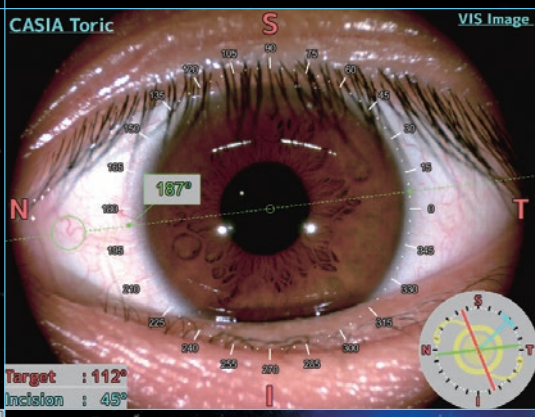
Cornea/Anterior Segment OCT

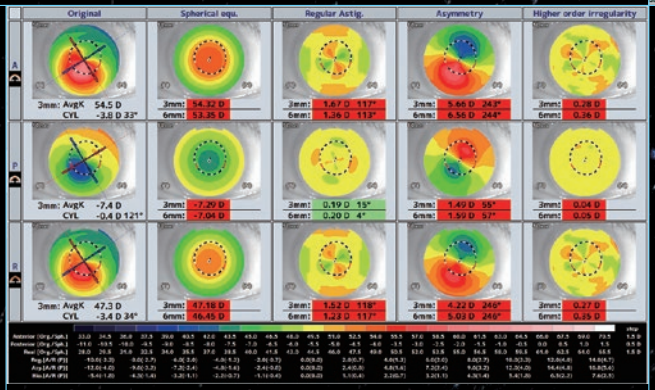
CASIA2

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.

