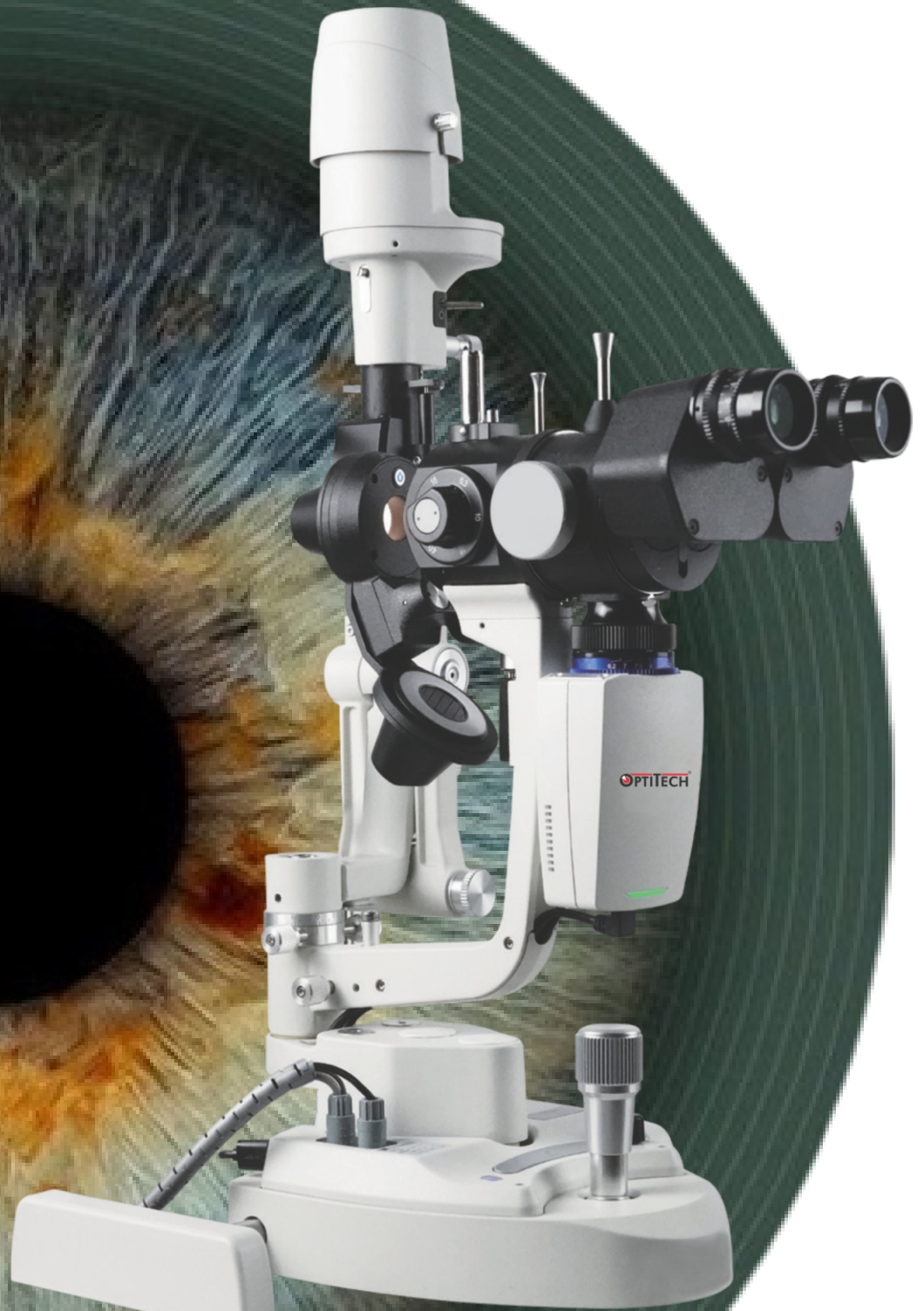


# SLITLAMP BIO-MICROSCOPE

Seeing is believing!

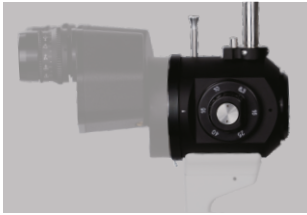
**iS7**  
Series





## HD Optical System

Optical resolution is up to 2700·N lp/mm ( 200 lp/mm ), providing more details of the pathologies.



## Built-in Yellow Filter

Built-in yellow filter along with cobalt-blue filter increases the contrast of Sodium Fluorescein Staining image. Increase positive rate of early corneal epithelial staining.



## The Meibomian Glands Examination

4056 x 3040

2592 x 1944

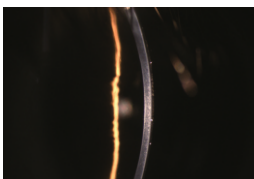
30 fps



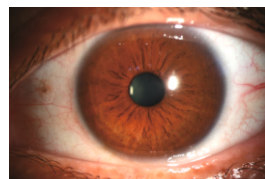
## Simple Design + Simple Operation

The design was inspired from the shape of firefly. The smart design largely saves space for clinicians compared other bulky camera systems. We have preset many camera parameters so the user does not need to adjust settings before using the device. The user can operate the machine immediately once the installation has been finished. The device has the following automatic functions for photo shooting and processing when equipped with our software:

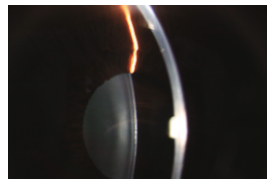
- Wide Dynamic Range
- Meibomian Glands Examination
- Auto Exposure
- Auto Gain
- Auto White Balance
- Auto OD/OS Indicator



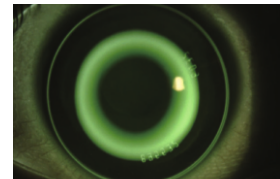
**High Sensitivity**  
The slit is still clear and sharp under weak light.



