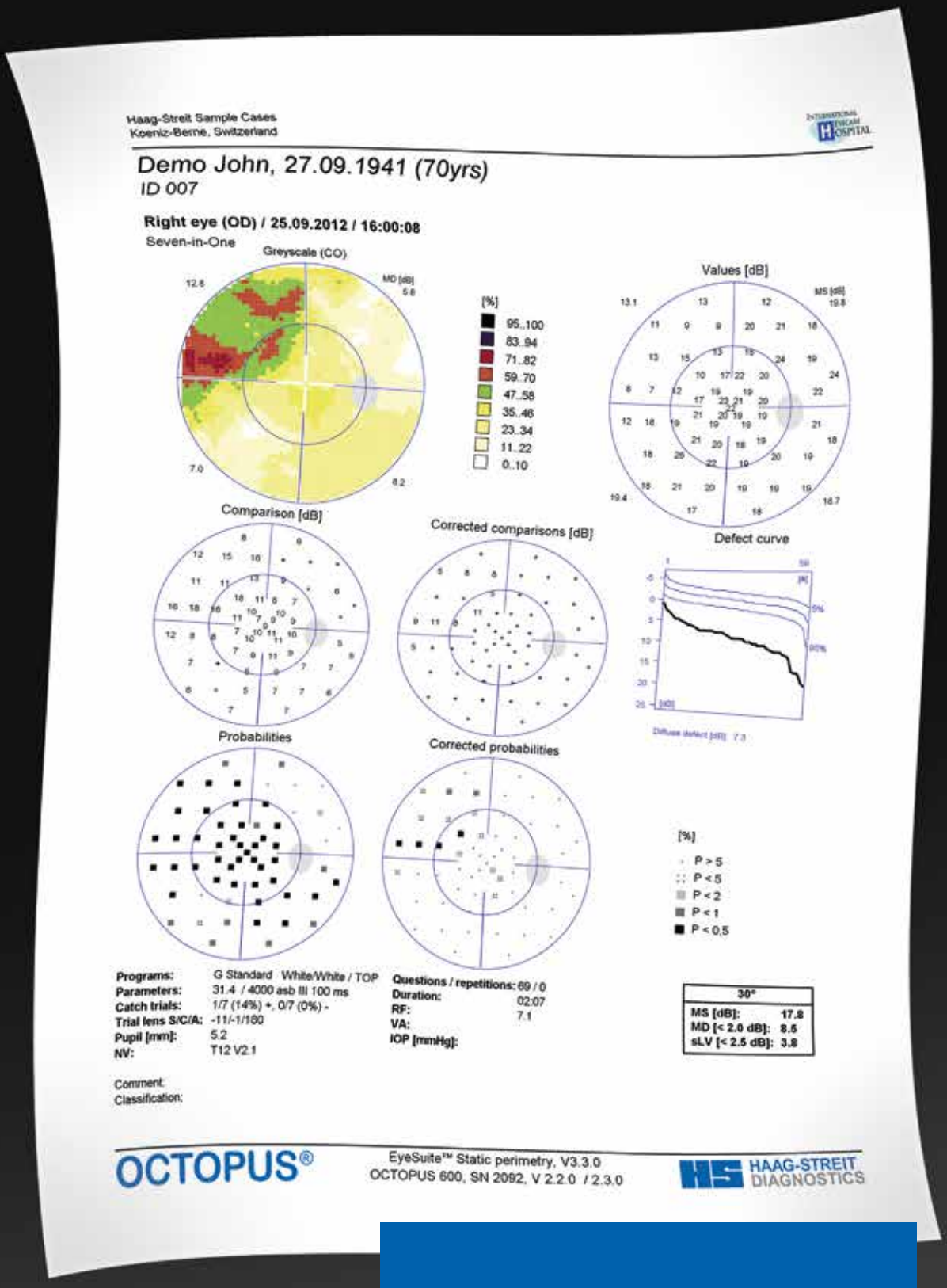
Intuitive interpretation of visual field results

Configure your favorite printout and graphics representation, in order to reduce the time necessary to interpret the results. Choose either the proven Octopus 7-in-1 printout containing the cumulative defect curve (Bebie curve) or the HFA-style printout. Furthermore, the 4-in-1 printout or the series report can also be customised.

