VisuScience

Hidden LED Array Perimeter

IVS-201A / IVS-201B

Reliable Accurate Economical

Listen to the clinical

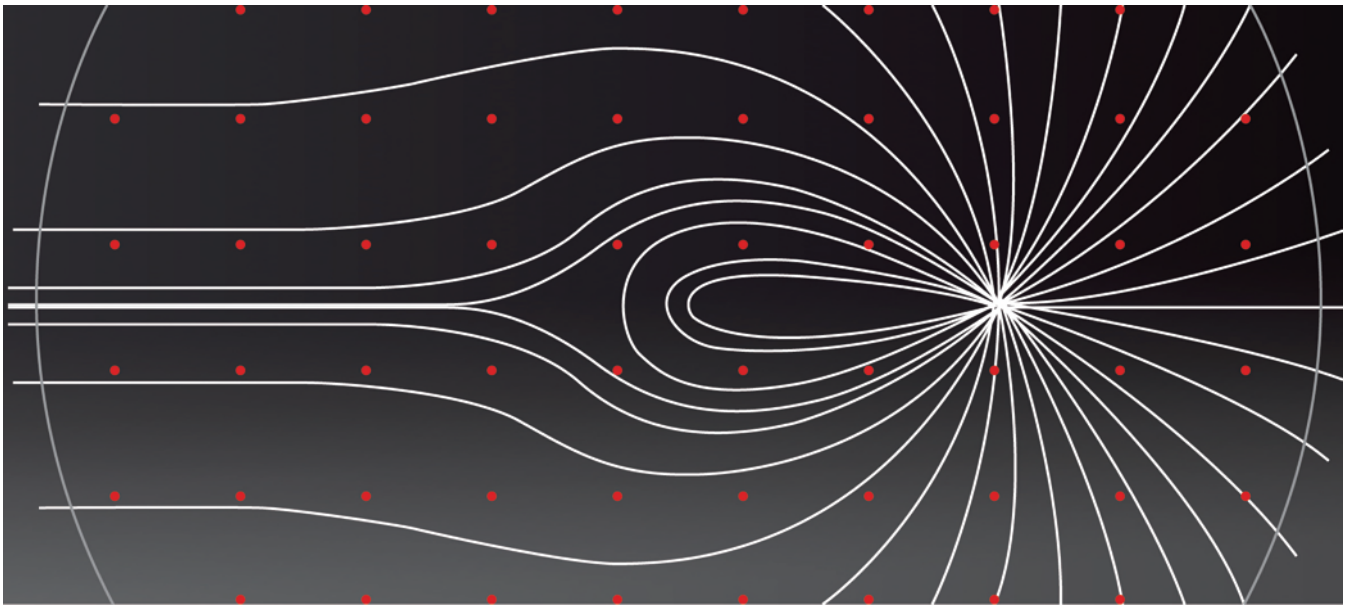
Standard Full Field White on White Perimetry

The IVS series offer a wide range of test patterns and strategies, including T30-2, T24-2, T10-2 for glaucoma diagnosis and T-Macula for macula function assessment. In addition, special test patterns like driver feasibility, monocular/binocular social security disability are also included.

Unlike other hidden LED array products using red/yellow stimulus, IVS series use the exactly same white stimulus and background illumination as those front projection perimeters (eg.IFA series). The same dynamic range, same stimuli and background illumination resulted in highly consistent test result with high-end, mainstream front projection perimeter.

To better detection of visual field loss caused by early stage glaucoma, points of T30-2 and T24-2 are cautiously configured on the most sensitive position of retinal nerve fiber bundle.

IVS-201A supports to customize clinician's own test patterns.



SWAP for Earlier Glaucoma Detection

——— Valid for IVS-201A Only

Researches show that Blue-Yellow ganglion cells are selectively damaged first in the early glaucoma. Short-Wavelength Automated Perimetry, or SWAP, is also known as Blue-Yellow perimetry. SWAP preferentially tests the blue cones and their ganglion cell connections by the means of using bright 100 cd/m2 yellow background to desensitize the green and red cones, and evokes response of blue cones through carefully chosen 440nm blue stimuli.

