PASCAL® Synthesis

Photocoagulator

Gold Standard for Retinal Laser Treatment

PERFORMANCE
YOU CAN COUNT ON

TOPCON

* Courtesy: Kagawa University, Yata Eye Clinic and Yaizukogawa Eye Clinic
* Subject to change in design and/or specifications without advanced notice.

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

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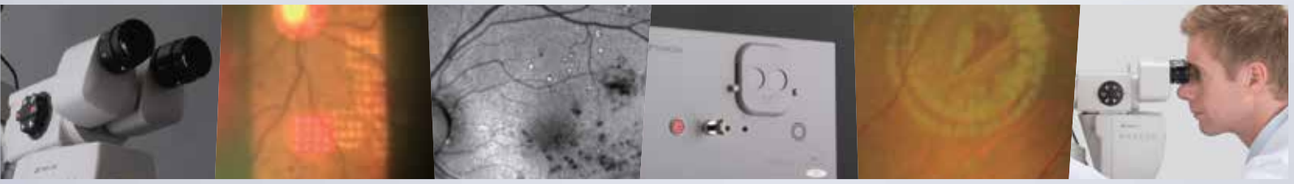
PASCAL®

Pioneer in Pattern Scanning Lasers

Gold Standard for Retinal Laser Treatment



What PASCAL Experts Say

"Pattern scanning method is the preferred way and I believe it's standard of care"

Mark S. Blumenkranz, MD
HJ Smead Professor and Chair Director of the Byers Eye Institute at Stanford University

"PASCAL's Endpoint Management algorithm provides very precise and reliable control of the laser settings below ophthalmoscopic visibility. Especially exciting are the clinical results confirming efficacy of the non-damaging retinal treatment for CSR. Our basic research demonstrates that cellular response to this treatment begins with up-regulation of heat shock proteins, and involves expression of alfa-A Crystallin, known for its neuro-protective properties"

Daniel Palanker, PhD
Associate Professor
Department of Ophthalmology & Hansen Experimental Physics Laboratory at Stanford University

"Result is greater patient comfort with decreased pain"
"Much safer, much more effective"

Pravin U. Dugel, MD
Retinal Consultants of Arizona

"Less tedious by both shortening the procedure time and decreasing patients' discomfort without sacrificing efficacy"
"Unlike Micropulse, Endpoint Management allows the surgeon to visually see where he has placed burns"

Manish Nagpal, MD
Retinal Foundation Gujart, India

"When using Endpoint Management, I have seen very nice long term results in decreasing fluid and improved visual results"
"A very quick treatment"

Daniel Lavinsky, MD
Federal University of Rio Grande do Sul Porto Alegre, Brazil

"More comfortable treating areas closer to the fovea"

Rahul Khurana, MD
Northern California Retina-Vitreous Associates

"For diffuse oedema, I am an advocate of combined laser and intravitreal pharmacotherapy, as laser seems to reduce the number of injections needed and perhaps the longterm side-effects of repeated anti-VEGf therapy such as Geographic Atrophy. "

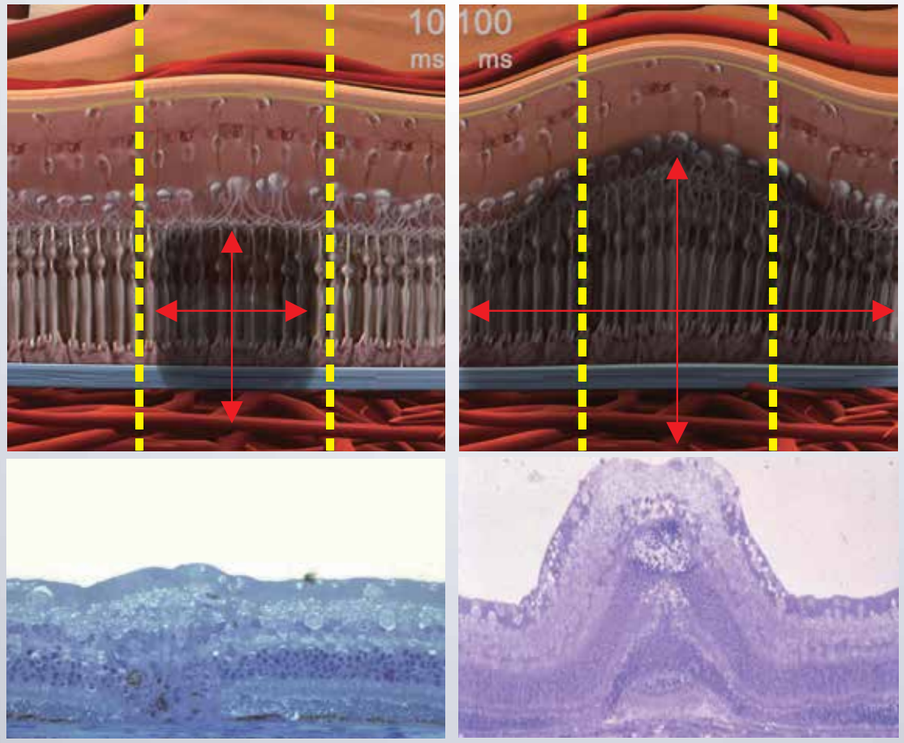
Paulo Stanga, MD
Manchester Royal Eye Hospital Manchester, UK

