

VX650

The unique
eye health monitor





Visionix[®]: revolutionizing the future of visual healthcare

Visionix[®] VX650: a single multi-modal instrument for complete detection and follow-up of major anterior and posterior ocular pathologies.

The Visionix[®] VX650 revolutionizes ocular assessment by introducing the first and only solution allowing eye care professionals (ECPs) to deliver a comprehensive eye exam at the push of a button. It combines an aberrometer, a fundus camera, and all essential technologies to monitor both anterior and posterior segments in a single device. The highly automated Visionix[®] vx650 allows a moderately trained user to detect a wide range of visual pathologies.

Anterior and posterior segment analysis:

A comprehensive multi-modal device for anterior / posterior segments measurement and analysis (ARK, Aberrometer, Topographer, Pachymeter, Scheimpflug camera, Tonometer and new integrated Fundus camera the Fundus camera).

Full range of clinical applications:

From cornea to retina, it detects all major defects and pathologies, including dry-eye, keratoconus, cataract, glaucoma, nevus, diabetic retinopathy, retinal hemorrhage and more.

Increased level of eyecare without delay:

Reduce overall patient movement and time in the pre-test room while providing a comprehensive examination to every patient.

Automated and intuitive data collection:

Accurate and reproducible results regardless of the operator.

Efficient data management:

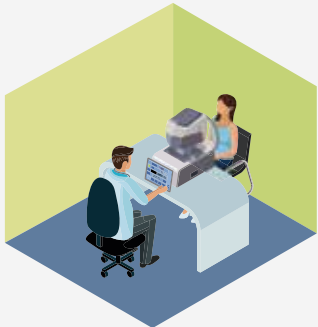
Results available for GDPR (General Data Protection Regulation) and HIPAA (Health Insurance Portability and Accountability Act) compliant data sharing, for either local or remote review.

Telehealth and remote-ready:

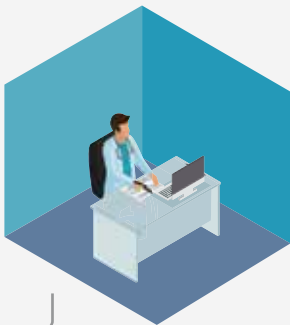
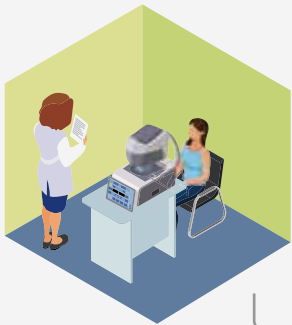
The device can be fully operated remotely. Additionally, data is available for review by a licensed practitioner - from anywhere.

Optimise your work flow on your own terms

SYNCHRONOUS



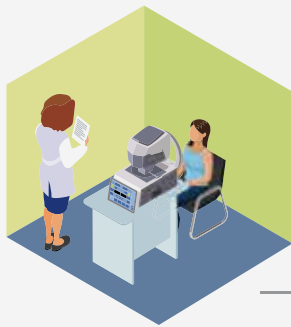
Same time and location for testing, data review, and patient consultation.



Testing, data review and patient consultation happen in the same appointment. Testing is in one location while the data review and patient consultation take place in another location.

Pre-test room Exam room Patient file

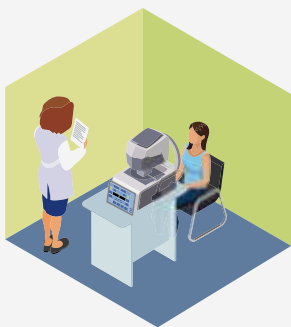
ASYNCHRONOUS



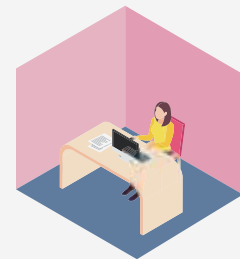
Patient testing takes place at one time and location while the data review and patient consultation take place at a different time and location.



Supervision of eye examination with remote assistance.



Secretary completes the patient file.



