



Cornea/Anterior Segment OCT

CASIA2



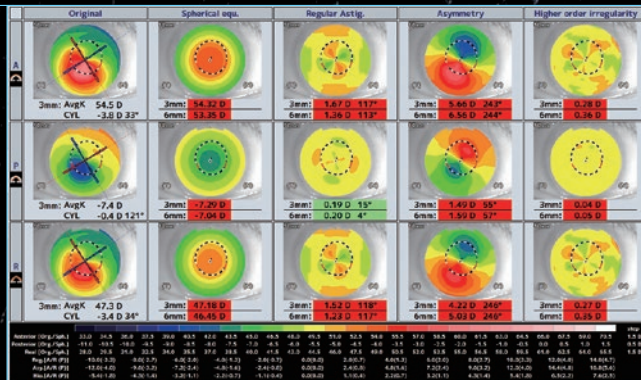
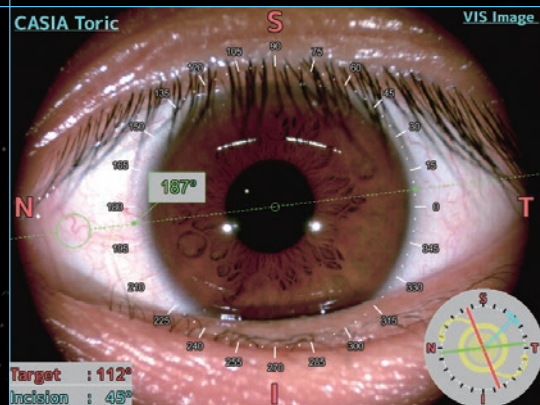
 TOMEY

From diagnosing cataracts, corneal diseases, CASIA2 empowers comprehensive eye care.



Developed in 2008, CASIA (SS-1000) was the first 3D OCT for the anterior segment in Japan, and has been widely adopted in clinical practice.

We offer a variety of applications based on detailed images that take advantage of the characteristics of SS-OCT.



CORNEA/ANTERIOR SEGMENT OCT

CASIA2

and glaucoma to planning ICL surgery,

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Lens Analysis —



Pre-op Cataract 04

- IOL Screening
- IOL Calculation
- Toric IOL Calculation

Post-op Cataract 05



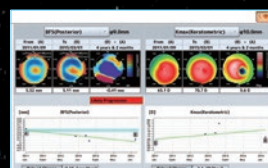
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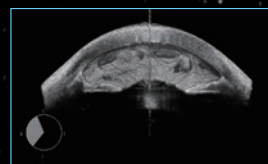


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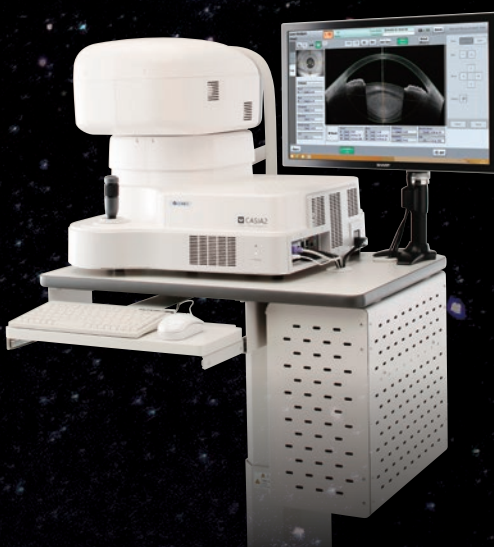


