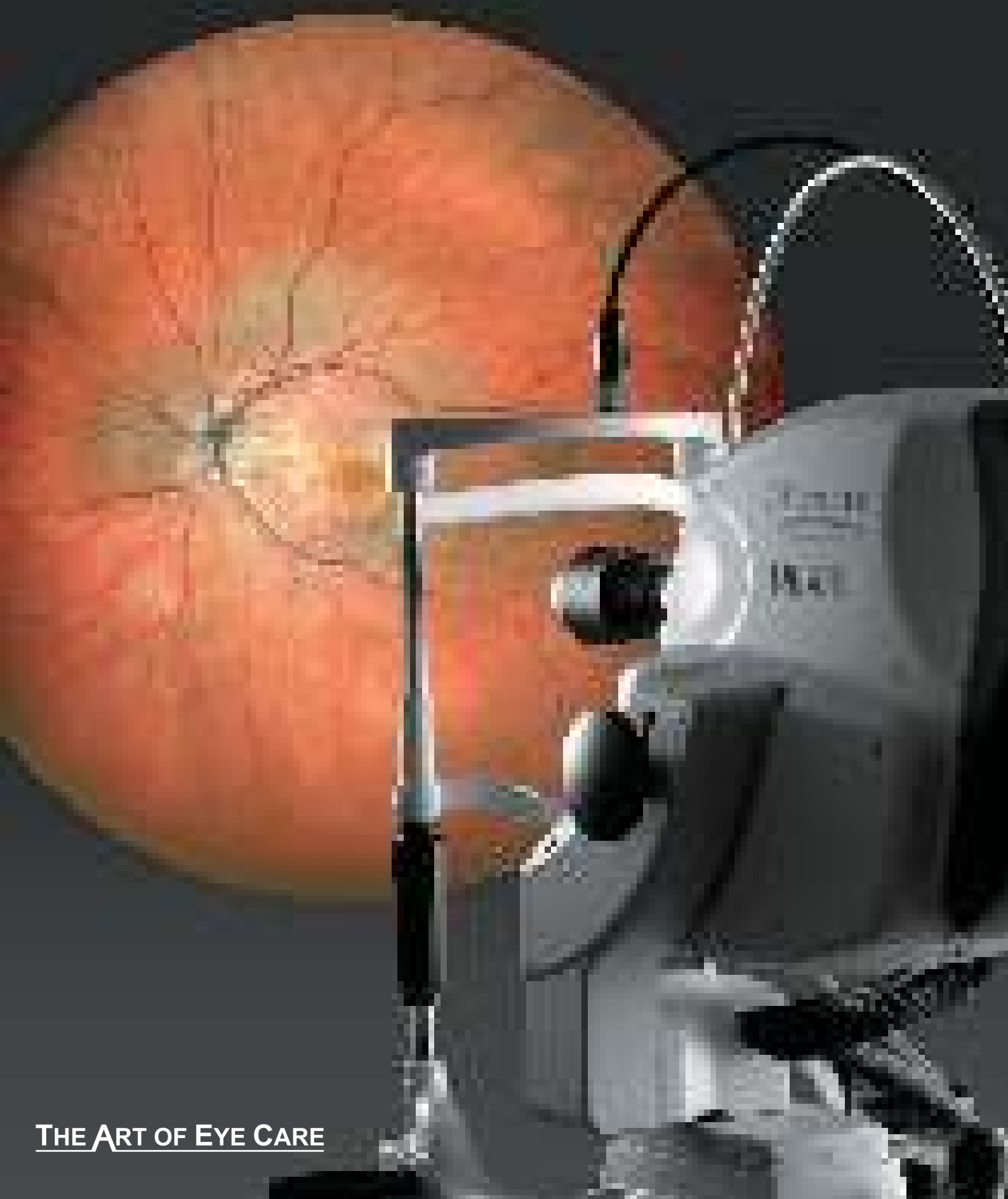





Scanning Laser Ophthalmoscope

# Mirante



THE ART OF EYE CARE



# The Ultimate Multimodal Imaging Platform

## State-of-the-art SLO/OCT Combo

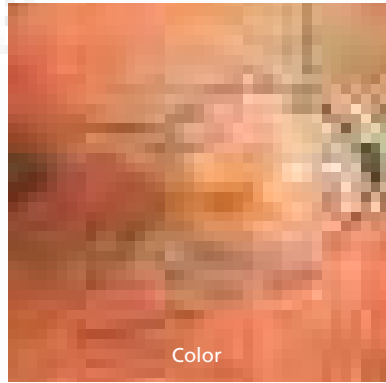
### Ultra Wide Field x Ultra HD image

A stellar combination of 163° ultra wide field x ultra 4K HD incorporated in the Mirante achieves a wider, enhanced view of the retinal structure and vasculature with unparalleled clarity.

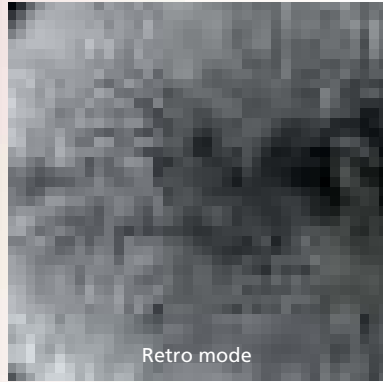
(Ultra wide field image is available with the optional wide-field adapter.)

The new FlexTrack technology improves imaging quality.