"Physicians should consider PSLT[1] as a good option to reduce IOP..."

Miho Nozaki, MD, PhD
Nagoya City University

1. Not available for sale in the U.S.

PASCAL® METHOD



PASCAL

Less Pain, Less Destruction

Conventional Laser

More Painful, Cellular Destruction

PASCAL LEGACY

The PASCAL (Pattern Scanning Laser) method of photocoagulation was initially developed at Stanford University. The PASCAL Method of Photocoagulation is designed to treat retinal diseases or glaucoma using a single spot or a predetermined pattern array. With the PASCAL Method of photocoagulation, less heat is diffused to the Retinal Nerve Fiber Layer and the Choroid. Photo thermal stimulation is a method which enables the tissue to regenerate without being destroyed.

Courtesy: Dr. Daniel Palanker Associate Professor Department of Ophthalmology, School of Medicine, and Hansen Experimental Physics Laboratory Stanford University

10 Reasons to Choose PASCAL®

1. The original and most accepted pattern scanning laser[1].

2. Strong body of clinical evidence using PASCAL Pattern Scanning Laser Treatment in 532 nm and 577 nm wavelengths --more than 20 peer-reviewed clinical articles.

3. Redefining Laser Therapy
photo-thermal stimulating Endpoint Management™ technology
   - Provides freedom to treat closer to the fovea without fear of causing retinal damage or vision lo
   - Allows for greater physician flexibility and control in providing therapeutically effective, vision-sparing treatment of retinal disease
   - Superior to Micropulse technology due to Landmark Patterns providing visible indicators of the treated region and “one touch” interface

4. Affordable pricing-competitive to single spot lasers.

5. PASCAL method delivers increased patient comfort during treatment with exposure durations down to 10 ms.

6. PASCAL technology saves time and allows more patients to be seen
   - A full PRP can be completed in just one treatment session.
   - Less patient and doctor fatigue during any photocoagulation procedure

7. Four fiber beam delivery:
   - Maintains constant and superior depth of field for all spot sizes
   - Offers a safer, easier to use platform when compared to other pattern scanning technologies
   - Even power distribution across entire beam profile

8. Multi-functional-PASCAL Lasers can Treat Both Retinal and Glaucoma Disorders

9. PSLT[2] (Pattern Scanning Laser Trabeculoplasty™) for Glaucoma
   - Minimally traumatic computer-guided therapy for Laser Trabeculoplasty
   - Successfully reduces IOP without scarring and burns
   - Auto-advance feature increases speed and accuracy of treatment
   - Retreatment is available for the patient

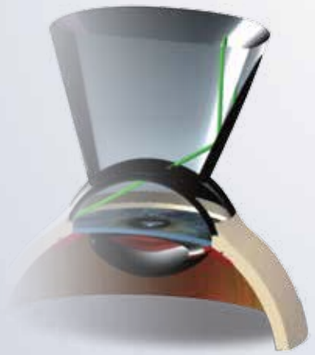
10. Unique PASCAL features to simplify procedures and save time
   - Intuitive touch screen that provides physicians with easy access to patterns and control of power
   - 3-D Remote Control
   - Printed reporting to easily log patient data and treatment parameters

[1] Market scope 2012, PASCAL is No.1 share in the market.
[2] Not available for sale in the U.S.

