IVS SERIES – HIDDEN LED ARRAY PERIMETER

IVS-201A / IVS-201B

Reliability Accuracy Economy

Perimeter deserves your trust – Since 2005, IRC Medical initiated to manufacture perimeters and visual electrophysiological devices. IRC has ceaselessly improved and innovated its products and published 3 generations of products. As the rising star in this field, IRC has played a leading role in the field of ophthalmological function diagnosis.

IRC CHINA
重庆 • 艾尔曦

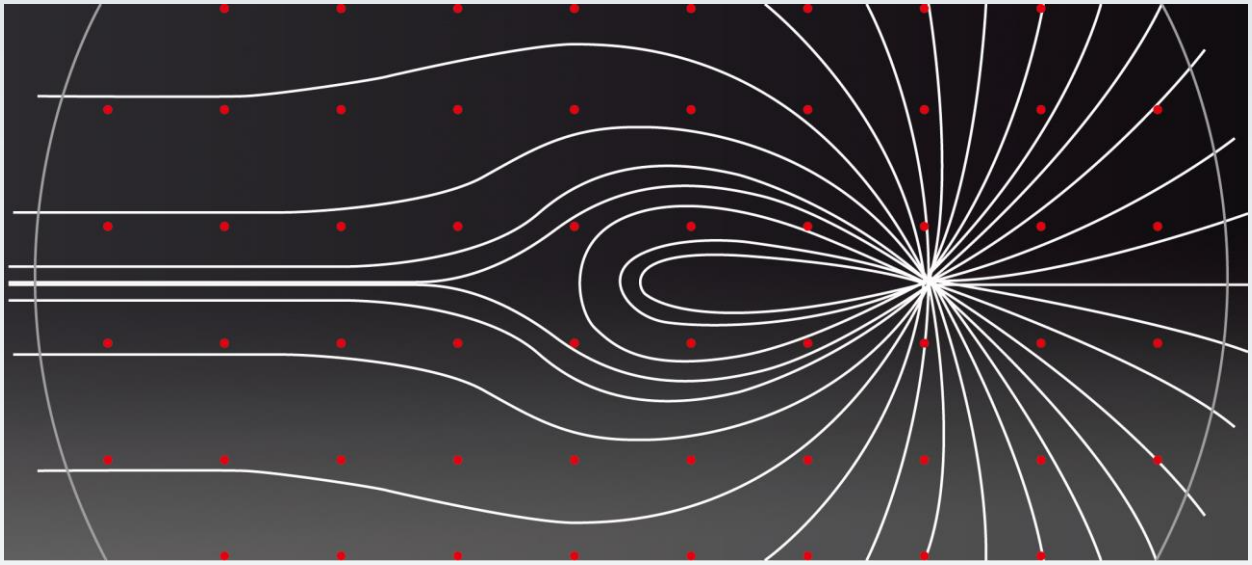
Standard Full Field White on White Perimetry

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 competitive products using red/yellow stimulus, IVS uses the exactly same white stimulus and background illumination as those high-end front projection perimeters (our IFA series, for example). The same dynamic range, same stimuli and background illumination resulted in highly consistent test result with high-end, mainstream front projection perimeter.

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

If necessary, IVS-201A supports customizing your own test patterns.



SWAP for Earlier Glaucoma Detection

Valid for IVS-201A Only

Researches suggest 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/m^2 yellow background to desensitizes the green and red cones, and evokes response of blue cones through carefully chosen 440nm blue stimuli.

Researches show that SWAP identified early glaucomatous visual field defects and progression in glaucomatous field loss much earlier than they could be detected 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.