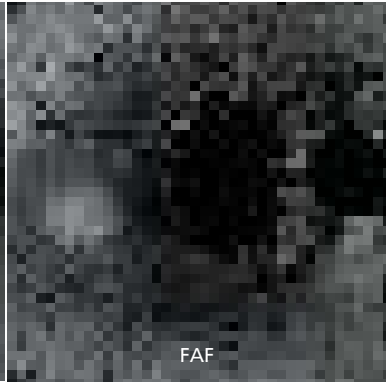
# Confocal SLO



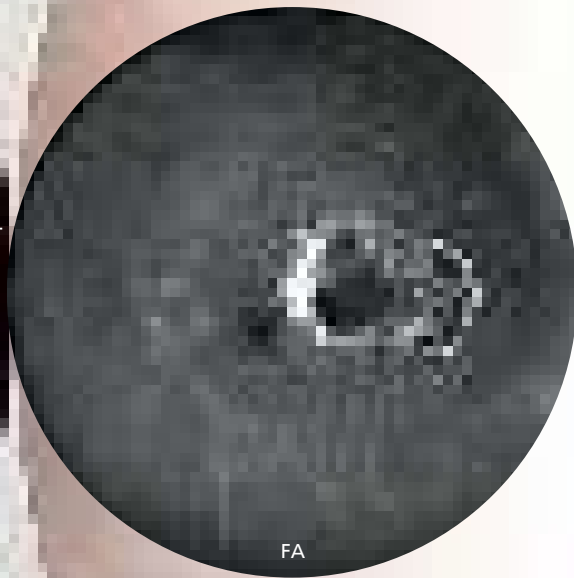
Color



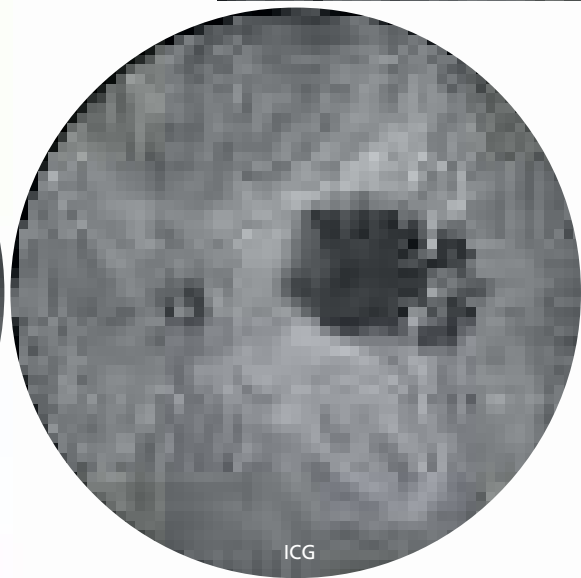
Retro mode



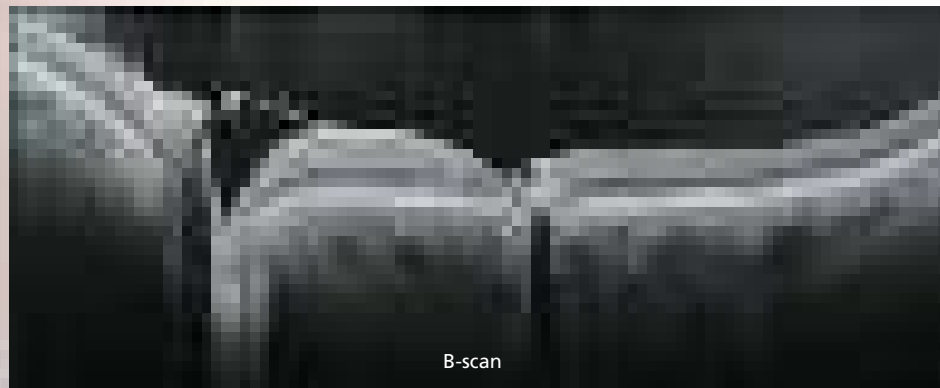
FAF



FA

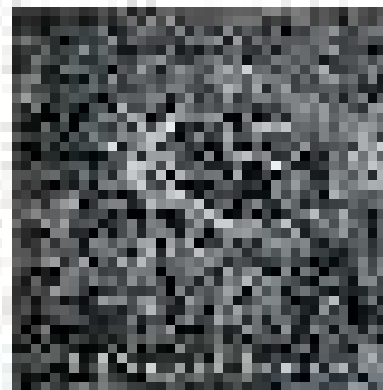


ICG



B-scan

# OCT





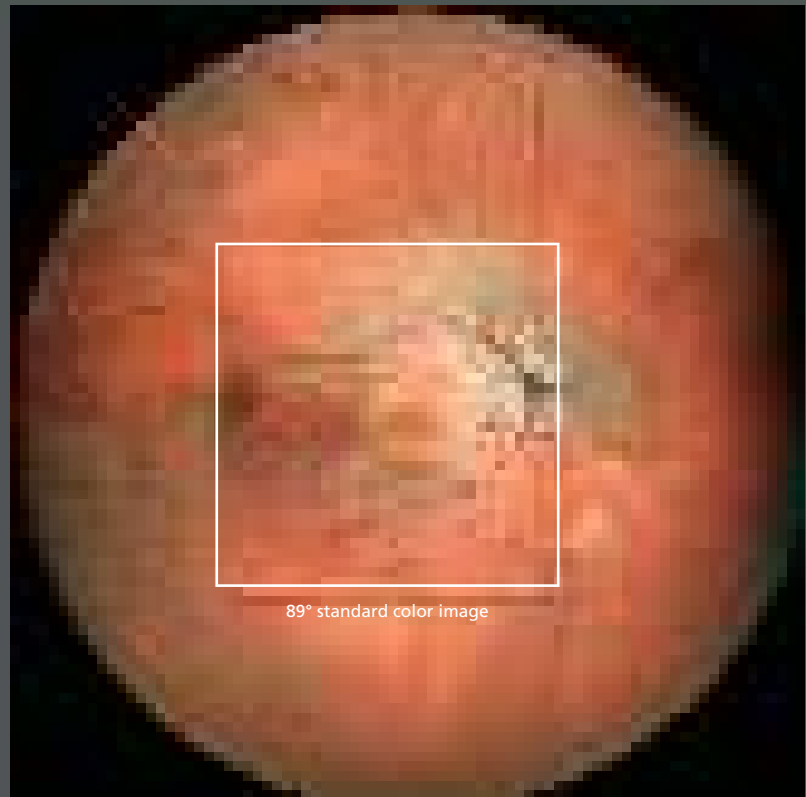
### 163° ultra wide field color image

The clear image of the entire 163° field of view enables detailed evaluation of pathologies from the fovea to the extreme periphery.

(Ultra wide field imaging is available with the optional wide-field adapter.)

### Refine mode

As required, capturing two images with slightly different fixation reduces reflection, producing a clear ultra wide field image.



