NIDEK

Optical Coherence Tomography

RS-3000 Advance / Lite

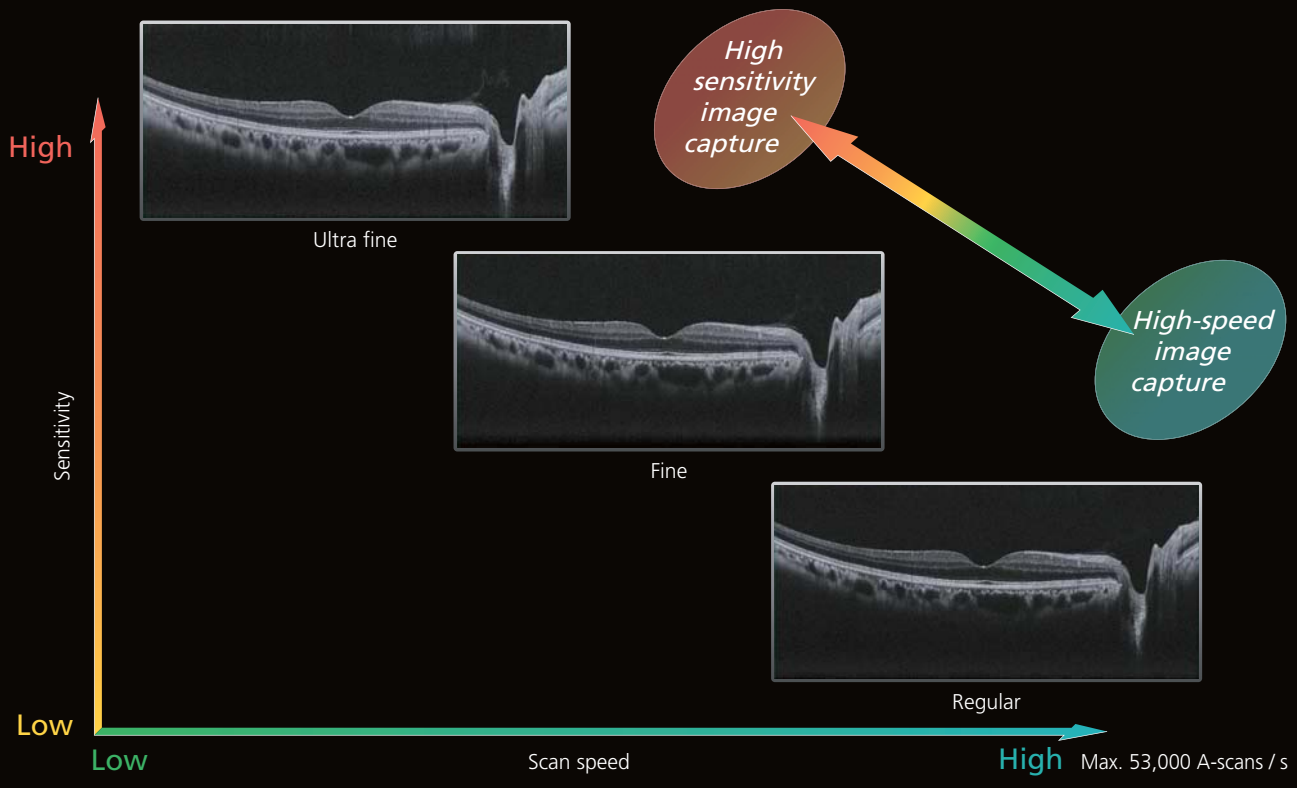
THE ART OF EYE CARE

Wide Area and High Definition OCT with SLO Tracing

12 mm wide horizontal scan available with the RS-3000 Advance allows detailed observation of the vitreous body, retina, and choroid from the macula to optic disc in a single image.

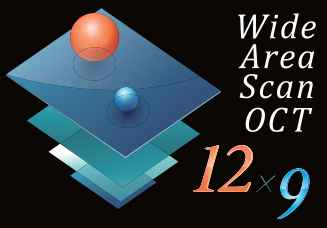
Selectable OCT Sensitivity

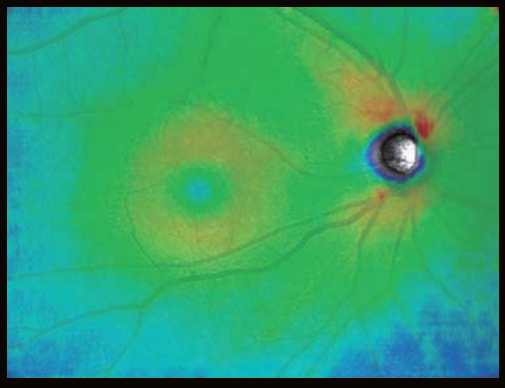
Selecting the OCT sensitivity based on ocular pathology allows image capture with higher definition or at high speed. Ultra fine, fine, and regular sensitivities are available for the RS-3000 Advance and fine and regular sensitivities are available for the RS-3000 Lite. Ultra fine and fine sensitivities are used to capture high definition images and regular sensitivity is used to capture images at high speed.



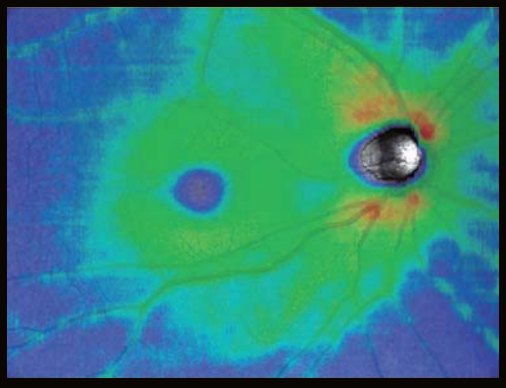
Wide Area Scan 12 x 9

A 12 x 9 mm* wide area image centering around the macula can be captured with the RS-3000 Advance.
*The normative database is based on a 9 x 9 mm region.

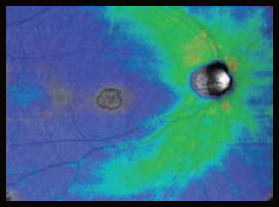




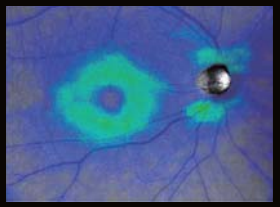
ILM-RPE / BM



ILM-IPL / INL



ILM-NFL / GCL



NFL/GCL-IPL / INL

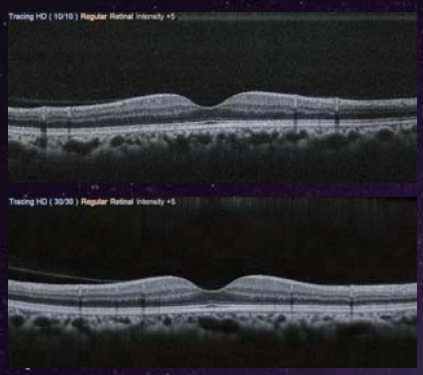
Tracing HD plus

The tracing HD plus function in the RS-3000 Advance traces involuntary eye movements to maintain the same scan location on the SLO image for accurate image capture.
This function allows accurate averaging of up to 120 images.

Macula multi (cross)

The macula multi scan pattern captures 5 cross-sectional images each in the X and Y directions.
High-quality images are easily obtained with the tracing HD plus function.

Capture screen

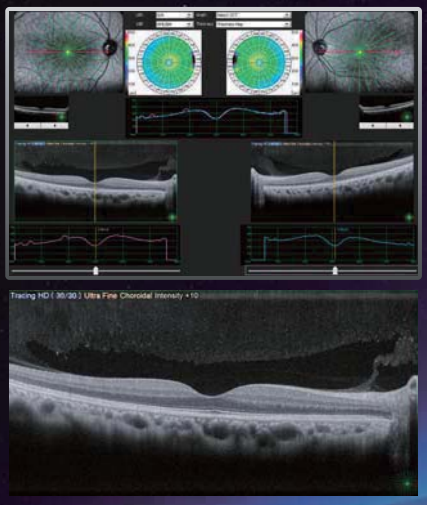


OCT image with averaging of 10* images
*The maximum number of images that could be averaged with previous software.