3D View 09

Both Eyes Map —

OCT densitometry —

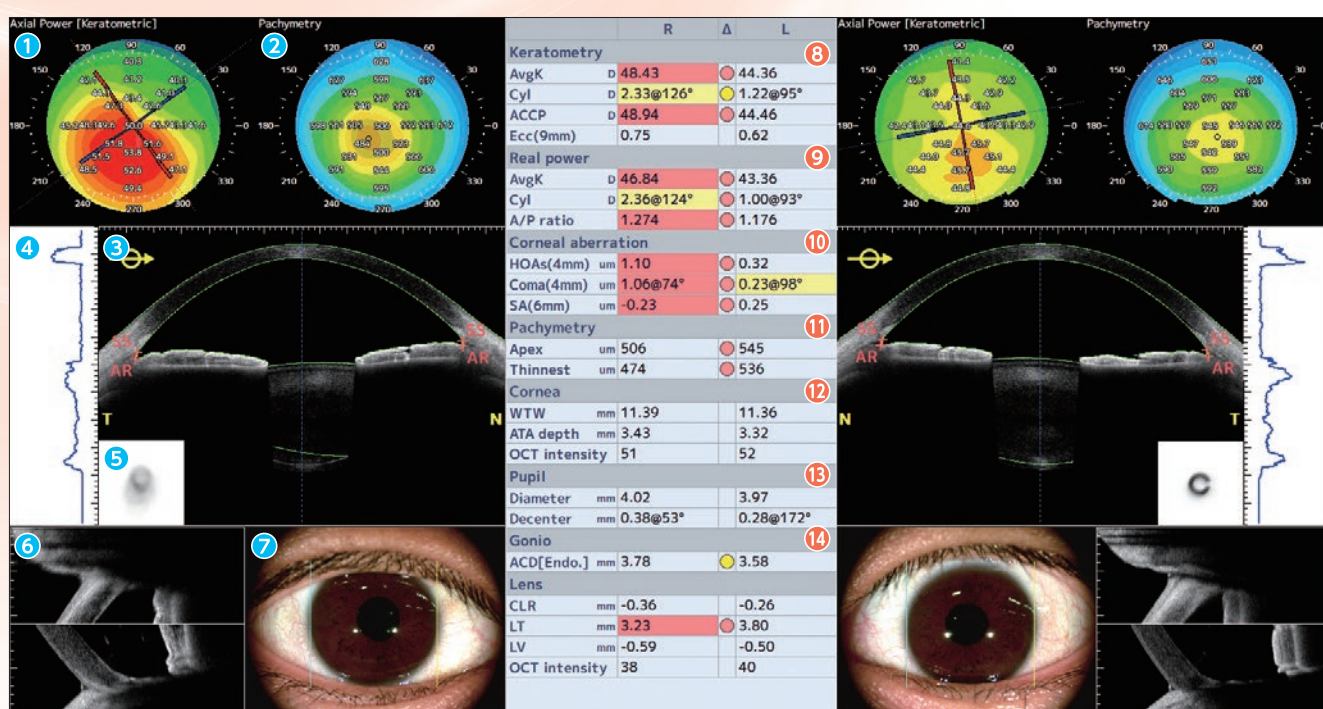
Front Monitor —



Anterior segment images and parameters of both eyes can be verified at a glance.

Total Analysis

In addition to the conventional pre- and post-operative examinations, CASIA2 can be used for daily clinical operation, such as initial examination, follow-up of treatment, and obtaining informed consent. Each parameter is color-coded to call attention if there is a difference between the left and right eye, or if it is out of a specified range.



Image

- ① Corneal Topography Map (default)
- ② Pachymetry Map (default)
- ③ Anterior Segment OCT Image
- ④ Anterior Segment Densitometry
- ⑤ Landolt Display
- ⑥ Tear Meniscus Image
- ⑦ Frontal Color Image

Parameter

- ⑧ **Keratometry**
Avgk / Corneal Astigmatism /
ACCP / Ecc
- ⑨ **Real Power**
AvgK / Corneal Astigmatism /
A/P Ratio
- ⑩ **Corneal Aberration**
HOAs / Coma / SA
- ⑪ **Pachymetry**
Apex / Thinnest
- ⑫ **Cornea**
WTW / ATA Depth /
OCT Intensity
- ⑬ **Pupil**
Diameter / Decenter
- ⑭ **Lens**
CLR / Lens Thickness
Lens Vault / OCT Intensity
(default)

Application for Cataract

Preoperative Cataract Examination

Provides key information for preoperative assessment.

IOL Examination

Displays key preoperative anterior segment data, including total corneal HOAs, on a single screen to support premium IOL selection. Out-of-range values are color-coded for quick recognition.

① Corneal Topography

Displays Axial Power, Posterior Surface, Real Power, and Pachymetry maps.

② Anterior Segment OCT image

Checks corneal/lens opacities and angle opening.

