Studies using this tissue sparing treatment mode avoiding scarring [7,8] have reported successful outcomes for diabetic macular edema. It can be delivered through 3 customizable patterns: SubLiminal® Technology:

- Single Spot
- Squares
- Circles
- Triple Arcs

Control of the laser treatment settings ensures a precise management of the thermal effect on the targeted tissues. Impacts (e.g., heat diffusion) allows the operator to fully adjust the pulse duration (On Time) and interval (Off Time). This finely tuned subthreshold micropulse laser (577 nm) treatment mode (non-visible laser at 577 nm) offers many advantages over classical treatments:

- Treatment time reduction (full PRP in 1 session) [6].
- Damage to the retinal nerve fiber layer [3,4] is reduced.
- Less heat diffusion to the retina and choroid, leading to less peripheral damage.
- Better adaptation to the treatment site.

It can be delivered through 4 customizable patterns for:

- Single Spot modes: single, repeat, painting, continuous
- MultiSpot modes: single spot, squares, circles, triple arc, macular grid
- SubLiminal® mode: single spot, squares, customizable macular grid

Resume® function: available in MultiSpot and adjustable duty cycle: 5% to 100%.

SubLiminal® mode: train of microsecond pulses.

Pattern: continuously variable from 100 µm to 400 µm.

Single spot: continuously variable from 50 µm to 400 µm.

Pulse duration: 10 ms to continuous.

Power at tissue up to: 2000 mW.

Wavelength: yellow 577 nm.

Laser source: fiber laser technology.

Power supply: 12 VDC / 5A.

Connectivity: USB and Ethernet.

Storage: SSD 256 GB.

Touchscreen size: 10.1''.

Camera position: left or right eye.

Compatibility: Easyret® laser.

Image resolution: 1280 x 720 pixels.

Camera:

- MOSA:
- Pattern: continuously variable from 100 µm to 400 µm
- Single spot: continuously variable from 50 µm to 400 µm
- Spot size:
- Pattern:
- SubLiminal® modes
- Resume® function: available in MultiSpot and adjustable duty cycle: 5% to 100%.
- SubLiminal® mode: train of microsecond pulses.
- Single spot modes: single, repeat, painting, continuous
- Pulse duration: 10 ms to continuous.
- Power at tissue up to: 2000 mW.
- Wavelength: yellow 577 nm.
- Laser source: fiber laser technology.

Power supply: 12 VDC / 5A.

Connectivity: USB and Ethernet.

Storage: SSD 256 GB.

Touchscreen size: 10.1''.

Camera position: left or right eye.

Compatibility: Easyret® laser.

Image resolution: 1280 x 720 pixels.

Camera:

- MOSA:
- Pattern: continuously variable from 100 µm to 400 µm
- Single spot: continuously variable from 50 µm to 400 µm
- Spot size:
- Pattern:
- SubLiminal® modes
- Resume® function: available in MultiSpot and adjustable duty cycle: 5% to 100%.
- SubLiminal® mode: train of microsecond pulses.
- Single spot modes: single, repeat, painting, continuous
- Pulse duration: 10 ms to continuous.
- Power at tissue up to: 2000 mW.
- Wavelength: yellow 577 nm.
- Laser source: fiber laser technology.
Easyret® is a fully integrated 577 nm yellow photocoagulator based on a technological breakthrough: fiber laser technology. Available with Haag Streit or Zeiss type slit lamps, it offers a large choice of treatment settings well adapted to the treatment of macular and peripheral retinal pathologies.

EASYRET®: YELLOW FIBER LASER, FEATURING MULTISPO T AND SUBLIMINAL® TECHNOLOGIES

Fiber Laser Technology:

Stemming from the ELBATM technology, developed and successfully marketed by Quantel Laser for various applications, this new generation of laser cavity provides unique advantages:

- An excellent beam quality ensuring a homogeneous laser spot profile (top hat)
- The emission of pure 577 nm yellow wavelength
- An extended lifetime thanks to a simple, compact and reliable technology.