**Wide Dynamic Range**  
Iris and sclera image are simultaneously clearly presented with more realistic and evenly distributed color.

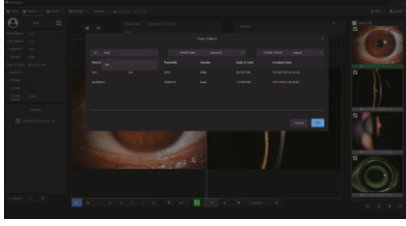


Lens



Orthokeratology Lens Fitting

# Software Features

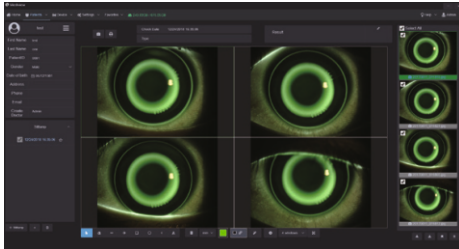
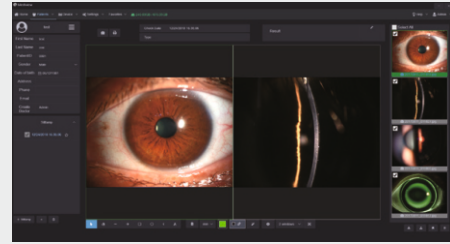


## Convenient Patient Management

The patient management system enables clinicians to build and edit patient record, search information by inputting keywords. Clinicians can easily record symptoms and manage the data all the time. The software supports DICOM which makes the images captured by Firefly be easily integrated into hospital's medical system.

## Functional Image Analysis

Clinicians can measure the pathology area with our powerful software tools and change the contrast and brightness of the images. Clinicians can also compare several images at one time to analyze the symptoms and pathology.



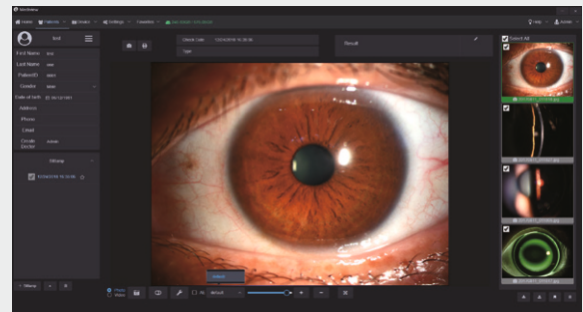
## Orthokeratology Lens Fitting Assistance

The optometrists can capture and record high resolution fluorescein images of lens fitting and real-time video without a recording time limit. By comparing the different lens fitting effects, the optometrist can show and educate patients which lens is most suitable for them.

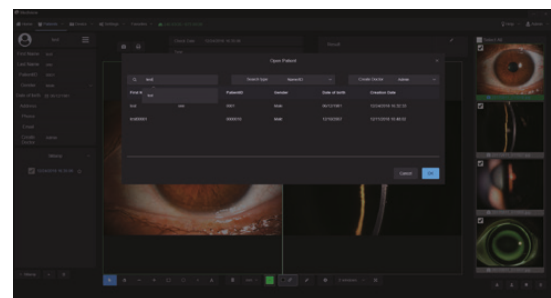
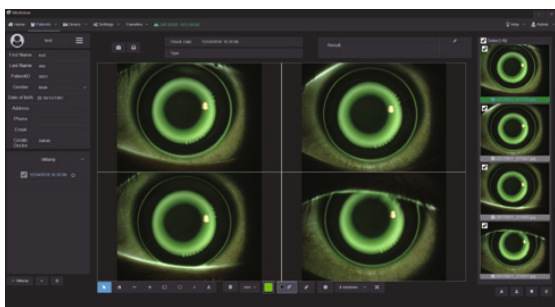
## Customized Auto Exposure Value Setting

Clinicians can customize auto exposure values according to the image demand and save as templates for future capturing purpose.

Also, the printing report can be customized according to clinician's needs.



## Smart Patient Management System



### Comparison of Patient records

Supports repeated comparison among medical records to evaluate treatment and guide customized treatment plan.

Patient Management System allows doctors to build and edit medical records. Quickly search the patient case by key words. Doctors can note patient's situation via the software. This DICOM-supported system enables software to connect with medical system in hospitals.

Easy Pathogenic Diagnosis provides guidance for customized treatment.

# Dry eye diagnostic system

## Automatic Analyzing Meibomian Glands

Precise diagnosis of Dry Eye caused by MGD is guaranteed with the help of AI identification system. Unique Built-in infrared lighting system provides a larger scope capture of Meibomian Glands, adjustable depth of field and aperture enables more vivid images.

## Increase Positive Rate of Early Corneal Epithelial Staining

Built-in yellow filter along with cobalt-blue filter increases the contrast of Sodium Fluorescein Staining image.

## HD Optical System

Resolution is up 2700.N lp/mm(200 lp/mm), providing more details of the pathologies.

