The best just became better: TOPCON’s new dimension of OCT technology.

See, Discover, Explore. TOPCON Swept Source OCT with multi-modal fundus imaging.
Our third generation OCT technology

TOPCON OCT legacy

In 2006 TOPCON was the first company to introduce the commercial Spectral Domain (SD) OCT. Spectral Domain had many advantages over Time Domain OCT. The first SD OCT of the TOPCON line was the TOPCON 3D OCT-1000, the world’s first OCT instrument to incorporate a true color fundus camera, and proved to be an invaluable tool alongside OCT analysis.

In 2009 TOPCON introduced a new model line, the 3D OCT-2000 and the 3D OCT-2000 FA/FAplus which converted the OCT into a unique multi-modal tool for OCT imaging, color fundus images, FA and FAF images.

In 2012 TOPCON launched the first commercial retinal Swept Source OCT, the DRI OCT-I Atlantis. The Atlantis produces stunning images of the vitreous body and choroidal structures, unhindered by opacity or hemorrhage.

In 2013 TOPCON presented the world’s first fully automated SD OCT with integrated color fundus camera, the 3D OCT-I Maestro. The Maestro is operated by 1 touch of your finger tip, which is unique in the world today.

DRI OCT Triton, Swept Source, 3rd generation OCT technology

TOPCON continues its philosophy of developing innovative technologies with the introduction of a new dimension of OCT technology using Swept Source.

TOPCON is the first in the world to introduce a combined anterior and posterior Swept Source OCT, the DRI OCT Triton. The DRI OCT Triton incorporates full color high resolution fundus photography and FA and FAF imaging.1

1. FA photography and FAF photography can be performed with only DRI OCT Triton plus.

Swept Source OCT deep range imaging

Swept Source technology and 1,050nm wave length

Swept source OCT provides a significant improvement over conventional OCT. Due to the optimized long wavelength scanning light (1,050nm), there is greater penetration of the deeper layers of the eye. Furthermore, this scanning light also penetrates cataracts, hemorrhages, blood vessels and sclera.

The world’s fastest scanning speed

100,000 A-Scans/second

Twice the scanning speed allows faster sample rates for a single B scan image, and more informative images that support efficiency and quality of diagnosis.

Better penetration

The high penetration of the 1,050nm light source can easily and clearly visualize deep layers in the eye, such as choroid and sclera. A further benefit of Swept Source is that it can clearly visualize both the vitreous and choroid in a single scan, that are uniformly clear and noise-free. This eliminates the need for time consuming vitreous/choroidal combination scans.

Wide and deep scans

In one single image the vitreous and choroid are revealed in a crystal clear way. The DRI OCT Triton enhances visualization of outer retinal structures and deep pathologies. The DRI OCT Triton automatically detects 7 boundaries including the chorio-scleral interface. The 12mm B-scan covers both the macular area and the optic disc, and the 16mm anterior line scan captures both angles in a single image.

Invisible scan lines

The invisible 1,050nm wavelength does not distract patients. Patients do not see the scanning line, which is an advantage with elderly patients and children. Reduction in movement artifacts and increased repeatability.

1. According to TOPCON survey—February 2015. 2. Compared with TOPCON SD OCT.
DRI OCT Triton offers a unique combination of anterior and posterior OCT imaging. In both cases detailed structures are revealed. With DRI OCT Triton you can scan a large area of the eye with wide-field OCT patterns such as the 12 x 9mm scan or the 16mm anterior scan.

**Time efficiency—create one single overview**

Combination scans cover the macular and disc areas in a single acquisition, and offer both macular and Retinal Nerve Fiber Layer (RNFL) analysis. Combination scans are time efficient for the operator and convenient for the patient.

**Accurate choroidal thickness maps**

For the first time, accurate high speed choroidal thickness maps can be produced; this is crucial, not only for early disease recognition, but also for the monitoring of inflammatory abnormalities. The choroid reveals valuable information about the health of a patient.

A thin choroid can be an indication of myopic or choroidal atrophy for example. A thick choroid may indicate the presence of choroiditis, Central Serous Chorioretinopathy (CSCR) or hyperopia. Tumor visualization and classification is enhanced due to the penetration of the Swept Source OCT.

**En Face OCT imaging**

En Face imaging allows for independent dissection of the vitreoretinal interface, retina, Retinal Pigment Epithelium (RPE), and choroid, and uniquely projects these layers so that macular pathology throughout the posterior pole can be studied and correlated with a patient’s symptoms, their abnormality, and its progression.

**EVV (Enhanced Vitreous Visualization)**

Enhanced vitreous visualization with DRI OCT Triton helps assess the natural history and treatment response in vitreoretinal interface abnormalities. Contrast can be quickly adapted to the needs of the physician, depending on the area of interest. This time-saving function avoids the need for elaborate tools in photographic software.
See, Discover, Explore the ultimate 5-in-1 instrument

Multi modal fundus imaging
The DRI OCT Triton offers a true color, non mydriatic fundus image while using a very low intensity flash. This unique feature is a perfect tool for identifying the location of scans in the eye utilizing TOPCON’s patented Pinpoint Registration™. The DRI OCT Triton (plus) offers a wide range of diagnostic options with multi-modal color fundus imaging, Fluorescein Angiography (FA) and Fundus Autofluorescence (FAF) for even more diagnostic possibilities. For the first time Pinpoint registration™ will be available with fundus auto fluorescence and Swept Source OCT.