Don't want a paper copy? Save the report as an image or PDF and view it on your screen or export it to your electronic medical record (EMR) system.



VARIOUS PRINTOUTS



Visual field evaluation is made simple with the widely-used Octopus 7-in-1 printout.

Perimetry simplified
Outstanding usability and ergonomics for both patient and operator

The Octopus 600 can be operated reliably outside of a darkroom and fits almost anywhere thanks to its small and compact design. Thanks to its user-friendly operator interface, running an examination becomes a matter of a few simple clicks on the large touch-screen examination screen.
Thanks to its ergonomic patient response button, its user-friendly design and with large trial lenses already included, the Octopus 600 truly simplfies perimetry.

Ergonomic design

Ample space and the adjustable forehead rest allow examined patients to wear their own glasses. The shielded side view prevents the patient from being distracted.

EyeSuite Perimetry optimized for touch screen

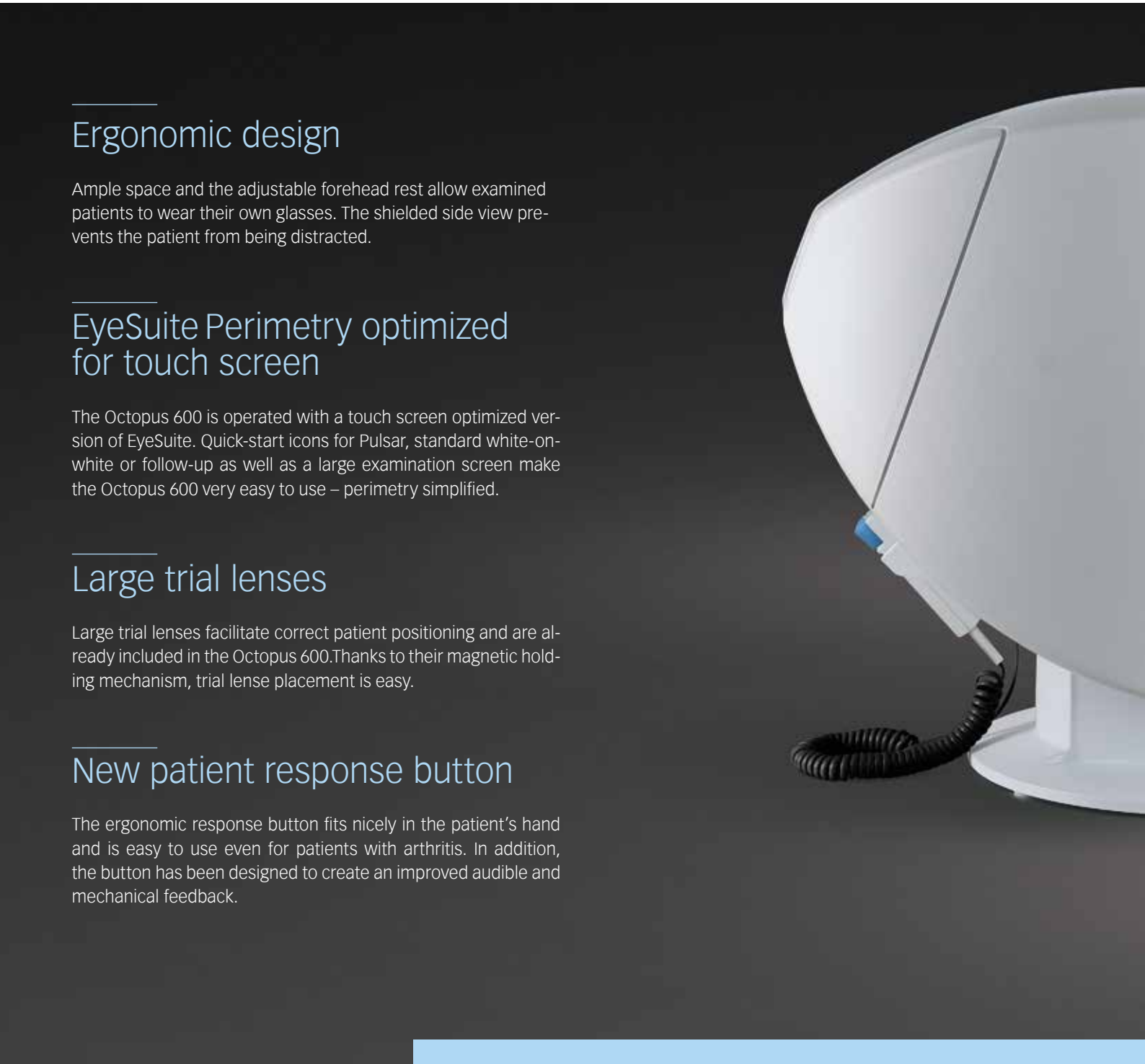
The Octopus 600 is operated with a touch screen optimized version of EyeSuite. Quick-start icons for Pulsar, standard white-on-white or follow-up as well as a large examination screen make the Octopus 600 very easy to use – perimetry simplified.