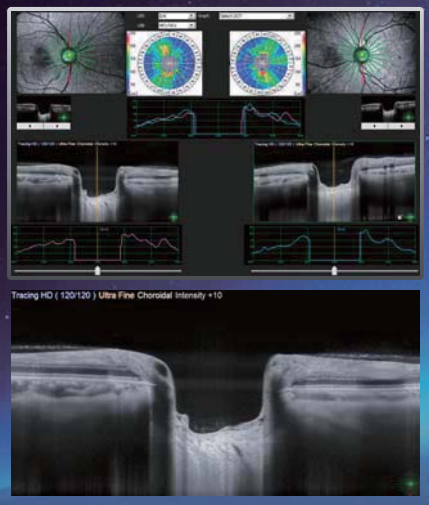
OCT image with averaging of 30 images

Macula radial and disc radial

The macula radial and disc radial scan patterns capture 6 or 12 radial cross-sectional images centered on the macula and optic disc respectively. The tracing HD plus function ensures the scan is centered on the targeted region.



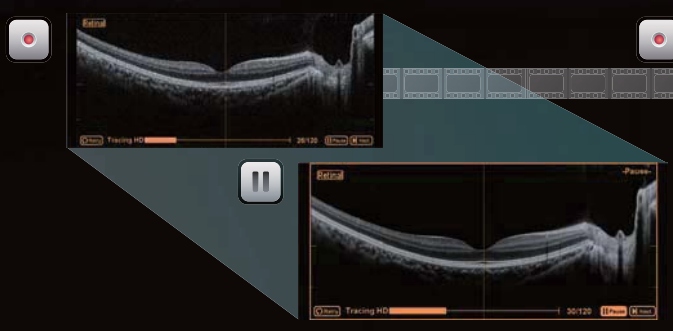
OCT image with averaging of 30 images



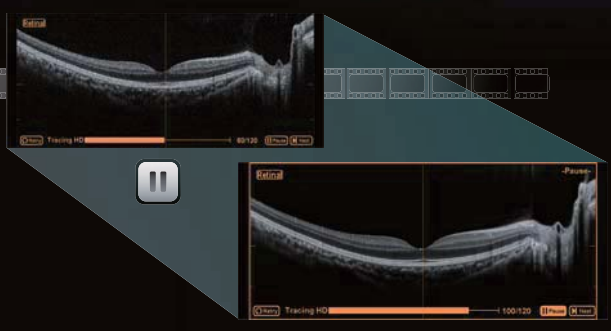
OCT image with averaging of 120 images

HD checker

The HD checker function in the RS-3000 Advance displays the image during averaging and allows an operator to check and finish capturing prior to reaching the number for averaging set by an operator if sufficient image quality is obtained.



OCT image with averaging of 30 images



OCT image with averaging of 100 images

Torsion Eye Tracer (TET)

The TET incorporated in the RS-3000 Advance ensures accurate image capture by utilizing fundus information from the high definition SLO image. The three functions, positioning, tracing, and auto shot allow accurate image capture of the targeted region. Ocular cyclotorsion is traced via the torsion correction feature added to the tracing function.

Torsion correction

The torsion correction function ensures the scan is oriented at the right angle even in cases of ocular cyclotorsion and fundus tilt due to head movement or incorrect positioning on the chinrest and forehead rest.

Completion of positioning

Correction of fundus tilt

Positioning

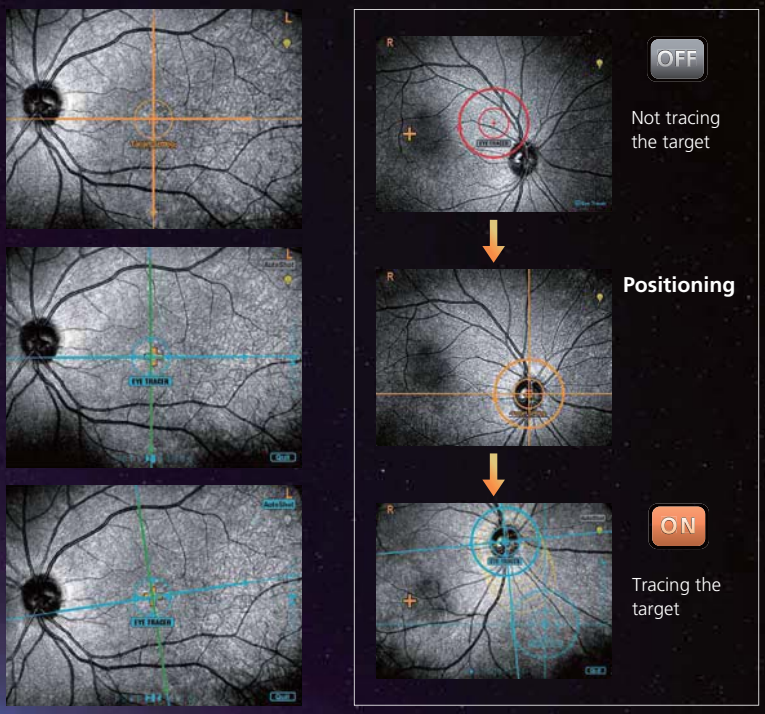
The positioning function briefly provides a still live SLO image in order to easily locate the target of interest on the fundus.

Tracing

The tracing function automatically traces the fundus after positioning is completed. It ensures the scan is centered on the target.

Auto shot

The auto shot function enables automated image capture when the scan is centered on the target and oriented at the right angle. It avoids capturing images in mid-blink or images with incorrect fixation.



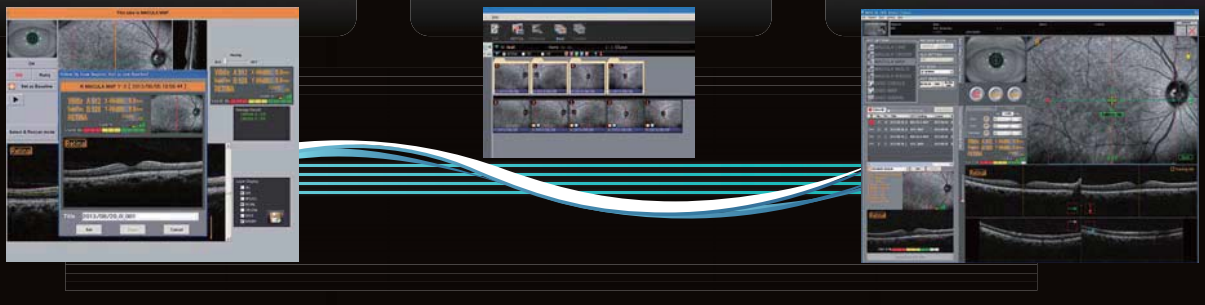
Follow-up Image Capture

The follow-up image capture function in the RS-3000 Advance performs positioning based on the previously captured baseline data, and then tracing and auto shot. It provides ease-of-use and high reproducibility of the image capture for follow-up examination.

The baseline data can be easily registered with one button.

Each baseline image can be displayed in the thumbnail view.

The previously captured position is automatically traced by selecting the registered baseline.