Import function
Color / FA / FAF / Indocyanine Green Angiography (IA) images can be imported with an OCT scan captured at a selected location on the image. By double-clicking a specific point on the OCT image or the imported photograph, the location will be indicated on both images. Comparison across a range of imaging modalities may better enhance understanding of disease pathophysiology.

High quality true fundus images
The resolution and contrast of the retinal images has been specifically tuned to give a natural appearance.

FA imaging
FA imaging is incorporated in the DRI OCT Triton (plus). FAF imaging is also available with the DRI OCT Triton (plus).

Stereo photography
Images taken in the stereo photography mode show the true color fundus photo in 3D, revealing details about depth. In the stereo photography mode, software assists acquisition of the stereo pair. Following the prompts on the screen, a stereo pair for stereo viewing can quickly and easily be acquired.

Auto Mosaic
The panorama function provides wide coverage of the retina from the central macular area out to the periphery, almost the complete fundus.

1. FA photography and FAF photography can be performed using only DRI OCT Triton (plus).
2. Optional software
**New tracking system—SMARTTrack™**

SMARTTrack™ is a very useful tool to compensate for the ever present involuntary eye movements (microsaccades). SMARTTrack™ allows the automatic acquisition of a follow-up scan in precisely the same anatomical location. SMARTTrack™ enhances the user-friendliness of the machine.

- Fundus Guided Acquisition (FGA)
- Follow up
- Tracking

**Follow-up function**

For accurate diagnosis and time savings at subsequent visits, the follow-up function is a vital tool for retrieving and re-analyzing the same anatomical location.

**Motion correction**

The DRI OCT Triton is equipped with an advanced motion correction tool that can compensate for eye movement in all 3 dimensions. In part, this motion is corrected with an automatic rescanning function, saving time for the operator.

**OCT capture mode without retinal photography**

The DRI OCT Triton has the option of capturing a 3D scan with, or without, color fundus photography in order to avoid a miotic response, and to facilitate capturing a scan for small pupil patients.

**Alignment Guidance**

Different color dots on the monitor help the operator capture more easily. Many automatic functions are incorporated into the DRI OCT Triton to help save time, and support operation efficiency.

- When you take Color/FAF images:
  - Auto focus function/Auto shoot function
- When you take OCT images:
  - Auto focus function/Auto Z and Z-lock function

**Ease of use through small pupil**

OCT-LFV image will show the live fundus image clearly even in an eye with a small pupil! The disc, retinal vessels and scanning position will be clearly be visualized.
**Rich scan protocols**

A wide range of scan patterns is clearly laid out, allowing the operator to quickly select the correct pattern.

- Line (H)/Line (V)
- Radial
- 5 Line Cross
- 3D: Macula
- 3D: Optic disc
- 3D Wide (H)
- FGA mode

**Unique scan modes**

The Combination scan and 12mm x 9mm 3D Wide scan offer information on both macular and RNFL analysis. This is time efficient for the operator as one single shot will provide the necessary data analysis.

**Glaucoma analysis**

- **3D disc analysis**
  Disc topography combining fundus photography, various peripapillary parameters, and RNFL thickness is available. A normative RNFL database is also incorporated.

- **3D Macula glaucoma analysis**
  With a vertical box scan of the macular area, Ganglion Cell Complex (GCC) analysis is available and a normative database for Retinal Nerve Fibre Layer (RNFL), GCC and retina thickness is incorporated.

**Analysis of 3D Macula**

- **Trend Analysis (3D Macula Analysis)**
  Macular Analysis of up to 4 sets of macular data (8 results for both eyes), is shown in a comparison report, enabling you to compare old and new patient data.

**Combination scan**

This new scan pattern provides both 3D wide scan (12mm x 9mm) and high resolution Line/5 line cross/radial scans within the sum acquisition. The new combination scan provides a thickness map and a clear B scan image / images from the 3D data.

**12mm x 9mm 3D Wide scan**

One rapid scan can cover both the macular and disc areas providing more information for efficient diagnosis. This mode provides macular analysis, thickness map of RNFL, GCL+IPL, RNFL+GCL+IPL and a significance map; all data supporting the diagnosis of macular abnormality and glaucoma.
Complete OCT functionality
Full comprehensive data analysis

**Macular analysis**

- Analysis of 3D Macula
  A horizontal box scan can be captured in the macular area, allowing a 3D image to be created, to fully understand the form of the macular area. A thickness map and normative database for retinal thickness are incorporated.

- Radial scan
  Captures 12 radial scans of the target area, allowing detailed understanding of a particular area.

**Line scan**
Captures a high resolution B-scan with up to 128 slice averaging.

- 5 Line Cross Scan
  Instantaneously capture 5 line scans horizontally and 5 lines scans vertically.