Large trial lenses

Large trial lenses facilitate correct patient positioning and are already included in the Octopus 600.Thanks to their magnetic holding mechanism, trial lense placement is easy.

New patient response button

The ergonomic response button fits nicely in the patient's hand and is easy to use even for patients with arthritis. In addition, the button has been designed to create an improved audible and mechanical feedback.



Reliable operation outside of darkroom

The novel Octopus 600 can be operated reliably outside of a dark room thanks to its TFT screen for stimulus projection that is insensitive to ambient light. This allows the Octopus 600 to be located wherever there is space, while correct light conditions are hardly a consideration.

It fits anywhere

The Octopus 600 has a small, compact design allowing for a minimal footprint. Add in silent operation with no fans or motors and you have a perimeter that can be placed anywhere in your office.

It just takes 3 steps:

1. Select patient
2. Choose Pulsar or standard white-on-white
3. Hit the start button

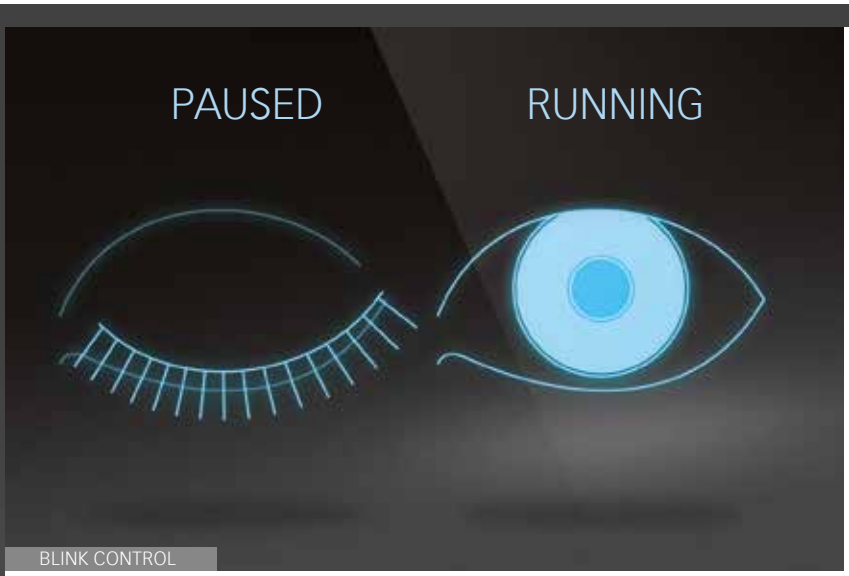
Fixation control
Reliable results made easy

Fixation losses due to low patient compliance are a major reason for unreliable visual fields. The Octopus 600 gives you less reason to worry about these. Blink Control, Pupil Position Control, Dart Control and Contact Control continously support the correct patient and eye position for a reliable result you can trust.

BLINK CONTROL

Never miss a point

Normal blinking prevents dry eyes and helps the patient to relax and concentrate during examination. With Octopus Blink Control, you need never worry again about missing a stimulus presented in static perimetry. Stimuli interrupted by the patient's blinking are automatically repeated later during the test. This means that every test location is tested reliably.

