



# iLux™

LIGHT FOR HEALTH





# iLux™

LASER THERAPY  
AT YOUR FINGERTIPS





## The evolution of laser therapy

Mectronic MedicaLe has designed and produced physical therapy systems since 1986. Having built over 10,000 laser systems, Mectronic MedicaLe leads the sector of therapeutic lasers thanks to its know-how and experience. From the first surgical and CO<sub>2</sub> lasers, Mectronic MedicaLe had made important steps forward, the result of close collaboration with research centres, universities, and national and international institutes.

Mectronic MedicaLe has always been characterised by its technological innovation, years ahead for new techniques and therapeutic laser applications: from the first therapeutic use of a Nd:YAG laser to the use of semiconductor laser sources, to the first three-wavelength laser, to the first 1064nm wide band semiconductor laser system, ever more advanced in therapeutic terms, with lower energy consumption.

From then until now this process has led to the production of ever higher performance machines, with new functionality and compact dimensions.

The most recent laser to come from Mectronic MedicaLe is **iLux**, a system which is able to offer a variety of settings and emissions, for efficient, flexible therapy.

Thanks to its interactive software and colour touch screen it is even easier to set up the therapy.

iLux is also available featuring the exclusive patented three-wavelength system **Triax**: this innovative system allows modulation of the characteristics of the three different energy sources in a single device, making the therapy more flexible and better suited to the needs of the patient.

PARTNER:

*A. C. Milan*



trentino volley s.p.a.