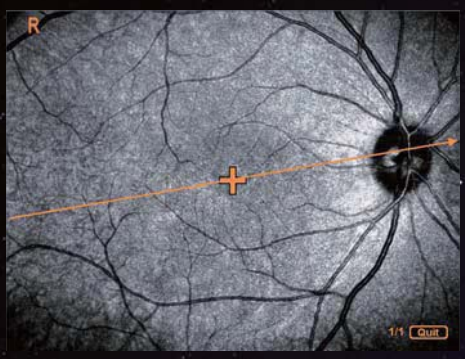


Retina Analysis

Retinal and choroidal modes are available for the RS-3000 Advance and the retinal mode is available for the RS-3000 Lite. The choroidal mode allows a more detailed examination of the choroid.

Macula line with 12 mm horizontal scan

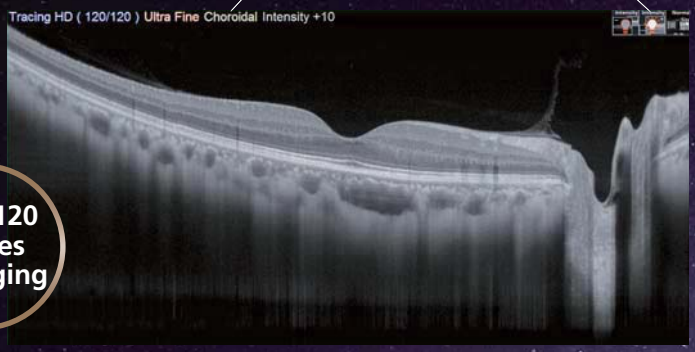
The macula line scan pattern captures a cross-sectional image at a user designated position. The 12 mm horizontal scan of the RS-3000 Advance allows observation of a wide area from the macula to the optic disc in a single image.



Max. 120 images averaging

Retinal / Choroidal mode

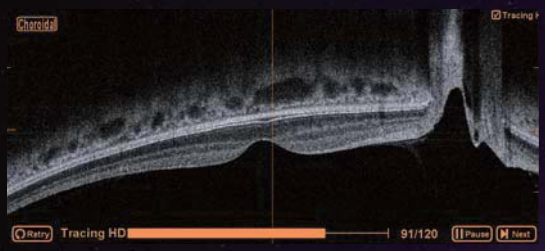
Enhanced image



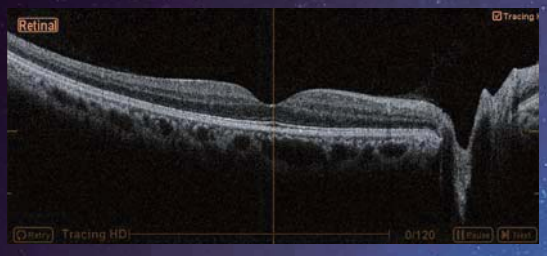
The OCT image with macula line scan pattern clearly shows cross-section of vitreous body, retina, choroid, and optic disc.

Choroidal OCT image (EDI-OCT)

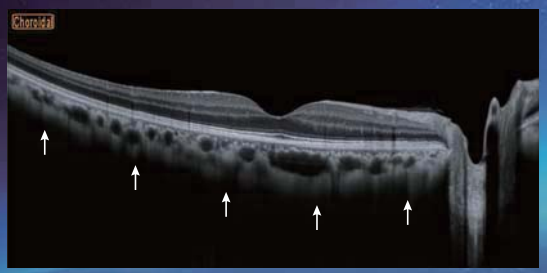
Choroidal mode in the RS-3000 Advance allows capture of highly reflective choroidal images by reversing the image.



Choroidal OCT image



Retinal mode

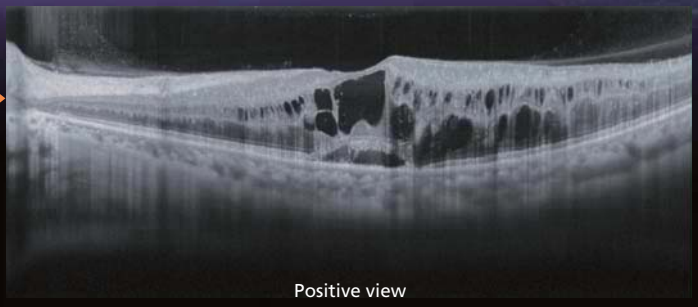


Choroidal mode

Enhanced image

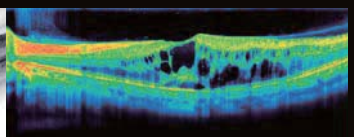
The enhanced image function allows to adjust bright intensity of an image to enhance details.

Captured image



Positive view

Negative view

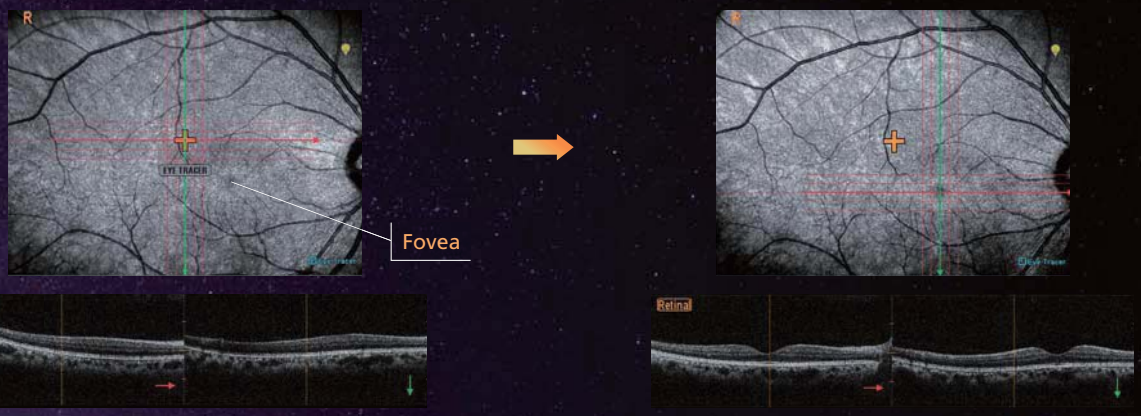


Color view

Flexible cross scan

The flexible cross scan mode* in the RS-3000 Advance allows free placement of the scan position within a capturing window by shifting the crossing point of the scan pattern lines. This function is useful for capturing an image of pathology that is distant from the center of the SLO image.

*The flexible cross scan mode is available for the macula cross and macula multi (cross) scan patterns.

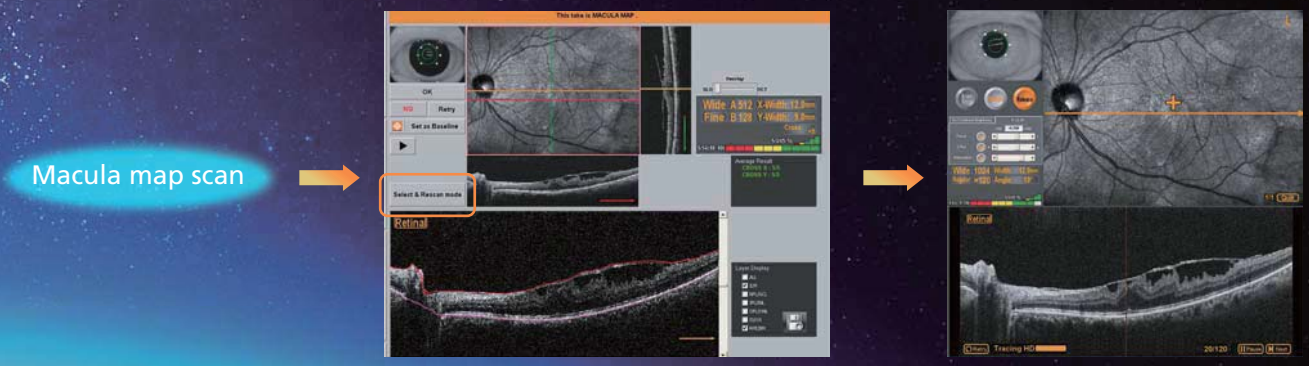


OCT image not capturing fovea

OCT image capturing fovea

Select and Rescan mode (SR mode)

The select and rescan mode in the RS-3000 Advance allows capture of an entire image of the retina with the macula map scan pattern and select a cross-sectional OCT image with the location of lesion from up to 256 images based on user preference. Cross-sectional OCT images can be reacquired on the selected region with the tracing HD plus function.
The select and rescan mode is useful in efficiently obtaining a high-quality image of a region of interest.



