Innovative Ophthalmology Solutions

Full Corneal Topography System with Dry Eye Analysis

HTG-1

Huvitz CONNECTING SIGHT SUCCESS

Comprehensive corneal health diagnosis
combining topography and dry eye assessment into one solution.

HTG-1

The depth of diagnosis perfected with HTG-1: A fusion of precise corneal data and tear film analysis

HTG-1 precisely measures complex data, including corneal curvature, pupil information, and higher-order aberrations, providing an optimized solution for the diagnosis and monitoring of various ocular conditions, such as refractive errors, irregular astigmatism, and keratoconus.

Additionally, it analyzes various factors, including tear film stability and the condition of the meibomian glands, which can be reviewed through visualized reports for each measurement item. This allows for a more accurate assessment of the presence and underlying causes of dry eye disease.

HTG-1 precisely diagnoses corneal health conditions to help prevent corneal diseases and dry eye syndrome, while also minimizing vision deterioration, enhancing the reliability and accuracy of clinical care.

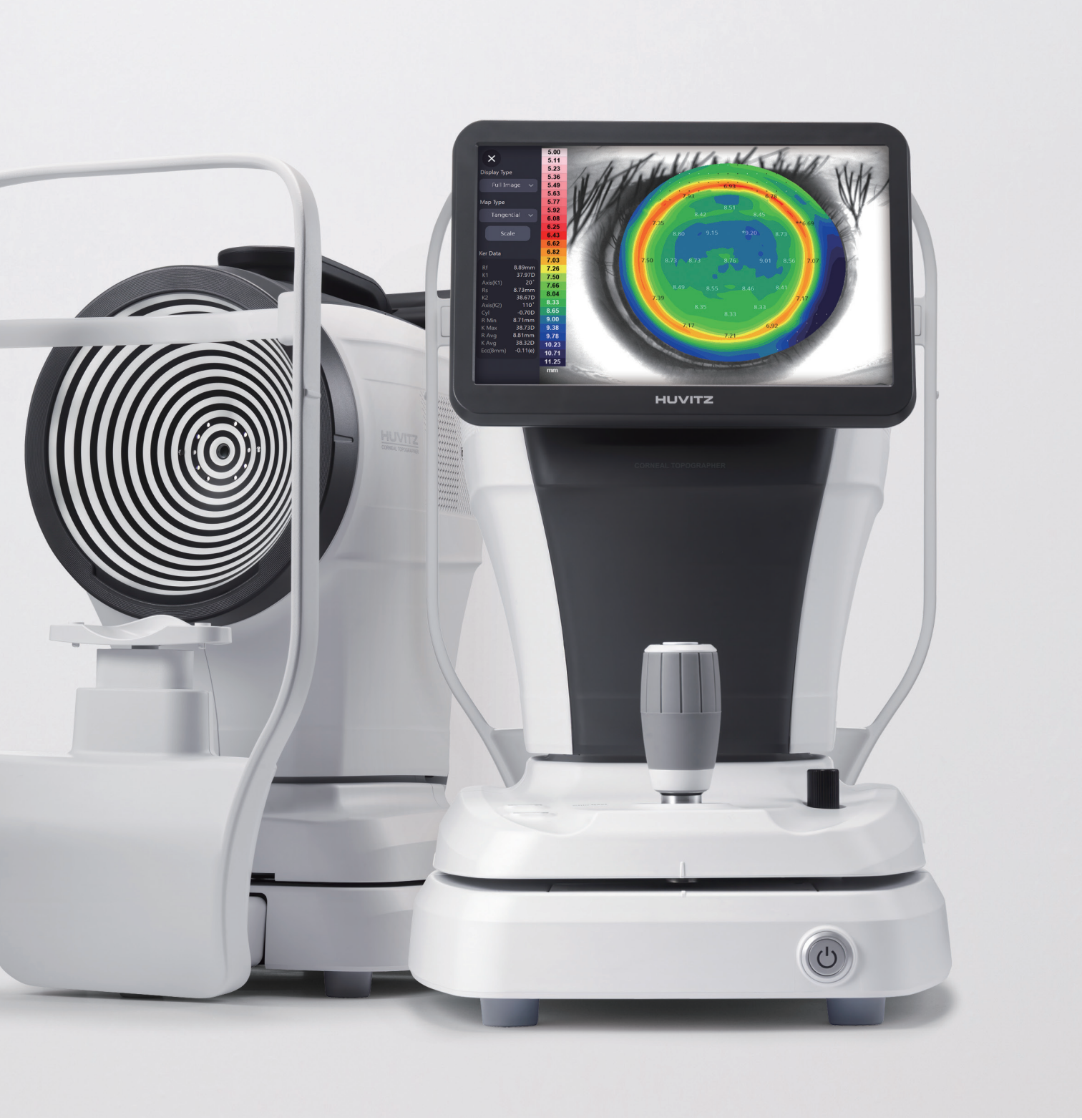
From comprehensive corneal data to the health of the ocular surface,
Experience a new level of diagnostic depth with HTG-1.