## Full Cornea Dry Eye Analysis

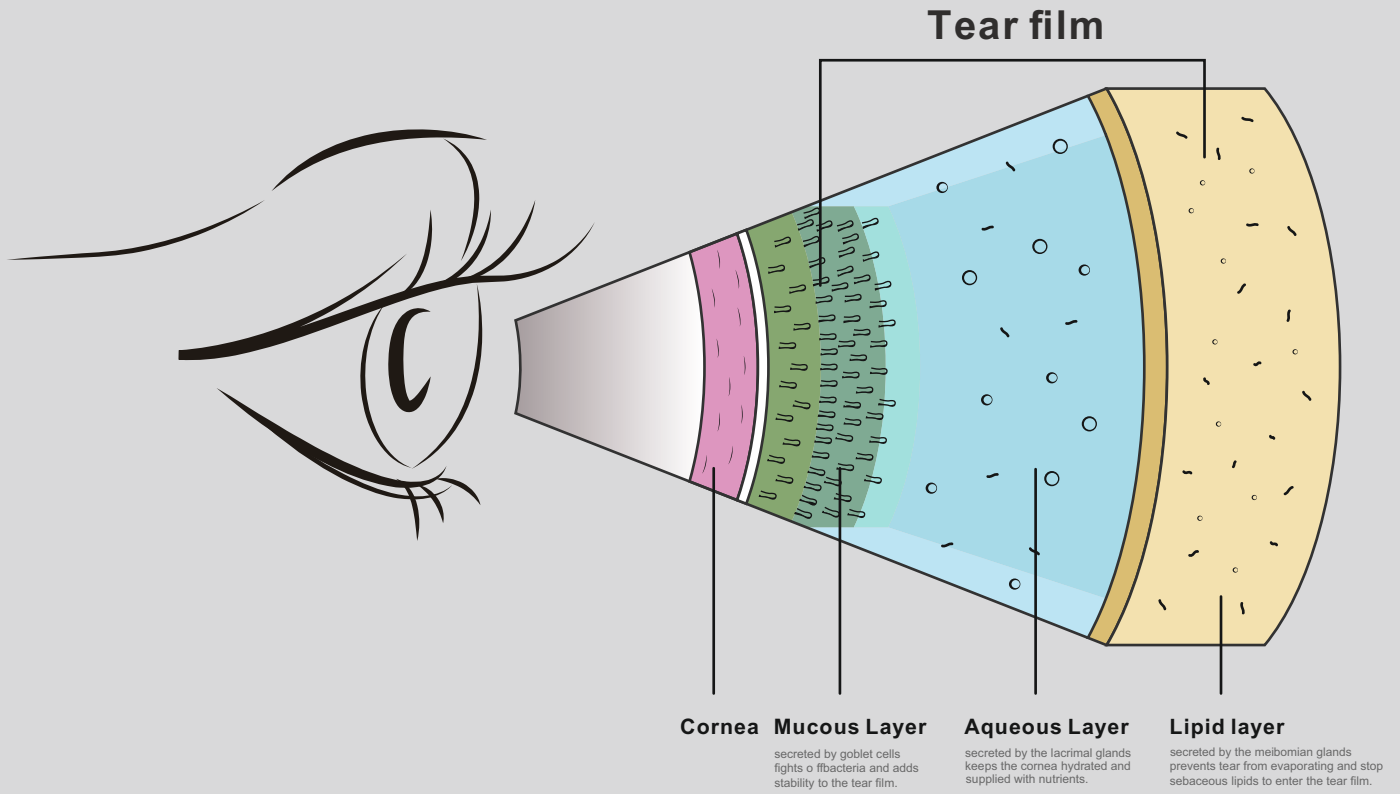
By Placido ring projection system with visible light, the examination scope is up to 8 mm cornea diameter. Examination of the tear film outside of pupil center has the same significance for the diagnosis of Dry Eye.

## Fully automatic Firefly digital module

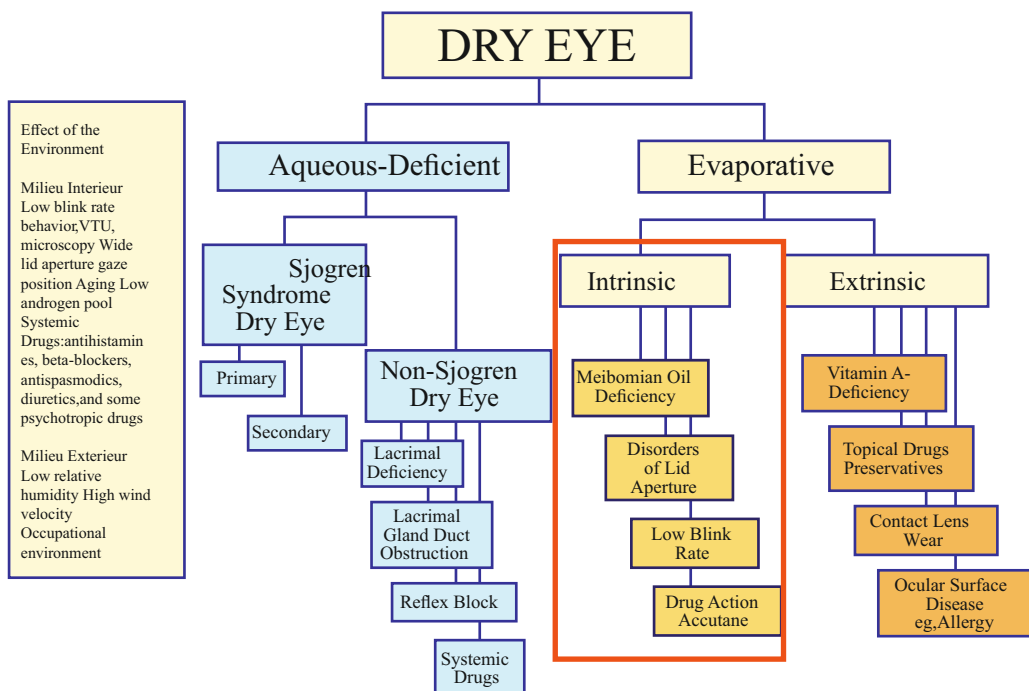
Digital module is specially designed for anterior segment examination, no parameter settings required(automatic exposure, auto white balance, auto focus), with adjustable depth of field and wide dynamic range, 12 Mega Pixels video output, high examination efficiency is allowed.