Select an image and then confirm with the select and rescan mode button.

Macula line scan starts on the selected region.

Macula examination

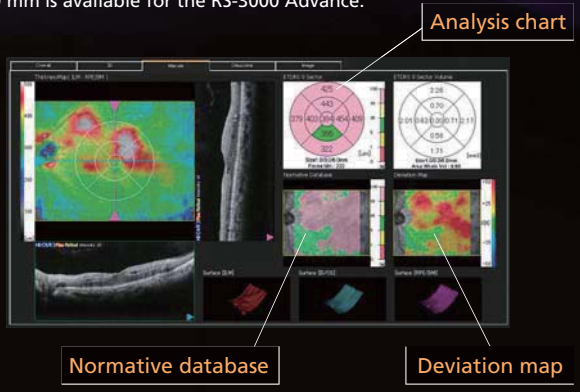
Macula multi (cross)

The macula multi scan pattern enables acquisition of 5 cross-sectional images each in X and Y directions. The appropriate image for diagnosis can be selected from the 10 images.

Macula map

The macula map scan pattern captures up to a 12 x 9 mm* area and provides a color-coded map, thickness analysis, surface, and retinal layers.

*12 x 9 mm is available for the RS-3000 Advance.



Glaucoma Analysis

Wide area scan 12 x 9

Wide area images of 12 x 9 mm centered on the macula can be acquired with the RS-3000 Advance.

Macula map

The glaucoma analysis provides the [NFL+GCL+IPL] analysis, which supplements clinical work-up for the early detection of optic nerve fiber layer defects. The 12 x 9 mm wide area map enables analysis of the [NFL+GCL+IPL] in the peripheral retina.

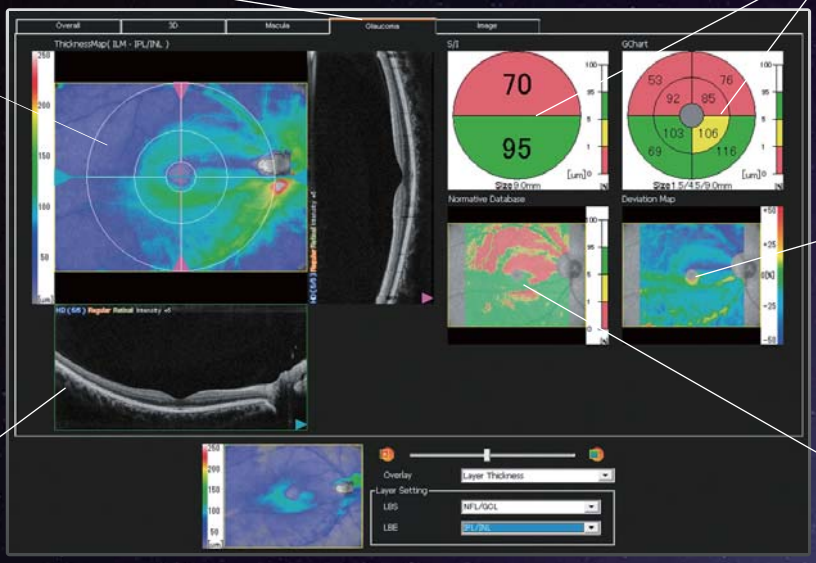
Analysis display switching tab

[NFL+GCL+IPL]
Color-coded thickness map (12 x 9 mm) of [NFL+GCL+IPL] layers (ILM to IPL / INL) overlaid on SLO or OCT phase fundus image*

*The SLO image is available for the RS-3000 Advance and the OCT phase fundus image is available for the RS-3000 Advance / Lite.

High resolution cross-sectional image display*

*Macula map data and cross-sectional image can be acquired simultaneously with the macula map and macula cross scan patterns.



Analysis charts (Superior / Inferior pole, GChart)
Analysis charts of average thickness of each sector surrounding the macula with color code based on comparison to a normative database

Deviation map
Map indicating the deviation, including early variation even within the normal range, from average thickness in a normative database

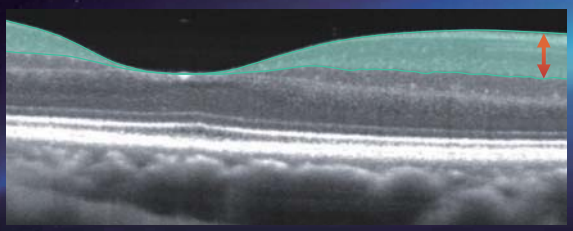
Normative database*
Color-coded map indicating distribution range of the patient's macular thickness in a population of normal eyes

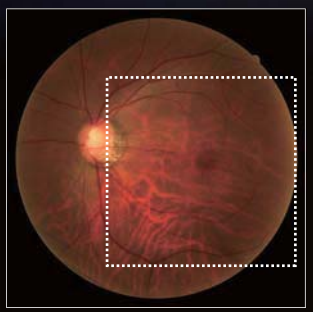
- More than 95%
- More than 5 to 95%
- More than 1 to 5%
- 0 to 1%

*The normative database is based on a 9 x 9 mm region.

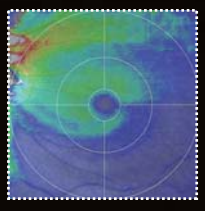
[NFL+GCL+IPL]

The [NFL+GCL+IPL] are layers composed of Nerve Fiber Layer (NFL), Ganglion Cell Layer (GCL), and Inner Plexiform Layer (IPL).





Color fundus photography taken with another device



[NFL+GCL+IPL] thickness map

Disc map

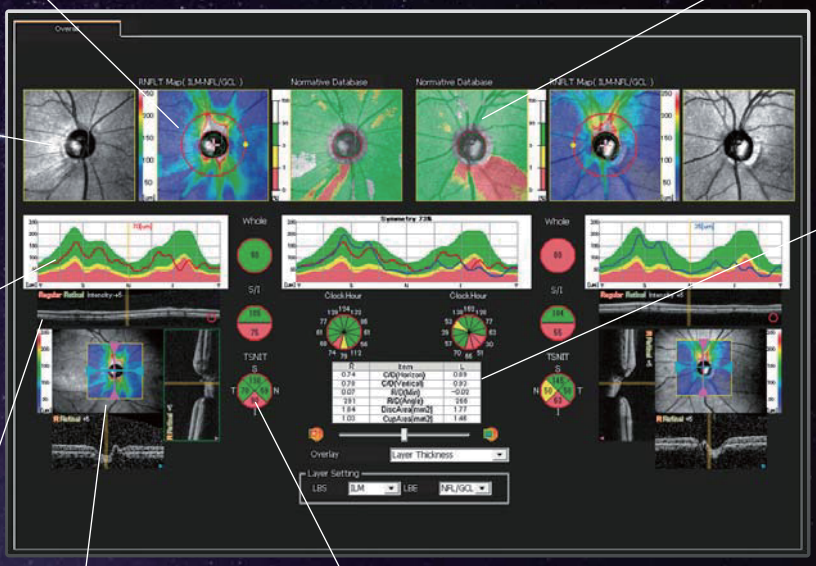
The disc map scan pattern captures an image centered on the disc and provides data for comprehensive disc analysis.