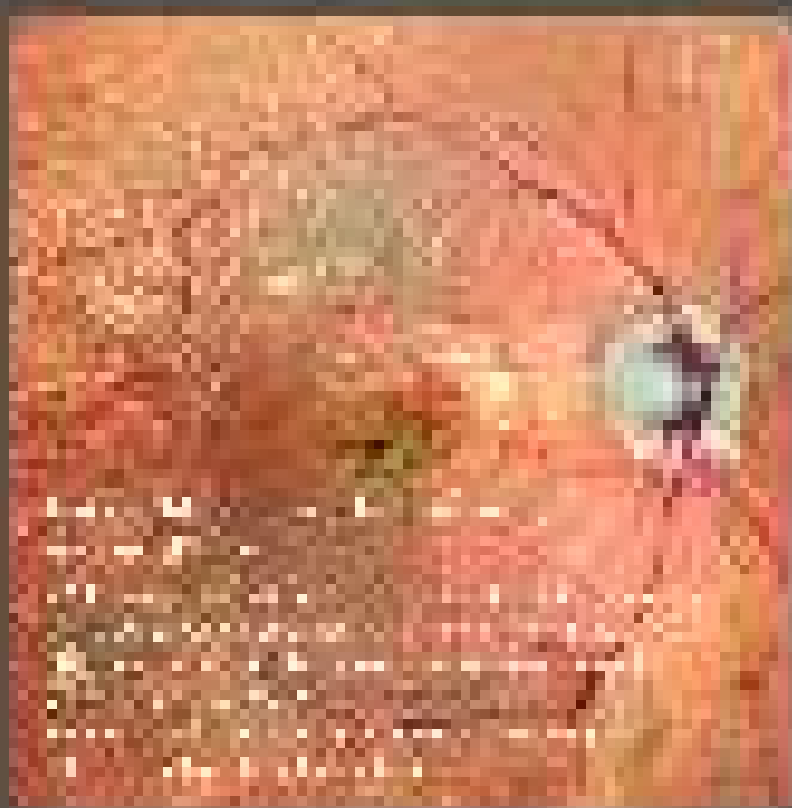
163° ultra wide field color image

### Panorama image composition

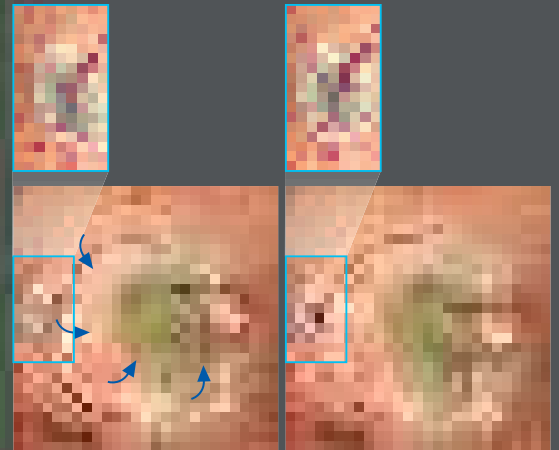
Panorama imaging with preset fixation points captures details of pathology even in the extreme periphery.



Panorama image

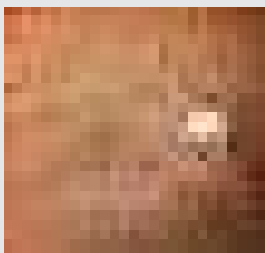


New FlexTrack algorithm corrects image distortion due to unstable fixation and enhances averaging quality.

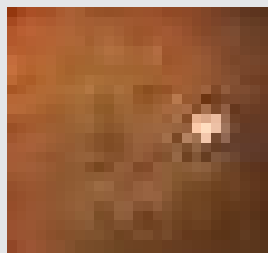


Distorted image due to poor fixation

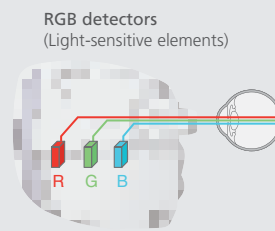
Corrected image using FlexTrack



Color histogram adjusted close to slit lamp view

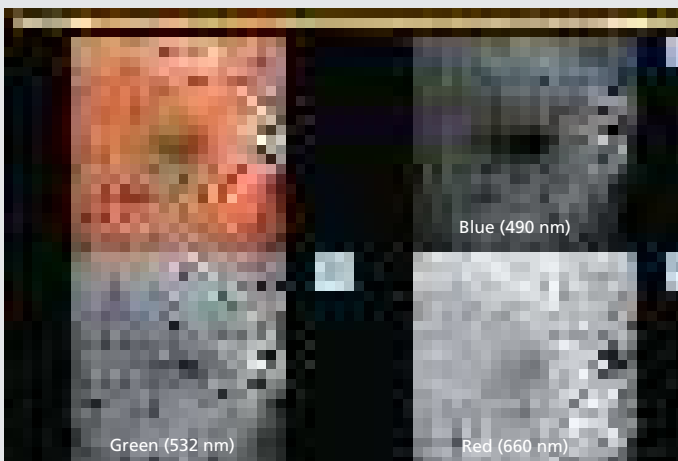


Color histogram adjusted close to fundus camera image



### RGB triple detectors

Three separate RGB detectors simultaneously scan different depths of retina with red, green, and blue wavelengths. A color histogram is available for fine adjustment based on pathology or practitioner preference.



Summary view for RGB color and single color images

### RGB color + selectable color display with a single shot

Single color images in red, green, and blue wavelengths can be displayed after color image acquisition. Each wavelength is available with just a single shot, and the image layers can be selected based on user preference or a specific pathology. The viewer software allows image processing options including noise removal and adjustments for brightness, contrast, and sharpness.



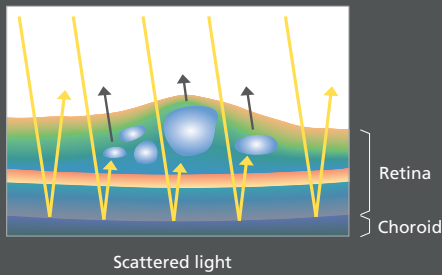
# Retro mode / FAF

Value added, non-invasive modalities expanding your practice

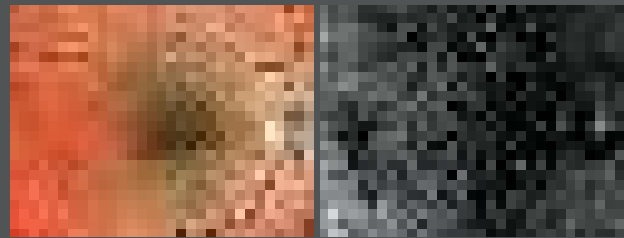
## Retro mode

Retro mode is a unique non-invasive technique for detecting pathologic changes in the choroid.

This imaging modality uses scattered IR light to detect abnormal reflection in the choroid caused by drusen, edema and other subtle chorioretinal pathologies.



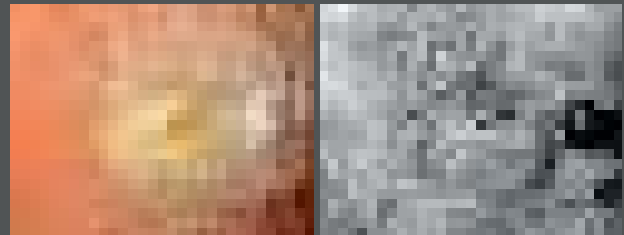
Drusen



Color

Retro mode

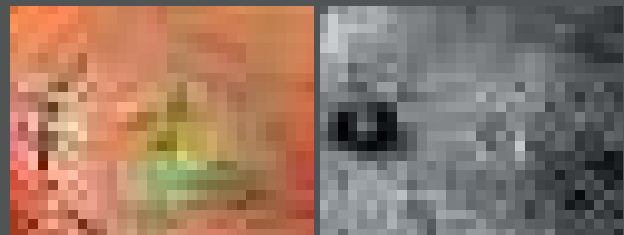
Stargardt disease



Color

Retro mode

CNV



Color

Retro mode

## Blue-FAF / Green-FAF (fundus autofluorescence)

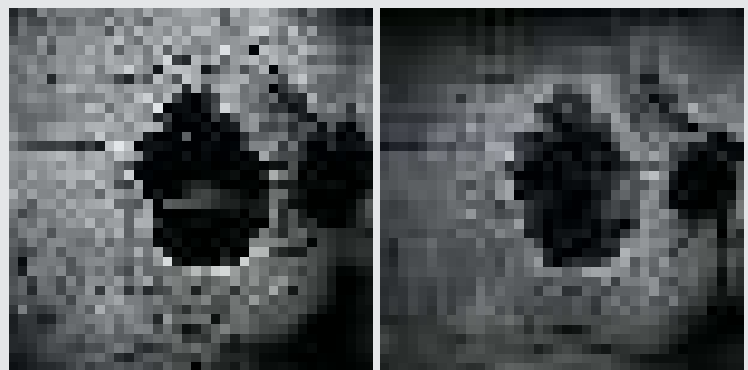
FAF imaging is a non-invasive method to evaluate the retinal pigment epithelium (RPE) without contrast dye.