③ Corneal Shape Basics

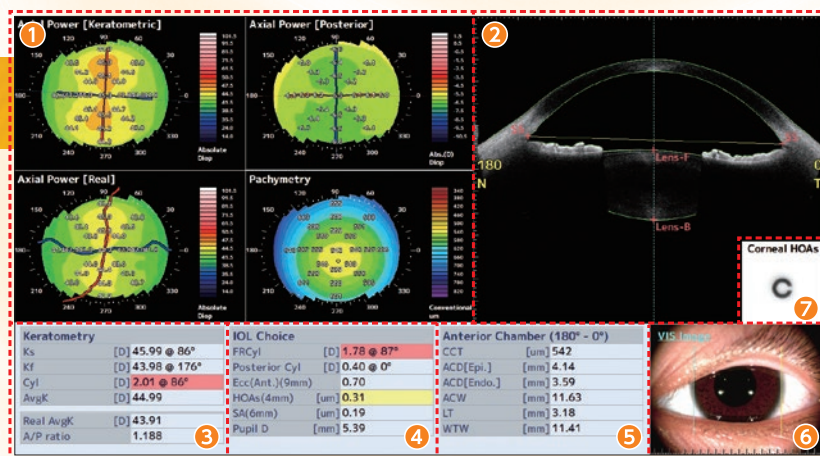
Quantitative analysis of corneal shape.

④ IOL Selection Info

Displays spherical aberration, HOAs, and astigmatism useful for Toric and multifocal IOL selection.

⑤ Anterior Chamber Basics

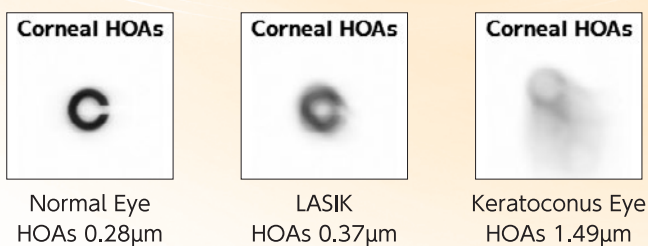
The CCT is colored when it is 500 μm or less. Displays the ACD and LT, to check the condition of the anterior segment before surgery.



⑥ Anterior Segment Image

Anterior segment images to assess the condition of the eye fixation.

⑦ Corneal Total Higher Order Aberrations – Landolt Ring Simulation



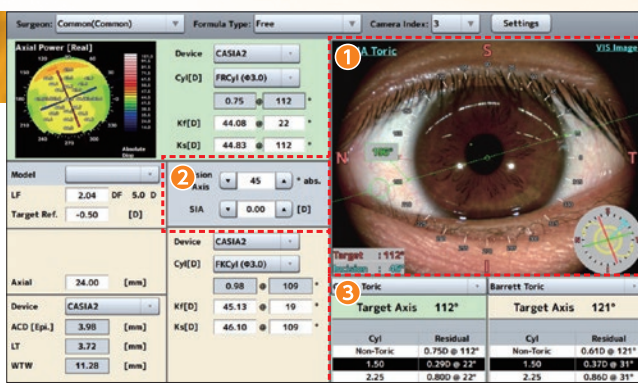
Toric IOL Calculator

This function calculates the Toric IOL power considering the posterior corneal surface measured by CASIA2 and performs Barrett Toric calculations simultaneously.

It also features axis registration to assist in Toric IOL alignment. High-resolution color frontal images make it easy to identify conjunctival blood vessels as landmarks.

① Axis Registration Information

Shows reference axis, incision axis, and Toric IOL axis based on vessels and iris patterns. Axis can be set via markers or vessels (visible light) or iris (infrared).



② Toric IOL Selection Basics

Sets incision axis and surgically induced astigmatism.

③ Astigmatism Info

View and select Toric IOL power.

IOL Power Calculation

Calculates IOL power using its corneal data. Barrett formula is also included as standard.

Application for Cataract

Postoperative Cataract Examination

Comprehensive evaluation of postoperative outcome.