Due to various causes of Dry Eye Disease, traditional examination is difficult to find out the cause and quantify for the diagnosis. Dry Eye Diagnostic System can provide standardized examination and quantified causes evaluation for Dry Eye Disease.



## Dry eye classification from the 2007 DEWS Report

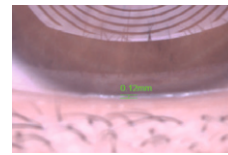
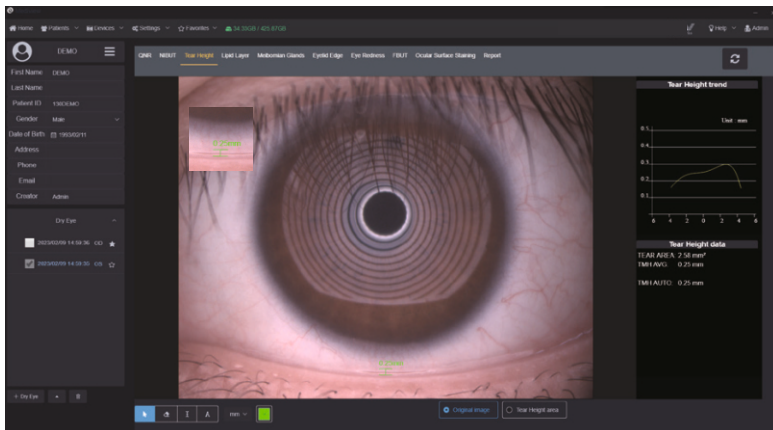


# Dry Eye Questionnaire

## Ocular Surface Disease Index (OSDI)/McMonnies/SPEED/DEQ 5

The built-in dry eye questionnaire is designed according to the risk factors and clinical characteristics of dry eye, providing a simple preliminary assessment for dry eye, improving diagnosis and treatment efficiency and facilitating patient follow-up.

# Non-Invasive Tear Meniscus Height



Insufficient tear secretion

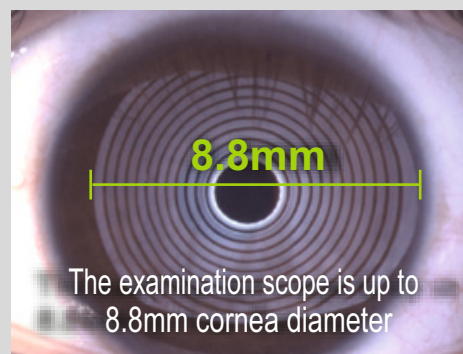


Abnormal dynamics and conjunctival chalasis

Normal:  $\geq 0.2$  mm

AI identification system depicts Tear Meniscus area and measures the tear height automatically. Evaluate tear secretion amount and continuity objectively. More efficient and less irritation compared with the traditional schirmer's test.

# Non-Invasive Breakup Time



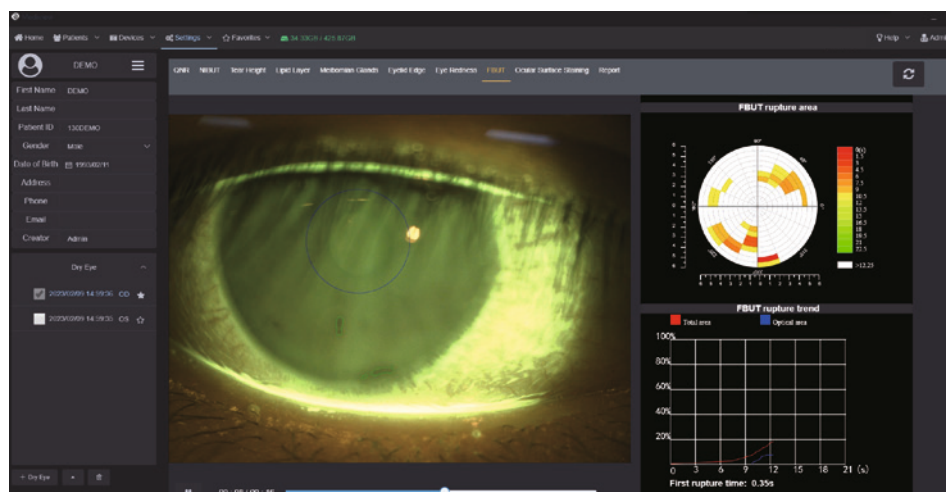
The examination scope is up to 8.8mm cornea diameter

After taking one video, it brings out automatic result of NIBUT and Tear Meniscus Height.