01 Comprehensive Corneal Health Management Solution

HTG-1 offers an integrated evaluation of corneal topography and dry eye diagnosis in a single device, allowing for an accurate assessment of overall eye health. Through precise corneal diagnostics and tear film analysis, it identifies underlying causes, aiding in the prevention and treatment of corneal diseases and dry eye syndrome while helping maintain visual acuity. Additionally, it supports long-term visual health through pre- and post-operative management.

02 Integrated Corneal Analysis Solution Based on Precision Data

Utilizing Placido disc-based analysis technology, HTG-1 precisely measures detailed corneal parameters such as curvature and shape, pupil size and response, refractive power variations, and corneal diameter. The highly reliable data can be widely applied across various clinical fields, including early detection of keratoconus, analysis of visual distortion, preoperative assessment for refractive surgery, and lens prescription and fitting.



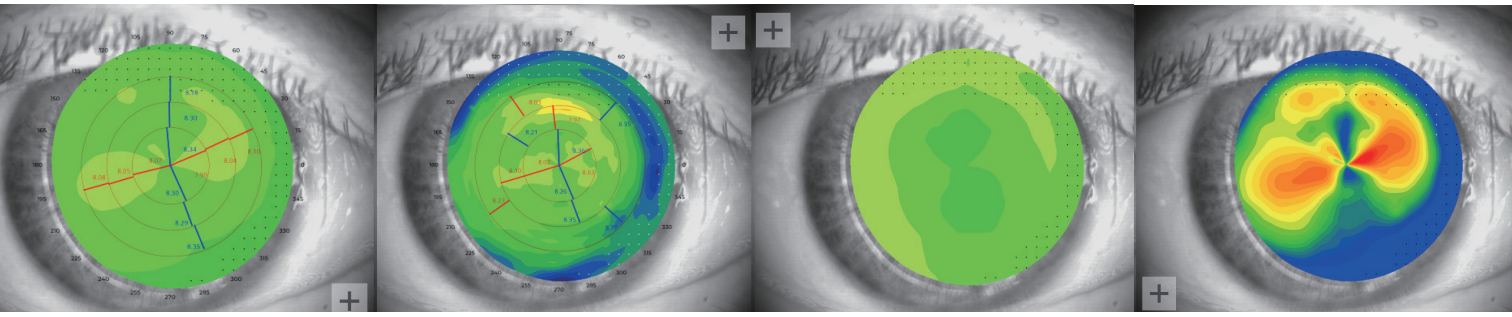
03 Comprehensive Dry Eye Diagnosis Solution Through Multi-Angle Analysis

HTG-1 performs a multi-faceted diagnosis of dry eye syndrome based on various indicators, including tear secretion evaluation, tear film stability assessment, meibomian gland dysfunction analysis, tear film distribution diagnosis, tear film color and pattern evaluation, blink interval measurement, corneal and conjunctival redness grading, and the OSDI self-assessment questionnaire. Its non-contact precision measurements and visualized reports enable accurate cause analysis and personalized treatment planning.

04 Smart Solution Providing an Optimal Examination Environment

With a 90-degree left-right rotating LCD, foot switch, wide headrest, auto-tracking, and sound guidance, HTG-1 offers an optimal examination environment that enhances operator convenience. The built-in PC enables seamless monitoring of the entire process—from measurement to analysis reports — for accurate evaluation. Compatibility with HIIS-1 and DICOM further improves clinical efficiency.