New Approach for Glaucoma Treatment: PSLT™ 1, 2

Optional Software

PSLT™ 1, 2
PATTERN SCANNING LASER TRABECULOPLASTY



PSLT (Pattern Scanning Laser Trabeculoplasty™)[1, 2] for Glaucoma

The scanning technology and precision of PASCAL systems uses a tissue sparing laser delivery modality for laser trabeculoplasty. Pattern Scanning Laser Trabeculoplasty (PSLT)[1, 2] provides rapid, precise, and minimally traumatic (subvisible) computer-guided treatment with exact abutment of the patterns. The patterns readily align to the meshwork, allowing faster and easier applications compared to other laser modalities. Physicians can now use their PASCAL lasers for glaucoma management with either ALT or PSLT[1, 2]; along with other conventional procedures.

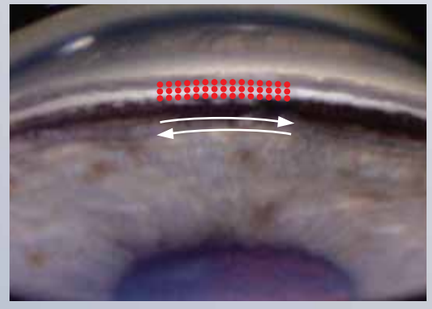
http://web.stanford.edu/~palanker/publications/PLT.pdf

The advantages are clear:

- Computer guided treatment
- Non-destructive procedure
- Clinically effective
- Ability to retreat if necessary

Easy Operation

Our exclusive procedure provides computer guided placement of the treatment patterns ensuring full coverage of the trabecular meshwork and eliminating the chance of overlap like other SLT procedures.



PASCAL Modularity

All PASCAL Synthesis Lasers can be upgraded with software-based treatment modules, which increase your options to treat more patients with a greater variety of diseases and conditions. With the PSLT[1, 2] module you can add anterior functionality to your retinal laser, converting it into an even more versatile tool. The Endpoint Management module ads thermal retinal stimulation therapy to your PASCAL Synthesis.

1. Not available for sale in the U.S.
2. PSLT is optional software

PASCAL Technology and Quality Unique Beyond Comparison

PASCAL Technology

PASCAL is not only the first pattern scanning laser in the world, it also incorporates the optimal design for pattern scanning.

More beam fibers

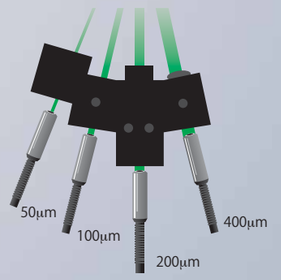
The PASCAL technology incorporates four separate fibers in the design, one for each spot size. Advantages are;

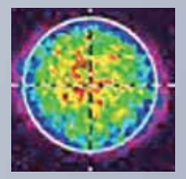
- Low energy density on the cornea
- Maintains a deep and constant depth of focus for all spot sizes
- A uniform power distribution within each laser spot
- Comprehensive images of 4 beam spots on retina

More Patterns

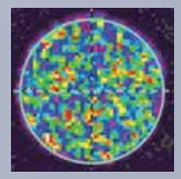
Based on 8 years of experience, PASCAL offers an easily accessible, wide range of comprehensive retinal and macular patterns as well as patterns for treating glaucoma. Precise pattern spacing and consistently spaced burns. A single spot laser is incorporated as well.