Researches also show that SWAP can identify early glaucomatous visual field defects and progression in glaucomatous field loss much earlier than by using standard white-on-white perimetry. It has been proven clinically that SWAP test result is highly consistent with RNFL loss caused by glaucoma.

IVS-201A provides you with economical Blue-Yellow peremetry solution through T30-SWAP, T24-SWAP programs. Faciliated by its unique HISA-SWAP algorithm, IVS completes a Blue-Yellow peremetry as quick as the usual White-White perimetry does. Benefitted by its brighter blue stimuli, IVS operates Blue-Yellow with standard Goldmann III stimuli, compared with competitor's Goldmann V solution,this will result in more accurate damage location.

Precise Diagnosis

Strictly conforming to the newest perimetry standard of IMAING and PERIMETRY SOCIETY, IVS series simultaneously fulfill the needs for ophthalmological and neurological uses.

Equipped with world-wide accepted 31.5 asb background illumination and incorporated with efficient HISA algorithm, comprehensive fixation control and age-related normal database, IVS's perimetry result is highly consistent with Goldmann standard perimeter.

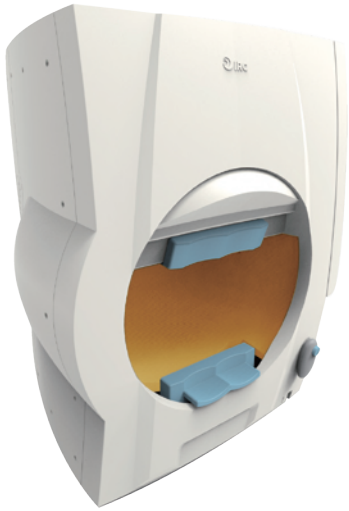
Its aspheric dome effectively shrinks its size, while ensuring the full field test range.

Comfortable Perimetry

The super-silent design of chin rest and fan free power system makes the test quiet and comfortable. The inclined LCD monitor guarantees the optimized operator view and operation angle. The embedded monitor and its glare shield effectively avoid the impacts of monitor rays on patients.

The chin rest control buttons on the operator's side produce the comfortable experience. Apart from L/R, U/D, the middle button automatically calibrates pupils to the center with the cooperation of eye tracking camera.

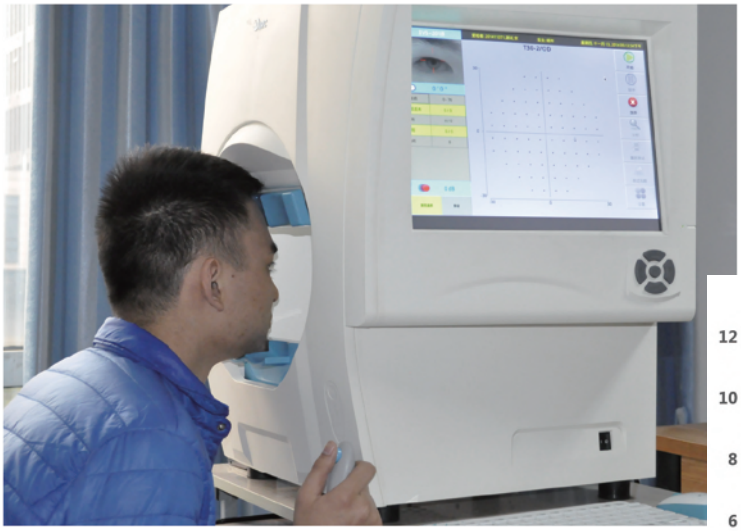
Compared with competitor's 12.1" CRT, our 15" LCD provides higher display quality and more diagnostic information. Better display quality, more sensitive touch screen and virtual multi-language keyboard enable clinicians an easy operation system with one finger.