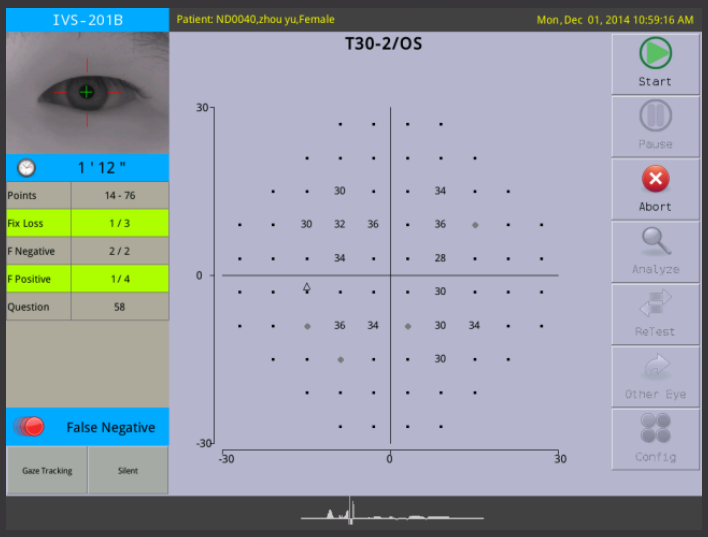
IVS-201A provides you with economic Blue-Yellow peremetry solution through T30-SWAP, T24-SWAP programs. Faciliated by its unique HISA-SWAP algorithm, IVS completes a Blue-Yellow peremetry as quick as the usual White-White perimetry does. Benefitted by its brighter blue stimuli, IVS operates Blue-Yellow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

PRECISION DIAGNOSYS

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

Equipped with world-wide accepted 31.5 asb background illumination, incorporate 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.

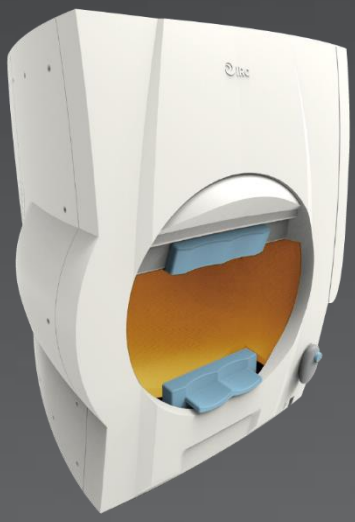


COMFORTABLE PERIMETRY

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 patient.

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.

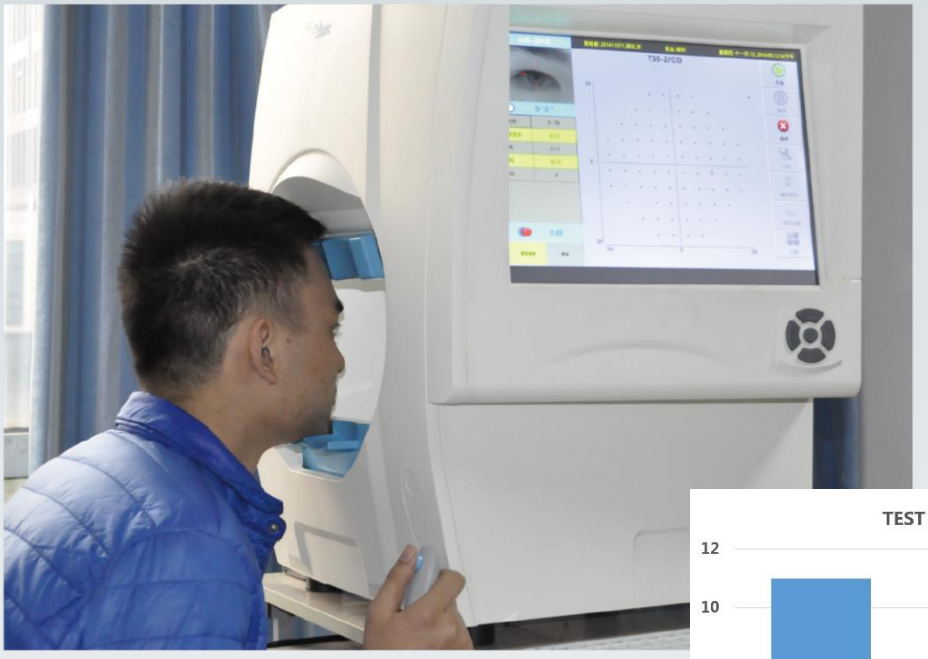
Compared with its competitor's 12.1" CRT, our 15" LCD provides higher display quality and more diagnostic information. Better display quality, more sensitive touch screen and virtual multi-language keyboard enable you an easy operation system with one finger.