RNFL thickness map
Color-coded thickness map of RNFL layer (ILM to NFL / GCL)

SLO image*
SLO image showing optic disc

TSNIT graph
Graph showing thickness from ILM to NFL / GCL on disc circle with comparison to a normative database

OCT image of disc circle



Overall tab displaying both right and left eyes

Normative database
Color-coded map indicating distribution range of the patient's RNFL thickness in a population of normal eyes*
*Available for 4.5 x 4.5 mm to 6 x 6 mm area

Analysis table
Table of optic disc analysis
C / D ratio (horizontal)
C / D ratio (vertical)
R / D ratio (minimum)
R / D ratio (angle)
Disc area (mm²)
Cup area (mm²)

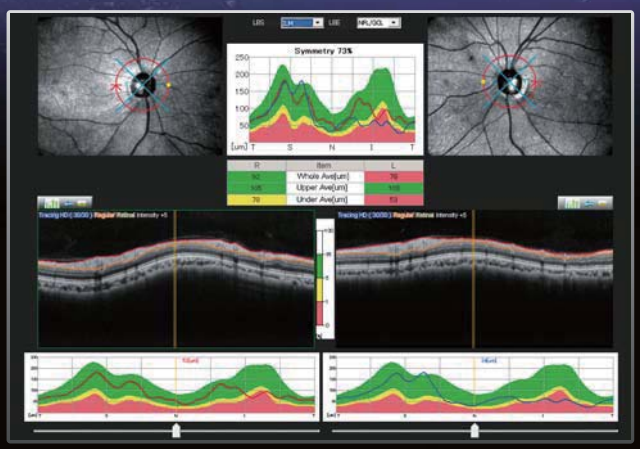
*The SLO image is available for the RS-3000 Advance and the OCT phase fundus image is available for the RS-3000 Lite.

SLO image*
SLO image showing scanned area with color-coded thickness map of user selected layers

Analysis charts
Analysis charts indicating average thickness of Whole, S / I (2-sector), TSNIT (4-sector), and Clock Hour (12-sector), with color code based on comparison to a normative database

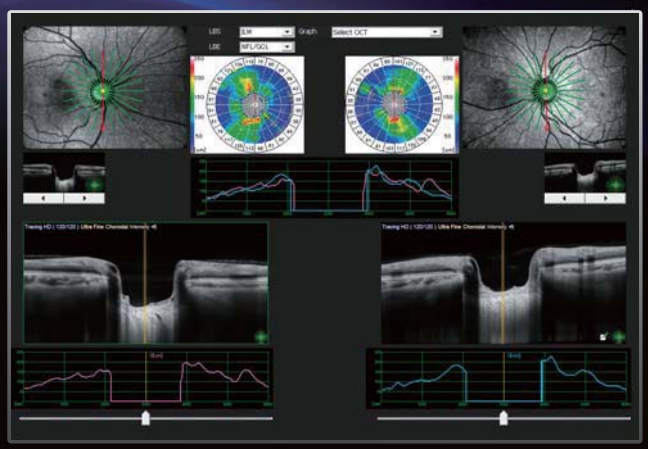
Disc circle

The disc circle scan pattern in the RS-3000 Advance captures an image of circle in 3.45 mm diameter centering on the disc and allows RNFL thickness analysis compared to the normative database.



Disc radial

The disc radial scan pattern in the RS-3000 Advance captures 6 or 12 radial cross-sectional images centered on the disc and allows observation of disc shape symmetry.



Multifunctional Follow-up

The multifunctional follow-up allows analysis of all the data obtained with the OCT and detailed observation of chronological change in retinal thickness and status. This function displays progression of pathology over the short term, intermediate- and long-term together with a numerical value obtained from RS-3000 Advance / Lite and other examinations such as intraocular pressure and visual field, which provide clinical information for guiding treatment.

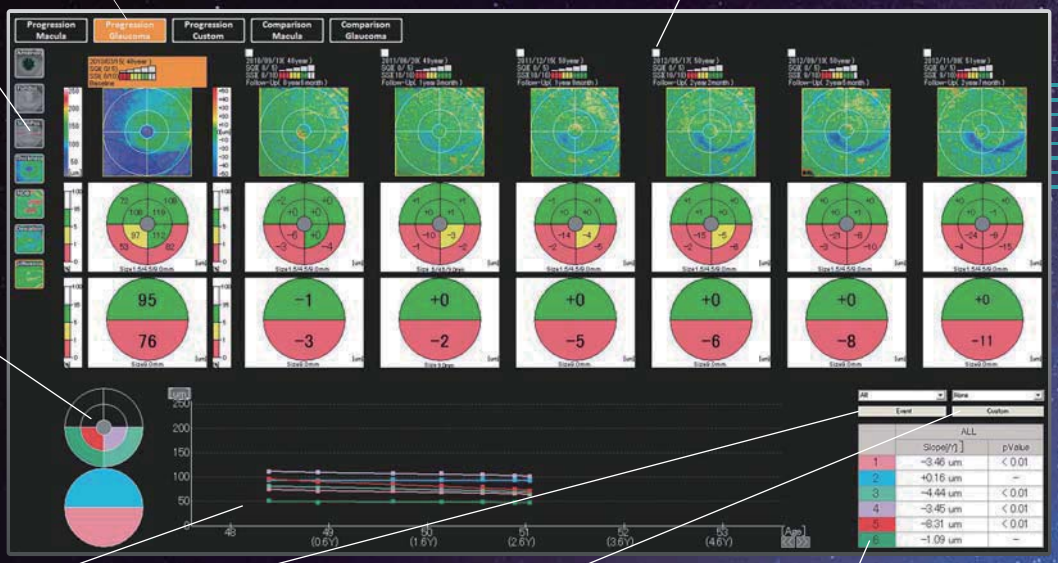
Progression mode

The progression mode performs data analysis based on the data captured up to 50 times and displays chronological change in retinal thickness with various maps, charts, and graphs for trend analysis.

Analysis display tab
Progression: Macula / Glaucoma / Custom
Comparison: Macula / Glaucoma

Parameter of the captured data
Date: Capture date (age)
SQI: SLO quality / SSI: OCT quality
Follow-up: Time from the date of baseline data

Map / Data display switching buttons
Anterior segment
SLO or OCT phase fundus image*
Scan position correction
Color map
Normative database
Deviation map
Difference map



Selection of various parameter sectors
Up to 6 different analyses can be specified.

Graph indicating trend of retinal thickness

Event registration
Treatment record such as start of medication or surgery can be registered and displayed.

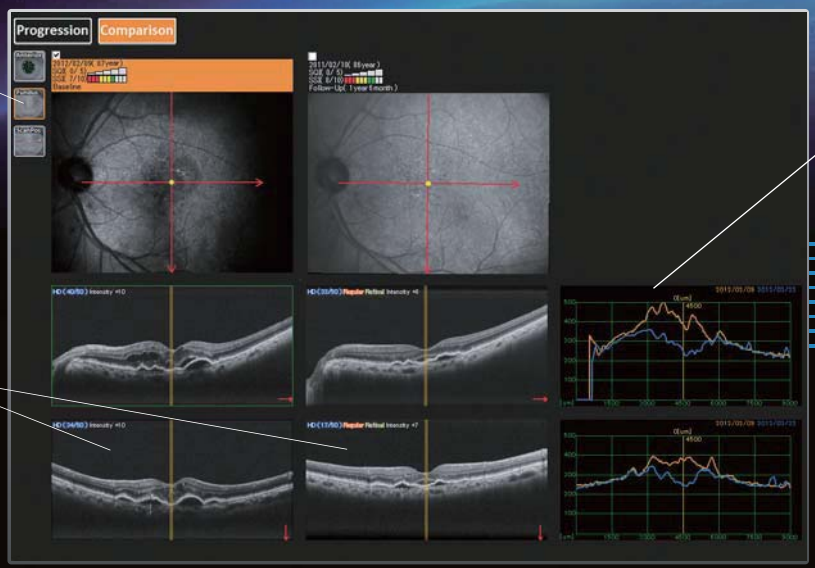
Custom registration
Record of the numerical value such as intraocular pressure and visual acuity can be registered and displayed.