Grade 0 Normal, First Rupture Time: 10 s Average Rupture Time: 14 s  
 Grade 1 Warning, First Rupture Time: 6 ~ 9 s Average Rupture Time: 7 ~ 13 s  
 Grade 2 Dry eye, First Rupture Time: 5 s Average Rupture Time: 7 s

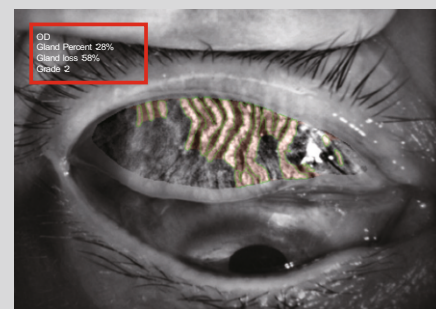
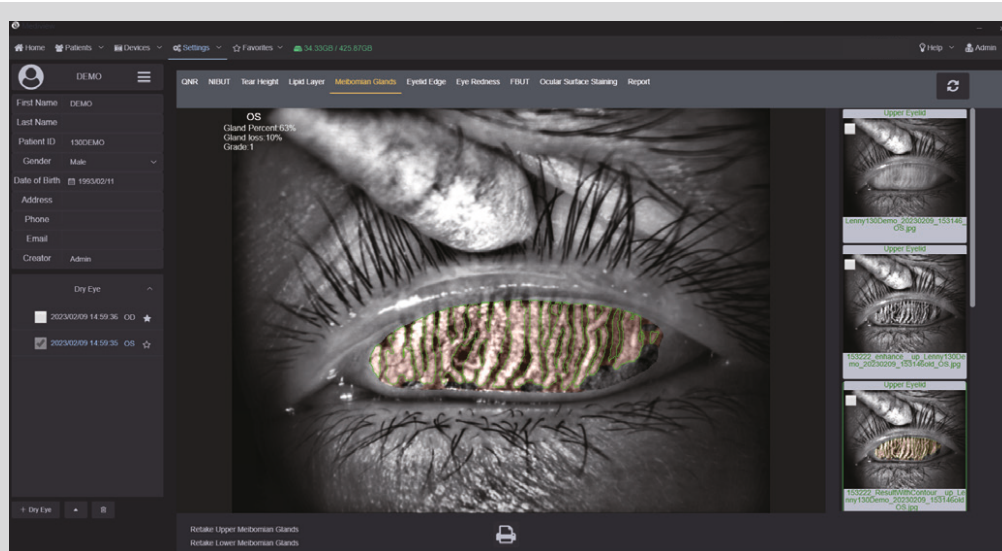
AI identifies the breakup area and analyzes NIBUT automatically. Fully automatic analysis system provides efficient quantified evaluation for the overall stability of tear film. It automatically acquires the first breakup time, average breakup time, breakup distribution, break up area percentage curve and time distribution.

# Fluorescein Breakup Time



Normal: >10 s;  
 Mild: 6 ~ 10 s;  
 Moderate: 2 ~ 5s;  
 Severe: < 2 s or no complete tear film.

# Meibomian Glands Function Evaluation



Meibomian glands loss

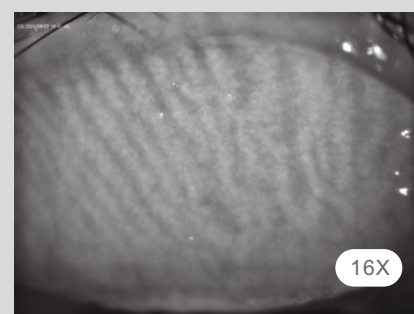


Image of Meibomian Glands under high-magnification

**Get original/enhanced/result images by one click**

**AI identification system** automatically analyzes meibomian glands loss caused by meibomian glands dysfunction with precise and quantified diagnosis results.

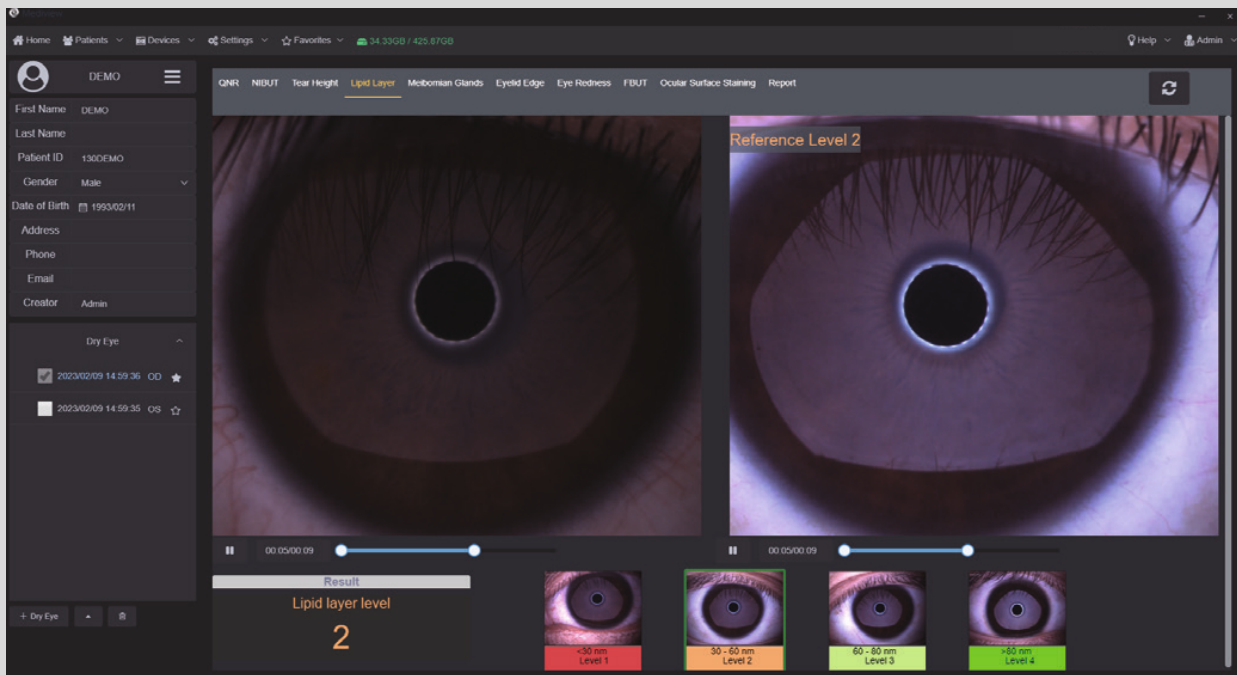
**Built-in infrared lighting system** helps doctors obtain larger image scope of the meibomian glands.