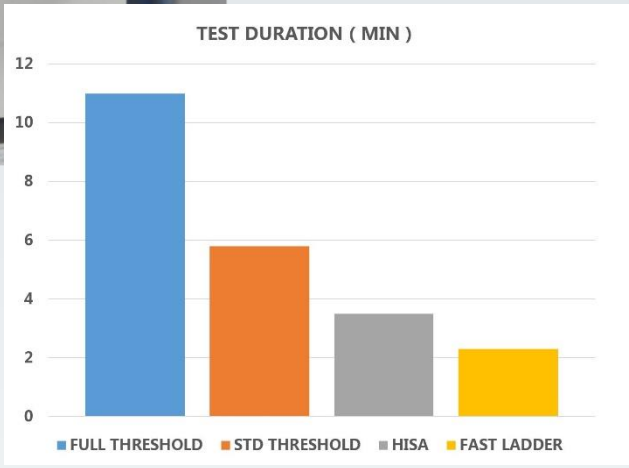


The ergonomic responser applies to all hands whatever the race, age and gender; Its elaborately selected tactile switch with 2.45 N action force has a life cycle of 1,000,000 times; The unique design brings us happy and straightforward response experience. Meanwhile, the switch action is easily perceived,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

Optional: Our foot pedal responser is accessible to the disabled. Mechanical keyboard and external mouse are available as well.

QUICKER PERIMETRY





IRC extremely values the time of patients and operators. On the premise of consistent accuracy, IRC 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 neighbouring 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 neighbouring 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 secret techniques and mathematical models, HISA is bound to be the most reliable and accurate threshold testing strategy.

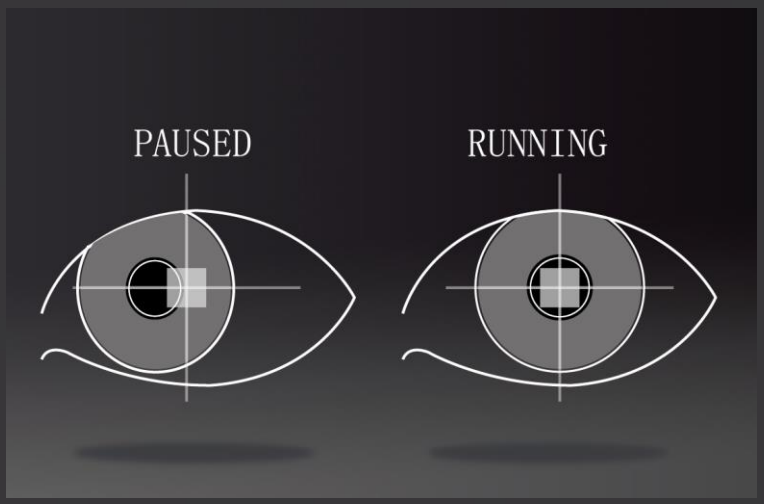
Dedicated System, Safer Data, Easier Use

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

More 1000,000 tests can be stored in more than 32 GB solid state disk. High drop and unusual power off will not result any data loss.

IRC Medical has elaborately designed IVS's UI and operation process, which is easily accessible for a fresh operator without any instructions. Following the philosophy of "Simple is Best", IRC Medical makes attempt to simplify the operation. You will never click twice for one-click operation.