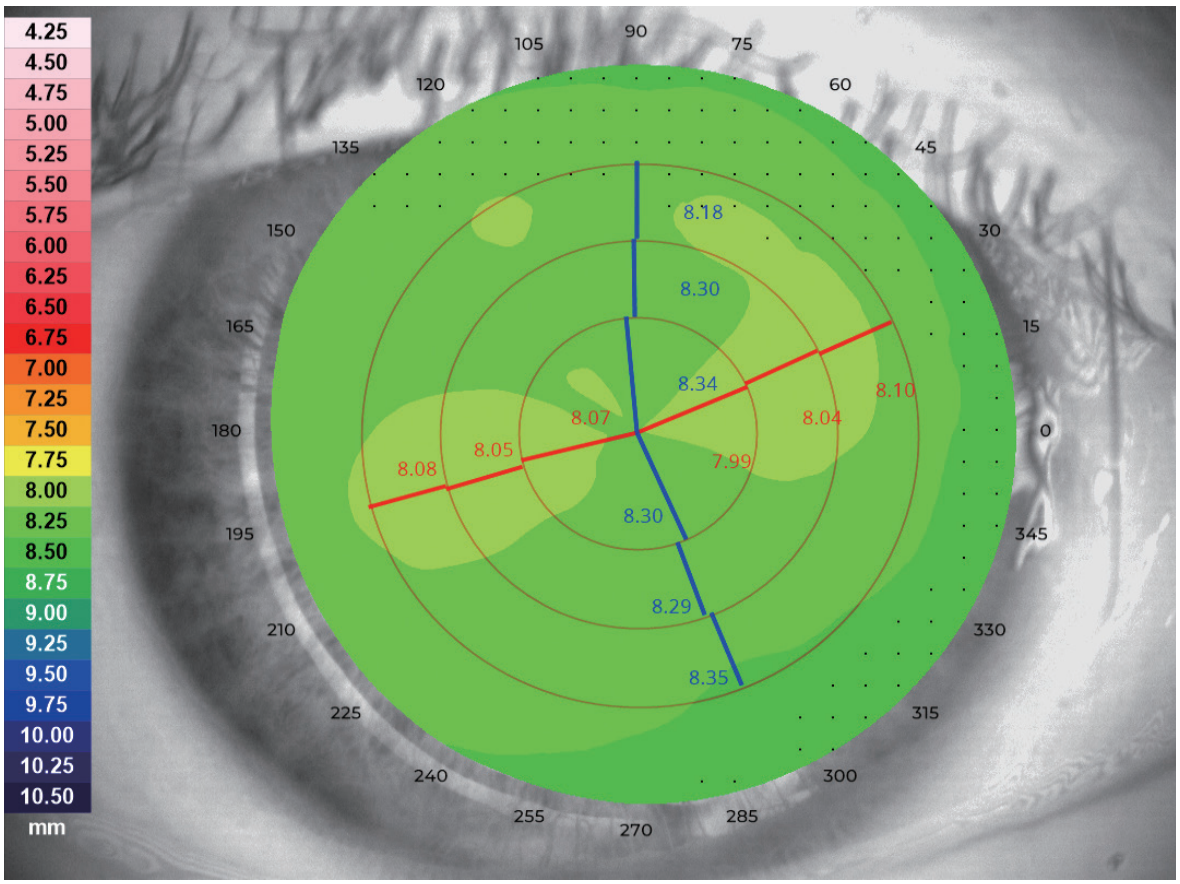
Axial Tangential Refractive Power Elevation



Acquisition of Diverse and Detailed Corneal Information

Precision Corneal Analysis Based on Placido Disc Technology

HTG-1 utilizes Placido Disc analysis technology to precisely measure various corneal data, including keratometry, topography, keratoconus detection, Zernike coefficients, pupillometry, and white-to-white distance. The measurement results are provided in multiple forms, such as axial, tangential, refractive power, and elevation maps, which are useful for assessing corneal shape and health, prescribing vision correction lenses, and planning cataract surgery.



Map : Axial

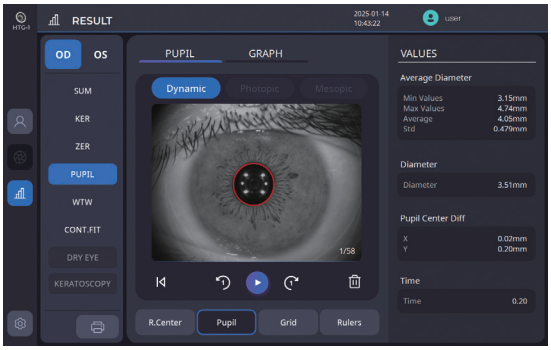
Early Keratoconus Detection Based on Corneal Indicators

By comprehensively analyzing the anterior corneal curvature, regional shape, protrusion degree, and eccentricity, HTG–1 calculates the Keratoconus Prediction Index (KPI) to estimate the likelihood of keratoconus. This provides information on potential keratoconus risk and visualizes the prediction results to enhance diagnostic reliability.

Keratoconus

Acquisition of Pupillometry–Based Pupil Data

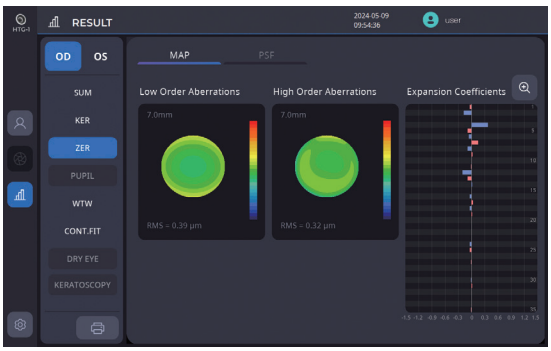
HTG–1 measures pupil size and response under both daytime and nighttime lighting conditions, providing various indicators, including minimum, maximum, and average pupil diameter, as well as standard deviation, in graphical form. This data is valuable for lens prescription and preoperative refractive surgery assessments.



Pupillometry

Precise Diagnosis of Visual Distortion Factors Using Zernike Analysis

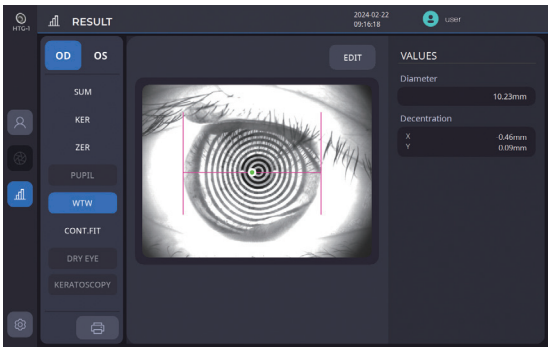
By utilizing Zernike coefficients and Zernike maps, HTG–1 precisely analyzes various visual distortion factors, including refractive power variations, irregular astigmatism, and higher–order aberrations (HOA), providing visualized data on elements that affect visual quality.