Postoperative Assessment

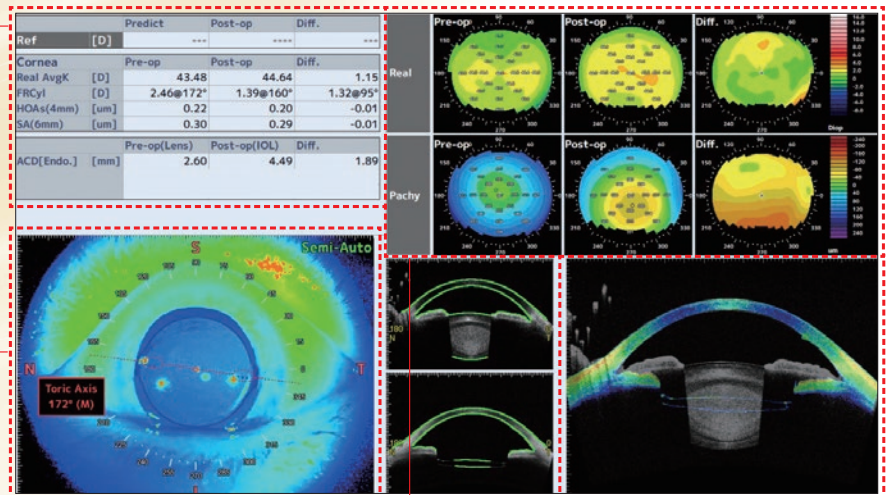
Visualizing corneal shape changes resulting from surgery, as well as assessment of corneal thickness at incision sites and angle opening condition by IOL insertion. This feature helps clinicians visually explain postoperative outcomes to patients. Toric axis marks after Toric IOL implantation can be observed. *Pupil dilation required

Basic Information on Postoperative Cataract Outcomes

Displays quantitative analysis of changes in corneal astigmatism (SIA) and differences in total corneal higher-order aberrations (HOAs) before and after cataract surgery.

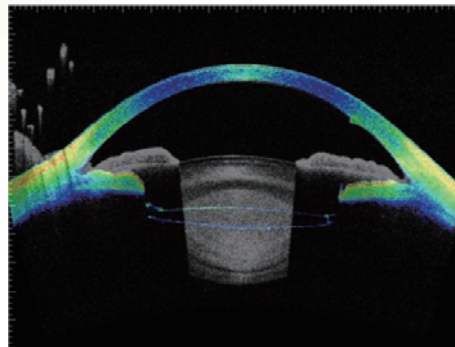
Anterior Segment Image

Toric axis marks can be observed. *Pupil dilation required



Pre and Postoperative Corneal Topography

Displays difference maps of corneal shape and corneal thickness between pre- and postoperative conditions, enabling quick and intuitive assessment of surgical changes.



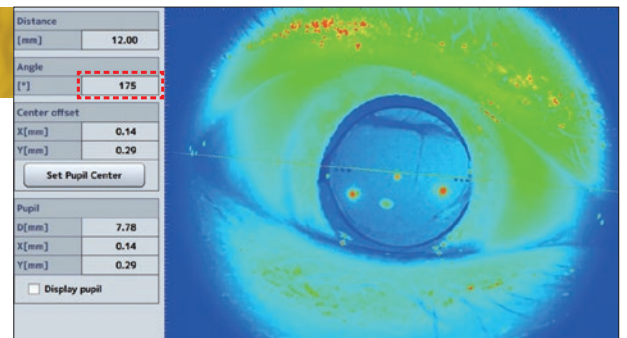
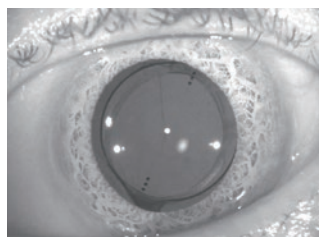
Pre- and Postoperative Anterior Segment OCT Images

Overlays preoperative anterior segment OCT images (in grayscale) with postoperative images (in rainbow color), making it easy to visualize the position of the implanted IOL and angle opening conditions.

Assessment of Toric IOL Axis

Visualizing the Toric IOL alignment marks after implantation. The implantation axis can be confirmed by aligning a reference line with the Toric marks.

*Pupil dilation required



Clinical data provided by Dr. Toru Noda, Tokyo Medical Center

Application for ICL

Pre and Postoperative ICL Examination

ICL pre-operative planning and post-operative evaluation.