**Adjustable depth of field**

makes the glands more prominent and distinguishable against the background.

- Grade 0 : No Meibomian Glands Loss
- Grade 1 : Meibomian Glands Loss < 1/3
- Grade 2 : Meibomian Glands Loss 1/3 ~ 2/3
- Grade 3 : Meibomian Glands Loss > 2/3

# Lipid Layer Thickness

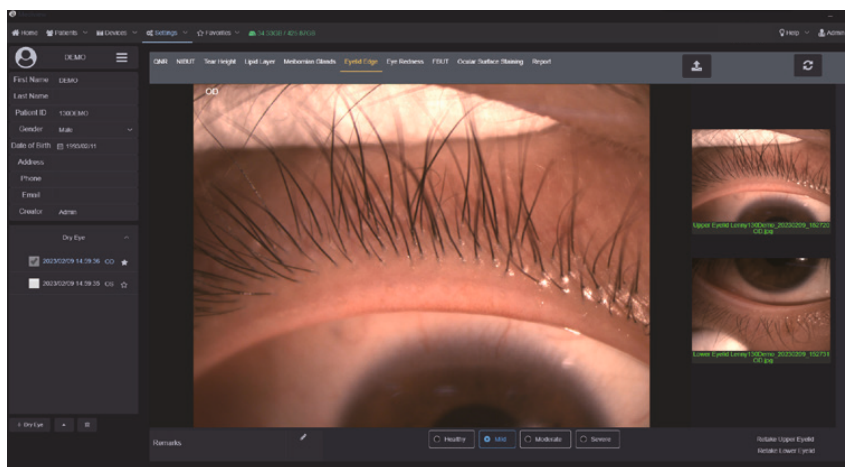


(Unit:nm)

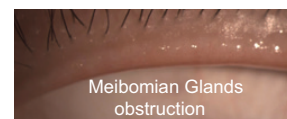
White ring projection system ensures a larger examination area compared to Placido ring. By comparing with the standard grading template and recording the Lipid Layer thickness, it is helpful for judging MGD.

- Grade 1 : <30
- Grade 2 : 30 ~ 60
- Grade 3 : 60 ~ 80
- Grade 4 : >80

# Eyelid Margin



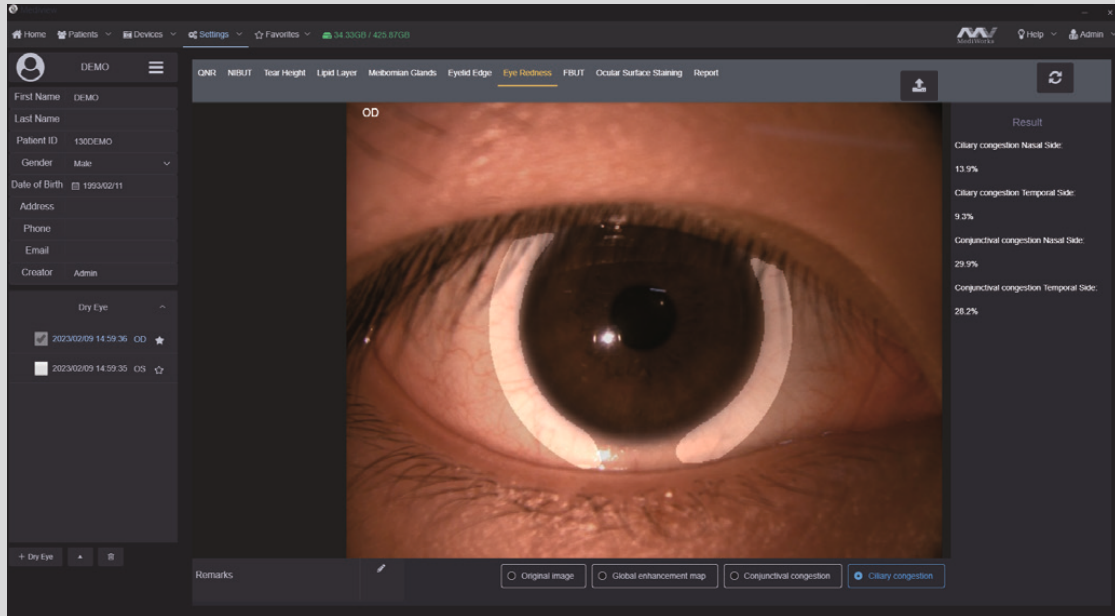
1. Normal including (Ophthalmic embolism bright, transparent)
2. Mild including (gland cap crown - glandular prominent)
3. Moderate including (glandular fat plug - disappearance of the marginal mucosa, hyperkeratosis)
4. Severe including (uneven margins, disappearance of the meibomian glands - posterior margin Blunt round, thickening, new blood)



Professional design of optical system is capable of providing HD digital image that remains clear and sharp even zoom in, meets the examination requirements of the overall shape of eyelid margin and its slight change.