Zernike Map

White–to–White Measurement for Corneal Diameter

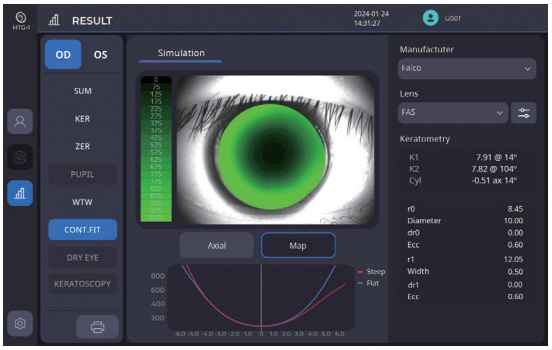
HTG–1 automatically measures corneal size, which is essential for diagnosing and monitoring various ocular conditions, such as congenital glaucoma, cataracts, and refractive surgery, as well as contact lens selection and fitting. Additionally, the Edit feature enables manual correction and the application of measurement values.



White to White

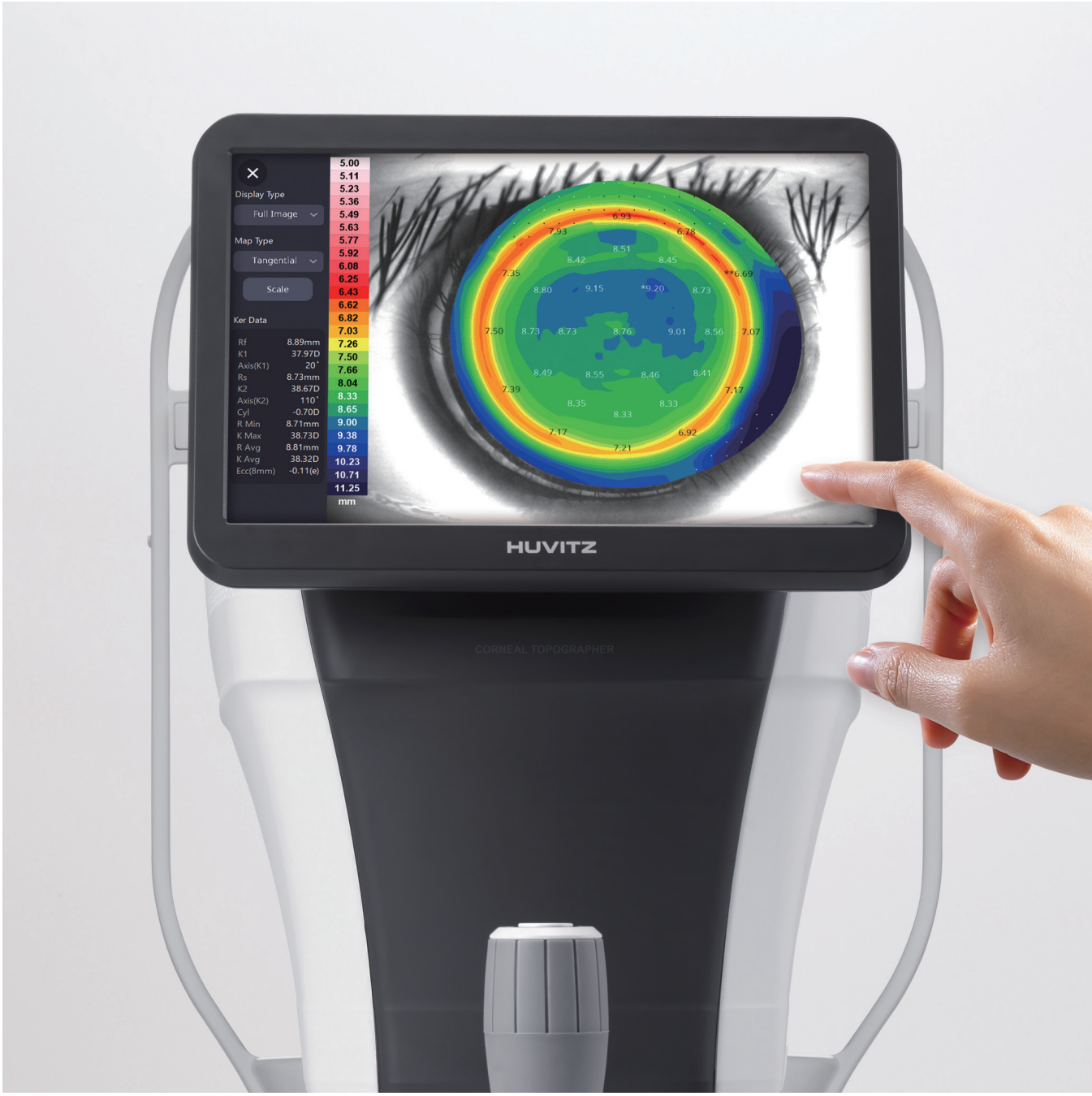
Simple Contact Lens Fitting Without Fluorescein Instillation

Using a simulation method with a fluorescein image filter—without directly instilling fluorescein dye—HTG–1 allows intuitive evaluation of hard and soft contact lens fitting results. This minimizes patient discomfort while enabling accurate lens fitting assessments, thereby enhancing clinical efficiency and reliability.