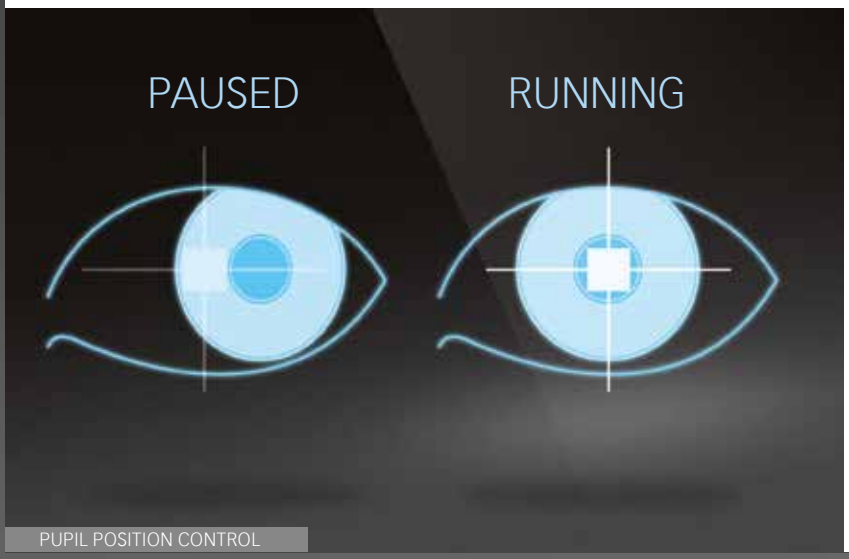


BLINK CONTROL

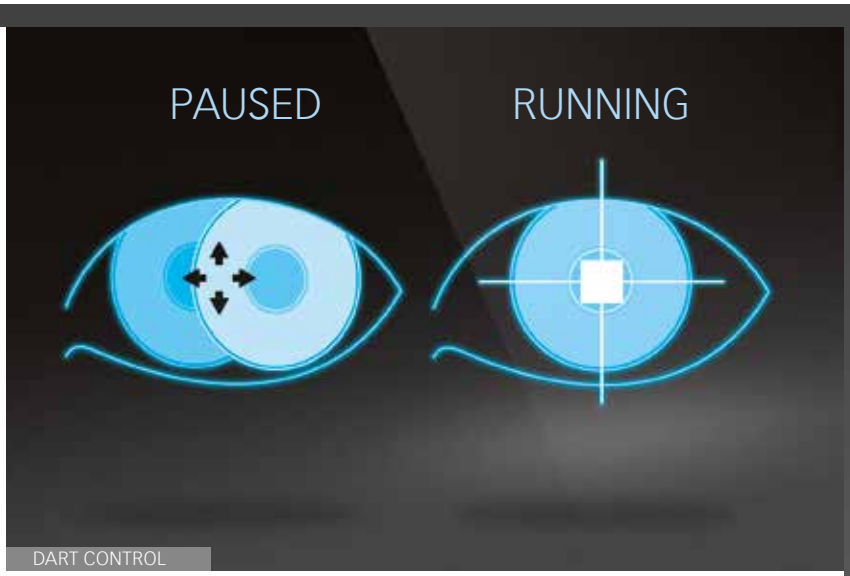
PUPIL POSITION CONTROL

Controlled position

Maintaining the correct pupil position during examination is essential for correct identification of the location of a defect. If the pupil position changes during stimulus presentation, due either to shifiting of the head or eye movement, the Pupil Position Control pauses the examination automatically until the pupil is recentred. The missed stimulus is automatically repeated later during the test. The result is a visual field that you can trust.