# Analysis of Conjunctival Hyperemia



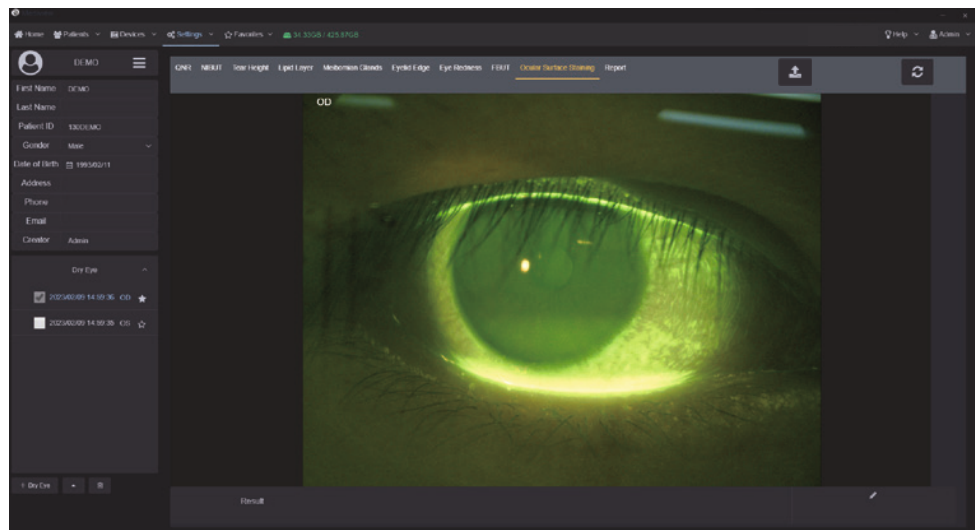
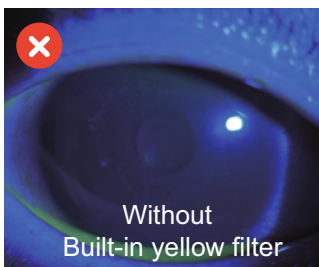
Normal:  $\leq 2$  Abnormal:  $> 2$

The unique AI identification system can identify and calculate percentages of conjunctival congestion and ciliary congestions and evaluate severity of eye congestion.



AI image

# Corneal Fluorescein Staining



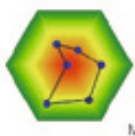
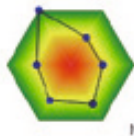
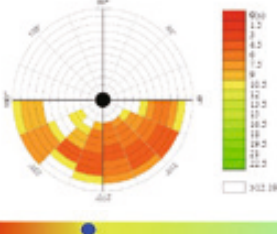
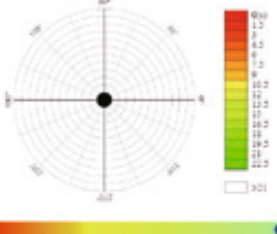


Effectively increases positive rate of early corneal epithelial staining.  
Built-in yellow filter along with cobalt-blue filter makes the corneal fluorescein staining images more clearly.

# Dry Eye Comprehensive Evaluation Report

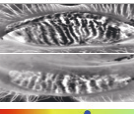
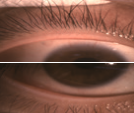
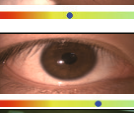

## Dry Eye Report

Name: DEMO Gender: M Age: 30 Patient ID: 130DEMO Diagnostic Type:

Check Date: 2023-02-09 14:59:36 **OD** **OS** Check Date: 2023-02-09 14:59:35

			
			
<p>Reference value <b>NIBUT</b>, First rupture time</p> <p>Grade 0 Healthy Average rupture time: 14s</p> <p>Grade 1 Warning, First rupture time: 6-9s Average rupture time: 7-13s</p> <p>Grade 2 Dry Eye, First rupture time: 5s Average rupture time: 7s</p> <p>Grade 3 Severe, First rupture time: &lt;2s</p>		<p>Reference value <b>NIBUT</b>, First rupture time</p> <p>Grade 0 Healthy Average rupture time: 14s</p> <p>Grade 1 Warning, First rupture time: 6-9s Average rupture time: 7-13s</p> <p>Grade 2 Dry Eye, First rupture time: 5s Average rupture time: 7s</p> <p>Grade 3 Severe, First rupture time: &lt;2s</p>	
<p><b>W</b></p> <p>First rupture time: 4.75 s</p> <p>Average rupture time: 8.05 s</p>		<p><b>W</b></p> <p>First rupture time: Longer than 21 s</p> <p>Average rupture time: Longer than 21 s</p>	
<p>F BUT: 0.35</p>		<p>F BUT</p>	
<p>Reference value <b>F BUT</b>, First rupture time</p> <p>Grade 0 Healthy</p> <p>Grade 1 Mild, First rupture time: 6-10s</p> <p>Grade 2 Moderate, First rupture time: 2-5s</p> <p>Grade 3 Severe, First rupture time: &lt;2s</p>		<p>Reference value <b>F BUT</b>, First rupture time</p> <p>Grade 0 Healthy</p> <p>Grade 1 Mild, First rupture time: 6-10s</p> <p>Grade 2 Moderate, First rupture time: 2-5s</p> <p>Grade 3 Severe, First rupture time: &lt;2s</p>	
<p>Sever</p>		<p>Moderate</p>	
			
<p>Reference value <b>ear Height</b></p> <p>Healthy: <math>\geq 0.2\text{mm}</math></p> <p>Abnormal: 0.14 mm</p>		<p>Reference value <b>ear Height</b></p> <p>Healthy: <math>\geq 0.2\text{mm}</math></p> <p>Abnormal: 0.25 mm</p>	
<p>Grade 2</p>		<p>Grade 2</p>	
<p>Reference value <b>Lipid Layer</b> (Unit:um)</p> <p>Grade 1: &lt;30 Grade 2: 30 - 60</p> <p>Grade 3: 60 - 80 Grade 4: &gt;80</p> <p>Abnormal</p>		<p>Reference value <b>Lipid Layer</b> (Unit:um)</p> <p>Grade 1: &lt;30 Grade 2: 30 - 60</p> <p>Grade 3: 60 - 80 Grade 4: &gt;80</p> <p>Abnormal</p>	