Contact Lens Fitting

NIKBUT Screen Image



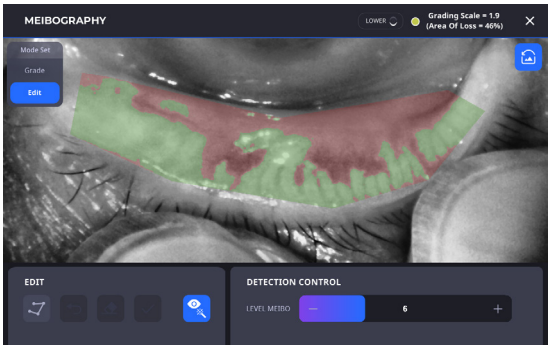
Comprehensive Dry Eye Diagnosis Completed Through Multi-Angle Analysis

Non-Contact Tear Film Stability Assessment Using NIKBUT (Non-Invasive Keratograph Breakup Time)

HTG-1 measures tear film stability without contact and tracks the breaking areas of the tear film disk in real time over time. The results provide quantitative visualization of the timing and extent of tear film breakup.

Precision Analysis for Meibomian Gland Dysfunction Diagnosis

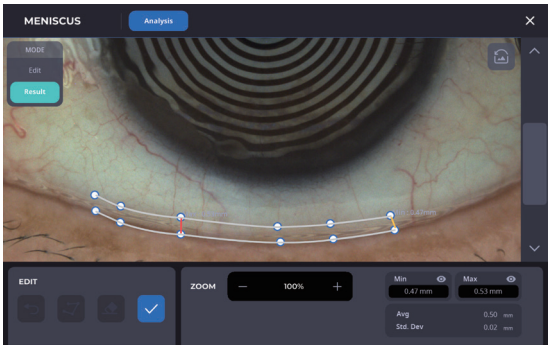
The degree of meibomian gland dysfunction is visually assessed and graded, providing valuable information for analyzing the causes of dry eye syndrome and planning treatment.



Analyzed Loss Area

Tear Meniscus Height Analysis for Tear Secretion Evaluation

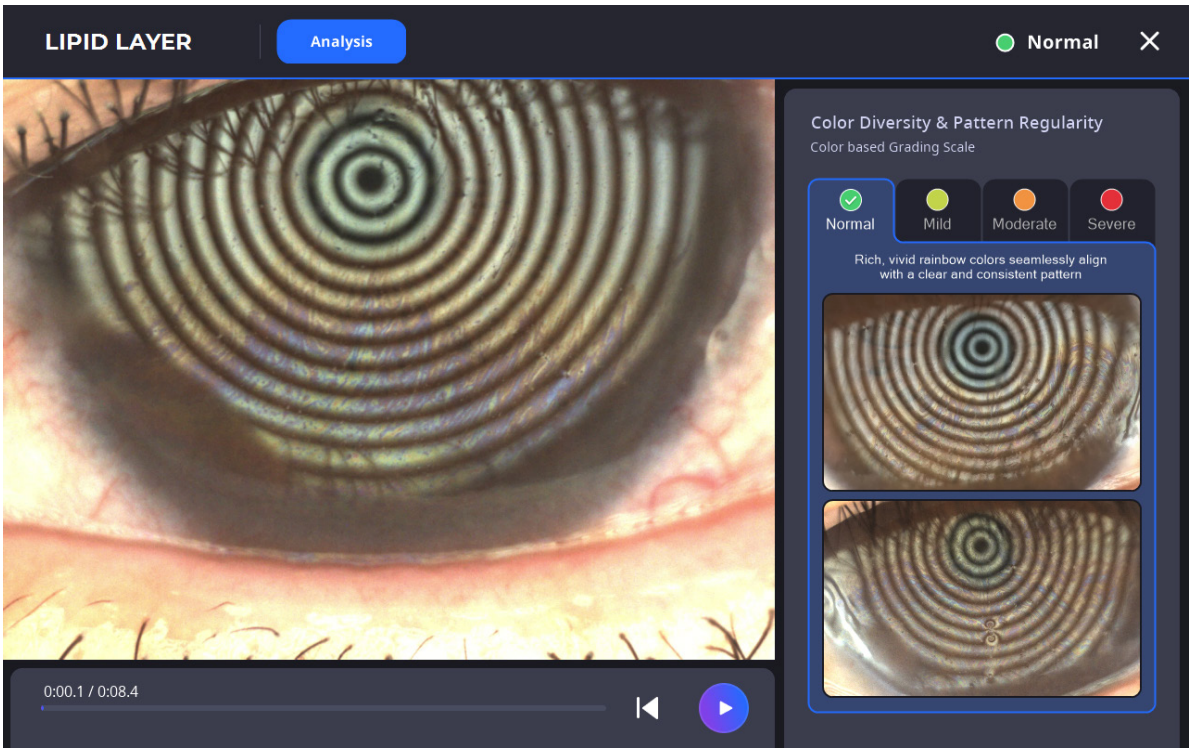
HTG-1 quantitatively measures the height of the tear meniscus to objectively assess tear secretion. It visualizes the tear strip formed along the eyelid and allows precise measurement using a built-in scale. When the user selects points, the tear film height is automatically calculated.