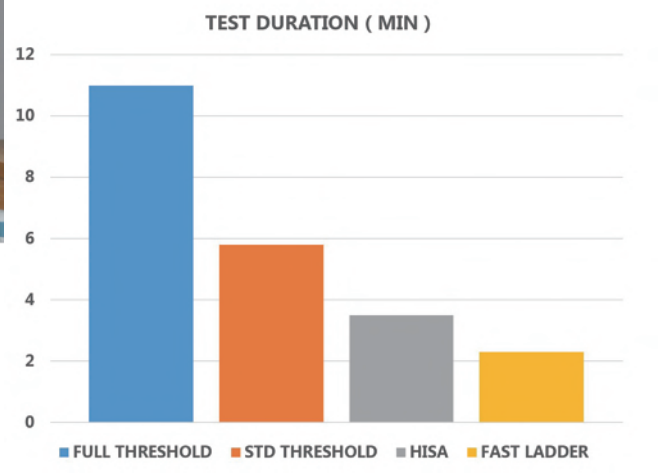


The ergonomic responser applies to all hands whatever the race, age and gender. Its elaborately selected tactile switch with 2.45 N action force has a life cycle of 1,000,000 times. The unique design brings patients happy and straightforward examination experience. Meanwhile, the switch action can be easily perceived, even for old sluggish patients.

Optional accessories: Foot Pedal. Keyboard, PC Mouse.

Quicker Perimetry





We extremely values the time of patients and operators. On the premise of consistent accuracy,we continues to innovate its testing algorithm and has researched HISA, a more reliable, more time-saving Heuristic Interactive Threshold Searching Algorithm.

HISA-Heuristic Interactive Threshold Searching Algorithm

HISA forecasts initial threshold for new point through a very complex mathematical model, which takes neighboring tested results and same age normal values into consideration. Then unnecessary search will consequently be avoided. During test process, HISA intelligently skips those “undoubted” questions regarding the change of neighboring point’s value.

HISA is not likely to initiate all points at beginning but do a sample survey from some specific location. Subsequently, time will be saved for patients with seriously reduction of sensitivity by skipping those high-sensitivity questions.

HISA will adjust the stimuli interval adaptively according to the patient’s response lag. With HISA, young, quick patients will experience a happier, faster and more reliable test. And older, sluggish patients will not miss the response in long stimuli intervals.

HISA will evaluate the reliability of the tested points through a complex reliability function. HISA will automatically retest the result if it is suspected.

HISA will …with other know-how techniques and mathematical models, HISA is bound to be the most reliable and accurate threshold testing strategy.

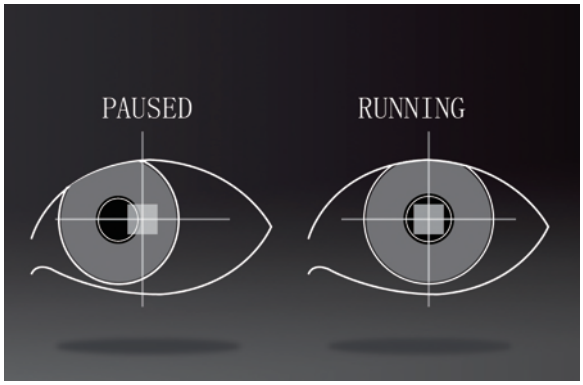
Dedicated System, Safer Data, Easier Use

Instead of common x86 PC and its relative operating system, IVS series adopt low power, high reliability, space compact industrial embedded ARM computer and dedicated operating system. IVS series is immune to common computer viruses, and its simple structure (no video card, no hard disk, no DVD drive) brings incredible reliability.

More 1,000,000 tests can be stored in more than 32 GB solid state disk. High drop and unusual power off will not result in any data loss.

User-friendly IVS’s UI and operation process, which is easily accessible for a fresh operator without any instructions.

Accurate Perimetry



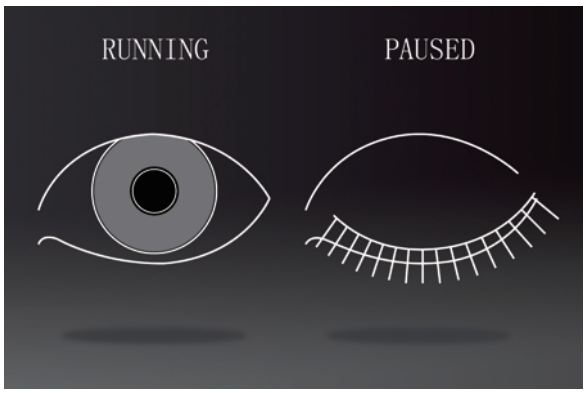
Gaze Tracking

Minimize effects of unreliable response

“Gaze Tracking” constantly monitors the pupil position and patient’s fixation. System beeps to draw patient’s attention when a fixation shift is detected. If fixation shift lasts for a while, system will stop test and ask for operator’s intervention.