Green-FAF reduces the effects of xanthophyll from the macula on imaging and is useful for monitoring deeper layers under the macula.

Blue-FAF imaging captures high definition images for diagnosing early AMD.

Gain level and contrast can be adjusted manually or automatically depending on the eye disease.

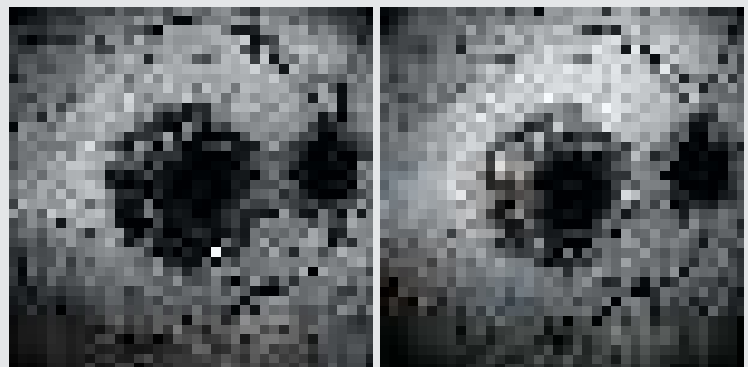
Geographic atrophy



Green-FAF

Blue-FAF

Macular dystrophy

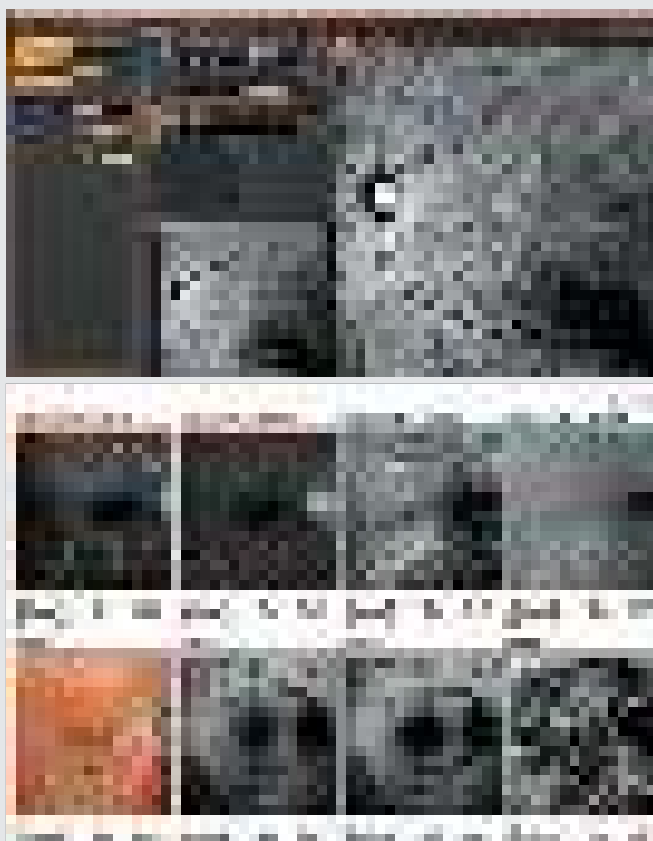


Green-FAF

Blue-FAF

# Easy-to-use functions

## Intuitive functionality for efficient workflow

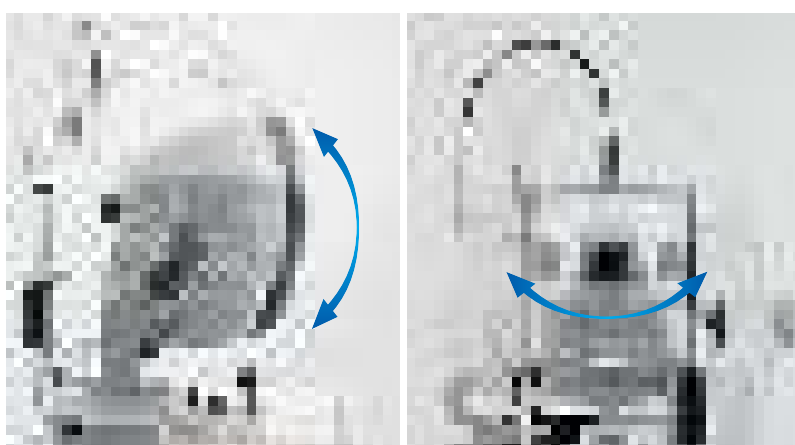


### Simple interface and easy operation

The Mirante has multiple modalities and functions with interface software that presents these choices in a simple, easy-to-use manner. This functionality allows smooth clinical workflow while capturing images with the required settings.

Image acquisition with the Mirante is simple. The SLO image is focused automatically by pressing the optimize button. After optimization is completed, image can be captured by pressing the release button.

Presenting multimodal images in a summary screen allows faster, more comprehensive evaluation of disease.

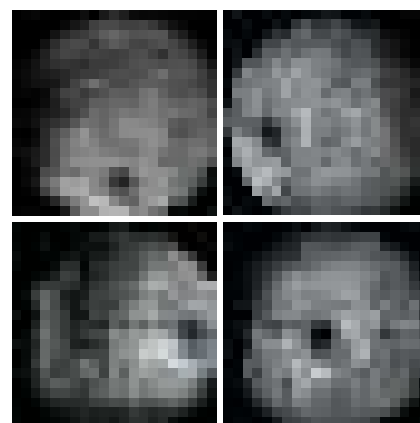


Tilt

Swing

### Tilt and swing features

The tilt and swing functions for the optical head enable imaging of the fundus periphery and acquiring panorama images. They also help for patients with unstable fixation.



Peripheral imaging of FA



# FA and ICG

## Effective evaluation of dynamic and static blood flow



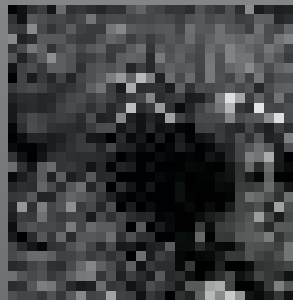
163° ultra wide field FA image



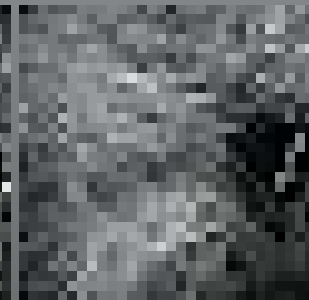
163° ultra wide field ICG image

### 163° ultra wide field FA and ICG images

(Ultra wide field imaging is available with the optional wide-field adapter.)