**Anterior**

- Anterior radial scan
  Captures 12 radial scans of the cornea to comprehensively examine the condition of the central cornea. Corneal curvature and corneal thickness maps are also available.

- Anterior line scan
  High resolution angle scans with comprehensive measuring tools.

**Anterior segment analysis**

The DRI OCT Triton can be extended to include anterior imaging, providing swept source OCT imaging for both posterior and anterior diagnosis.

The anterior segment attachment ensures sharp images, even in the periphery of the cornea and in depth images of the anterior chamber.

- Anterior segment attachment kit

**OCT image B scan length 16mm**

**Radial anterior segment**

**3D anterior segment**

1. Observation and photography of anterior segment can be performed only when the optional anterior segment attachment kit is used.
Connectivity

All images that are generated with the DRI OCT Triton can be examined in viewing software. OCT scans from other TOPCON OCT devices can also be viewed.

The viewer software can be integrated in a network enabled clinical set up for an improved workflow.
Swept source OCT with multimodal true fundus imaging

Proliferative Diabetic Retinopathy

Pathological Myopia

"Swept source adds a new dimension to OCT. The TOPCON DRI swept source OCT is easy to use, provides unique clinical information, and has improved my practice. For the first time we can in-vivo visualize not only the vitreo-retinal interface but also the cortical vitreous which is important at the time when more and more therapies are delivered via intra-vitreal injections. Deeper imaging brings choroidal assessment into the picture and shows the role and value of measuring choroidal thickness, helping guide my clinical decisions. Seeing more helps guide my therapy and allows me to treat more effectively. I find Swept Source OCT an essential tool to look for biomarkers of disease regression or progression."

1. FA photography and FAF photography can be performed using only DRI OCT Triton (plus).
Swept source OCT with multimodal true fundus imaging

Central Serous Retinopathy

Macular Pucker

1. FA photography and FAF photography can be performed using only DRI OCT Triton plus.
**Case studies**


### Specifications

**Observation and Photography of Fundus Image**

<table>
<thead>
<tr>
<th>Photography Type</th>
<th>Color, FA*, FAF*, Red-free*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picture Angle</td>
<td>45° Equivalent 30° (Digital Zoom)</td>
</tr>
<tr>
<td>Operating Distance</td>
<td>34.8mm</td>
</tr>
<tr>
<td>Photographable Diameter of Pupil</td>
<td>Normal: 4.0mm or more  Small pupil diameter: φ3.3mm or more</td>
</tr>
</tbody>
</table>

**Observation and Photography of Fundus Tomogram**

<table>
<thead>
<tr>
<th>Scanning Range (on fundus)</th>
<th>Horizontal Within 3 to 12mm  Vertical Within 3 to 12mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scan Pattern</td>
<td>3D scan  Linear scan (Line-scan/Cross-scan/Radial-scan)</td>
</tr>
<tr>
<td>Scan Speed</td>
<td>100,000 A-Scans per second</td>
</tr>
<tr>
<td>Lateral Resolution</td>
<td>20μm</td>
</tr>
<tr>
<td>In-depth Resolution</td>
<td>Digital: 2.6μm  Optical function: 8μm</td>
</tr>
</tbody>
</table>

**Photographable Diameter of Pupil**

<table>
<thead>
<tr>
<th>Internal fixation target</th>
<th>External fixation target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dot matrix type organic EL</td>
<td>The display position can be changed and adjusted. The displaying method can be changed. Peripheral fixation target: This is displayed according to the internal fixation target displayed position. External fixation target:</td>
</tr>
</tbody>
</table>

**Observation & photography of anterior segment**

<table>
<thead>
<tr>
<th>Photography type</th>
<th>IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating distance</td>
<td>17mm</td>
</tr>
</tbody>
</table>

**Observation & photography of anterior segment tomogram**

<table>
<thead>
<tr>
<th>Operating distance</th>
<th>17mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scan range (on cornea)</td>
<td>Vertical Within 3 to 16mm  Horizontal Within 3 to 16mm</td>
</tr>
<tr>
<td>Scan pattern</td>
<td>3D scan  Linear scan (Line-scan/Radial-scan)</td>
</tr>
<tr>
<td>Scan speed</td>
<td>100,000 A-Scans per second</td>
</tr>
</tbody>
</table>

**Electric Rating**

<table>
<thead>
<tr>
<th>Power Source</th>
<th>Voltage: 100-240V  Frequency: 50-60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power input</td>
<td>250VA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions / Weight</th>
<th>320-359 mm(W) x 523-554 mm(D) x 560-590 mm(H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>21.8kg (DRI OCT Triton)  23.8kg(DRI OCT Triton plus)</td>
</tr>
</tbody>
</table>

1. FA photography and FAF photography can be performed in only DRI OCT Triton (plus).
2. In this digital red-free photography, the color image is processed and is displayed as a pseudo red-free photographed image.
3. Observation & photography of anterior segment can be performed only when the anterior segment attachment kit is used.

Subject to change in design and/or specifications without advanced notice.

In order to obtain the best results with this instrument, please be sure to review all user instructions prior to operation.

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[1] FA, FAF are abbreviations for Fundus Angiography and Fundus Fluorescein Angiography, respectively.