THE VOLLEYBALL  
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OF RUSSIA



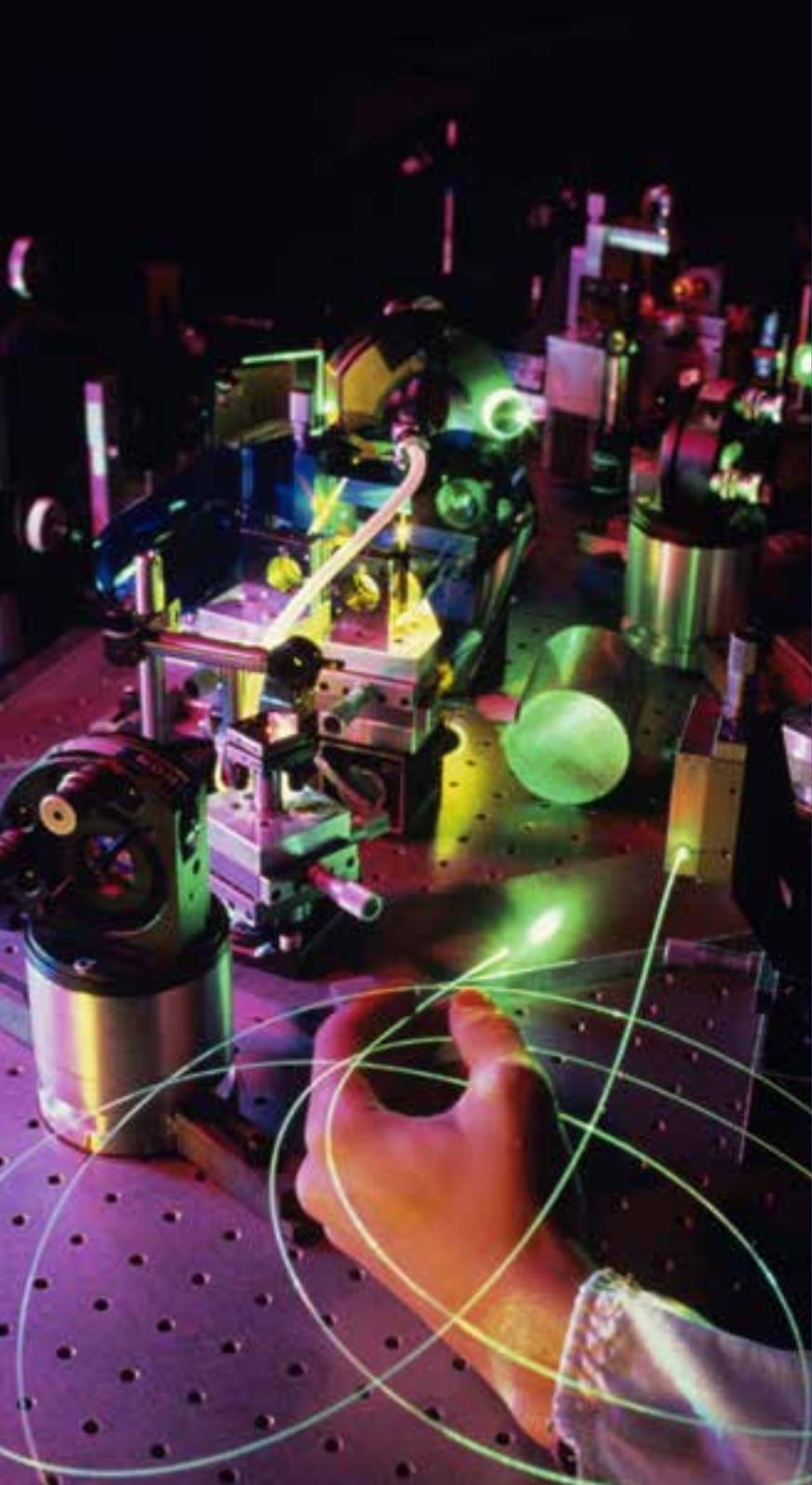
WORLDWIDE



INNOVATION



RESEARCH



# TECHNOLOGY AT THE SERVICE OF MEDICINE

As early as 1988 Mectronic Medicale saw the great therapeutic potential of Nd:YAG lasers. From then until now the experience and innovation of Mectronic Medicale has allowed the development of ever-more high performance technological solutions.

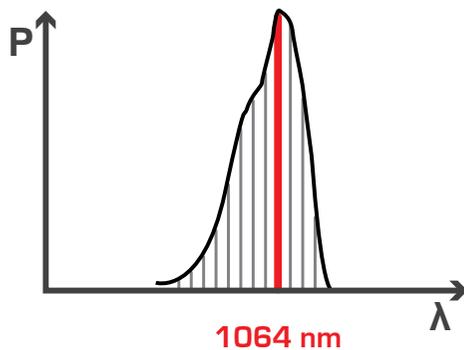
Today iLux features **AuSn Quantum Bonding** semiconductor technology, which, as well as allowing incredible performance, offers clear advantages in terms of dimensions and costs. This innovation has allowed Mectronic Medicale to include new emission modes: Exand works in **continuous mode, almost continuous, pulsed, super-pulsed, impulse peaks**, and the **patented stochastic E<sup>2</sup>C mode**.

From simple laser therapy we have moved to **Multi-mode HEL Laser therapy**: a range of emission possibilities to always guarantee the most effective therapeutic solution.

This important step was made possible by the technological know-how which Mectronic Medicale has acquired over the years, designing and building the laser heads for its own devices according to therapeutic results: iLux therefore guarantees greater reliability, longer life, and lower running costs.

## + EFFECTIVE THERAPY

The laser beam of iLux, thanks to the **AuSn Quantum Bonding** technology, has a more concentrated and precise action than normal semiconductor lasers. Thanks to its concentrated and balanced wide band emission, AuSn Quantum Bonding technology gives more effective therapeutic results than the classic narrow band continuous and pulsed Nd:YAG laser and the unbalanced wide-band emissions of semiconductor lasers. A longer wavelength interval which is concentrated and balanced guarantees greater effects on tissues. Thanks to AuSn Quantum Bonding technology, iLux redefines technological and therapeutic standards for laser therapy.