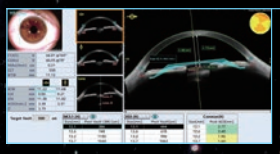


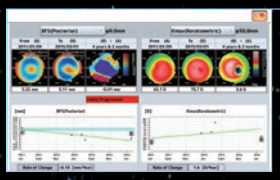


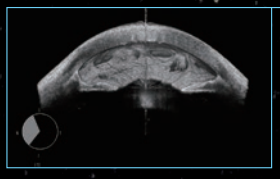
CORNEA/ANTERIOR SEGMENT OCT

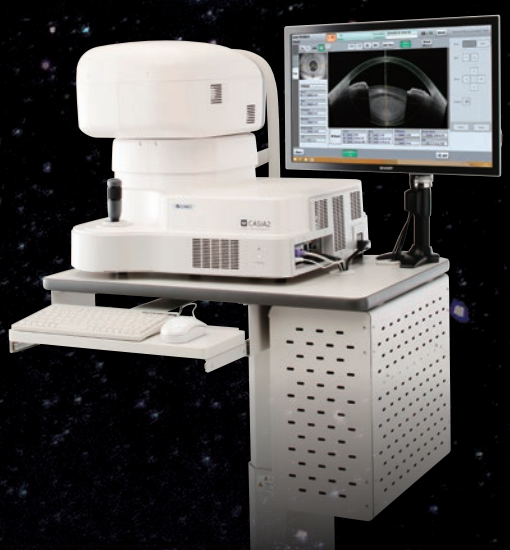
CASIA2

and glaucoma to planning ICL surgery,





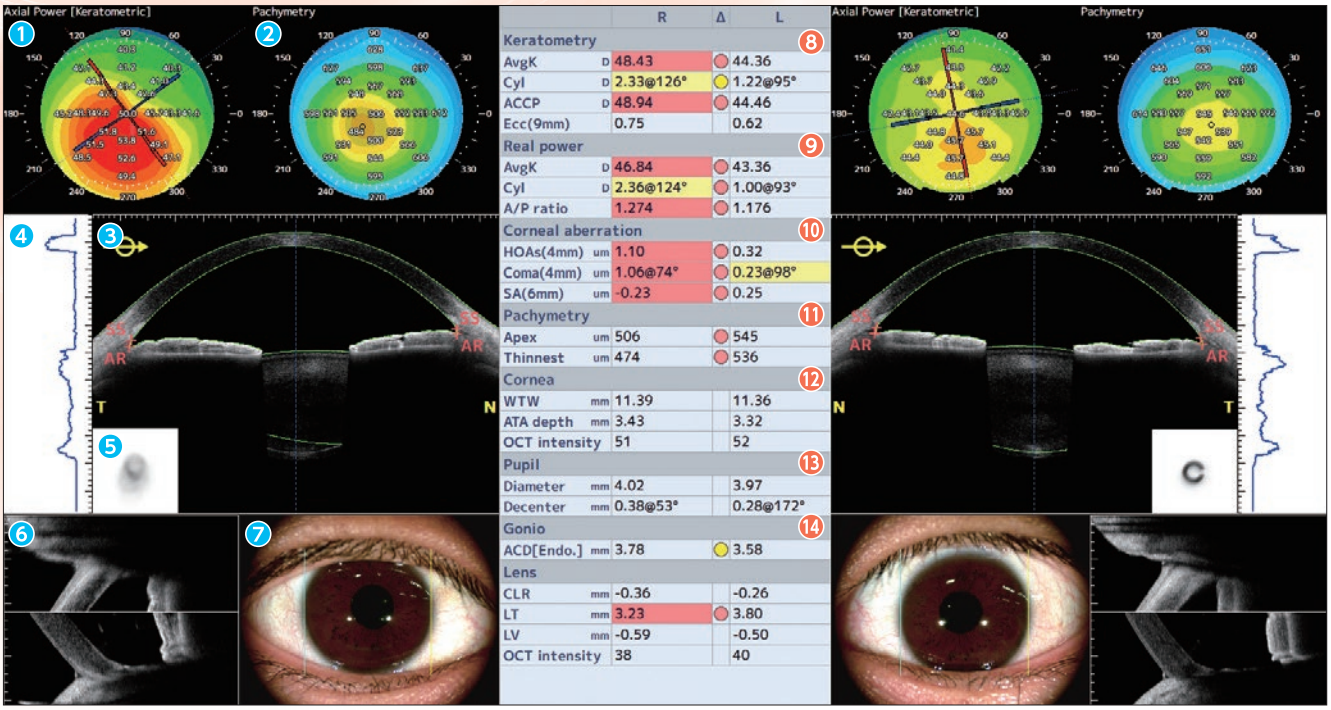




Anterior segment images and parameters of both eyes can be verified at a glance.

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 Pacymetry
Apex / Thinnest

12 Cornea
WTW / ATA Depth / OCT Intensity

13 Pupil
Diameter / Decenter

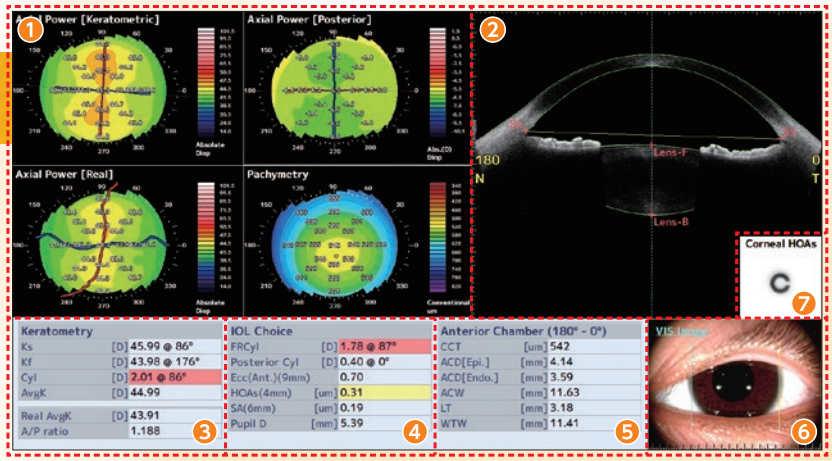
14 Lens
CLR / Lens Thickness
Lens Vault / OCT Intensity (default)

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.

❶Corneal Topography

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

❷Anterior Segment OCT image

Checks corneal/lens opacities and angle opening.

❸Corneal Shape Basics

Quantitative analysis of corneal shape.

❹IOL Selection Info

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

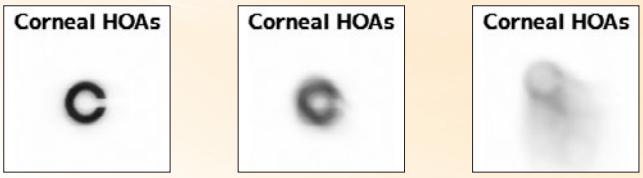
❺Anterior Chamber Basics

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.