When occasional pupil shift appears, system automatically ignores the question and its corresponding response under the condition that the stimuli presents during pupil shift.

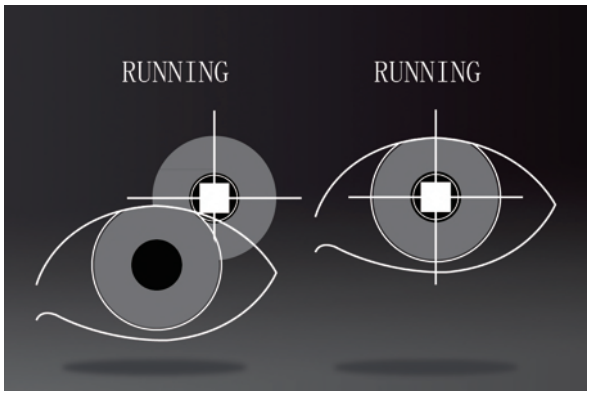
For continuous stable pupil shift, IVS moves the chin rest and corrects the wrong pupil position.



Blink Control

Never miss a stimuli

IVS’s BLINK CONTROL helps patients avoid from dry eyes and relax them to stay focused in subsequent test. When IVS’s BLINK CONTROL is on, stimuli during patient’s blink will not be counted and will automatically be repeated in later test.



Blind Spot Monitor

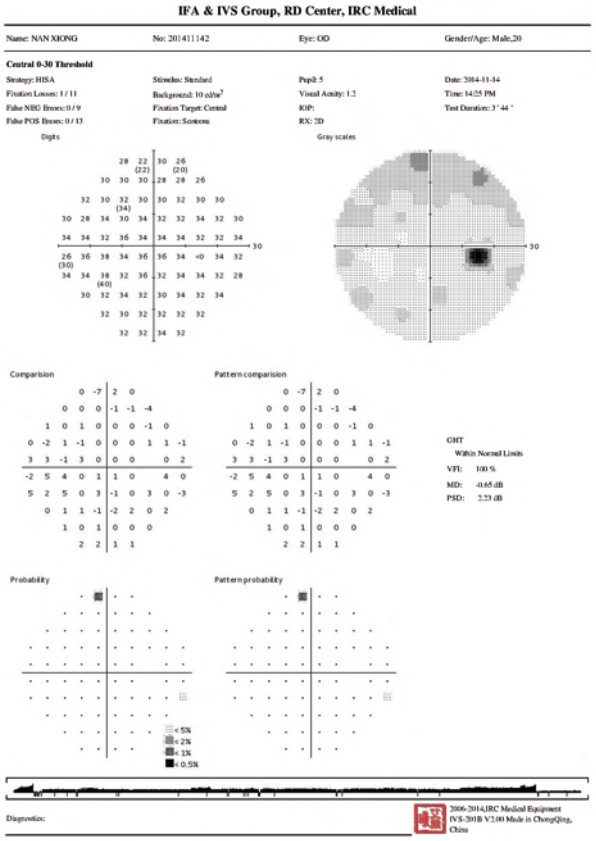
IVS will present stimuli on blind spot periodically. If patient responses one, system will record it as blind spot monitor failure.

From stimuli presents to patient’s response, there should be a reasonable time lag. If the patient response incredibly fast, system will record it as a FALSE POSITIVE as a reaction to patient’s “Happy Trigger”.

Blink spot monitor, FALSE NEGATIVE, FALSE POSITIVE and Gaze Tracking Curve could help you scientifically evaluate the credibility of test result.