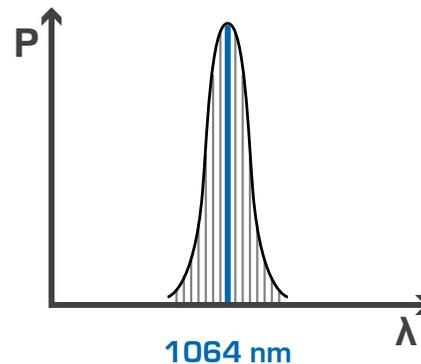
WIDE BAND UNBALANCED  
Semiconductor laser

## + COST SAVINGS

**iLux does not need expensive maintenance**, unlike the obsolete continuous and pulsed Nd:YAG lasers: its light high-performance technology guarantees long term results.

### Save €2000 for every 300 hours of therapy!\*

This is the cost of changing the lamp, maintenance which is necessary for continuous and pulsed Nd:YAG lasers after around 300 hours of therapy. But with iLux the savings are certain, because its technology requires no lamp changes



WIDE BAND BALANCED

**iLux™**

## + A RANGE OF EMISSION MODES

The AuSn Quantum Bonding technology of iLux allows a range of **different laser emission modes** to maximize the desired therapeutic effect.

**CONTINUOUS WAVE (CW)**

**SINGLE PULSE**

**PULSED MODE**

**BURST MODE**

**ANT-INF MODE**

**STOCHASTIC E<sup>2</sup>C MODE**

**CUSTOM MODE**



\*Approximate information based on a comparison with Nd:YAG lasers available on the market.



# High Power Laser

## Maximum working depth

Many pathologies which afflict the muscular system are at depth. When the cause of a pathology is at such depth, it becomes difficult to reduce the pain. In these cases laser therapy is of fundamental importance: the beneficial effects it can bring about facilitate optimal physical recovery.

An advantage of laser therapy is its ability to **work at depth** and to resolve the cause of the pathology at its point of origin. This characteristic can be attributed to two properties of the laser: **wavelength** and **power**.

As is known, different wavelengths have different properties in terms of diffusion and absorption by human tissues, and for each therapeutic objective it is possible to select the most suitable wavelength.

The emission power also increases the effectiveness of the laser, transmitting the beneficial effects to great depth. The greater the power transferred to the tissues, the greater the energy transmitted to the injury.

Therefore power is the main carrier in the transfer of energy: **iLux** triggers therapeutic effects in the deepest tissues.