❻Anterior Segment Image

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

❼Corneal Total Higher Order Aberrations – Landolt Ring Simulation

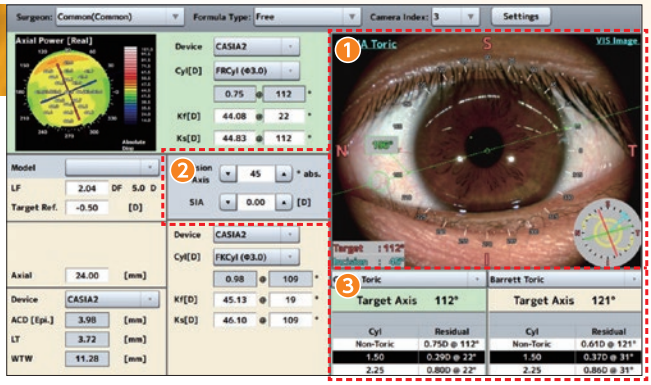


Normal Eye
HOAs 0.28μm

LASIK
HOAs 0.37μm

Keratoconus Eye
HOAs 1.49μm

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.

❶Axis 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).

❷Toric IOL Selection Basics

Sets incision axis and surgically induced astigmatism.

❸Astigmatism 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

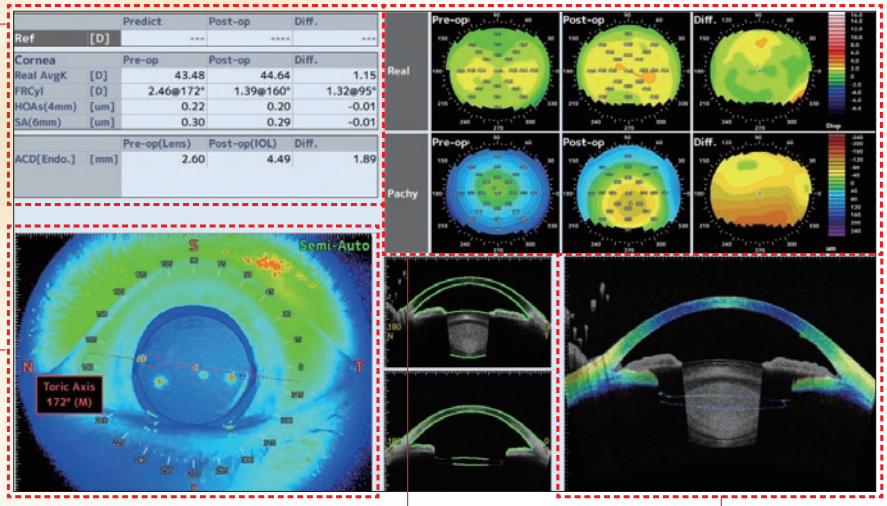
Visualizing corneal shape changes resulting from surgery, as well as assessment of corneal thickness at incision sites and angle opening condition by IOL insertion. This feature helps clinicians visually explain postoperative outcomes to patients. Toric axis marks after Toric IOL implantation can be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

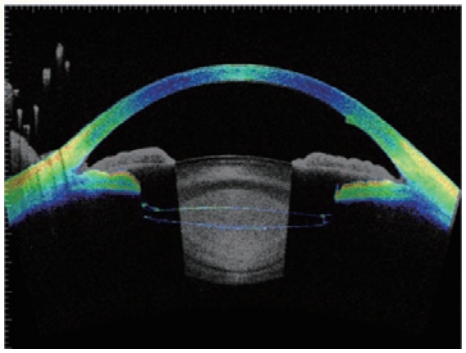
Anterior Segment Image

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.