Change your vision of time and space:

Patient testing takes place at one time and location. Data review takes place at another time and location. Patient consultation takes place at a different time and location.



The doctor remotely reviews the data coming from the examination and consults with the patient if necessary.

Pre-test room

Exam room

Patient file

Anterior segment

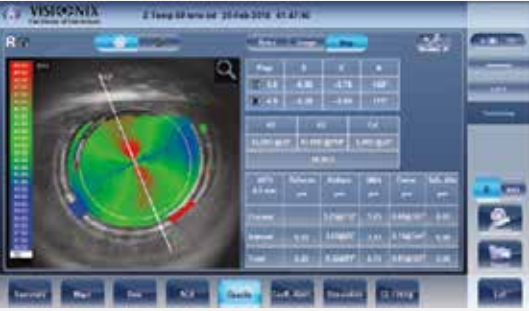
EYE TRANSPARENCY AND SHAPE

Diagnose, Evaluate, Monitor Cataracts

- Visualization of lens opacities
- Corneal, Internal and wavefront analysis
- Internal astigmatism measurement
- Kappa angle for IOL centering
- Z.4.0 value for aspheric implant
- Lens opacity classification (LOC III scale)



Retroillumination to examine lens opacities



Toric IOL position linked with anterior corneal topography

TECHNOLOGY

Retroillumination, Shack-Hartmann, Scheimpflug, Placido rings.

CORNEAL TOPOGRAPHY

Diagnose, Evaluate, Monitor Keratoconus maps

- Axial, tangential elevation and refraction maps
- Keratoconus probability index (KPI)
- Keratoconus monitoring
- Internal astigmatism measurement
- Eccentricity and meridian tables
- Corneal aberrometry



Topography maps and Keratoconus probability index (KPI)



Data summary

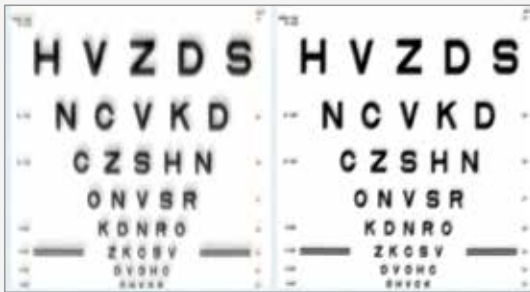
TECHNOLOGY

Wavefront analysis with Shack-Hartmann technology, Placido rings.

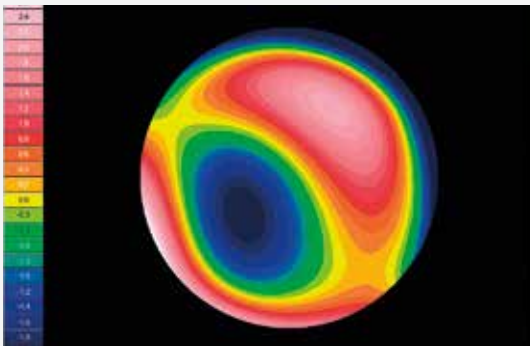
ADVANCED OBJECTIVE REFRACTION

Highlights differences between day and night vision needs

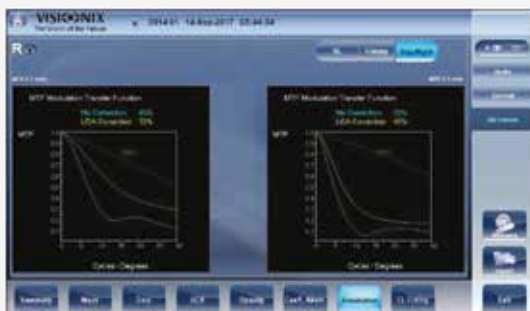
- Objective day and night refraction measurements
- 1400 points analysed for a 7-mm diameter pupil
- Objective refraction under mesopic and photopic conditions
- Measures lower-order and higher-order aberrations
- Access visual acuity and quality of vision on a pupil as small as 1.2 mm
- Modulation Transfer Function curve analysis and comparison



Vision quality and Visual acuity simulation



Shack-Hartmann wavefront maps point out lower-order and higher-order aberrations.