ICL Sizing

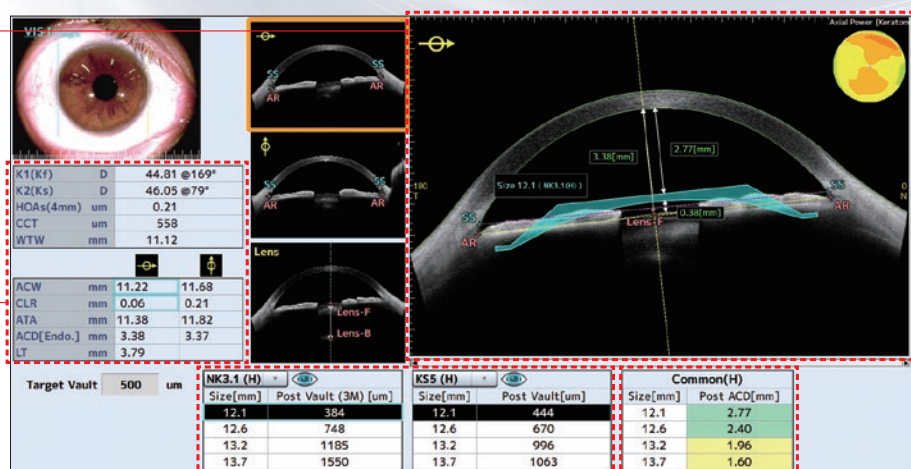
The recommended ICL lens size (12.1mm / 12.6mm / 13.2mm / 13.7mm) and predicted ACD after ICL insertion are calculated using anterior segment parameters automatically measured from data obtained using an ICL-specific examination protocol.

ICL size calculation formulas are available for both horizontal and vertical lens fixation, enabling ICL surgery planning under a variety of conditions.

The ICL overlay display allows you to visually understand the predicted postoperative anterior chamber condition.

The ICL image displayed on the screen will change depending on the selected ICL size.

Quantitative parameters are displayed for reference and colored if they exceed the certain value. Depending on the selected formula, the parameters used in the calculation are framed in blue.



Recommended ICL size ●

The ICL size formula results (2 types) and recommended values (size on black background) are displayed

NK3.1 (H)		KS5 (H)	
Size[mm]	Post Vault (3M) [um]	Size[mm]	Post Vault[um]
12.1	384	12.1	444
12.6	748	12.6	670
13.2	1185	13.2	996
13.7	1550	13.7	1063

The predicted postoperative anterior chamber depth

Post-OP ICL

Quantitative parameters such as Vault after ICL insertion are automatically analyzed.

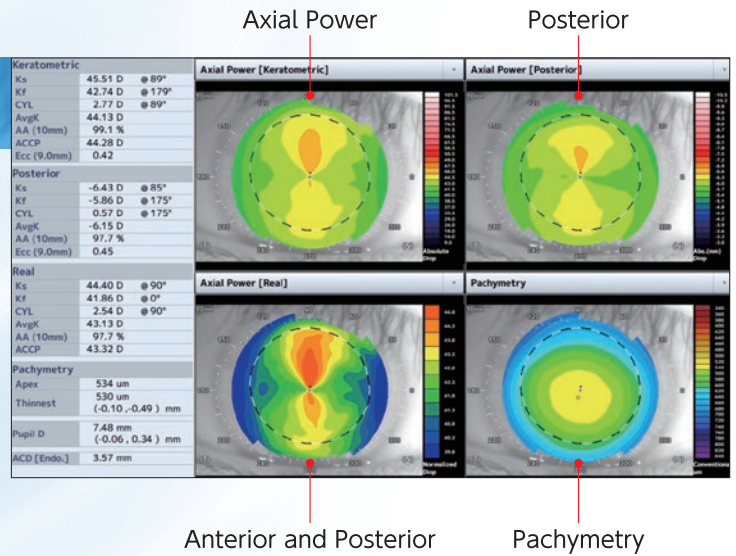
By taking a video of the eye using visible light after ICL insertion, examinations can be performed taking into account the possibility of extremely low Vault due to pupil closure or high Vault due to pupil dilation.

Application for Cornea

Quickly evaluates corneal opacities and areas of deformation.