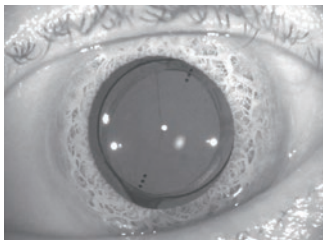


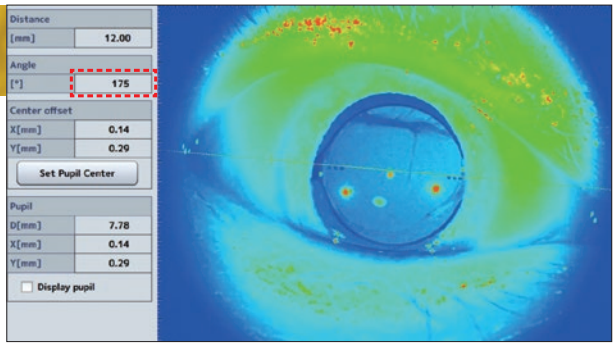
Pre- and Postoperative Anterior Segment OCT Images

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

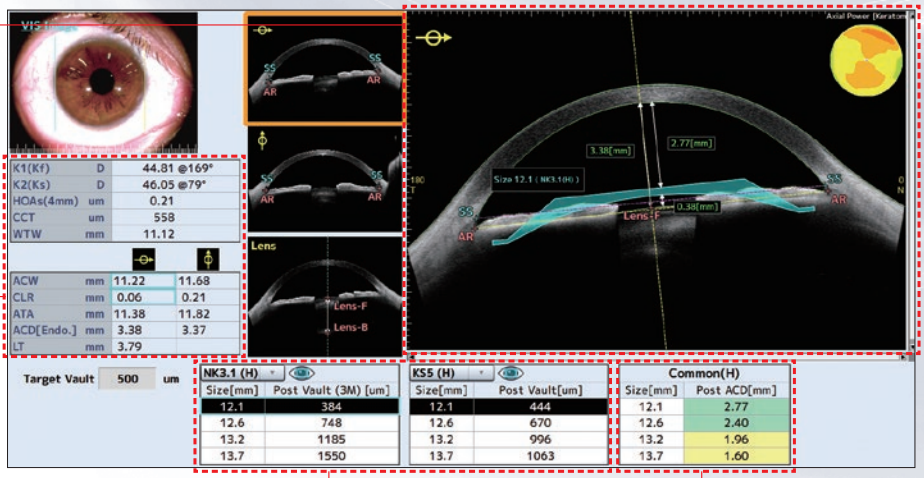
ICL pre-operative planning and post-operative evaluation.

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)	
Size[mm]	Post Vault (3M) [um]
12.1	384
12.6	748
13.2	1185
13.7	1550

KS5 (H)	
Size[mm]	Post Vault[um]
12.1	444
12.6	670
13.2	996
13.7	1063

The predicted postoperative anterior chamber depth

Post-OP ICL

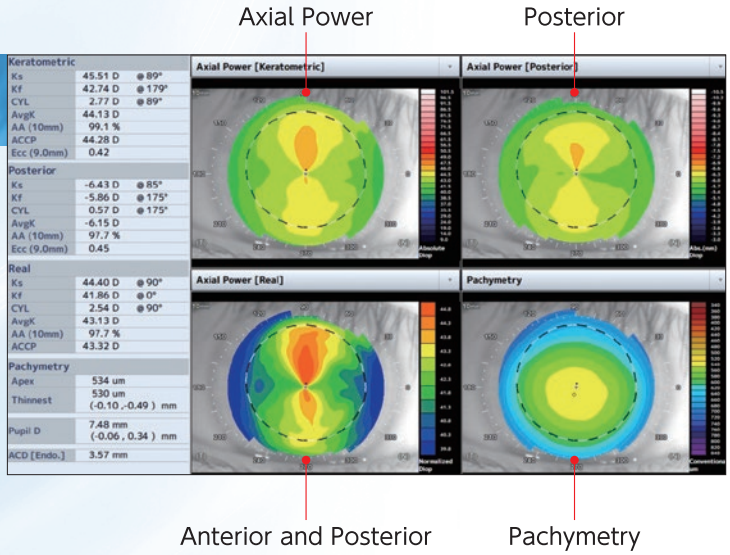
Quantitative parameters such as Vault after ICL insertion are automatically analyzed.
By taking a video of the eye using visible light after ICL insertion, examinations can be performed taking into account the possibility of extremely low Vault due to pupil closure or high Vault due to pupil dilation.

Application for Cornea

Quickly evaluates corneal opacities and areas of deformation.