4-Fiber Beam Delivery





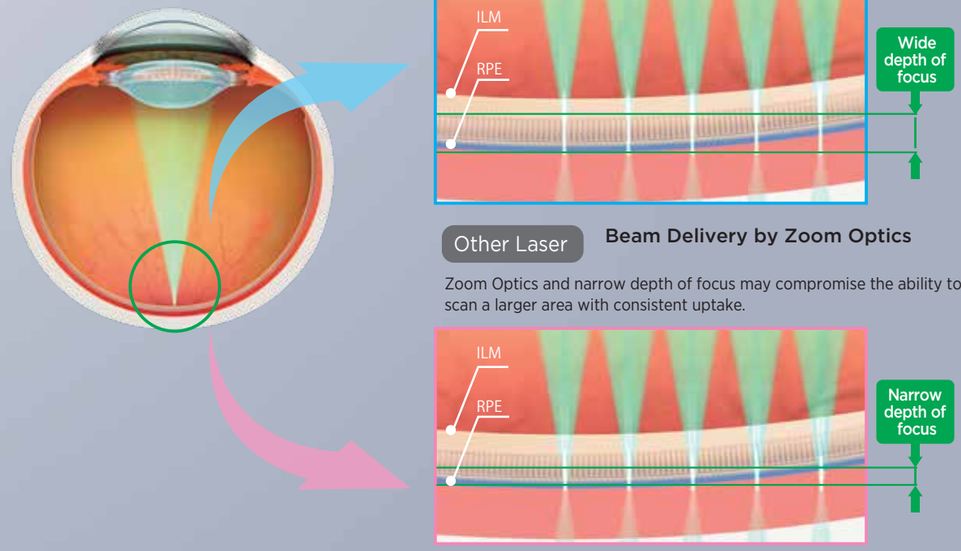
Other lasers have "hot spots" in the beam profile



PASCAL has uniform energy distribution

PASCAL **4-Fiber Beam Delivery**

Pattern Scanning Laser delivers multiple spots onto the retina. All the spots must be of correct beam diameter to ensure consistent uptake.



Redefining Laser Therapy

Non-invasive Laser Treatment for Macular Disease: Endpoint Management™ 1

Optional Software

Photo-thermal Stimulation Endpoint Management ™ 1

Endpoint Management™ 1 : Redefining Laser Therapy

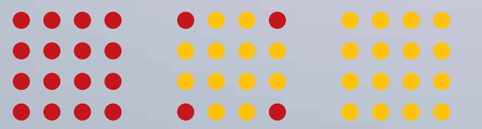
Endpoint Management (EpM[1]) uses photo-thermal stimulation, which selectively stimulates the RPE without the destruction associated with conventional laser photocoagulation. Using EpM[1], you can precisely reduce the power and specifically affect RPE cells.

EpM[1] begins with titrating laser power to a hardly visible burn, then the clinician selects the percentage of that energy to be delivered to the treatment locations. Landmark Patterns provide visible indicators of the treated region.

EpM[1] can be used for PASCAL lasers with 532-nm or 577-nm laser wavelengths for macular treatment and for PRP.

Landmark™ Patterns

Landmarks are a unique and highly useful tool to identify an area which has been treated with pho ermal stimulation. It takes the guess work out of successive treatment.

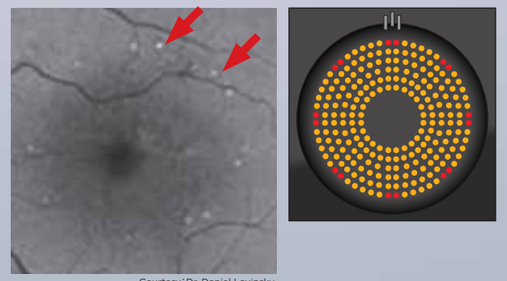


Endpoint Management[1] OFF

Endpoint Management[1] ON Landmark ON

Endpoint Management[1] ON Landmark OFF

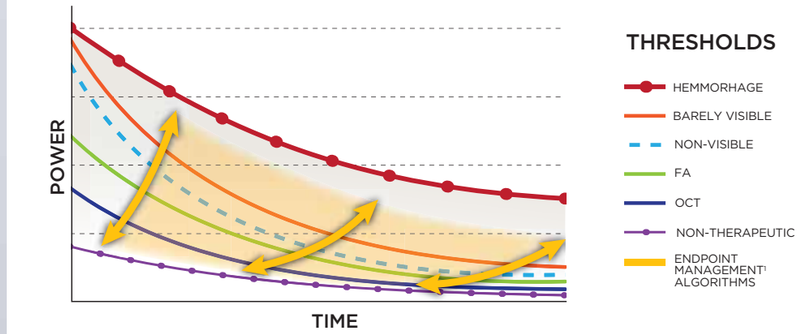
Case: "Endpoint Management's[1] unique "Landmark" feature outlines the treated area in a macula grid pattern."