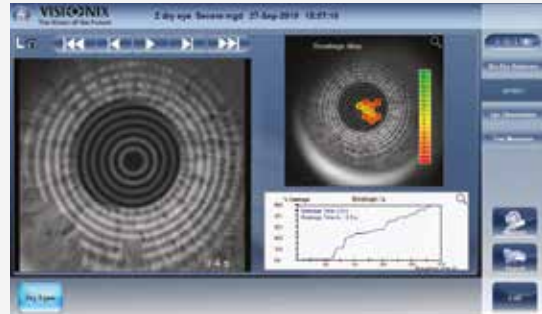
Objective day and night refraction measurements. Analysis of aberrations with Zernike coefficients.

TECHNOLOGY

Shack-Hartmann wavefront analysis

DRY EYE DISEASES (D.E.D.)

Diagnose, Evaluate, Monitor



Non-Invasive Break Up Time (NIBUT) Measurement and analysis



Displays a colour image of the eye and uses the Efron grading scale to grade the level of redness, the overall quality of the eye and lids. This feature focuses on the meibomian glands area to screen Meibomian Gland Dysfunction (MGD).



Measurement of tear meniscus height

Using the manual zoom of the colour camera, you can measure the height of the tear meniscus to complete the test.

TECHNOLOGY :

Follows the recommendations from the Tear Film & Ocular Surface Society (TFOS) and Dry Eye Workshop (DEWS II) reports. Placido rings analysis and anterior eye camera and displays colour image of Meibomian glands.

Posterior segment

Retinography captures the appearance of a patient's fundus. The photographs allow an eye care professional (ECP) to study a patient's retina, detect retinal changes and review a patient's retinal finding. Visionix® VX650 enables a simple diagnostic procedure to identify patients who need prompt treatment to prevent loss of vision.

GLAUCOMA

Diagnose, Evaluate, Monitor

Irido angle < 20°

Angle-closure glaucoma is a medical eye emergency. If the pressure is not reduced quickly, the patient may have permanent vision loss. It is important to note that some patients with narrow angle glaucoma may not experience symptoms or may experience them intermittently, depending on what is causing the disease.

IOPc

- Measurement of IOP (intraocular pressure)
- Corrected IOP in link with corneal thickness

Fundus and Cup/Disc (C/D) ratio

The Cup/Disc Ratio compares the diameter of the «cup» portion of the optic disc with the total diameter of the optic disc. The normal C/D ratio is less than 0.5. A large C/D ratio may imply glaucoma or other pathology. However, cupping by itself is not indicative of glaucoma.

In the fundus, the user will see the optic disc, which is a clear disc shape, when magnified. In the example on the left, you can observe a small cup, typical of a healthy optic nerve. In the example on the right, the cup is much larger, indicating possible glaucoma.



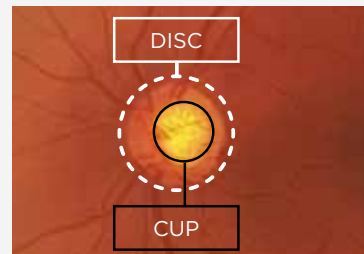
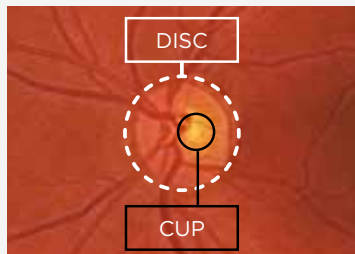
Glaucoma summary screen



Normal Fundus Photograph



Fundus with Glaucoma



TECHNOLOGY
Fundus camera

DIABETIC RETINOPATHY

Diagnose, Evaluate, Monitor

Diabetic retinopathy can lead to other serious eye conditions:

Over time, about half of patients with diabetic retinopathy will develop Diabetic macular edema (DME). DME happens when blood vessels in the retina leak fluid, causing swelling in the macula (a part of the retina). If a patient has DME, their vision will become blurry because of the extra fluid in their macula.