## Dry Eye Report

Name: DEMO Gender: M Age: 30 Patient ID: 130DEMO Diagnostic Type:	
Check Date: 2023-02-09 14:59:36 <b>OD</b> <b>OS</b> Check Date: 2023-02-09 14:59:35	
	
<p>Reference value <b>Meibomian Glands</b></p> <p>Grade 0: No missing</p> <p>Grade 1: Loss of meibomian glands &lt;1/3</p> <p>Grade 2: Loss of meibomian glands 1/3-2/3</p> <p>Grade 3: Loss of meibomian glands &gt;2/3</p>	
<p>Grade 2</p>	
	
<p>Reference value <b>Eyelid Edge</b></p> <p>1. Healthy (clear and transparent eyelid)</p> <p>2. Mild (faint opening protrusion)</p> <p>3. Moderate (fat embolism on the gland opening, disappearance of mucosa of eyelid margin, hyperkeratosis.)</p> <p>4. Severe (irregular eyelid margin, disappearance of gland opening, posterior eyelid margin obtuse, thickened, dry blood vessel.)</p>	
<p>Upper: Mild Lower: Mild</p>	
<p>Upper: Healthy Lower: Healthy</p>	
<p>Remark:</p>	
	
<p>Conjunctival grade: 0.0%</p> <p>Corneal grade: 0.0%</p> <p>Cherry grade: 0.0%</p> <p>Remark:</p>	
<p>Conjunctival grade: 0.0%</p> <p>Corneal grade: 0.0%</p> <p>Cherry grade: 0.0%</p> <p>Remark:</p>	
	
<p>Result:</p>	
<p>Result:</p>	

# Specifications Slitlamp *iS7*

Microscope	iS7 WDR / Digital	iS7
Microscope Type	Galilean Type	
Magnification Change	Revolving Drum 5 steps	
Total Magnification	6.3 x, 10 x, 16 x, 25 x, 40 x	
Optical Resolution	2700·N lp/mm ( 200 lp/mm )	
Eyepieces	12.5 x	
Angle between Eyepieces	10°	
Pupillary Adjustment	52 mm ~ 80 mm	
Diopter Adjustment	- 8 D ~ + 8 D	
Field of View	Ø36.2 mm, Ø22.3 mm, Ø14 mm, Ø8.9 mm, Ø5.7 mm	

## Slit Illumination

Slit Width	0 ~ 14 mm continuous (slit becomes a circle at 14 mm)
Slit Length	1 ~ 14 mm continuous
Aperture Diameters	Ø14 mm, Ø10 mm, Ø5 mm, Ø3 mm, Ø2 mm, Ø1 mm, Ø0.2 mm
Slit Angle	0° ~ 180°
Slit Inclination	5°, 10°, 15°, 20°
Filters	Heat-absorbing filter, ND filter, Red-free filter, Cobalt blue filter, Built-in yellow filter
Lamp	LED
Luminance	≥ 150 klx

## Power Supply

Input Voltage	~100V ~ 240V
Input Frequency	50 Hz / 60 Hz
Rated current	1.2 A
Output Voltage	LED 3 V, Fixation 15 V

## Packaging

Dimension	740 mm × 450 mm × 530 mm(L/W/H)
Gross weight	23 kg
Net weight	17 kg

## System Specifications

Image Sensor	12 M Pixels	NA
Photo Resolution	4056 × 3040	NA
Format	JPEG	NA
Video Resolution	2592 × 1944	NA
Frame of Video	30 fps	NA
Video Formats	MP4 H.264	NA
Exposure Mode	Automatic exposure	NA
Transmission Interface	USB	NA

## Computer Specifications

PC configuration	i5 - 10500T 8G memory 256GB SSD + 1TB storage
Display	1920 × 1080 23.8 inch
PC system	Windows 10

## Dry Eye Module

Dry Eye Questionnaire	Non-Invasive Tear Meniscus Height	Non-Invasive Tear Breakup Time
Fluorescein Breakup Time	Conjunctival Hyperemia Analysis	Meibomian Glands Function Evaluation
Lipid Layer Thickness	Corneal Fluorescein Staining	Eyelid Margin
		Dry Eye Examination Report

## Optional Accessories

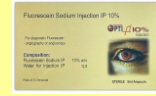
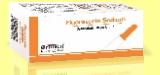
- Applanation Tonometer
- Instrument Table
- Diagnostic Lenses

Follow us



www.optitecheyecare.com





# OPTITECH<sup>®</sup> TARUN ENTERPRISES

An EN ISO 13485:2016 Company  
[www.optitecheyecare.com](http://www.optitecheyecare.com)



## TARUN ENTERPRISES

H.O.: 8/8, Strachy Road, Prayagraj – 211001, U.P., INDIA  
Phone: +91 - 8176080204, Email: [info@optitecheyecare.com](mailto:info@optitecheyecare.com)

B.O.: A96/1, Second Floor, Phase II, Mayapuri Industrial Area, New Delhi – 110064  
Phone: 011-47070362, Email: [delhi@optitecheyecare.com](mailto:delhi@optitecheyecare.com)

[www.optitecheyecare.com](http://www.optitecheyecare.com) +91 - 9335154556 OptitechOfficial optitecheyecare optitecheyecare