PUPIL POSITION CONTROL

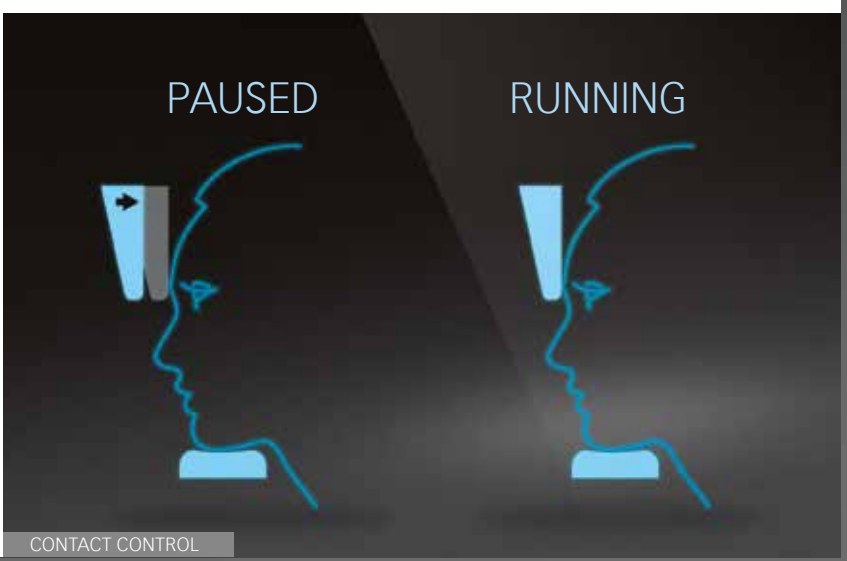


DART CONTROL

DART CONTROL

Keep focused

Remaining focused on the fixation target at all times is essential to prevent fixation losses. If patients rapidly move their eye to look for the next stimulus, Dart Control detects this fast movement and automatically interrupts the examination until a steady focus is achieved. Missed stimuli are automatically repeated later during the test making reliable results easy.



CONTACT CONTROL

CONTACT CONTROL

Optimal patient position

Head sensors offer even further control and reliability by constantly assessing the correct patient position. If the patient pulls away from the instrument, it immediately notifies the operator and pauses the test to allow for repositioning.

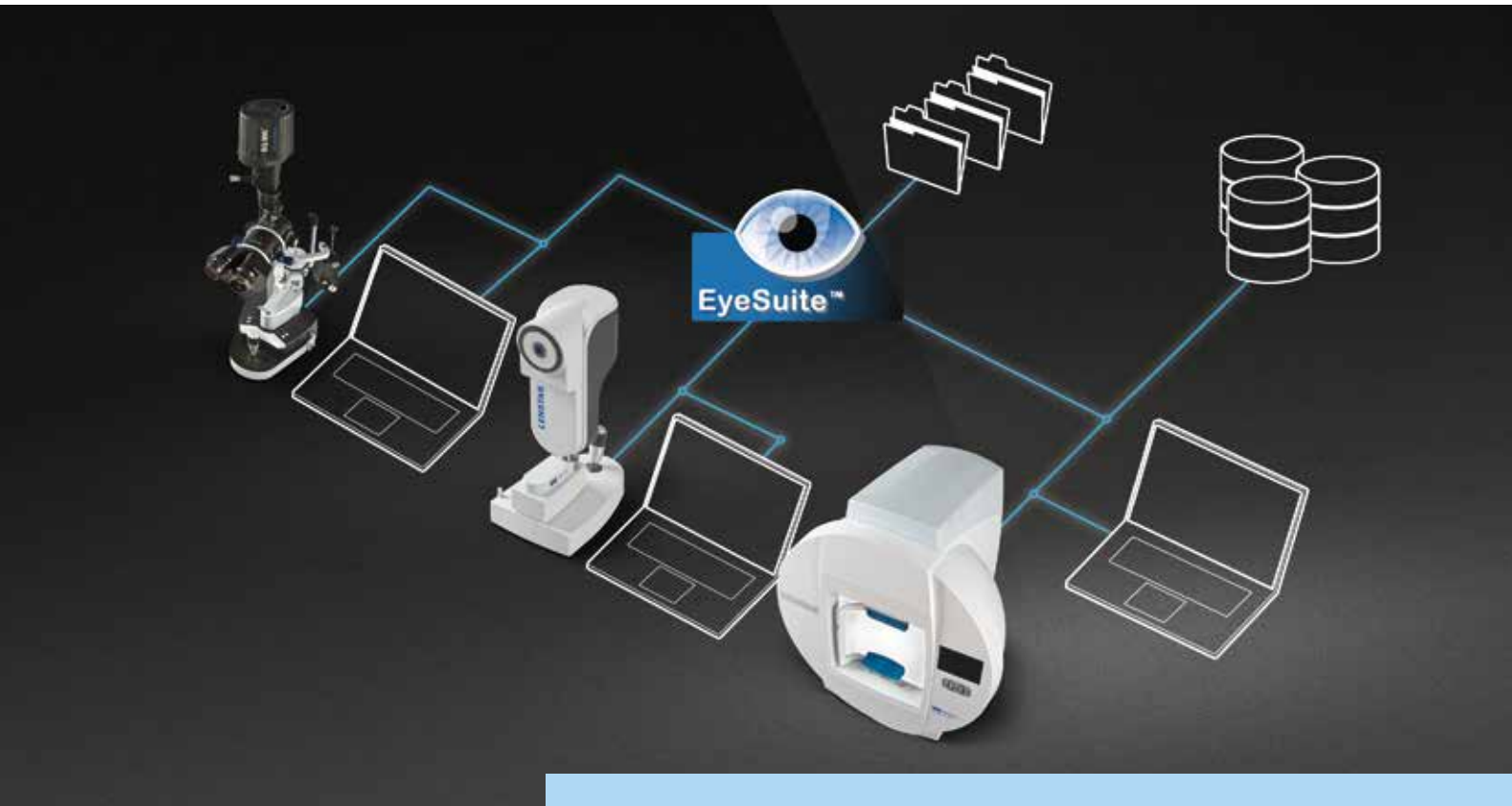
EyeSuite Platform
Flexible interfaces for easy integration into your network