Courtesy: Dr. Daniel Lavinsky

Endpoint Management™ 1 is mathematically precise

The Arrhenius Integral coupled with research and data on RETINAL laser-tissue interactions create the algorithms that are applied with Endpoint Management[1] software. By use of this formula, heat induced changes in the retina are controlled as Endpoint Management simultaneously modulates the laser power and duration, providing linear control over a non-linear process.



Endpoint Management[1] algorithms adjust power and duration simultaneously, maximizing the ability to safely and accurately control the desired endpoints.

Easy Operation

The yellow dots displayed in any pattern indicate the laser spots that will be irradiated using the energy level set by Endpoint Management[1]. The red dots, while Endpoint Management[1] is active, indicate the laser spots that will be delivered at the titration level of energy and will provide the "Landmark" reference points outlining the treated area.

A simple, single selection of the percentage of energy to deliver, activates the Endpoint Management[1] algorithm to automatically adjust power and duration to the appropriate levels.

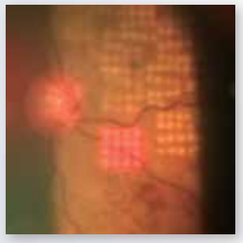
Endpoint Management[1] OFF

Endpoint Management[1] ON / Landmark OFF

Endpoint Management[1] ON / Landmark ON

1. Endpoint Management is optional software

PASCAL-Confidence and Control



PASCAL Aiming Beam Pattern Delivery

Unlike competitive systems, PASCAL aiming beam pattern delivery is identical to the treatment pattern, without flashing rows or treatment outlines.

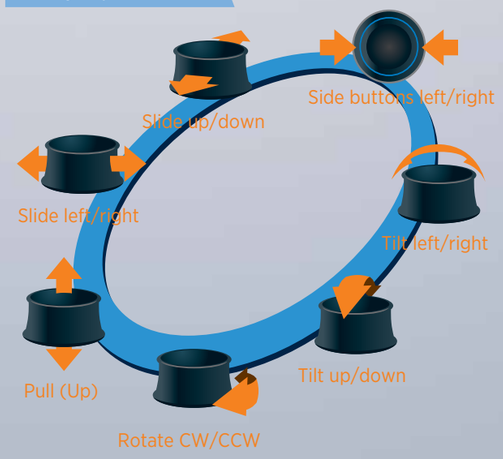
Intuitive User Interface

The touchscreen user interface is intuitive and easy to navigate through the different pattern parameters.

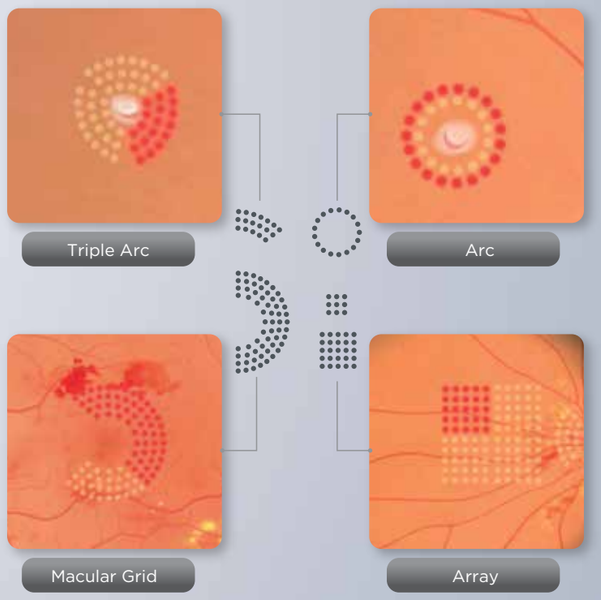
3D Controller

Allows the physician an ergonomic and illuminated device to conveniently manipulate patterns, power settings and laser positioning.

Easy Operation



Other Features

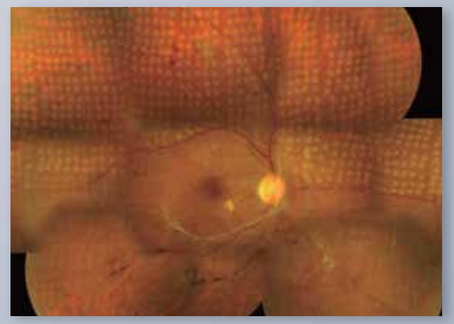


A Multitude of Available Patterns

Physician designed pattern palette provides many variations to encompass almost any clinical need.