ACCURATE PERIMETRY



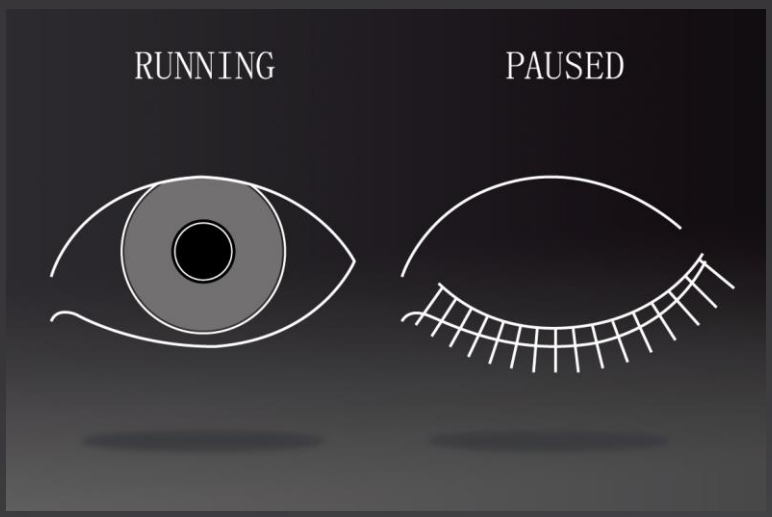
Gaze Tracking

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.

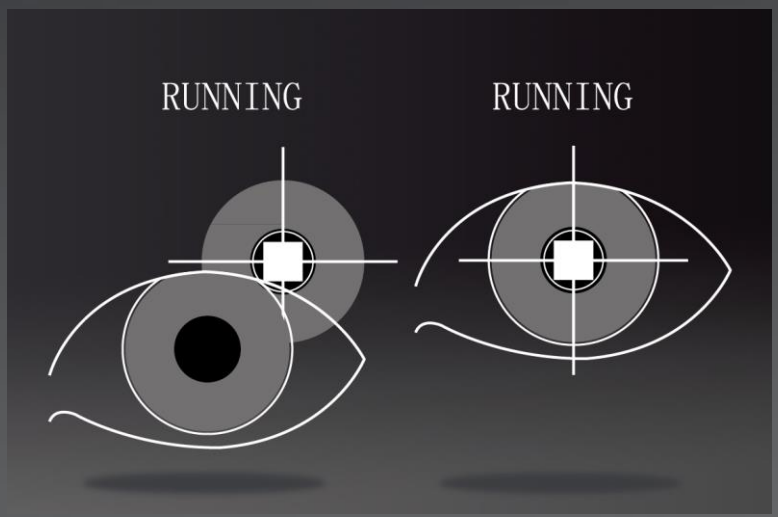
For continuous stable pupil shift, IVS moves the chin rest and corrects the wrong pupil position.



Blink Control

Never miss a point

IVS's BLINK CONTROL helps avoid dry eyes and relax the patient for more focused subsequent test. With IVS's BLINK CONTROL, stimuli during testee's blinking will never be worried since stimuli interrupted by the patient blinking 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.

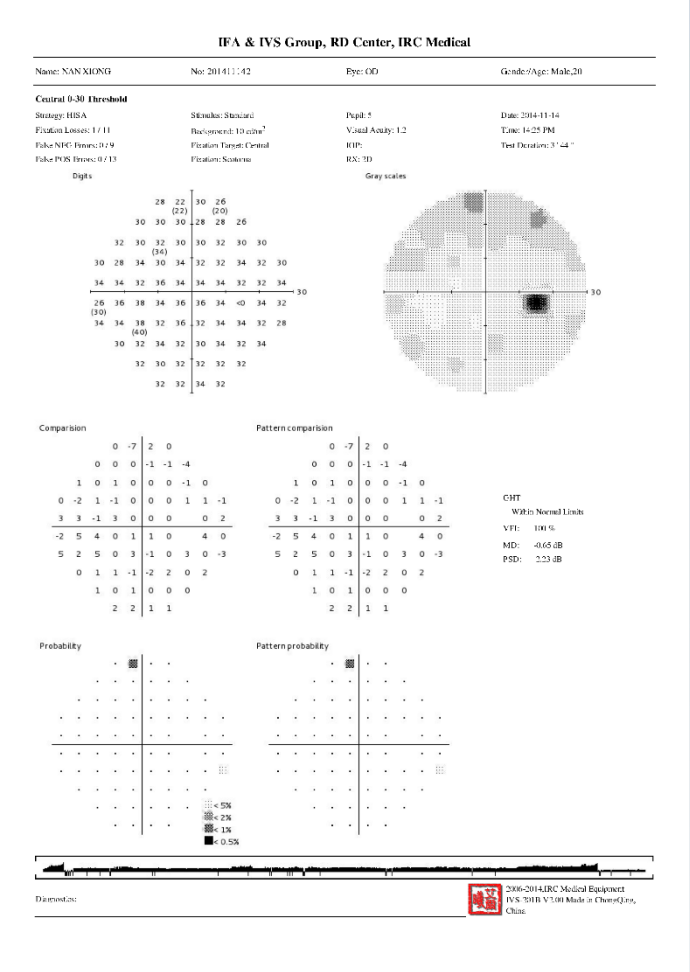
From stimuli presents to patient's response, there should be a reasonable time lag. If the patient response incredibly fast, system will record it as a FALSE POSITIVE as a reaction to patient's "Happy Trigger".