The EyeSuite software is designed for optimum patient flows in busy practices. It is very easy to use, making the Octopus 600 fully networkable both with other Haag-Streit devices and your practice network. EyeSuite does not require any proprietary third-party software to provide connectivity.

If the Octopus 600 is connected to an EyeSuite Server, all of its data can be accessed remotely from any number of viewing stations connected to the same database. This truly means going beyond a pre-defined printout and provides you with real-time access to your data from anywhere in your network.

Furthermore, the EyeSuite Script Language or standardised interfaces, such as GDT or DICOM, connect easily to almost any electronic medical record (EMR) system. Patient orders can be received from the EMR system and the measured results are then automatically sent back to the EMR system.

With all these features available, you can save valuable staff time and eliminate the risk of transcription errors.



Technical specifications
Octopus 600

		Octopus 600 Basic	Octopus 600 Pro
Stimulus generation	TFT Monitor	■	■
Peripheral range (distance)	30° (infinite)	■	■
Background illumination	SAP: 10 cd/m2; Pulsar: 32 cd/m2	■	■
Stimulus size (°)	SAP: 0.43 (Size III); Pulsar: 5	■	■
Stimulus duration (ms)	SAP: 100; Pulsar: 500	■	■
Stimulus intensity (asb, dynamic range)	SAP: ~35 dB; Pulsar: ~35 src	■	■
Fixation control	Blink Control, Pupil Position Control, Dart Control, Contact Control	■	■
Networking	DICOM, EMR, Ethernet	Ethernet only	■
Data Import	Octopus 101, 123, 300 and 900; HFA	■	■
Measures (W x L x H)	467 × 508 × 500 mm; 18.4'' × 20.0'' × 19.7''	■	■
Weight	12.7 kg; 28.0 lbs	■	■
Test methods	Standard white-on-white perimetry SAP	■	■
	Pulsar perimetry for early diagnosis	■	■
Test strategies	TOP (Tendency Oriented Perimetry, 2–4 min)	Pulsar	Pulsar, SAP
	Dynamic (adaptive step size, 6–8 min)	■	■
	Normal (4-2-1 bracketing, 10–12 min)	■	■
Test patterns	General/Glaucoma 30° (G1-Program, 32 (corresponding to 30-2), 24-2)	■	■
	Macula (M-Program, 10-2)	■	■
Progression analysis	Global progression (MD, sLV)	■	■
	Cluster Trend/Polar Trend		■