Graph analysis of retinal thickness trend
Slope and p-value of each graph

Comparison mode

The comparison mode displays two images selected by the user for comparison and analysis of retinal thickness.

Map / Data display switching buttons
Anterior segment
SLO or OCT phase fundus image*
Scan position correction



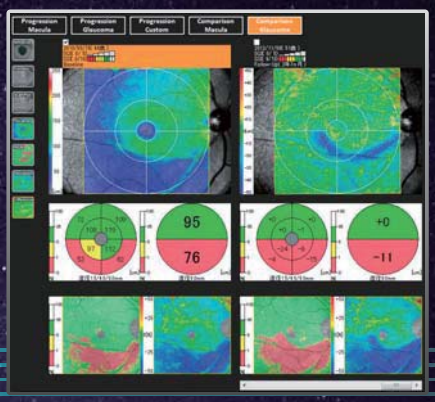
Graph indicating change in thickness

Comparison data

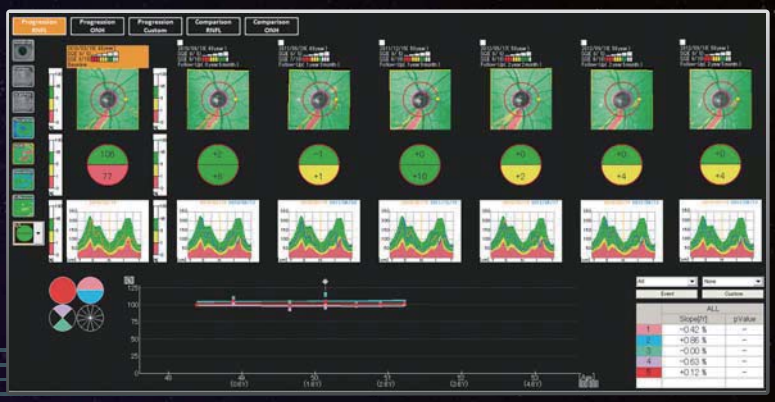
*The SLO image is available for the RS-3000 Advance and the OCT phase fundus image is available for the RS-3000 Advance (macula map, disc map) and RS-3000 Lite.

Glaucoma

The multifunctional follow-up for glaucoma performs data analysis of glaucoma examination based on the data captured up to 50 times and displays trend of chronological change on a graph.



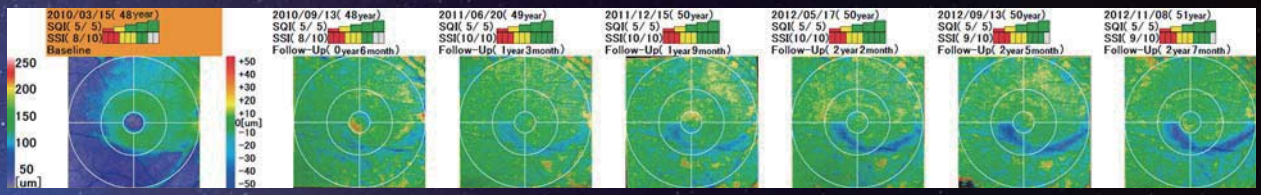
Comparison: Glaucoma (Macula map)



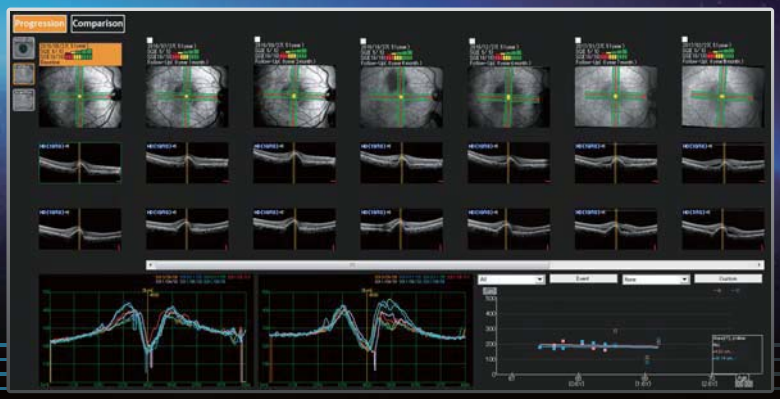
Progression: Glaucoma (Disc map)

Change in [NFL+GCL+IPL] thickness

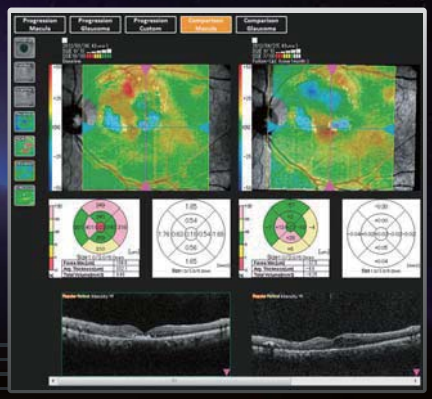
This function allows the evaluation of the progression of glaucoma in its early stages by displaying changes in retinal thickness compared to the baseline data.



Macula

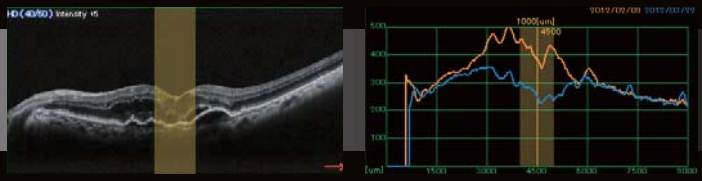


Progression: Macula (Macula multi)



Comparison: Macula (Macula map)

Retinal thickness analysis within user designated area



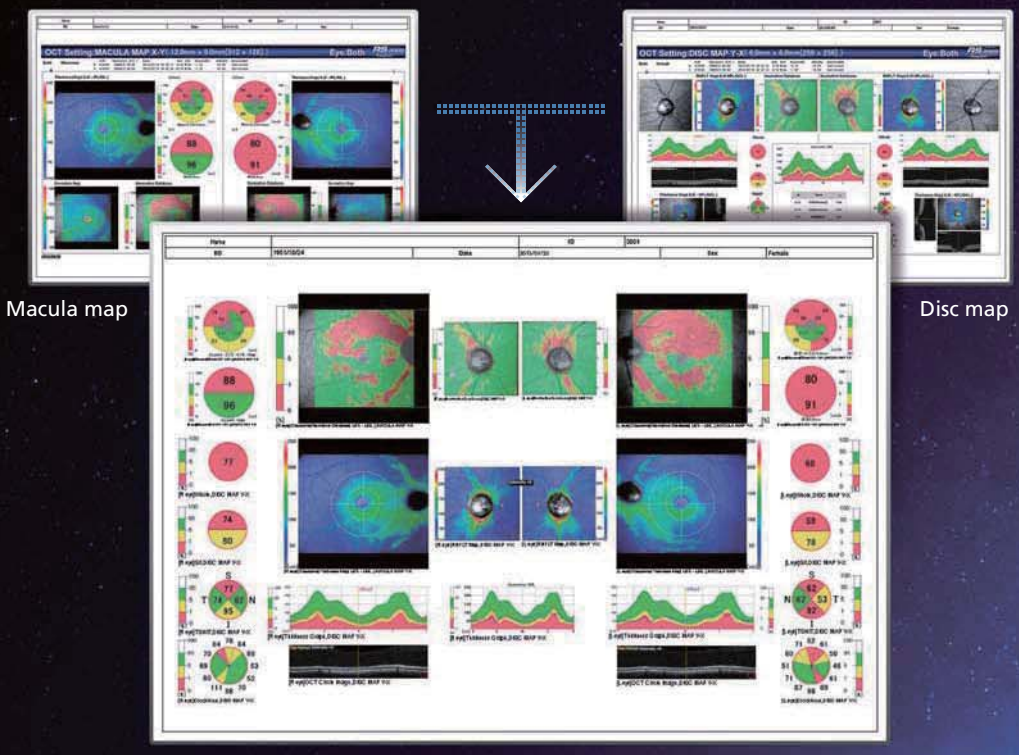
Chronological change in retinal thickness can be analyzed with a graph indicating its trend by designating the area on the thickness graph based on user preference.