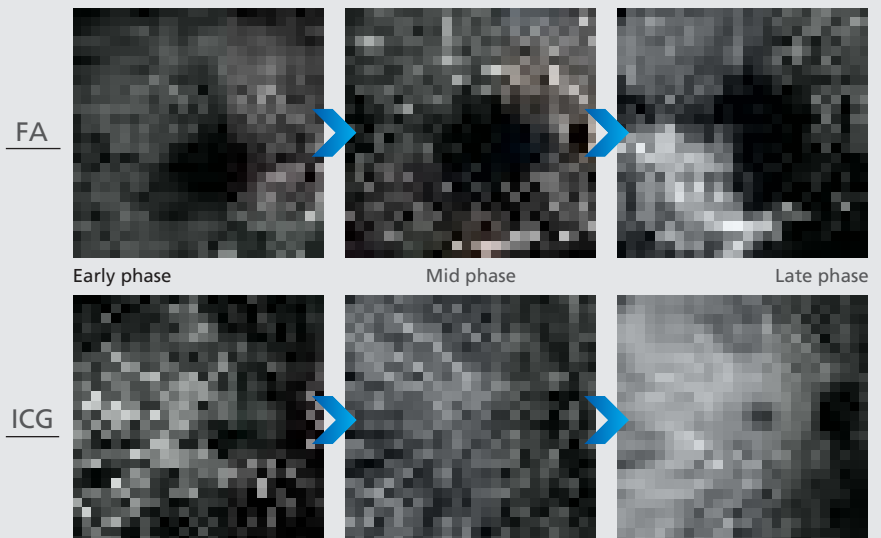
89° standard FA image



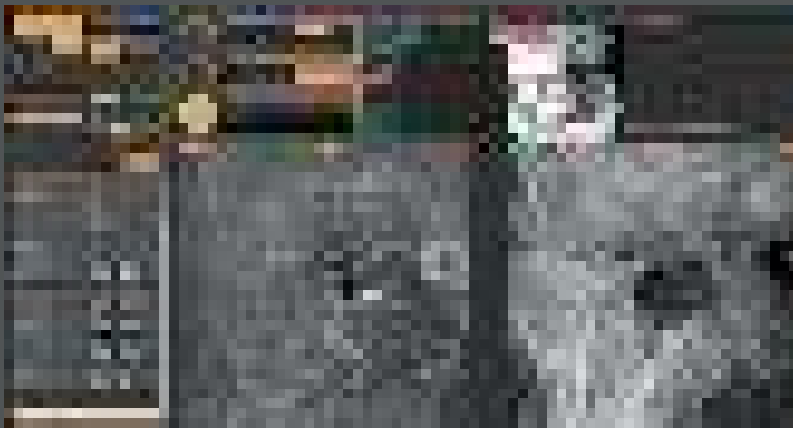
89° standard ICG image

### HD dynamic and static angiogram

Auto gain control (AGC) optimizes gain level and contrast for early, peak, and late phases on angiography. Image definition is selectable up to 16 megapixels depending on ocular pathology. Averaging function for static imaging maintains high contrast even during the late phase of angiography. Videos can be recorded at a maximum of 1,024 x 1,024 pixels for up to 120 seconds. Multiple short videos can be recorded during the same measurement.







Simultaneous FA and ICG imaging display (standard)



Simultaneous FA and ICG imaging display (ultra wide field)

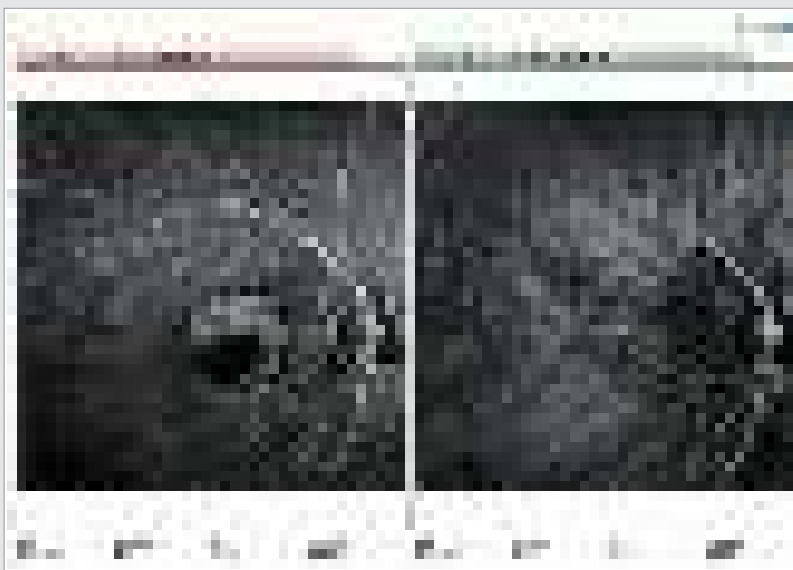
## Simultaneous FA and ICG

The Mirante allows simple, simultaneous acquisition of FA and ICG images. The live IR monitoring enables alignment prior to fluorescence emission and reduces in the risk of missing the very early phase of angiography. The AGC simultaneously adjusts contrast of each FA and ICG image, making the imaging of dynamic blood flow a very simple procedure.



Live IR monitoring

Using live IR monitoring, physicians can start alignment before fluorescence emission.



Side-by-side display of FA and ICG

## Easy comparison of FA and ICG

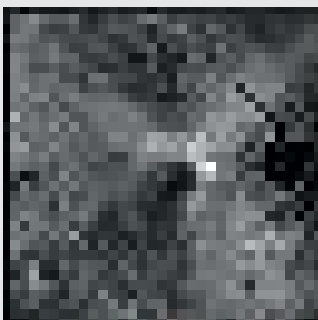
The viewer software can present FA and ICG images side-by-side. Easy comparison is helpful for comprehensive evaluation.



Macula line 16.5 mm / 2,048 A-scans

### HD wide area OCT

The maximum 16.5 x 12 mm area scan available with the Mirante allows wide area diagnosis including the macula and optic disc in a single shot. The ultra fine mode and tracing HD plus functions provide high quality images for detailed observation from vitreous to choroid.



SLO image



Macula multi cross 12 x 12 mm / Choroidal mode



Macula map  
12 x 12 mm  
1,024 A-scans x 128 lines

Macula map  
16.5 x 12 mm  
1,024 A-scans x 128 lines



Macula map (both eyes)



Glaucoma follow-up



Disc map (both eyes)