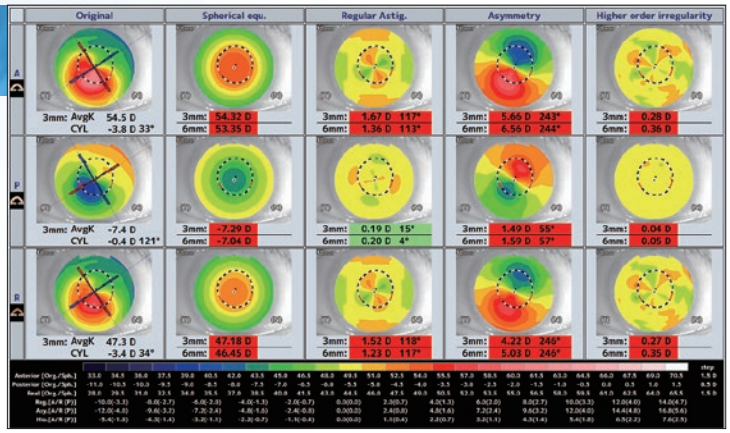
Corneal Topography

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.



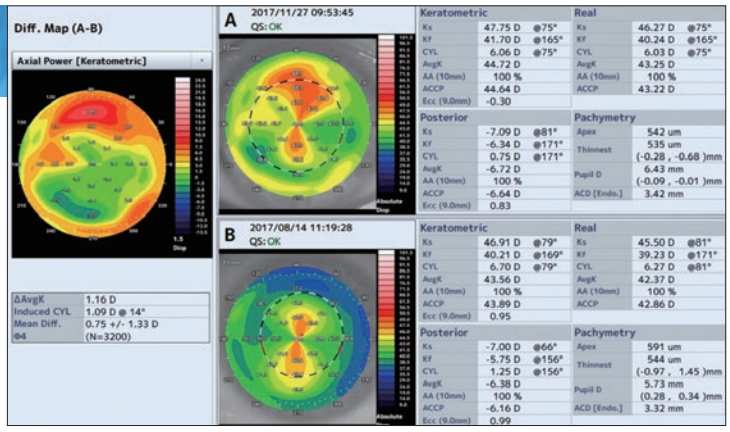
Fourier Analysis

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.