Tear Meniscus Height

Lipid Layer Function for Capturing Tear Film Color and Pattern

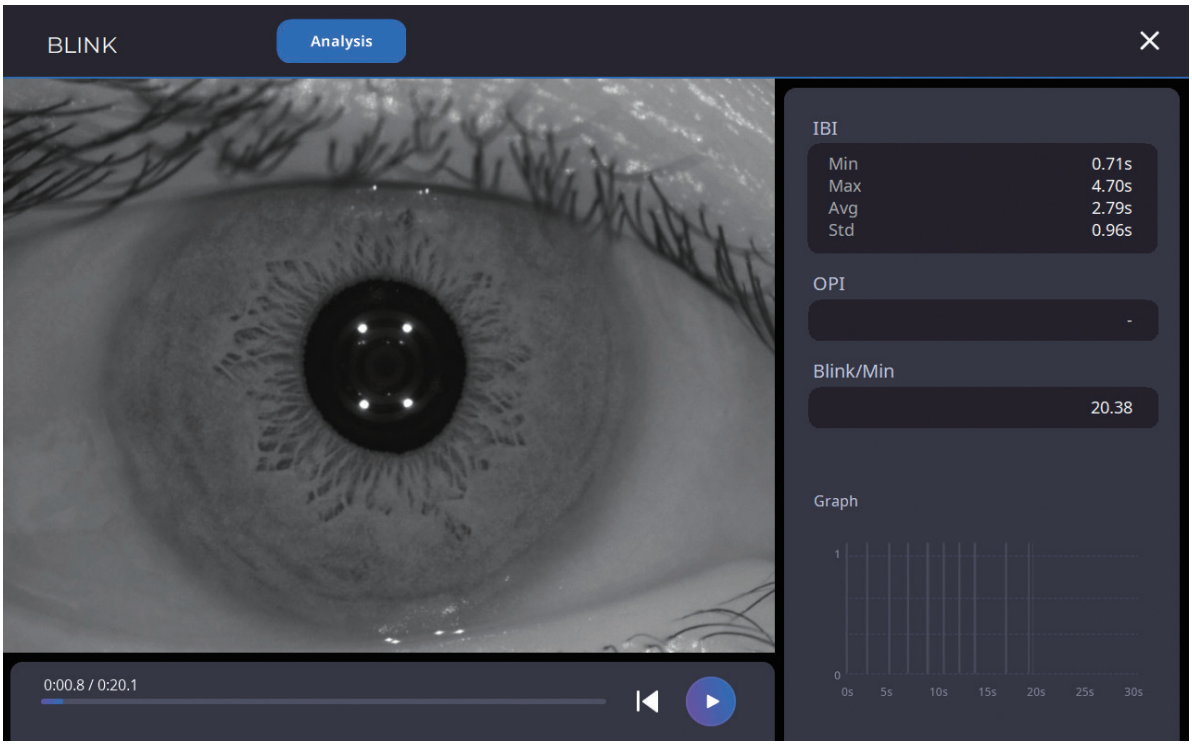
This feature captures the lipid layer of the tear film in real-time, allowing for visual observation of color and pattern changes. The recorded video is saved and can be effectively used for assessing tear film stability, diagnostic documentation, and patient consultation.



Lipid Layer

Diagnosis of Evaporative Dry Eye Through Blink Interval Measurement

HTG-1 measures the inter-blink interval (IBI) to analyze blink patterns. The measurements are provided as numerical values for blink frequency and regularity, which can be used for dry eye assessment and lifestyle-based counseling.