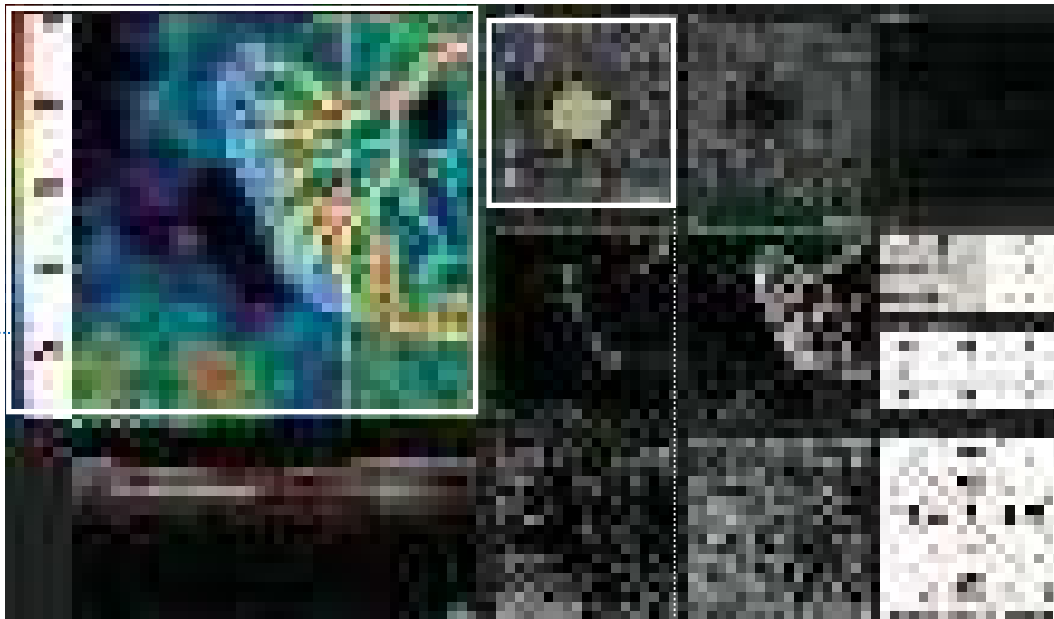
### Glaucoma analysis

The Mirante incorporates 16.5 x 12 mm thickness map which visually presents pathological changes from the central retina to the periphery.

9 x 9 mm normative database allows [NFL+GCL+IPL] analysis from optic disc to macula in a single report.

### Segmentation into multiple slabs

The simple interface provides seven slabs for the macula map / four slabs for the disc map with intuitive functionality and removal of projection artifacts.

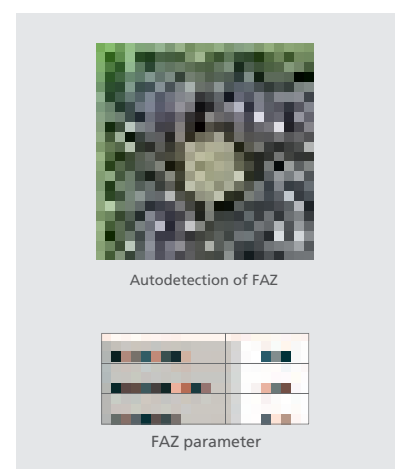
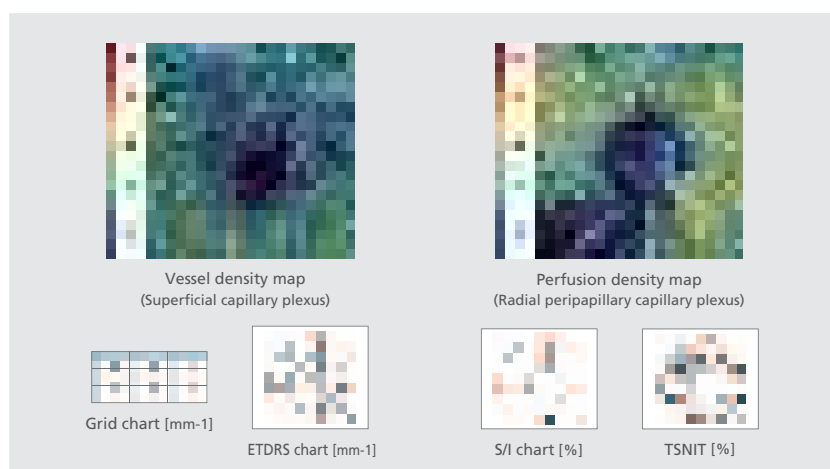


#### Vessel density map and perfusion density map

Quantification of vessels in each layer provides metrics to assess disease progression and the effects of treatment. Quantitative analysis can be performed with the vessel density map and perfusion density map. Both maps can be displayed in all slabs.

#### Autodetection of FAZ and shape analysis

Foveal Avascular Zone (FAZ) is automatically detected and shape metrics are provided for rapid assessment.



#### Wide area scan

Scan size can range from 3 mm to maximum of 12 mm in 0.3 mm increments.



#### Tracing HD plus

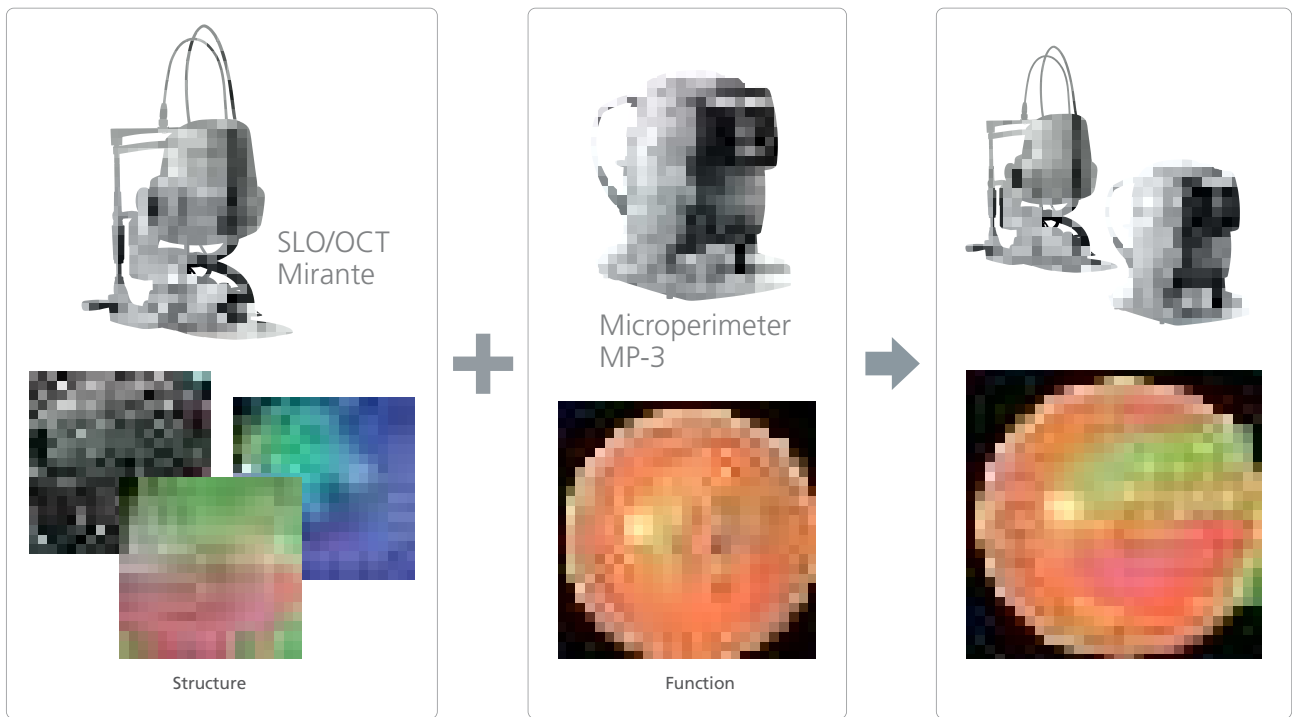
The tracing HD plus function tracks eye movements to maintain the same scan location on the SLO image for accurate image capture.