Customized Report

The layout of the reports can be customized and the data from separate reports of each scan pattern can be summarized in a single report to avoid printing multiple pages. The report setting can be titled such as glaucoma, macular disease, and screening based on user preference.

Glaucoma

Only the necessary images and analysis results obtained with the macula map (both eyes), disc map (both eyes) are summarized in a report.



Macula map

Disc map

Sample of customized report

Macula map
- Normative database
- ILM to IPL / INL color map
- GChart, S / I analysis chart

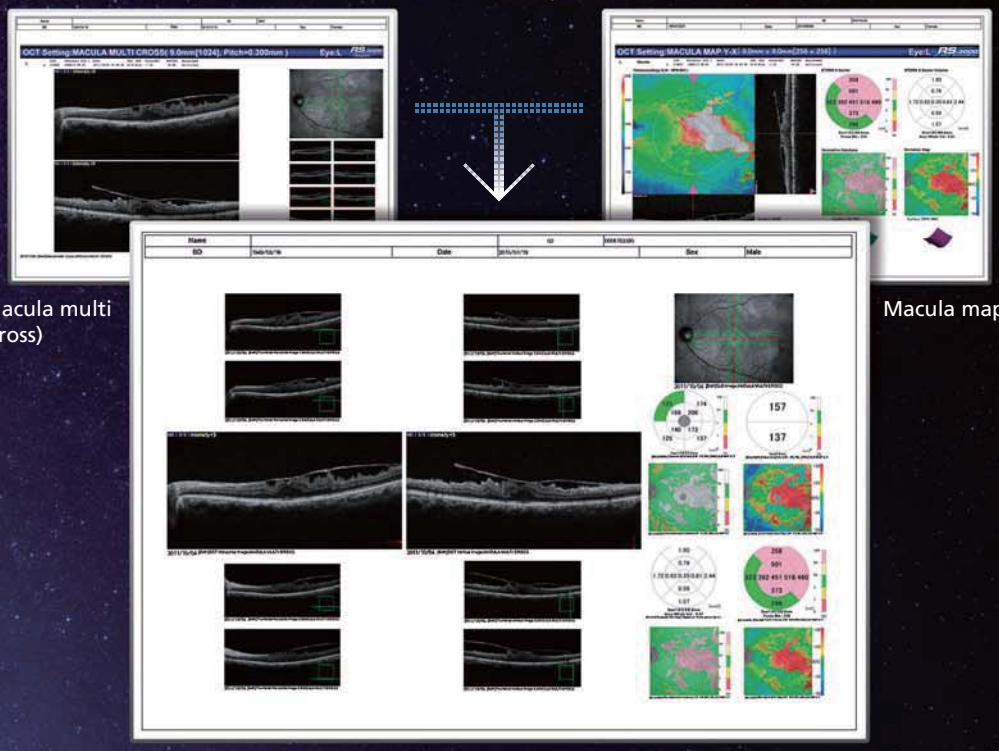
Disc map
- Normative database
- ILM to NFL / GCL color map
- Various analysis charts
- TSNIT graph

Combo release mode

The combo release mode combines scan patterns and facilitates an examination requiring several scan patterns.
The scan patterns and their order can be user specified. The scan pattern selected for combo release mode can be preset and reflected on the report.

	Default setting			
Macula disease	Macula multi	+	Macula map X-Y	
Glaucoma	Macula map Y-X	+	Disc map Y-X	

Macula (one eye)

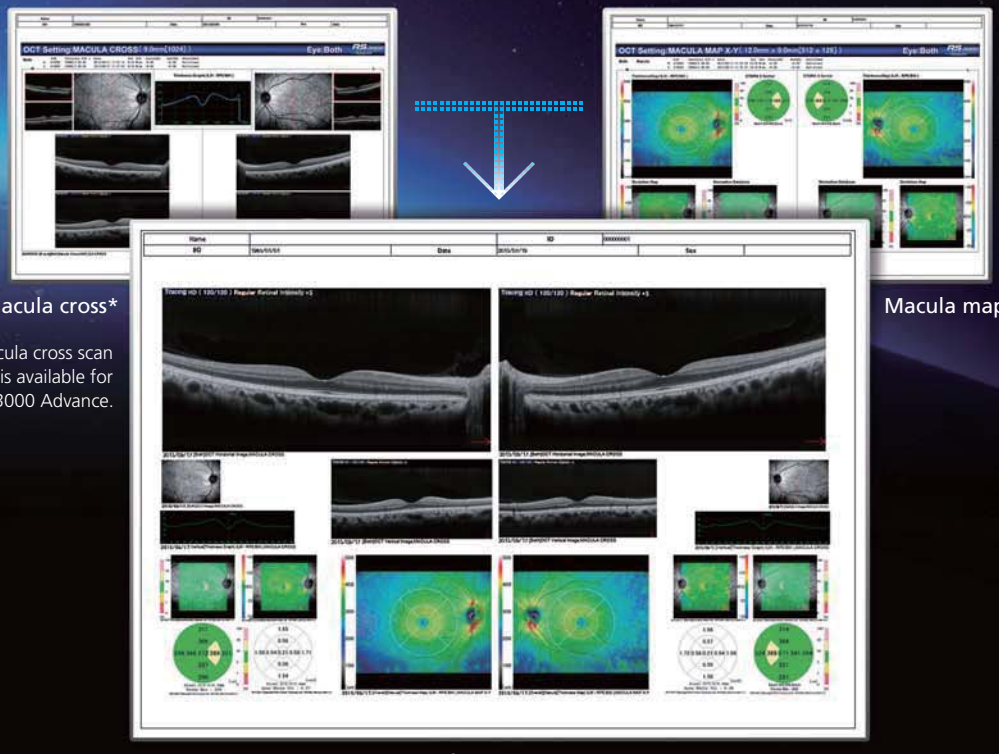


Macula multi (cross)

Macula map

Sample of customized report

Macula (both eyes)



Macula cross*

Macula map

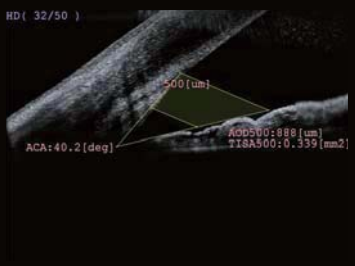
*The macula cross scan pattern is available for the RS-3000 Advance.

Sample of customized report

Anterior Segment Analysis

The optional anterior segment module enables observation and analyses of the anterior segment.

Angle measurement

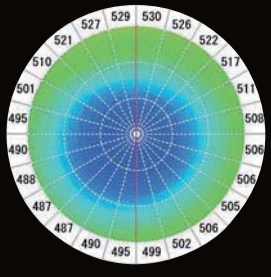


- ACA
  Angle between posterior corneal surface and iris surface
- AOD500 (AOD750)
  Distance between iris and a point 500 µm (or 750 µm) away from scleral spur on posterior corneal surface
- TISA500 (TISA750)
  Area circumscribed with AOD500 (or AOD750) line, posterior corneal surface, line drawn from scleral spur in parallel with AOD line, and iris surface

Cornea measurement

- Corneal thickness
  Corneal thickness of apex and user's preferred sites

- Corneal thickness map
  Map indicating corneal thickness measured in radial directions



Anterior segment adaptor

NAVIS-EX is an image filing software, which networks the RS-3000 Advance / Lite and other NIDEK fundus imaging devices, the AFC-330 and F-10.