Blink

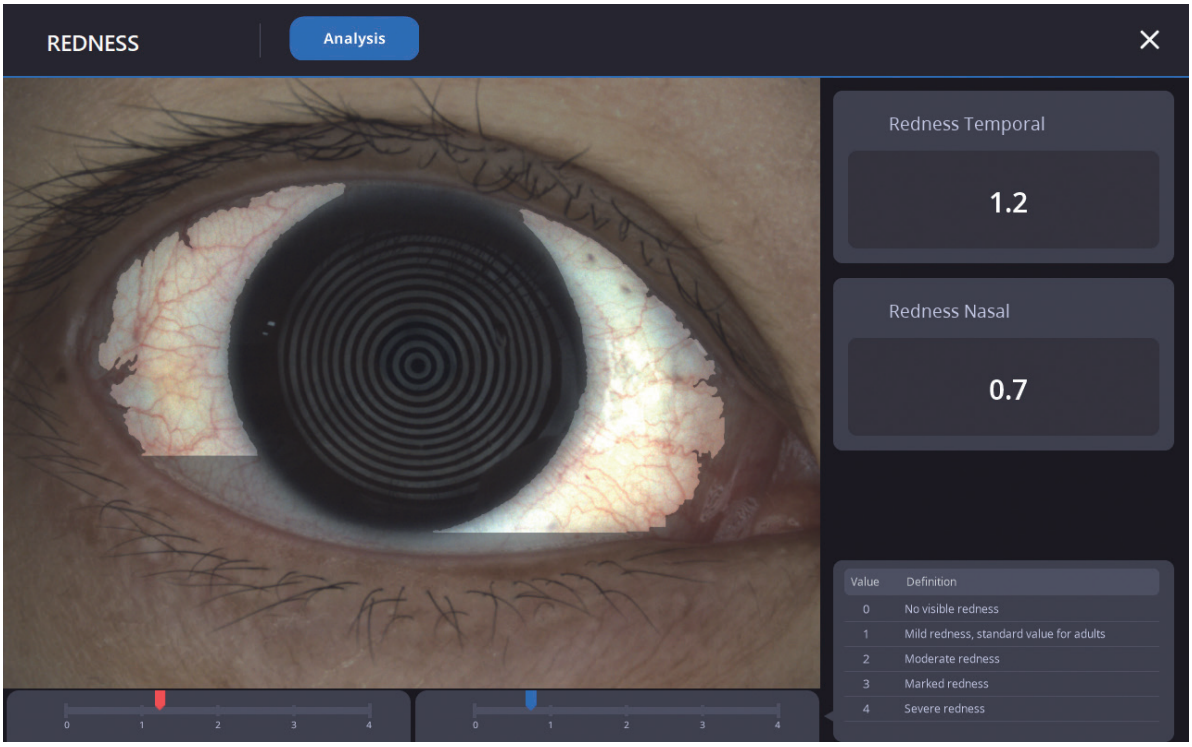
Tear Film Diagnosis Using Fluorescein Imaging

The blue LED-based fluorescein imaging function enables quick and precise detection of dry eye-related signs such as corneal scratches and tear film distribution. It is also effective for evaluating the condition before and after contact lens wear, as well as for visually monitoring tear film stability.

Blue LED

Evaluation of Ocular Inflammation and Eye Health Through Redness Analysis

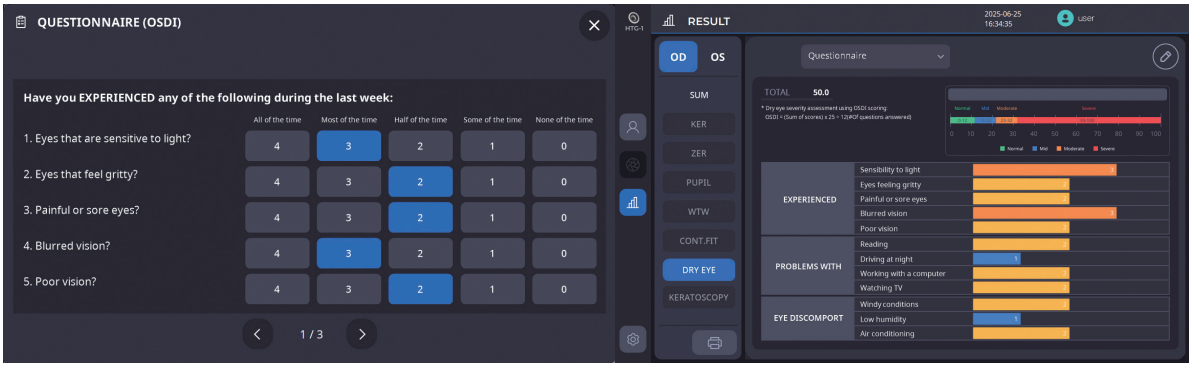
The degree of redness in the cornea and conjunctiva is automatically analyzed and quantified. This enables an objective assessment of ocular inflammation and overall eye health, enhancing the reliability of diagnosis.



Redness

Self–Diagnosis Evaluation Using the Global Standard OSDI Questionnaire

The OSDI is a globally recognized standard questionnaire for self–assessment of dry eye syndrome, enabling the quantitative evaluation of patients' subjective symptoms. It supports multiple languages, enhancing the efficiency of initial diagnosis and providing consistent diagnostic criteria across diverse settings.