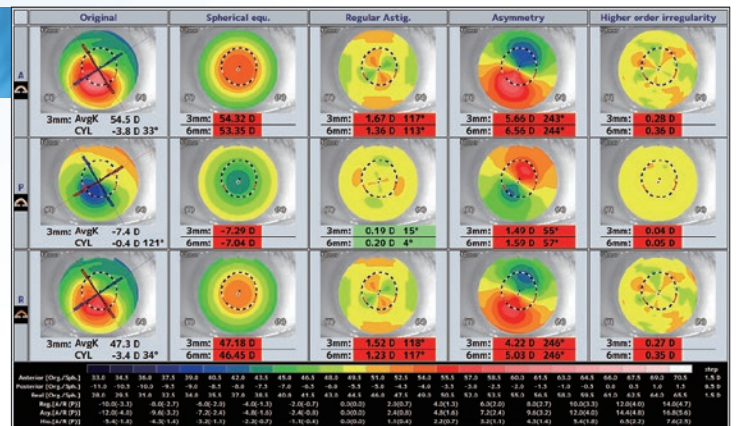
Corneal Topography

Analyzes both the anterior and posterior surfaces of the cornea using high-resolution anterior segment OCT images. Compared to conventional methods, it designed to reduce the impact of corneal irregularities or opacities.



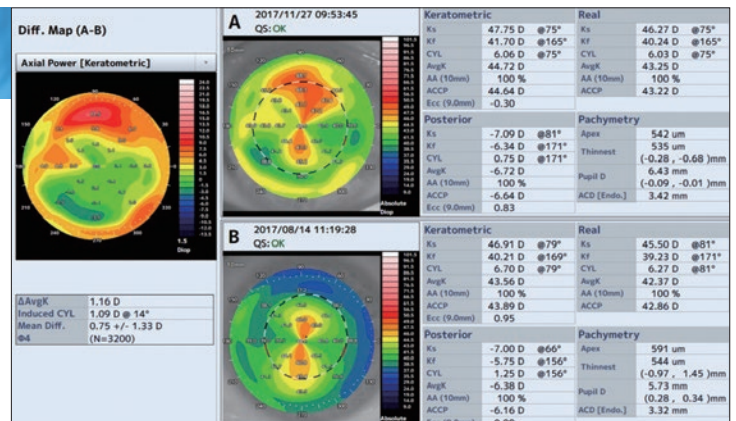
Fourier Analysis

Provides a quantitative evaluation of irregular astigmatism by analyzing corneal surface irregularities. Asymmetry and higher-order irregularities are displayed with dedicated maps and Fourier indices. This feature is useful for observing corneal shape abnormalities prior to cataract surgery or contact lens fitting.



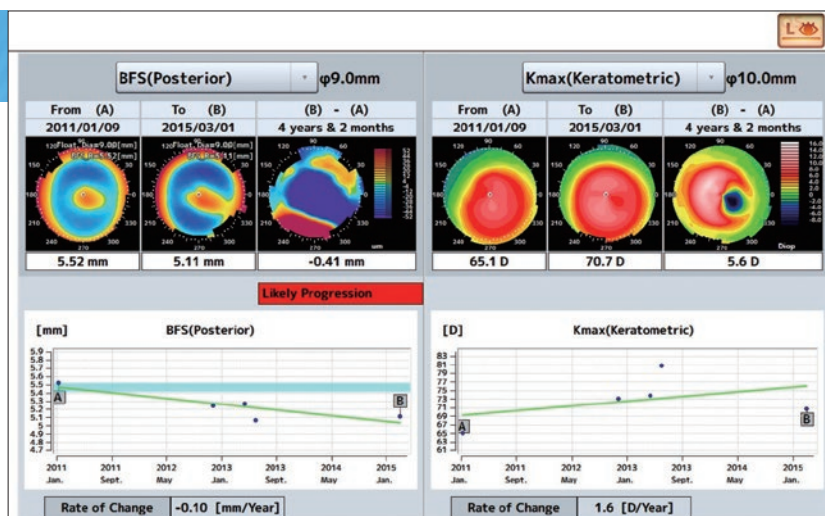
Differential map

Displays topography maps and parameter differences. Changes in corneal shape before and after surgery or treatment can be confirmed using maps and quantitative parameters.