Synthesis has a unique macular pattern. The "ring", which can be adapted from inside rings, and/ or outside rings.

Case Images



PDR

Retinal breaks

Zoom up images

PASCAL Line Up

PASCAL Synthesis Series

Model Name		Wavelength	Slit Lamp	Specifications
	Y7 Type	YELLOW 577nm	Detachable	» Short pulse duration » Continuous laser pulse » Precise pattern spacing » 4-Fiber Beam Delivery » Compact design ideal for use in an outpatient clinic or operating room » Dual-ports offer convenience of switching between an LIO and endophotocoagulation probe without interchanging connections » Endpoint Management™ 1 » PSLT 1, 2
	G7 Type	GREEN 532nm		
	Y4 Type	YELLOW 577nm	Integrated	
	G4 Type	GREEN 532nm		
	TwinStar[2]	YELLOW 577nm RED 638nm	Integrated	» 577nm and 638nm light source are available » Short pulse duration » Continuous laser pulse » Precise pattern spacing » 6-Fiber Beam Delivery » Compact design ideal for use in an outpatient clinic or operating room » Dual-ports offer convenience of switching between an LIO and endophotocoagulation probe without interchanging connections » Endpoint Management™ 1 » PSLT 1, 2

Optional Accessory

PASCAL LIO[3] Laser Indirect Ophthalmoscope

Specifications

- Allows physicians to offer laser photocoagulation treatments to patients unable to sit at a slit lamp
- Compatible with PASCAL 532 nm and 577 nm laser systems[3]
- Provides increased access to the far periphery of the retina
- Large or small aperture selection for dilated or non-dilated or small pupils
- Aperture selections automatically adjust illumination and viewing mirrors for maximum stereopsis
- Multiple illumination filters available in clear white, cobalt blue, red-free and diffused allow physicians to examine and/or treat with superior visualization of the retina
- Independent illumination and laser position control
- LED light source offers brighter and whiter illumination for high definition retinal images
- Conveniently mounts on wall or desktop for easy access
- Small and lightweight headset battery offers up to 2 hours of use without recharging
- Soft cushioned headband adjusts and balances perfectly to suit all head shapes and sizes

1. EpM and PSLT are optional software
2. Not available for sale in the U.S.
3. Laser consoles must have compatible hardware and software to support LIO use

Specifications

	Synthesis (Y7 / G7 / Y4 / G4)	Synthesis TwinStar[5]
Laser	Available in 577nm or 532nm Optically Pumped Semiconductor (OPSL)	577nm , 638nm[1]
Patterns	Single Spot, Array, Triple Arc[2], Triple Ring, Arc, Line, Circle, Macular grid, Glaucoma (PSLT[3, 5])	
Power	0 - 2000mW	577nm: 0 - 2000mW 638nm: 0 - 600mW"
Power Control	3-D Controller and Touch Screen User Interface	
Treatment	Pulse Durations 5 to 1000ms[4]	
Aim Beam	635nm diode	670nm diode
Aim Beam Power	Adjustable to < 1mW	
Delivered Spot Size	50, 100, 200, 400 μm	577nm: 50, 100, 200, 400 μm 638nm: 60, 200 μm
User Interface	3-D Controller and Touch Screen Control Panel Display (26.5 cm; 10.4 in)	
Slit Lamp Compatibility	Haag-Streit 900 BM / BQ, Topcon SL-PA01	Topcon SL-PA03
Laser Console Dimensions	Height: 23 cm (9 in) Length: 31 cm (12 in) Width: 38 cm (15 in) Weight: 15 kg (35 lbs)	
Input Power Requirement	100 - 240 VAC; 50/60Hz 200VA	
Cooling	TEC / Air Cooled	

1. 577nm is for Single, Pattern scan, PSLT and Endpoint Management 638nm is only for single spot
2. Triple arc is only for Angle treatment by PSLT
3. PSLT is optional software
4. Pulse Durations 5ms is only for Triple arc
5. Not available for sale in the U.S.