The fiber laser technology is a variation of the standard solid-state laser technology.

In fiber lasers, the lasing medium is composed of an optical fiber doped with rare earth elements and optically pumped by diodes.

Yellow Laser - 577 nm Wavelength:

Presented as the most versatile wavelength in the scientific literature, the 577 nm wavelength offers the following benefits:

- Excellent combined absorption by both melanin and oxyhemoglobin (peak absorption of oxyhemoglobin) [1,2]
- Very little absorption by macular xanthophyll pigments [1,2]
- Excellent penetration through cataracts and hazy media [1,2].

EASYRET®: YELLOW FIBER LASER, FEATURING MULTISPOT AND SUBLIMINAL® TECHNOLOGIES

Fiber Laser Technology:
Stemming from the ELBATM technology, developed and successfully marketed by Quantel Laser for various applications, this new generation of laser cavity provides unique advantages:

- **FULLY INTEGRATED DESIGN**

  Easyret® offers a fully integrated design in which the laser and the slit lamp are optimally integrated for better ergonomics and ease of use. It is available with two types of slit lamps to adapt to the operator’s working habits.

  Both versions feature:
  - An integrated laser adapter featuring a continuously variable parfocal zoom
  - A large touch screen interface to monitor the treatment settings
  - A click wheel to control the patterns settings
  - An intelligent footswitch to control the laser settings.

  - **Yellow Laser - 577 nm Wavelength:**

    Presented as the most versatile wavelength in the scientific literature, the 577 nm wavelength offers the following benefits:
    - An excellent beam quality ensuring a homogeneous laser spot profile (top hat)
    - The emission of pure 577 nm yellow wavelength
    - An extended lifetime thanks to a simple, compact and reliable technology.

    The fiber laser technology is a variation of the standard solid-state laser technology.

    In fiber lasers, the lasing medium is composed of an optical fiber doped with rare earth elements and optically pumped by diodes.

    - Excellent combined absorption by both melanin and oxyhemoglobin (peak absorption of oxyhemoglobin) [1,2]
    - Very little absorption by macular xanthophyll pigments [1,2]
    - Excellent penetration through cataracts and hazy media [1,2].

  Easyret® is a fully integrated 577 nm yellow photocoagulator based on a technological breakthrough: fiber laser technology. Available with Haag Streit or Zeiss type slit lamps, it offers a large choice of treatment settings well adapted to the treatment of macular and peripheral retinal pathologies.


MOSAR®: A HIGH DEFINITION IMAGING SYSTEM FOR EASYRET®

Mosar® is an optional camera/video imaging system compatible with the Easyret® laser.

It features:
- A co-observation teaching mode for live viewing of laser procedures
- An advanced mode allowing the operator to:
  - Import diagnosis images facilitating the laser treatment planning
  - Prepare, print and record advanced treatment reports including fundus and diagnosis images
  - Take pictures or record treatment videos for presentation and training purposes.

After each treatment all the generated images, videos and treatment reports can be saved and exported on a USB drive or a local network.
**MultiSpot Technology:**

Characterized by the use of short pulse durations from 10 to 20 ms, this technology offers many advantages over classical treatments:

- Less heat diffusion to the retina and choroid, less damage to the retinal nerve fiber layer [3,4]
- Comfortable treatment better tolerated by patients [5]
- Treatment time reduction (full PRP in 1 session) [6].

It can be delivered through 4 customizable patterns for better adaptation to the treatment site.

![MultiSpot Panphotocoagulation](Image courtesy of Alejandro Filloy Rius, MD, Ph.D. - Tarragona, Spain)

**SubLiminal® Technology:**

Composed of a train of extremely short microsecond pulses, this subthreshold treatment mode (non-visible laser impacts) allows the operator to fully adjust the pulse duration (On Time) and interval (Off Time). This finely tuned control of the laser treatment settings ensures a precise management of the thermal effect on the targeted tissues. It can be delivered through 3 customizable patterns:

![SubLiminal® modes](Image of SubLiminal® modes)

Studies using this tissue sparing treatment mode avoiding scarring [7,8] have reports successful outcomes for diabetic macular edema [7] and central serous chorioretinopathy [8].