Universal Printouts

Digits, grayscales, comparison, probability, pattern comparison and probability extensively reflect the information gathered during a perimetry test from different perspectives. The universal HFA-style printout makes it easier to compare IVS's results with other mainstream perimeters. Meanwhile, for paper writing, the universal or familiar graphs will be more accepted by reviewers.



In comparison with other graphs, pattern comparison/probability is more reliable to correct the effects of cataract, refractive error, and other generalized field loss by small pupils. It tries to reflect only the change of fundus and resulting localized field loss, thus making it more valuable for glaucoma diagnosis.

GHT-Glaucoma Hemifield Test

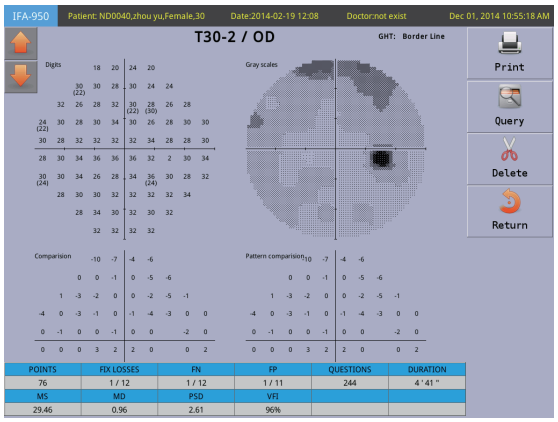
Comparing points within five zones in the superior and inferior hemifields, T30-2, T24-2, T30-SWAP and T24-SWAP provide a plain language analysis of the test results: Outside the Normal Limits, Within Normal Limits, Borderline, Abnormal High Sensitivity and General Reduction of Sensitivity.

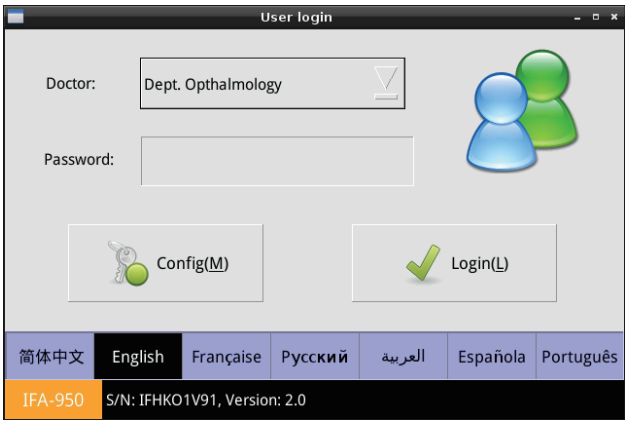
The GHT result is valuable for glaucoma diagnosis. Because asymmetric change in visual field is a typical symptom of glaucoma.

Visual Field Index, Pattern Standard Deviation

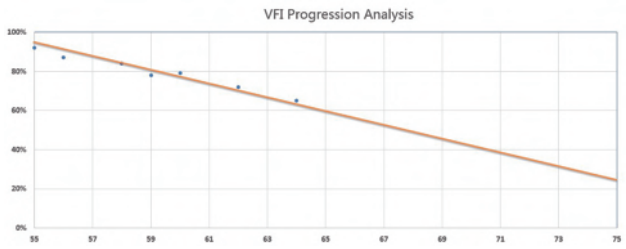
VFI is a measure of the patient's overall visual function compared to an age-adjusted normal population. It has been proven that it is highly consistent with ganglion cells density and resulted visual function.

PSD is a measurement of the degree to which the shape of the patient's measured field departs from the normal, age-corrected reference field. A high PSD indicates an irregular hill and may be due either to variability in patient response or to actual field irregularities.