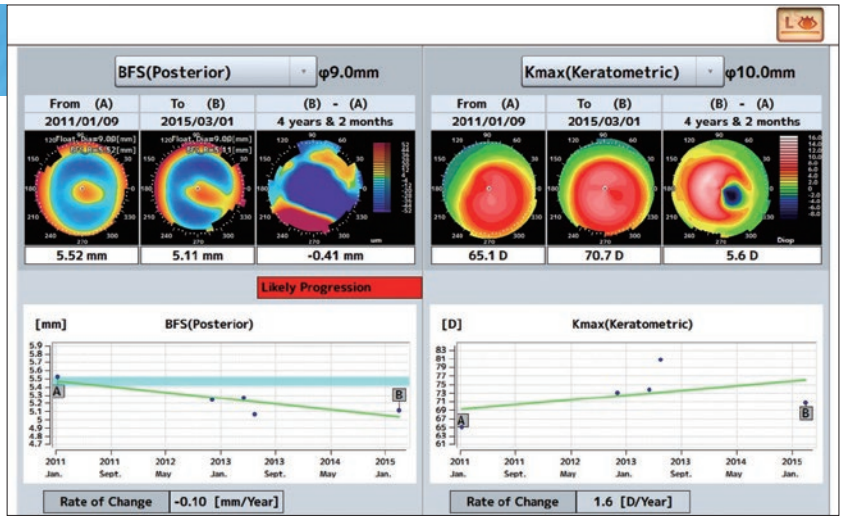
Differential map

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



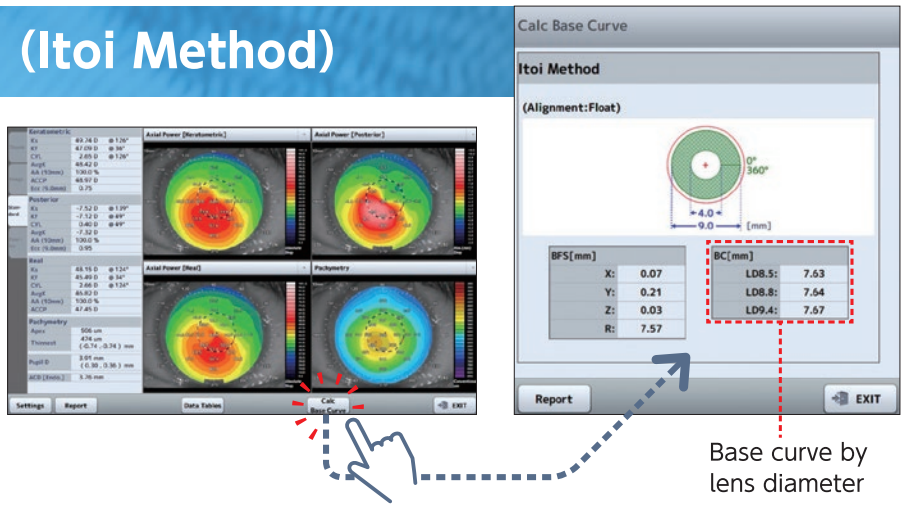
Trend Analysis

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.



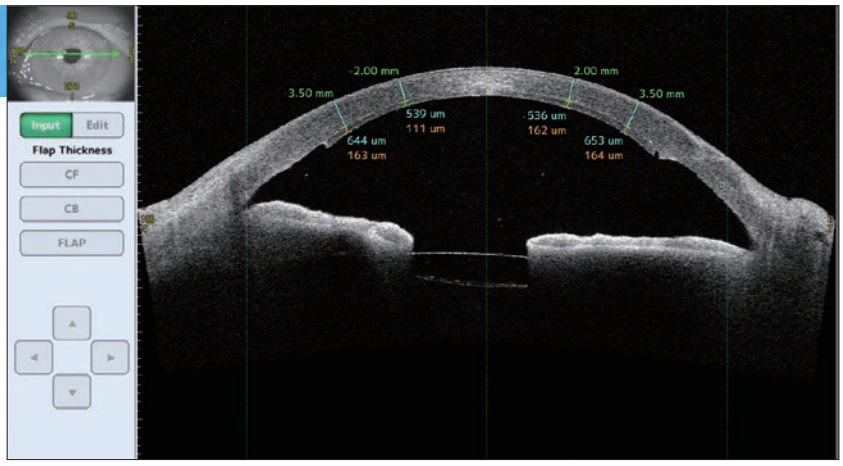
Calc Base Curve (Itoi Method)

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.



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.