Non-mydriatic auto fundus camera

AFC-330

Examination room

LAN connection

Diagnostic room

NAVIS-EX allows viewing and data analysis of captured images in the diagnostic room.

RS-3000 OCT RetinaScan Advance

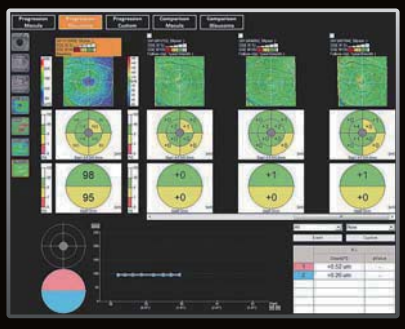
RS-3000 OCT RetinaScan Lite

Another server may be necessary depending on the network setup.

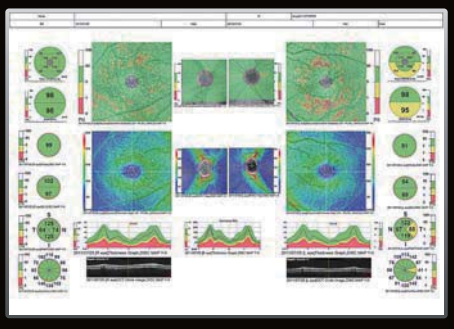
RS-3000 OCT RetinaScan Lite

The OCT for general screening

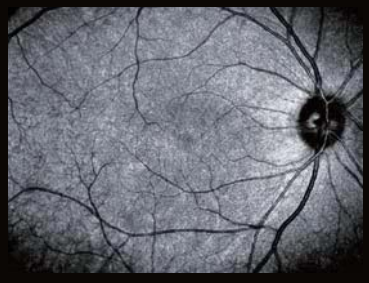
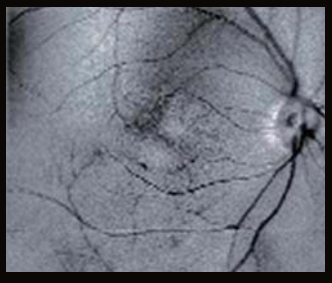
Providing the high resolution OCT images and clinically useful analyses, the RS-3000 Lite achieves the optimum balance between cost and performance with its fundus surface imaging system. The RS-3000 Lite has been developed for screening in general eye clinics.



Multifunctional follow-up



Custom report

Model	RS-3000 Advance	RS-3000 Lite
Fundus surface imaging	 SLO (12 fps frame rate) 40° x 30° angle of view	 OCT phase fundus (1.8 fps frame rate) 36° x 30° angle of view
Scan speed	Max. 53,000 A-scans / s	←
OCT sensitivity	Regular, Fine, Ultra fine	Regular, Fine
Normative database area	9 x 9 mm (macula), 6 x 6 mm (disc)	←
Scan pattern (retina)	Macula line (scan angle changeable by 1°) Macula cross Macula map (with cross scan / without cross scan) Macula multi (X-Y: 5 x 5) Macula radial (6 lines / 12 lines) Disc circle Disc map Disc radial (6 lines / 12 lines)	Macula line (scan angle changeable by 15°) Macula map (with cross scan / without cross scan) Macula multi (X-Y: 5 x 5) Disc map
Scan pattern (cornea) with optional anterior segment module	Cornea line Cornea cross Cornea radial (6 lines / 12 lines) ACA line	Cornea radial (6 lines / 12 lines) ACA line
Image averaging	Max. 120 images	Max. 50 images
Choroidal mode	Available	Not available
Torsion eye tracer	Available	Not available
Follow-up tracing	Available	Not available
Follow-up analysis	Available	←
Tracing HD plus	Available	Not available
HD checker	Available	Not Available
Flexible cross scan	Available	Not Available
Select and rescan mode	Available	Not Available
Auto shot (for follow-up image capture)	Available	Not available
Internal fixation target	Cross shape (laser)	Circle shape (LED)
PC monitor	21"	17"

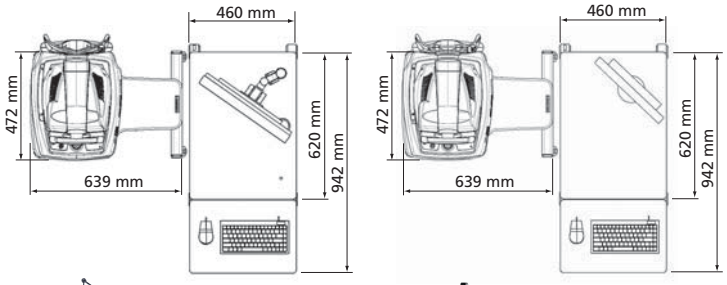
RS-3000 Advance / Lite Specifications

Model	RS-3000 Advance	RS-3000 Lite
OCT scanning		
Principle	Spectral domain OCT	←
OCT resolution	Optical Z: 7 µm, X-Y: 20 µm Digital Z: 4 µm, X-Y: 3 µm	←
Scan range	X: 3 to 12 mm Y: 3 to 9 mm Z: 2.1 mm	X: 3 to 9 mm Y: 3 to 9 mm Z: 2.1 mm
OCT light source	SLD, 880 nm	←
Scan speed	Max. 53,000 A-scans / s	←
Acquisition time of 3-D image	1.6 s in regular mode	←
Internal fixation lamp	637 nm	660 nm
External fixation lamp	630 / 565 nm	←
Auto alignment	Z direction	←
Minimum pupil diameter	ø2.5 mm	←
Focus adjustment range	-15 to +10 D (VD=12 mm)	←
Working distance	35.5 mm	←
Software analysis	Segmentation of 6+1 retinal layers Macular thickness map RNFL thickness map [NFL+GCL+IPL] analysis Optic nerve analysis Follow-up analysis	←
Fundus surface imaging		
Principle	Confocal scanning laser ophthalmoscope (SLO light source: 785 nm)	OCT phase fundus
Angle of view	40° x 30° (zoom: 20° x 15°)	36° x 30°
PC networking	Available	←
Display	Tiltable 8.4-inch color LCD	←
Power supply	AC 100, 120, 230 V 50 / 60 Hz	←
Power consumption	300 VA	←
Maximum power output (transformer)	1,000 VA	←
Dimensions / Mass	380 (W) x 524 (D) x 499 to 531 (H) mm / 34 kg 15.0 (W) x 20.6 (D) x 19.6 to 20.9 (H)" / 75 lbs.	380 (W) x 524 (D) x 499 to 531 (H) mm / 33 kg 15.0 (W) x 20.6 (D) x 19.6 to 20.9 (H)" / 73 lbs.

Anterior segment module (optional)	
Software analysis	Corneal thickness measurement Corneal thickness map Angle measurement

Motorized optical table (optional)	
Dimensions / Mass	639 (W) x 472 (D) x 600 to 850 (H) mm / 28 kg 25.2 (W) x 18.6 (D) x 23.6 to 33.5 (H)" / 62 lbs.
Power supply	AC 100 V (available from the transformer) 50 / 60 Hz
Power consumption	150 W

PC rack (optional)	
Dimensions / Mass	620 (W) x 460 (D) x 700 (H) mm / 29 kg 24.4 (W) x 18.1 (D) x 27.6 (H)" / 64 lbs.



RS-3000 Advance　　RS-3000 Lite

Listed features in this brochure are intended for non-US practitioners.
Specifications may vary depending on circumstances in each country.
Specifications and design are subject to change without notice.

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