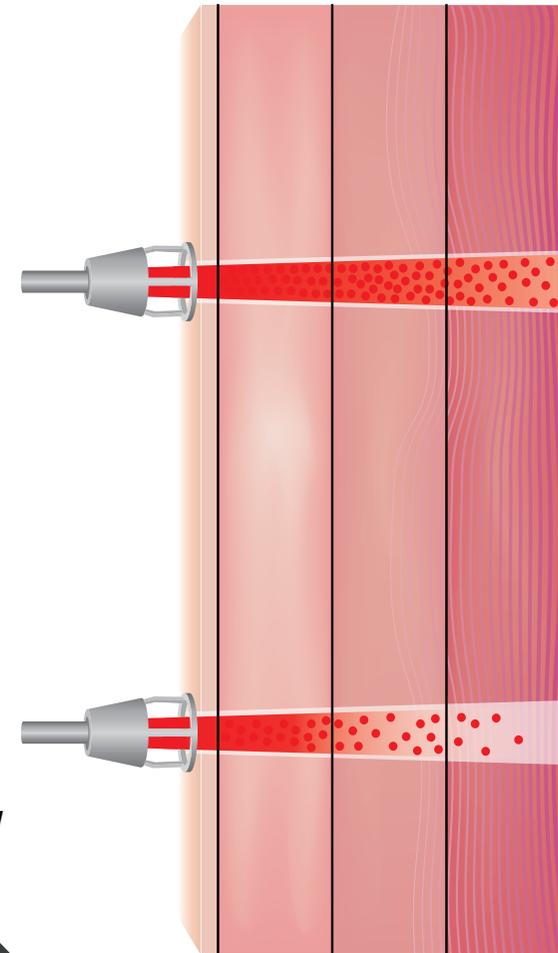
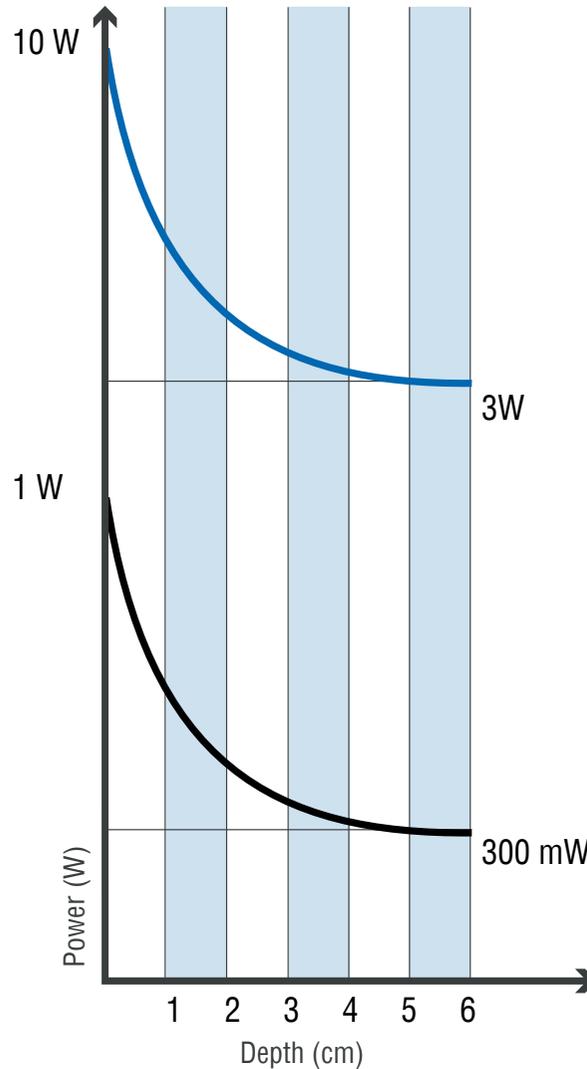
## Interaction between power and depth (with the same wavelength)

The ability of the laser to penetrate to depth is often incorrectly attributed to only the wavelength. In reality, the **power** has a fundamental role in the therapeutic action of the laser on tissues.

It is known that the power (Watts) represents the quantity of energy which can be transferred in one unit of time (1 Watt = 1 Joule for 1 second). Energy reduction is inversely proportional to the reference depth.

Greater power transmits more energy, overcoming the natural dispersion of the laser and reaching the seat of the injury (see diagram opposite).

**The more energy transferred, the greater the quantity which can be assimilated by the tissues.**



Pulsed Mode  
Single Pulse  
Continuous Wave  
Custom  
Antinf  
Burst  
E<sup>2</sup>C



# HEL MULTI-MODE LASER THERAPY

The unique solution:  
7 emissions in a single laser

Therapeutic lasers represent an important resource for physiotherapy, and their efficacy on tissues becomes a fundamental requirement when choosing between the various machines available on the market. The operator needs to be able to treat both chronic and acute problems, guaranteeing the best possible results.

For this reason Mectronic Medicale has introduced a range of emission modes in a single laser, amplifying its efficacy.

Methodology has evolved, and now we can speak of a single treatment which is both flexible and constantly able to meet therapeutic needs: **HEL Multi-Mode Laser Therapy** is exclusive to Mectronic Medicale.

With a simple setting it is possible to choose between **7 emission modes**, each with different benefits and characteristics - a range of possibilities with which to best treat the chronic and acute problems of patients.