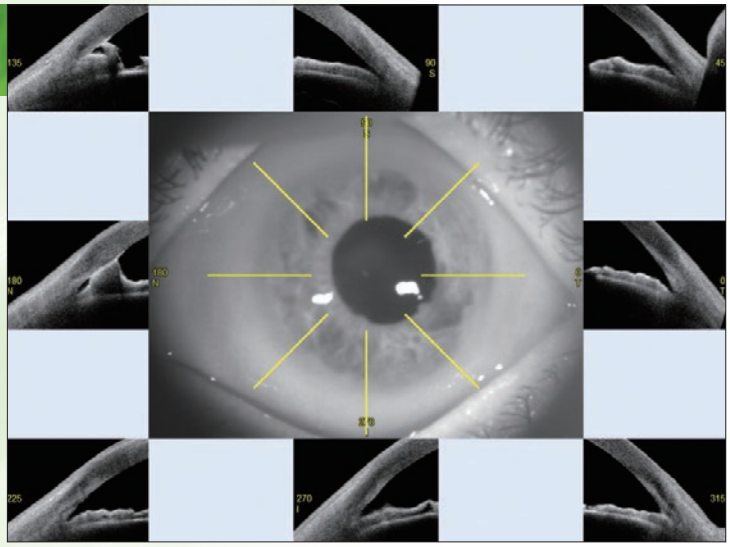


Application for Glaucoma

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

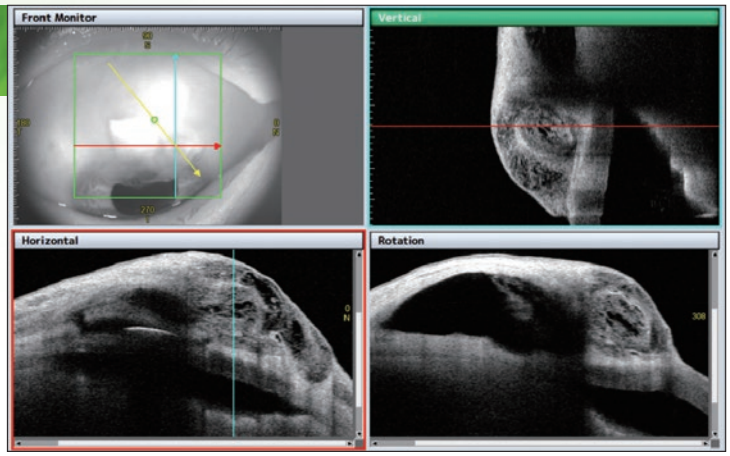
Multiple Image

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

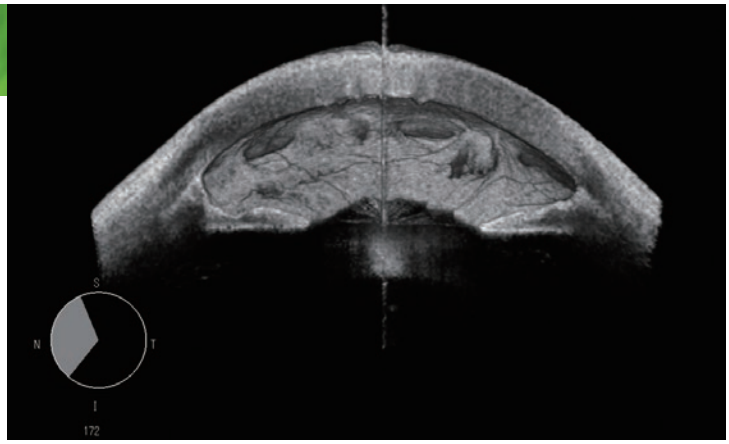
Allows filtration blebs captured in Bleb Mode to be viewed from any desired angle or direction.
It provides clear visualization of the internal structure and outflow pathways of the bleb, making it effective for postoperative monitoring.
It is also suitable for evaluating tube shunt surgeries.



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)	10μm or less (in tissue)
	Transverse	30μm or less (in air)
Scan range	Depth	13mm
	Transverse	Radial Scan: ϕ16mm
		Raster Scan: 12mm×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) ×560 (D) ×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

Touch panel LCD monitor	
Display	Touch panel LCD monitor 20 inches or larger

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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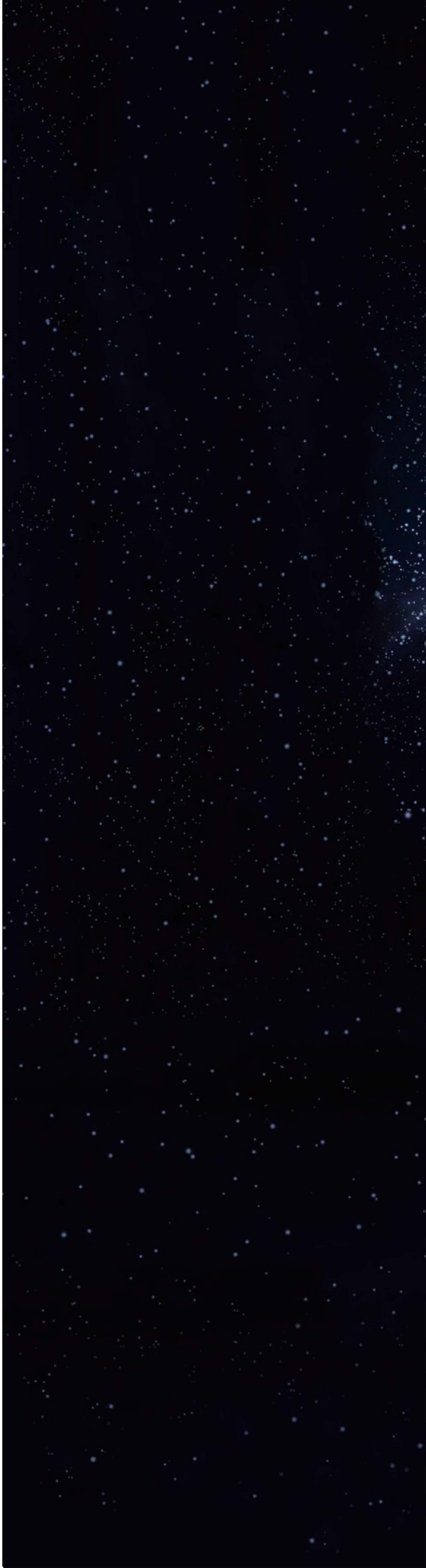

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