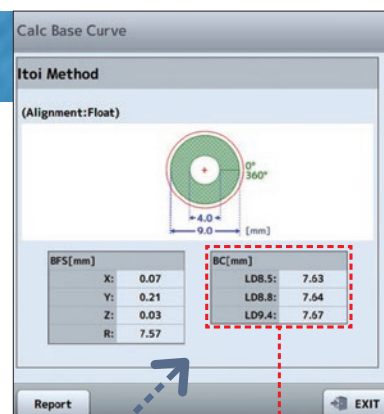
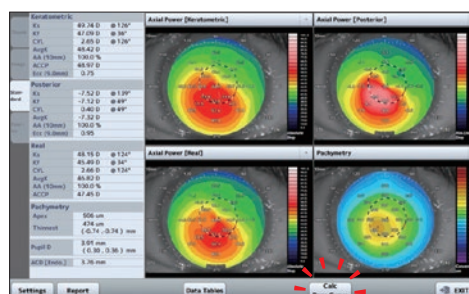
Trend Analysis

Changes in corneal shape over time are displayed not only as a color-coded map but also as simple graphs that can be grasped intuitively. Multiple parameters can be selected from the graph, making it useful for monitoring the progress of keratoconus.



Calc Base Curve (Itoi Method)

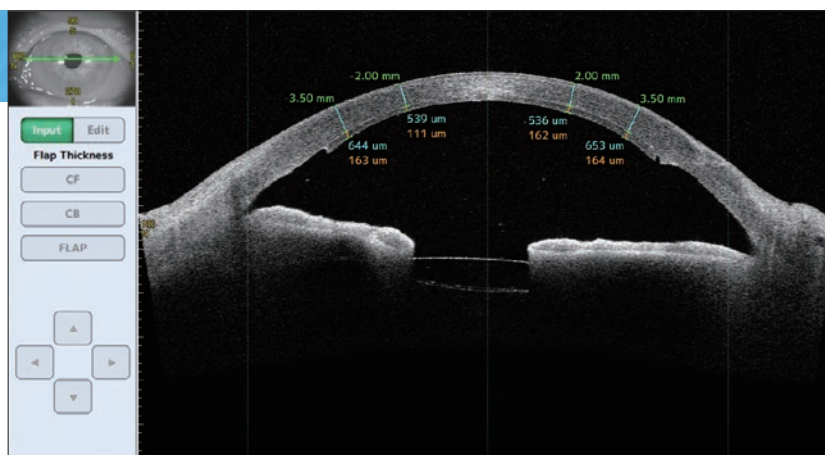
Calculates the recommended base curves of initial trial lenses for each RGP lens diameter, facilitating lens fitting for keratoconus and eyes with high corneal astigmatism.



Base curve by lens diameter

2D Analysis

Allows visualization of the anterior chamber even in cases of corneal opacity that are difficult to observe in detail with a slit-lamp. Additionally, the condition of grafts after corneal transplantation and the thickness of transplanted sheets can be quantitatively measured, making it a valuable tool for postoperative management.

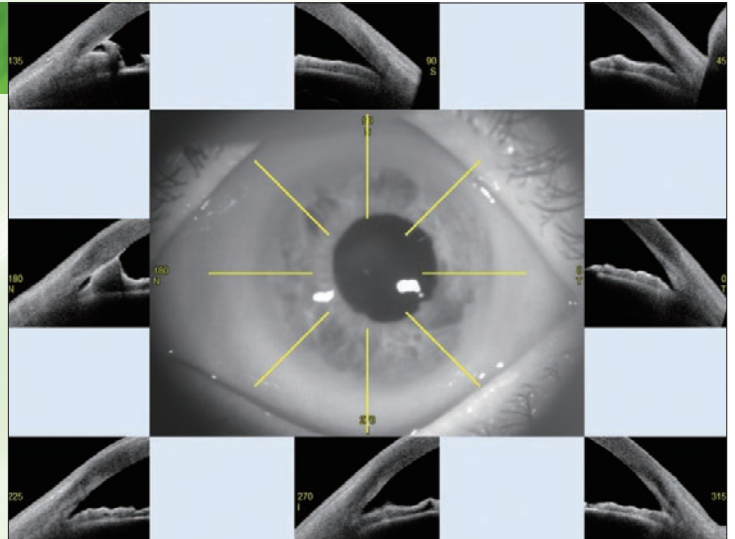


Application for Glaucoma

Can assist in the evaluation of angle closure and glaucoma surgery.