## **Analgesic Effect**

Rapid pain relief with no side effects:  
Thanks to the innovative emission mode, iLux allows energy modulation to quickly combat muscular and joint pain.

## **Anti-inflammatory Effect**

iLux modulates the inflammatory processes thanks to its deep stimulation of tissues, triggering vasodilation, increasing oxygenation and therefore activating the main metabolic activities.

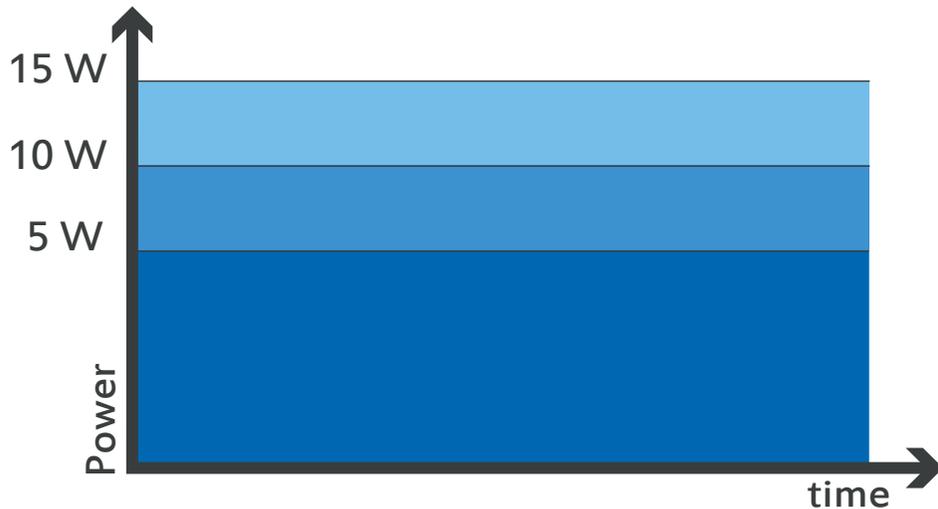
## **Bio-stimulant Effect**

The iLux laser works by facilitating energetic cellular processes, increasing the remodelling of tissues by stimulating the production of collagen.



# CONTINUOUS EMISSION MODE

To activate bio-stimulation processes at depth.

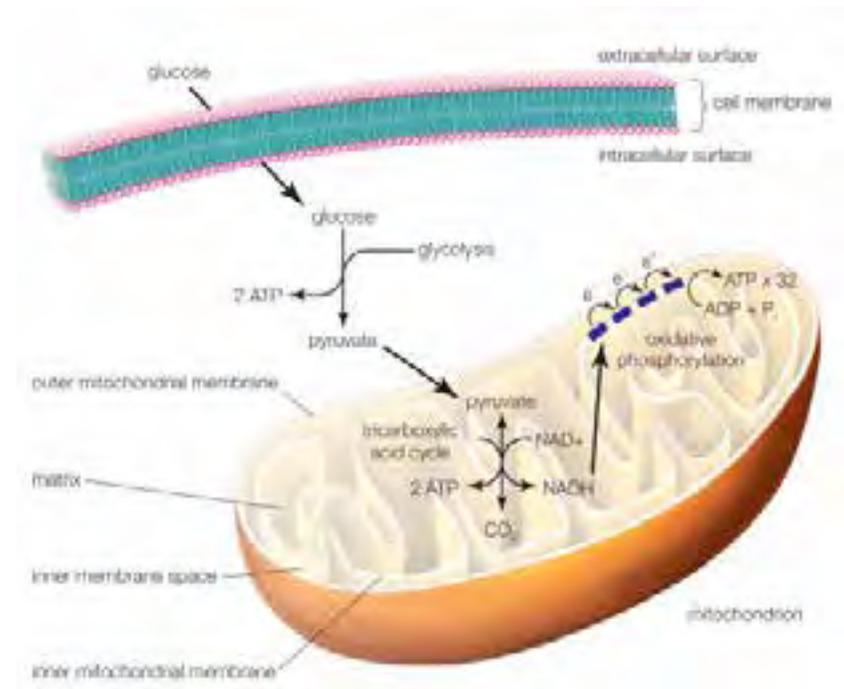


One of the range of emission modes which iLux features is **CW mode – continuous wave emission**. This type of laser emission is able to trigger **cellular bio-stimulation processes**, increasing production of ATP.

