The unique eye health monitor
Luneau Technology: revolutionizes the future of visual healthcare

Visionix® VX650: the one single multimodal device for complete detection and follow-up of majors anterior and posterior ocular pathologies.

Visionix® VX650 from Luneau Technology revolutionizes ocular assessment by introducing the first and unique solution that allows eye care professionals to deliver a comprehensive eye exam at the push of a button. It combines an aberrometer and all essential technologies with a fundus camera and all essential technologies to monitor both anterior and posterior segments in a single device. The highly automated VX650 allows a moderately trained user to detect a wide range of visual pathologies in less than 90 seconds per eye.

Anterior and posterior segment analysis: A comprehensive multi-modal device for anterior and posterior segment measurement and analysis: ARK, aberrometer, Topographer, Pachymeter, Schleimpgflug camera, Tonometer & now integrating Fundus camera.

Full range of clinical applications: From cornea to retina, it detects all primary majors visual deficit and pathologies, like Dry Eye, Keratoconus, Cataract, Glaucoma, Naevus, Diabetic retinopathy, Retinal hemorrhage, ...

Increased level of eyecare without delay: Reduce overall patient movement and time in the pre-test room while providing comprehensive examination to every patient.

Automated, intuitive data collection: Accurate and reproducible results regardless of the operator.

Efficient data management: Results available for HIPAA-compliant data sharing, for review both locally and remotely.

Telehealth and remote-ready: The device can be fully operated remotely. Additionally, data can be available for review by 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.

**ASYNCHRONOUS**

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.
Anterior segment

COMPLETE OBJECTIVE REFRACTION

Complete refraction differentiates 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

Screening and Monitoring
Dry Eye Diseases (DED)

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

Screening and Monitoring
Dry Eye Diseases (DED)

> Displaying a color image of the eye and use the Efron’s scale to grade the level of redness, the overall quality of the eye, lids, and allowing focus on the meibomian glands area to screen MGD (Meibomian Gland Dysfunction).

Screening and Monitoring
Dry Eye Diseases (DED)

> 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
Shack-Hartmann wavefront analysis

Shack-Hartmann wavefront maps measure lower-order and higher-order aberrations.

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

Technology
Shack-Hartmann wavefront analysis

Following the TFOS (Tear Film & Ocular surface Society) and DEWS II (Dry Eye WorkShop) report recommendations.
Placido’s rings analysis and anterior eye camera.
Display colour image of Meibomian gland canals.
EYE TRANSPARENCY AND SHAPE

Screening, Evaluation and Monitoring Cataracts

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

Technology
Scheimpflug imaging, Retroillumination, Shack-Hartmann, Placido rings

CORNEAL TOPOGRAPHY

Screening, Evaluation and Monitoring Keratoconus

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

Technology
Wavefront analysis with Shack-Hartmann technology, Placido rings, Scheimpflug imaging
Posterior segment

Retinography captures the appearance of a patient’s fundus. The photographs allow the eye care professional to study a patient’s retina, detect retinal changes and review a patient’s retinal finding. VX650 enables a simple diagnostic procedure to identify patients who need prompt treatment to prevent loss of vision. It is not a complete clinical examination in itself.

GLAUCOMA

Diagnose, Evaluate, Monitor Glaucoma

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 ratio C/D
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 cup-to-disc ratio is less than 0.5. A large cup-to-disc ratio may imply glaucoma or other pathology. However, cupping by itself is not indicative of glaucoma.

With magnification you observe the optic disc in the fundus which is a very clear, disc-shaped area. In the example on the left you can observe a very small cup, typical of a healthy optic nerve. In the example on the right the cup is much larger, indicating possible damage from glaucoma.

Technology
Fundus camera
**Diabetic Retinopathy**

Diagnose, Evaluate, Monitor Diabetic Retinopathy

**Diabetic retinopathy can lead to other serious eye conditions:**
Diabetic macular edema (DME). Over time, about half of patients with diabetic retinopathy will develop 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. The 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.

**AMD**

Diagnose, Evaluate, Monitor AMD

**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 the retinal layers is important in managing patient visual health.

**RGB Filters**

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*Image of retina scans are shown.*
# TECHNICAL SPECIFICATIONS

## DIMENSIONS / WEIGHT

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 560 x L 660 x P 420</td>
<td>32 kgs</td>
</tr>
</tbody>
</table>

## PACHYMETRY, IC (IRIDOCORNEAL) ANGLE AND PUPILLOMETRY

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

## RETROILLUMINATION

**CORNEAL TOPOGRAPHY BY SPECULAR REFLECTION**

<table>
<thead>
<tr>
<th>Number of rings</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of measuring points</td>
<td>6,144</td>
</tr>
<tr>
<td>Number of points analyzed</td>
<td>More than 100,000</td>
</tr>
<tr>
<td>Diameter of covered corneal area at 43D</td>
<td>From 0.75 mm to more than 10 mm</td>
</tr>
<tr>
<td>Measurement range</td>
<td>From 37.5 D to 56 D</td>
</tr>
<tr>
<td>Repeatability</td>
<td>0.03mm</td>
</tr>
<tr>
<td>Method</td>
<td>Placido rings</td>
</tr>
</tbody>
</table>

## DRY EYE SCREENING

**NIBUT (Non Invasive Break-Up Time)**

**Measurement of tear meniscus height**

**Scleral picture**

## TONOMETER

| Measurement range | Calibrated range 7 - 44 mmHg |

## GENERAL

<table>
<thead>
<tr>
<th>Alignment</th>
<th>XYZ automatic</th>
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</thead>
<tbody>
<tr>
<td>Display</td>
<td>10.1&quot; (1024 x 600) TFT screen Multi-touch screen</td>
</tr>
<tr>
<td>Observation area</td>
<td>ø 14 mm</td>
</tr>
<tr>
<td>Medical device directive</td>
<td>EC MDD 93/42/EC modified by directive 2007/47/EC</td>
</tr>
<tr>
<td>Output</td>
<td>RS232 / USB / VGA / LAN</td>
</tr>
</tbody>
</table>

## POWER MAPPING AND REFRACTION

**Spherical power range**

**Cylinder power range**

**Axis**

**Measuring area**

**Number of measuring points**

**Acquisition time**

**Method**

**FUNDUS**

<table>
<thead>
<tr>
<th>Angle of view</th>
<th>45°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>6Mpix</td>
</tr>
<tr>
<td>Optical resolution</td>
<td>&gt; 60 lines/mm</td>
</tr>
<tr>
<td>Smallest pupil</td>
<td>3.5 mm</td>
</tr>
</tbody>
</table>

ABOUT US

The Luneau Technology group, bringing together the Visionix®, Briot® and Weco® brands, is a major force in the market, with a range of equipment to cover all the Eye Care Professionals’ requirements: Refraction and ophthalmic diagnosis, lens inspection in industrial production and lens cutting at the optician’s. Our aim has always been to provide you with the latest technologies to permit quicker screening for visual disorders and provide a better quality of life, with ever more effective equipment.