Blink spot monitor, FALSE NEGATIVE, FALSE POSITIVE and Gaze Tracking Curve could help you scientifically evaluate the reliability 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 liable to correct the effects of media opacities, refractive error, and other generalized field loss by small pupils. It try to reflect only the change of fundus and resulting localized field loss, thus make it more valuable for glaucoma diagnosis.



GHT-Glaucoma Hemifield Test

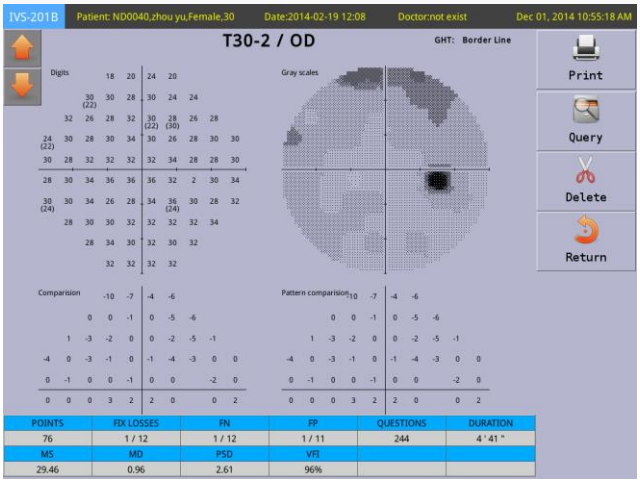
Comparing points within five zones in the superior and inferior hemifields, T30-2, T24-2, T30-SWAP and T24-SWAP provide a plain language analysis of the test results: *Outside the Normal Limits*, *Within Normal Limits*, *Borderline*, *Abnormal High Sensitivity* and *General Reduction of Sensitivity*.

The GHT result is valuable for glaucoma diagnosis, because the primary aim of GHT is to identify localized visual field loss occurring in a pattern typical of that seen in glaucoma.

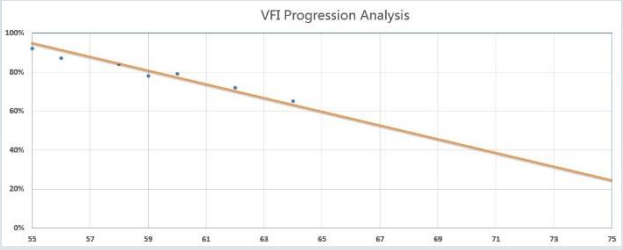
Visual Field Index, Pattern Standard Deviation

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.