OSDI Standard Questionnaire

OSDI Diagnostic Results

Tilting and Swiveling Display

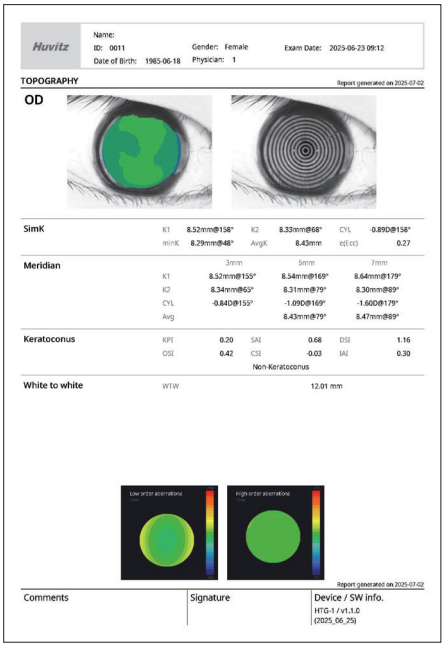
Easy and Convenient from Operation to Analysis, Delivering a User–Centered Experience

90–Degree Rotating LCD, Foot Switch, and Wide Headrest for Enhanced Convenience

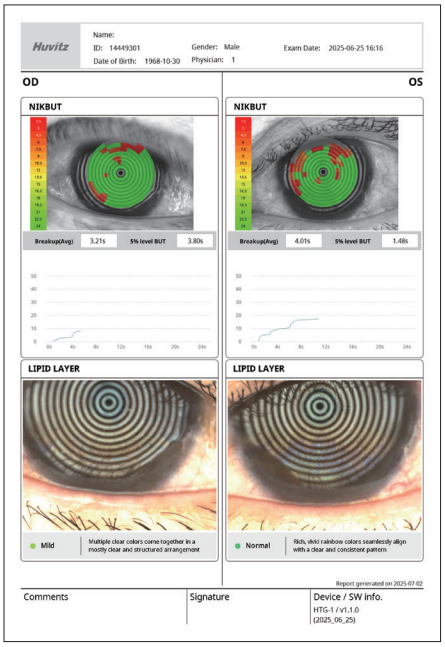
The LCD panel rotates 90 degrees left and right, maximizing the examiner's field of view for more accurate eye positioning. Instead of a joystick, the foot switch enables hands–free capture, allowing both hands to remain free. The wide headrest accommodates various face shapes securely, helping patients maintain proper posture and providing an optimal examination environment for precise eye alignment.

Systematic Reporting for Accurate Evaluation

Precisely measured data can be reviewed through corneal information reports, including Topography, SimK, Meridian, Keratoconus, and White–to–White. Additionally, dry eye reports are categorized by individual parameters (Meibomian Gland, Meniscus, Blink, Redness, NIKBUT, Lipid Layer, OSDI) or compiled into a comprehensive dry eye report. This provides a systematic reporting structure optimized for diagnosis.



Report : Topography



Report : NIKBUT

Auto Tracking for Enhanced Measurement Accuracy

The automatic focus function tracks subtle eye movements in real time, reducing measurement errors without the hassle of manual focusing and enabling faster and more precise examinations.

Connectivity for a Seamless Clinical Environment

In addition to compatibility with the standard DICOM format, measurement data can be easily accessed on a PC through the Huvitz HIIS–1 system, enhancing clinical efficiency and accessibility.

* HIIS–1 is available separately.

Network in Huvitz Integrated Image Server (HIIS–1)

Image and Sound Guide for Examination Timing

Sound cues notify patients when to open or close their eyes during the examination, minimizing discomfort.

- Single alert sound at the start of measurement: indicates when to open the eyes
- Double alert sound at the end of measurement: indicates when to close the eyes

Space–Saving and Cost–Effective Built–In PC

Without the need for a separate PC, all processes—from measurement to analysis reports—can be instantly viewed on the integrated 10.1–inch touch LCD screen.

LCD Display

HTG-1

Full Corneal Topography System with Dry Eye Analysis

Specifications

Parameter	Measuring range	
Corneal curvature radius	3 – 38mm	
Cornea refractive power	9D~110D (Cornea equivalence's refractive index: 1.3375)	
Direction of principal meridians	Measuring range: 0° – 180° Accuracy: according to the ISO 10343:2014	
White–to–white distance	7 – 14mm	
Pupil diameter	0.5 – 10mm	
Working distance	80~100 mm	
Placido disc	24 rings	
Points Analyzed	Over 100,000 (Measured points : Over 6,220)	
Accuracy & Repeatability	Type A according to the ISO 19980:2021	
Measuring range	up to Ø 9.8 mm (on a 8 mm sphere) 42.20D with n=1.3375	
Common		
Display	Swiveling & Tiltable 10.1 inch, Touch panel color LCD	
Horizontal movement	55 mm (back and forth), 100 mm (left and right)	
Vertical movement	30 mm	
Chinrest movement	62 mm (up and down), motorized	
Auto tracking	X, Y for positioning, Z for working distance	
Power supply	AC 100–240 V, 50/60 Hz, 1.6–0.7 A	
PC	Built in computer	
Dimensions	312(W) x 553(D) x 518(H) mm	
Mass	19 kg	
Software Features		
Topography	Keratoconus	Contact lens fitting
Zernike Analysis	Pupillometry	White To White
Lipid Layer	Tear Meniscus Height	NIKBUT
Meibomian	Redness	Questionnaire(OSDI)
Keratoscopy(Fluorescein & Imaging)		

Specification and design are subject to change without notice.

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Huvitz
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