Scientific studies on the effects of laser therapy have shown how a laser impulse must have a duration of at least 100ms to activate cellular bio-stimulation. Therefore only a continuous impulse (or pulsed with emission duration of at least 100ms) is able to generate an effect in the tissue, thus facilitating the biological rebalancing of the cells. A cell which is stimulated by a laser tends to 'charge' with energy, returning to its primary physiological function. Therefore the continuous

emission mode is essential to trigger the **process of tissue regeneration**, accelerating movement recovery times.

The continuous emission mode is suitable for pathologies where the injury is at depth; the ability to work by activating the cellular reactivation processes allows fast bio-stimulation effects starting from the very first treatment.



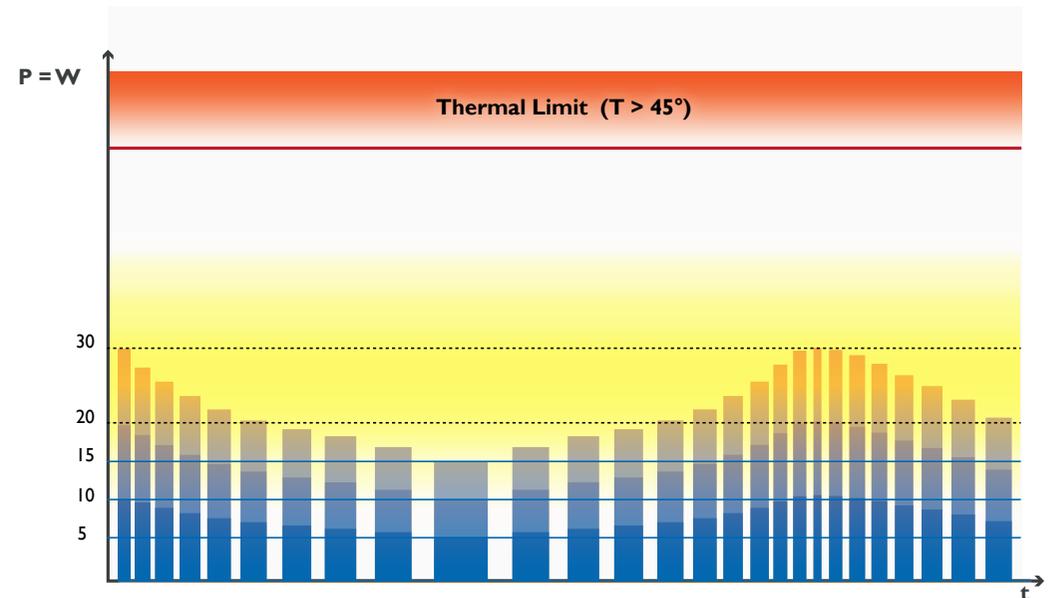
# STOCHASTIC E<sup>2</sup>C MODE

## Comfort heat emission mode

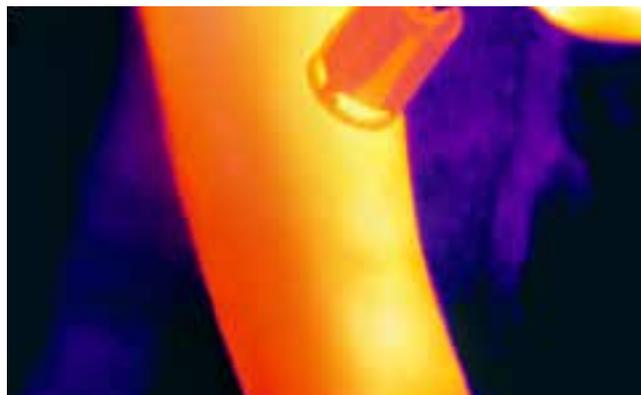
iLux features an **E<sup>2</sup>C** laser emission system.  
This type of emission is the result of an exclusive Mectronic Medicale patent.