#### Selectable definition

Two, four, or eight scans per line (2 HD, 4 HD, or 8 HD) can be selected.

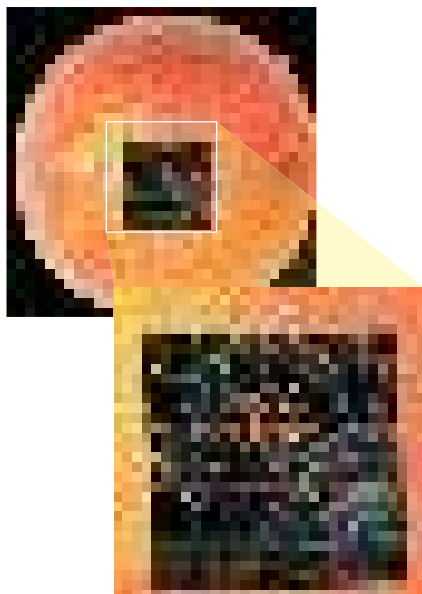
## Evaluate retinal structure and function simultaneously using combined OCT and Microperimetry images

Various OCT modalities can be registered with Microperimetry.



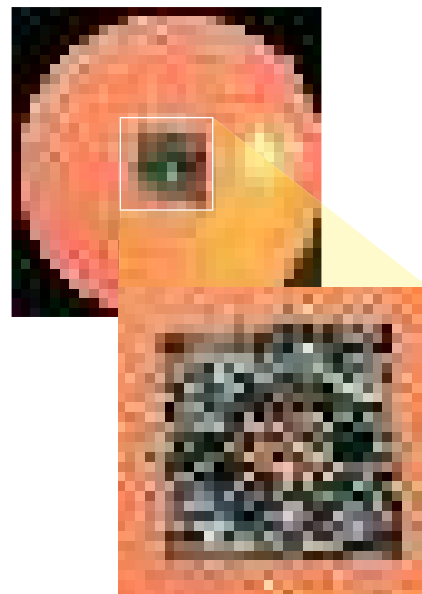
### Clinical case

Age-related macular degeneration (AMD)



OCT-Angiography + Microperimetry (Outer retina)

Diabetic macular edema (DME)

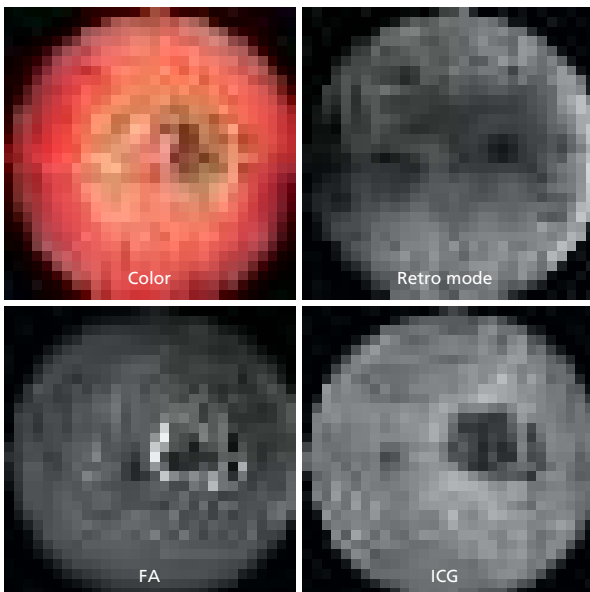
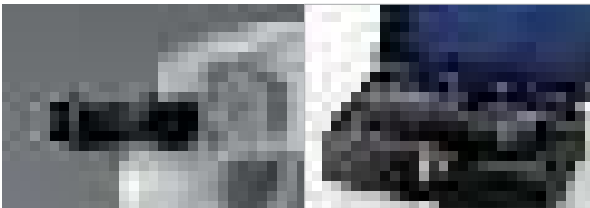


OCT-Angiography + Microperimetry (Deep capillary)

## Optional accessories

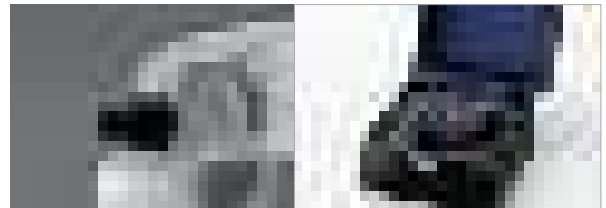
### Wide-field adapter

163° ultra wide field imaging is available with using the optional wide-field adapter.



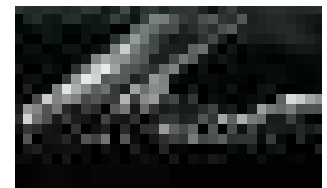
### Anterior segment OCT adapter

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



#### <Angle measurement>

- ACA
- AOD500 (AOD750)
- TISA500 (TISA750)

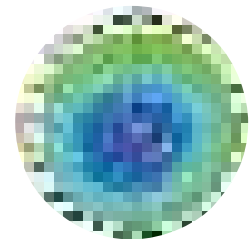


#### <Cornea measurement>

- Corneal thickness
- Corneal apical thickness and user designated locations



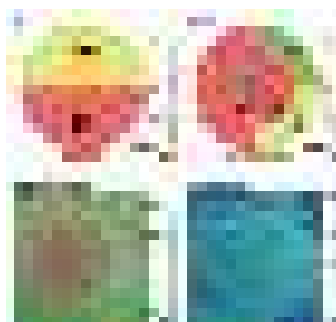
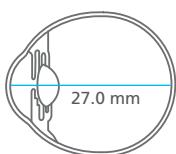
- Corneal thickness map
- Map indicating corneal thickness plotted radially



### Long axial length normative database

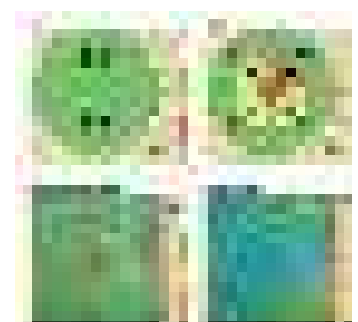
The long axial length normative database is optional software for assisting clinicians in diagnosing macular diseases and glaucoma in patients with long axial lengths. Data was collected from a sample of Asian patients.