---

**Extrafoveal Diabetic Macular Edema**

---

**Central Diabetic Macular Edema**

Laser treatment after intravitreal injection

---

**Chronic Central Serous Chorioretinopathy**

---

Images courtesy of Alejandro Filloy Rius, MD, Ph.D. - Tarragona, Spain
MultiSpot Panphotocoagulation

Image courtesy of Alejondro Filloy Ruis, MD, Ph.D. Tarragona, Spain

SINGLE SPOT SQUARES CUSTOMIZABLE
MACULAR GRID

Extrafoveal Diabetic Macular Edema
Central Diabetic Macular Edema
Laser treatment after intravitreal injection

Images courtesy of Alejandro Filloy Rius, MD. Ph.D - Tarragona, Spain

Chronic Central Serous Chorioretinopathy

MultiSpot Technology:
Characterized by the use of short pulse durations from 10 to 20 ms, this technology offers many advantages over classical treatments:
- Less heat diffusion to the retina and choroid, less damage to the retinal nerve fiber layer [3,4]
- Comfortable treatment better tolerated by patients [5]
- Treatment time reduction (full PRP in 1 session) [6].

It can be delivered through 4 customizable patterns for better adaptation to the treatment site.

SubLiminal® Technology:
Composed of a train of extremely short microsecond pulses, this subthreshold treatment mode (non-visible laser impacts) allows the operator to fully adjust the pulse duration (On Time) and interval (Off Time). This finely tuned control of the laser treatment settings ensures a precise management of the thermal effect on the targeted tissues.

It can be delivered through 3 customizable patterns:

Studies using this tissue sparing treatment mode avoiding scarring [7,8] have reported successful outcomes for diabetic macular edema [7] and central serous chorioretinopathy [8].

TECHNICAL SPECIFICATIONS

EASYRET SPECIFICATIONS

Laser source: fiber laser technology
Wavelength: yellow 577 nm
Power at tissue up to: 2000 mW
Pulse duration: 10 ms to continuous
Single spot modes: single, repeat, painting, continuous
SubLiminal® mode: train of microsecond pulses
Resume® function: available in MultiSpot and SubLiminal® modes

Pattern:
MultiSpot mode: single spot, squares, circles, triple arc, macular grid
SubLiminal® mode: single spot, squares, customizable macular grid

Spot size:
Single spot: continuously variable from 50 µm to 400 µm
Pattern: continuously variable from 100 µm to 400 µm

Integrated slit lamps:
Haag Streit type: Quantel Medical (CSO 9900 5x)
Zeiss type: Quantel Medical (CSO 9800 5x)
Aiming beam: 635 - 650 nm
Size: 174.2 (H) x 97 (W) cm
68.58'' (H) x 38.19'' (W)
Weight: 60 kg - 132 lbs
Cooling: by Peltier effect
Power requirements: 100 to 240 VAC, 250 VA, 50/60 Hz

OPTIONAL FEATURES

Single column stand or Twin column stand
Easyret® with LIO port
Laser indirect ophthalmoscope Keeler Vantage Plus

MOSAR SPECIFICATIONS

Camera:
- Image resolution: 1280 x 720 pixels
- Compatibility: Easyret® laser
- Camera position: left or right eye

Computer and screen:
- Connected on Easyret® screen arm
- Touchscreen size: 10.1''
- Storage: SSD 256 GB
- Connectivity: USB and Ethernet
- Power supply: 12 VDC / 5A

BIBLIOGRAPHY


www.quantel-medical.com

Headquarters
Quantel Medical
Rue du Bois Joli - CS40015
63808 Cournon d’Auvergne – FRANCE
Tel: +33 (0)4 73 745 745
Email: contact@quantelmedical.fr