■ Included

Sources

1 Patents US2002/0047996, JP2001-299700, DE10115508, CH0773/00. **2** Gonzalez de la Rosa M, Gonzlez-Hernandez M. Pulsar perimetry. A review and new results. Ophthalmologe. 2013 Feb;110(2):107-15. **3** Zeppieri M, Brusini P, Parisi L, Johnson CA, Sampaolesi R, Salvetat ML. Pulsar perimetry in the diagnosis of early glaucoma. Am J Ophthalmol. 2010 Jan;149(1):102-12. **4** Göbel K, Erb C. Sensitivity and specificity of flicker perimetry with Pulsar. Comparison with achromatic (white-on-white) perimetry in glaucoma patients. Ophthalmologe.2013 Feb;110(2):141-5. **5** Salvetat ML, Zeppieri M, Parisi L, Johnson CA, Sampaolesi R, Brusini P Learning Effect and Test-retest Variability of Pulsar Perimetry. J Glaucoma. 2013 Mar;22(3):230-7. **6** Gonzalez-Hernandez M, de la Rosa MG, de la Vega RR, Hernandez-Vidal A. Long-term fluctuation of standard automatic perimetry, pulsar perimetry and frequency-doubling technology in early glaucoma diagnosis. Ophthalmic Res. 2007;39(6):338-43. **7** King AJ, Taguri A, Wadood AC, Azuara-Blanco A. Comparison of two fast strategies, SITA Fast and TOP, for the assessment of visual fields in glaucoma patients. Graefes Arch Clin Exp Ophthalmol. 2002 Jun;240(6):481-7. **8** Wadood AC, Azuara-Blanco A, Aspinall P, Taguri A, King A. Sensitivity and specificity of frequency-doubling technology, tendency-oriented perimetry, and Humphrey Swedish interactive threshold algorithm-fast perimetry in a glaucoma practice.Am J Ophthalmol. 2002 Mar;133(3):327-32. **9** Kovalska MP, Bürki E, Schoetzau A, Orguel SF, Orguel S, Grieshaber MC. Clinical evaluation of a novel population-based regression analysis for detecting glaucomatous visual field progression. Klin Monbl Augenheilkd. 2011 Apr;228(4):311-7. **10** Holló G, Naghizadeh F. Evaluation of Octopus Polar Trend Analysis for detection of glaucomatous progression. Eur J Ophthalmol. 2014 Jun 28:0. doi: 10.5301/ejo.5000504. **11** Naghizadeh F, Holló G. Detection of early glaucomatous progression with Octopus Cluster Trend analysis. J Glaucoma. 2014 Jun-Jul;23(5):269-75.

HS-Art.No. 1511.7220356.02050

Members of HAAG-STREIT Group

HAAG-STREIT Holding AG
www.haag-streit-holding.com

HAAG-STREIT AG
www.haag-streit.com

SPECTROS AG
www.spectros.ch

HAAG-STREIT Medtech AG
www.haag-streit-medtech.com

HAAG-STREIT France EURL
www.haag-streit.fr

HAAG-STREIT Far East
www.haag-streit-fareast.com

HAAG-STREIT Surgical GmbH
www.haag-streit-surgical.com

Möller-Wedel GmbH & Co KG
www.moeller-wedel.com

Möller-Wedel Optical GmbH
www.moeller-wedel-optical.com

HAAG-STREIT Deutschland GmbH
www.haag-streit.de

IPRO GmbH
www.ipro.com

CLEMENT CLARKE Ltd.
www.clement-clarke.com

HAAG-STREIT UK
www.haag-streit-uk.com

John Weiss Ltd.
www.johnweiss.com

HAAG-STREIT USA
www.haag-streit-usa.com

Reliance Medical Inc.
www.haag-streit-usa.com

Asetronics AG
www.asetronics.ch

ComLab AG
www.comlab.ch

HAAG-STREIT AG
Gartenstadtstrasse 10
3098 Koeniz
Switzerland
Phone +41 31 978 01 11
Fax +41 31 978 02 82
info@haag-streit.com
www.haag-streit.com

6. Edition/2014-08

CE
1250