Sample analysis of a patient with long axial length (27.0 mm)



Normative database

Axial length compensation



Long axial length normative database

## Function overview - Mirante and RS Series

●: Available

				Mirante	RS-3000 Advance 2	Retina Scan Duo™	
SLO	Angle of view	Ultra wide field*1	163°*2	●			
		Standard	89°*2	●			
		Imaging area	40° x 30°		●	●	
	Still image definition (pixel x pixel)	4,096 x 4,096		●			
		2,048 x 2,048		●			
		1,536 x 1,536		●			
		1,024 x 1,024		●			
		768 x 768		●			
		512 x 512		●			
	Color fundus	Color		●		●	
	Fundus fluorescence	FA		●			
		ICG		●			
	Fundus autofluorescence	Blue-FAF		●			
		Green-FAF		●		●	
Retro mode	DR/DL/RA		●				
Red-free	RGB		●		●		
OCT	Scan speed	Up to 85,000 A-scans/s		●	●		
		Up to 53,000 A-scans/s				●	
	OCT sensitivity	Regular	85,000 A-scans/s		●	●	
			53,000 A-scans/s				●
		Fine	53,000 A-scans/s		●	●	
			25,600 A-scans/s				●
	Ultra fine	13,250 A-scans/s		●	●	●	
	A-scan	2,048 points		●			
		1,024 points		●	●	●	
		512 points		●	●	●	
		256 points		●	●	●	
	B-scan*3	256 scans		●	●	●	
		128 scans		●	●	●	
		64 scans		●	●	●	
		32 scans		●	●		
		16 scans		●	●		
	Scan range	X: 3 to 16.5 mm		●			
X: 3 to 12 mm			●	●			
Y: 3 to 12 mm		●					
Y: 3 to 9 mm			●	●			
Scan wavelength	880 nm		●	●	●		

\*1 Ultra wide field imaging is available with the optional wide-field adapter.

\*2 Measured from the center of the eye

\*3 Only for macula map and disc map

# Mirante Specifications

<b>SLO</b>	
Principal	Confocal scanning
Angle of view (Measured from the center of the eye)	Standard: Diagonal angle of view 89° Ultra wide field*1: $\phi$ 163°
Light source	488, 532, 670, 790 nm
Still image size	4,096 x 4,096, 2,048 x 2,048, 1,536 x 1,536, 1,024 x 1,024, 768 x 768, 512 x 512 (pixel x pixel)
Video size	1,024 x 1,024, 768 x 768, 512 x 512 (pixel x pixel)
Minimum pupil diameter	$\phi$ 3.3 mm
Working distance	Standard: 19 mm / Ultra wide field*1: 9 mm
<b>OCT</b>	
Principal	Spectral domain OCT
Optical resolution	Z: 7 $\mu$ m, X-Y: 20 $\mu$ m
Scan range	
Retina	X: 3 to 16.5 mm Y: 3 to 12 mm Z: 2.1 mm
Anterior*2	X: 2 to 8 mm Z: 2.1 mm
OCT light source	SLD, 880 nm
Scan speed	Up to 85,000 A-scans/s
Image averaging	Up to 120 images
Normative database	9 x 9 mm (macula), 6 x 6 mm (disc)
Minimum pupil diameter	$\phi$ 2.5 mm
Focus adjustment range	-15 to +15 D
Working distance	Standard: 19 mm / Anterior*2 15.4 mm
Software analysis	
Retina	Segmentation of 6+1 retinal layers Macular thickness map RNFL thickness map [NFL+GCL+IPL] analysis Optic nerve analysis
Anterior*2	Corneal thickness measurement Corneal thickness map Angle measurement
<b>Common specification</b>	
Diopter correction range	-15 to +15 D
Internal fixation lamp	Red (670 nm) / blue (488 nm)
External fixation lamp	White
Tilt	$\pm$ 10°
Swing	$\pm$ 20°
PC networking	Available
Power supply	AC 100 to 240 V 50/60 Hz
Power consumption	Device main body 150 VA
Dimensions/Mass*3	345 (W) x 548 (D) x 527 to 557 (H) mm / 23 kg 13.6 (W) x 21.6 (D) x 20.7 to 21.9 (H)" / 51 lbs.
Optional accessories	Wide-field adapter, anterior segment OCT adapter, motorized optical table, PC rack, isolation transformer, AngioScan (OCT-Angiography), long axial length normative database

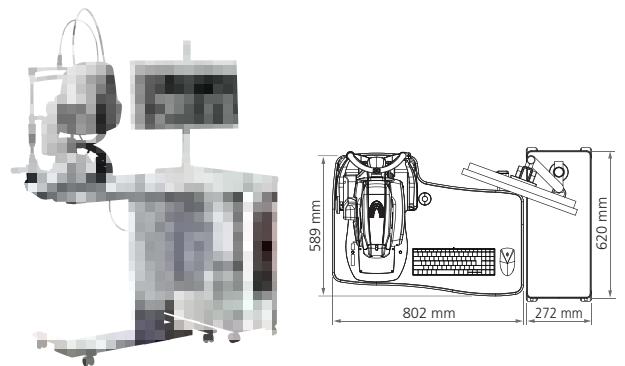
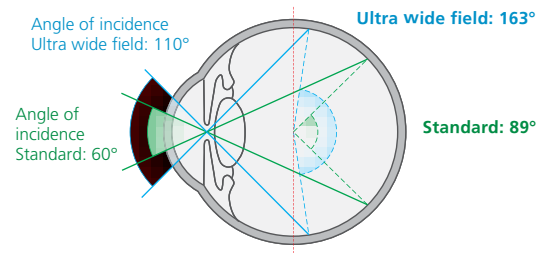
\*1 Ultra wide field imaging is available with the optional wide-field adapter.

\*2 Anterior segment OCT adapter is optional.

\*3 Only for image capturing unit.

Product/Model name: Scanning Laser Ophthalmoscope Mirante  
Brochure and listed features of the device are intended for non-US practitioners.  
Specifications may vary depending on circumstances in each country.  
Specifications and design are subject to change without notice.

## Central angle of view



Images courtesy of  
Luigi Sacco Hospital, University of Milan, Italy  
Doheny Eye Center, UCLA, USA  
Careggi University Hospital, University of Florence, Italy  
Retina Foundation & Eye Research Center, India  
Kagoshima University Hospital, Japan  
Chiba University Hospital, Japan  
Tohoku University, Japan

 Eye & Health Care  
**NIDEK CO., LTD.**

**HEAD OFFICE**  
(International Div.)  
34-14 Maehama,  
Hiroishi-cho, Gamagori,  
Aichi 443-0038, JAPAN  
TEL: +81-533-67-8895  
URL: www.nidek.com

**TOKYO OFFICE**  
(International Div.)  
3F Sumitomo Fudosan Hongo  
Bldg., 3-22-5 Hongo, Bunkyo-ku,  
Tokyo 113-0033, JAPAN  
TEL: +81-3-5844-2641  
URL: www.nidek.com

**NIDEK INC.**  
2040 Corporate Court,  
San Jose, CA 95131, U.S.A.  
TEL: +1-800-223-9044  
(US Only)  
URL: usa.nidek.com

**NIDEK S.A.**  
Europarc,  
13 rue Auguste Perret,  
94042 Créteil, FRANCE  
TEL: +33-1-49 80 97 97  
URL: www.nidek.fr

**NIDEK TECHNOLOGIES S.R.L.**  
Via dell'Artigianato,  
6/A, 35020 Albignasego (Padova),  
ITALY  
TEL: +39 049 8629200/8626399  
URL: www.nidektechnologies.it

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Rm3205, Shanghai Multi  
Media Park, No.1027 Chang  
Ning Rd, Chang Ning District,  
Shanghai, CHINA 200050  
TEL: +86 021-5212-7942  
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51 Changi Business Park  
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[Manufacturer]