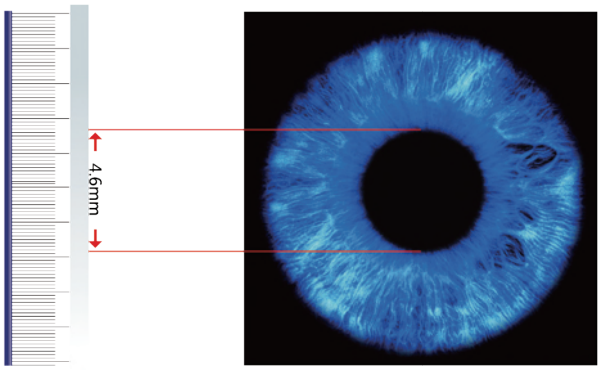


Extremely Professional



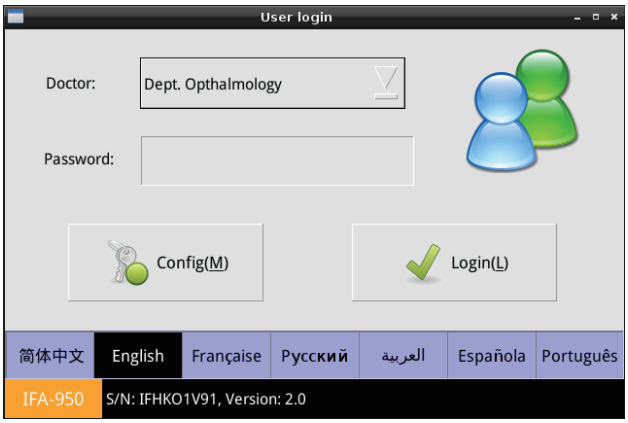
Glaucoma Progression Analysis

IVS can accurately differentiate clinically significant progression of visual field loss from random variability within a series of follow up tests, providing an advanced, reliable method to enhance the management of glaucoma. It really helps identify rapidly progressing, high-risk patients.



Automated Pupil Measurement

IVS can automatically measure patient's pupil diameter and print it in report. This benefits comprehension of the correlation between pupil size and perimetry result to avoid wrong report interpretation with too small pupil size.



Multi-Language Support

Chinese, English, French, Russian, Arabian, Spanish, Portuguese are supported by IVS The embedded universal input method enables it to input operator's native language. The report will be automatically generated into your native language according to your option.

Instant Networking & E-Report

Benefits from the supported DICOM protocol, IVS can be configured to connect with any EMR system which conforms to the DICOM standard.

Specification	IVS-201B	IVS-201A
Stimulus Generation	Hidden LED Array	
Max Temporal Range	90°	
Testing Distance	30cm	
Background Illumination	31.5 asb(10cd/㎡)	315 asb(100cd/㎡)
Stimulus Size	Goldmann Ⅲ	
Stimulus Intensity	0.08 asb ~ 10,000 asb (0 ~ 50 dB)	
Stimulus Duration	200ms, configurable	

TEST STRATEGY

Threshold Test Library	T10-2, T24-2, T30-2, T-Macula, T60-4	
Threshold Strategy	Full Threshold, Fast Ladder, HISA, Standard Threshold	
Screening Test Library	S-64, S-76	S-40, S-64, S-60, S-76
Screen Strategy	Two Zone, Three Zone, Qualified Defect	
Blue/Yellow Perimetry	N/A	T24-SWAP, T30-SWAP
Custom Testing	N/A	Customized Program
Colored Perimetry	N/A	Blue Stimuli
Specialty Test Patterns	D-30, D-60, EM-M, EM-B	
Fixation Monitor	Heijl/Krakau blind spot monitor, Infrared video eye monitor, Gaze tracking, Fixation tracking, Pupil measurement, Blink control	
Software Features	Visual Field Index, Glaucoma Hemifield Test(GHT), Single field analysis, Serial field overview, HISA Analysis	Visual Field Index, Glaucoma Hemifield Test(GHT), Single field analysis, Serial field overview, HISA Analysis, **SWAP analysis, Networking, Glaucoma Progression Analysis, DICOM Support**
Responser	Hand held, Foot pedal (Option)(for upper limb disabled)	

BUILT-IN SYSTEM

Operating System	Dedicated OS (immune for general computer viruses)
Operator Interface	15'' LCD touch screen, Keyboard & Mouse(Option)
Data Storage	≥32GB, More than 1,000,000 test results
Data Backup	Flash Disk, Networking
Networking	Ethernet

OTHERS

Input Voltage	100-240V, 50 ~ 60Hz
Power Consumption	150W
Dimension	560 x 490 x 600 (mm) (W/D/H)
Weight	25kgs

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