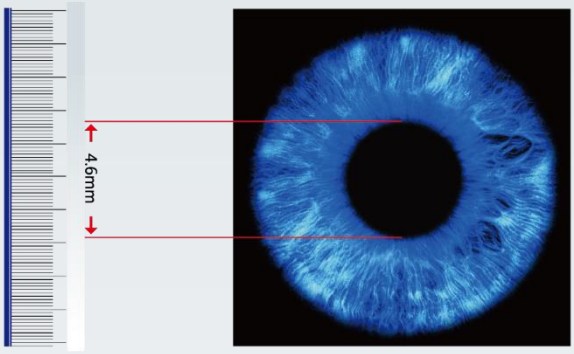


MORE THAN REFINED



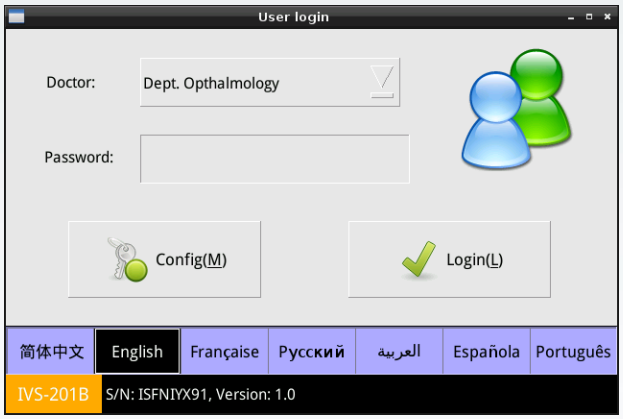
Glaucoma Progression Analysis

IVS can accurately differentiates 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.



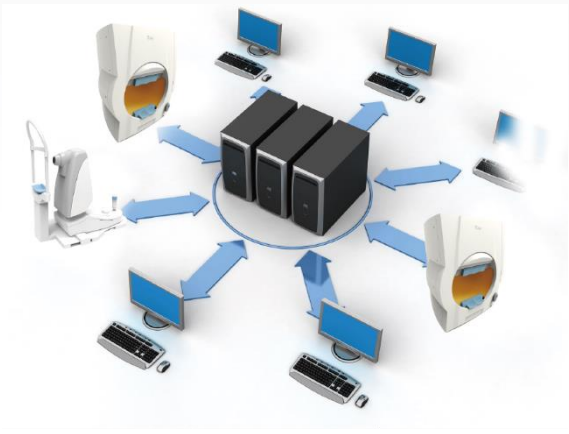
Automated Pupil Measurement

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, then avoid wrong report interpretation with too small pupil size.



Multi-Language Support

IRC Medical is aiming to serve the people worldwide. 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 be connected with any EMR system which conforms to the DICOM standard.

With *EyeImaging* server software provided by IRC Medical, instruments manufactured by IRC Medical or those conforms to the DICOM standard can all be connected in, and the reports will be automatically collected to LAN server or cloud. Consequently, patients and authorized doctors can easily retrieve and view these test reports.

Technical Specifications

* Only valid for IVS-201A Δ Optional

Stimulus generation	Hidden LED Array
Max temporal range (degrees)	90°
Testing distance	30cm
Background illumination	31.5 asb (10cd/m^2)，100 cd/m^2 *
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， T-NS
Threshold strategy	Full Threshold， Fast Ladder， HISA，Standard Threshold
Screening test library	S-40， S-64， S-76， S-80， S-Armaly S60， S-NS SF-81， SF-120， SF-135
Screen strategy	Two Zone，Three Zone，Qualified Defect
Blue/Yellow perimetry*	T24-SWAP, T30-SWAP
Custom testing*	Custom Program
Colored perimetry*	Blue Stimuli
Specialty test patterns*	Social Security Disability, monocular, binocular Superior 36, Superior 64
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 SWAP analysis*　HISA Analysis Networking*　Glaucoma Progression Analysis* DICOM Support*
Responser	Hand held， Foot pedalΔ（for upper limb disabled）
Operating System	
OS	Dedicated OS, immune for general computer viruses
Operator interface	15" LCD touch screen ，Keyboard & MouseΔ
Data Storage	≥32GB，More than 1,000,000 test results
Data Backup	Flash Disk，Portable Hard DiskΔ，Networking
Networking	Ethernet
Electrical Requirements	
Input	100-240V，50～60Hz
Power consumption	150W
Dimension/Weight	56x49x60cm / 30 Kg

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