Multiple Image

Displays all eight corner angles at once. Useful for assessing the condition of the angle before gonioscopy, which can be stressful for both patient and examiner, and before various glaucoma surgeries.

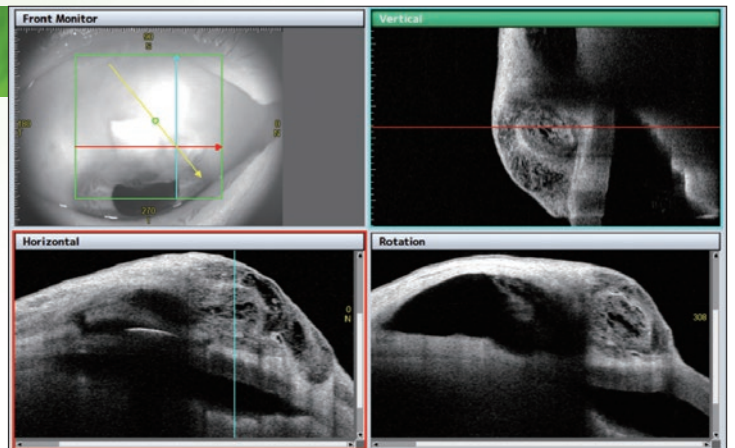


Bleb Observation

Allows filtration blebs captured in Bleb Mode to be viewed from any desired angle or direction.

It provides clear visualization of the internal structure and outflow pathways of the bleb, making it effective for postoperative monitoring.

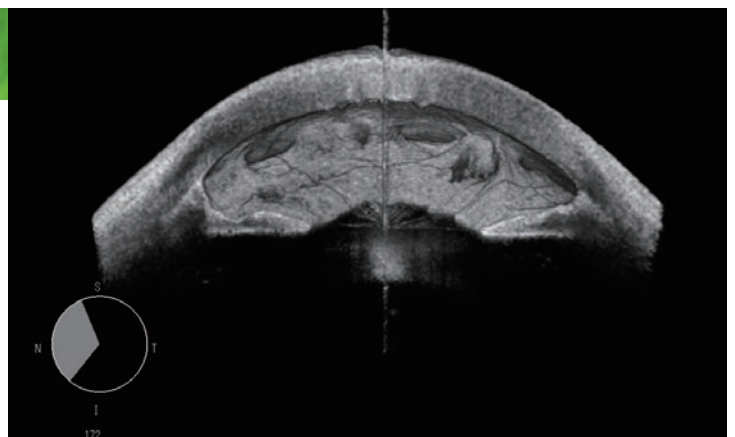
It is also suitable for evaluating tube shunt surgeries.



Clinical data provided by Dr. Yuta Ueno, Tsukuba University

3D View

Provides a three-dimensional view of the anterior chamber, resembling a gonioscopic observation. It allows visualization of angle closure and peripheral anterior synechiae, making it useful for explaining disease conditions and treatment effects to patients.



Clinical data provided by Dr. Hideki Mori, Tokyo Medical University

CASIA2 SPECIFICATIONS

Performance

Resolution	Axial (Depth)	10 μ m or less (in tissue)
	Transverse	30 μ m or less (in air)
Scan range	Depth	13mm
	Transverse	Radial Scan: ϕ 16mm
		Raster Scan: 12mm $\times$ 12mm

Main Unit

Scan rate	50,000 A scans / second
Stroke range of moving section	40mm (Y axis); 88mm (X axis); 43mm (Z axis)
Stroke range of chin rest	70mm
Dimensions and Weight	530 (W) $\times$ 560 (D) $\times$ 455 (H) mm Approx. 33kg
Type of light source	Swept Laser Source
Wavelength	1,310nm
Output power	Less than 6mW
Laser Class	Class 1

Power source

Voltage	100 to 240V AC
Frequency	50 / 60Hz
Power consumption	320VA

External HDD

Capacity	8TB or more
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Touch panel LCD monitor

Display	Touch panel LCD monitor 20 inches or larger
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Workstation computer

OS	Windows®10 64bit
CPU	Intel® Core i5
Memory	8GB or more
SSD	128GB
HDD	8TB or more
Data output	Printer (LAN/USB)

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