An eye care professional will look at the retina for early signs of the disease, such as:

- Leaking blood vessels,
- Retinal swelling, such as macular edema,
- Pale, fatty deposits on the retina (exudates) - signs of leaking blood vessels,
- Damaged nerve tissue (neuropathy),
- Any changes in the blood vessels.



Fundus Diabetic Retinopathy
Image Courtesy of Dr. J.P. Rozenbaum - Sartrouville - FR

AMD

Diagnose, Evaluate, Monitor

Age-related Macular Degeneration

is caused by the deterioration of the central portion of the retina, the inside back layer of the eye that records the images we see and sends them, via the optic nerve, from the eye to the brain.

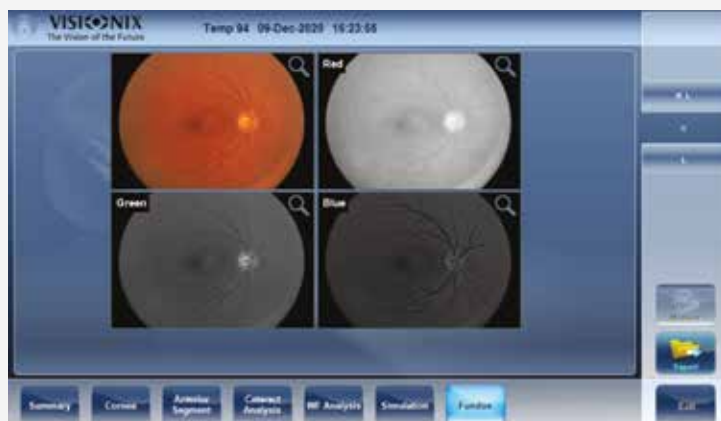
The retina's central portion, known as the macula, is responsible for focusing central vision in the eye, and it controls our ability to read, drive a car, recognize faces or colors, and see objects in fine detail.

Visualizing and tracking changes in retinal layers is important in managing patient visual health.



Macular degeneration

RGB FILTERS & RETINA DISPLAY



Extensive Photography Modes

Standard digital filters can be applied to highlight different retinal layers and conditions.

Technical specifications

DIMENSIONS:

WIDTH	660mm
DEPTH	420mm
HEIGHT	560mm
WEIGHT	32Kg

Pachymetry, IC (iridocorneal) angle and pupillometry

Method	Static horizontal scan with the Scheimpflug camera
Pachymeter measuring range	150-1300m
Pachymetry resolution	+/- 10m
IC angle measuring range	0°-60°
IC resolution	0.1°
Pupil illumination	Blue light 455nm

Retroillumination

Corneal topography by specular reflection

Number of rings	24
Number of measuring points	6,144
Number of points analyzed	More than 100,000
Diameter of covered corneal area at 43D	From 0.75 mm to more than 10 mm
Measurement range	From 37.5 D to 56 D
Repeatability	0.03mm
Method	Placido rings

Dry Eye screening

- Non Invasive Break-Up Time (NIBUT)
- Measurement of tear meniscus height
- Scleral picture

Tonometer	
Measurement range	Calibrated range 7 - 44 mmHg
General	
Alignment	XYZ automatic
Display	10.1" (1024 x 600) TFT screen Multi-touch screen
Observation area	ø 14 mm
Medical device directive	EC MDD 93/42/EC modified by directive 2007/47/EC
Output	RS232 / USB / VGA / LAN / HDMI / DP
Power mapping and refraction	
Spherical power range	-20D to +20D
Cylinder power range	OD to 38D
Axis	0 to 180°
Measuring area	Min. ø 2mm - Max. 7mm (3zones)
Number of measuring points	1,400 points for 7mm pupil at OD
Acquisition time	0.2sec
Method	Shack-Hartmann
Fundus	
Angle of view	45°
Resolution	6Mpix
Optical resolution	> 60 lines/mm



Nexus, our new digital health solution platform, is specifically designed to connect all eye care professionals, even remotely, allowing you to bring ophthalmologists' expertise to the patients in any eye screening location.



INNOVATION TO UNLOCK YOUR POTENTIAL

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