**Stochastic E<sup>2</sup>C emission** generates variable power laser impulses; this mode of energy supply interacts correctly with the peripheral nervous system. “**Comfort heat**” emission combined with thermo-mechanical action on peripheral receptors allow rapid polarization of nociceptors, polarizing A-delta fibres and blocking pain signals through the Gate Control process.

The **analgesic action** leads to a significant reduction in pain from the first treatment, with no side effects.



Continuous mode emission (CW) – filmed with thermal imaging camera

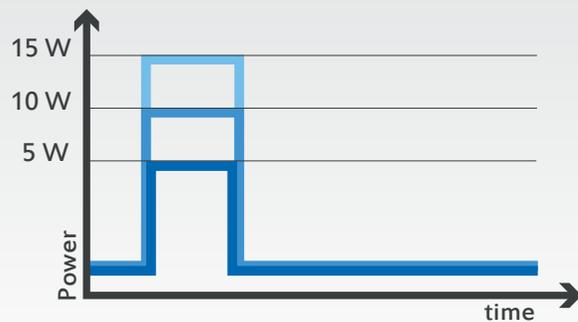


E<sup>2</sup>C emission - filmed with thermal imaging camera

## SINGLE IMPULSE

Precision and depth

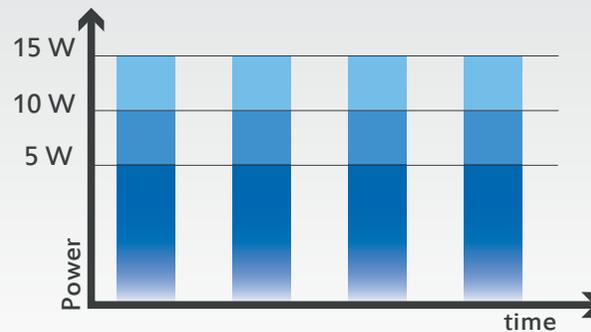
The laser emission is concentrated in a single high-energy impulse with a precise, efficient dose. To guarantee greater efficiency the amplitude of the single impulse can be adjusted by the operator, to guarantee the most suitable treatment.



## PULSED MODE

Regular and modulated impulses

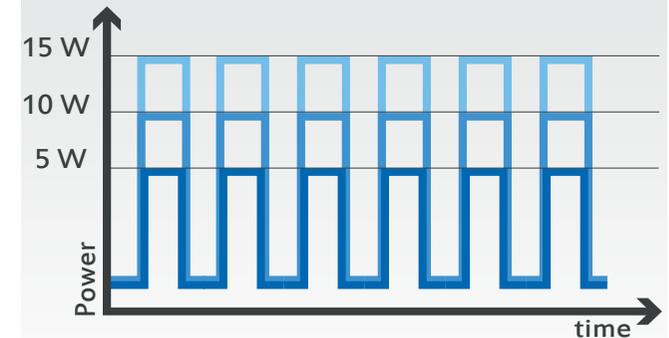
3 different modes to tailor the therapy during the acute phase, optimizing both pro- and anti-inflammatory effects, and increasing bio-stimulation with low thermal impact. This mode allows the laser emission to be optimized according to phototype.



## BURST MODE

High-Intensity Impulses

This mode is particularly suitable for relapsed pathologies where chronic pain predominates. The series of impulses allows rapid inter-articular angiogenesis and facilitates the restoration of cellular homeostasis.

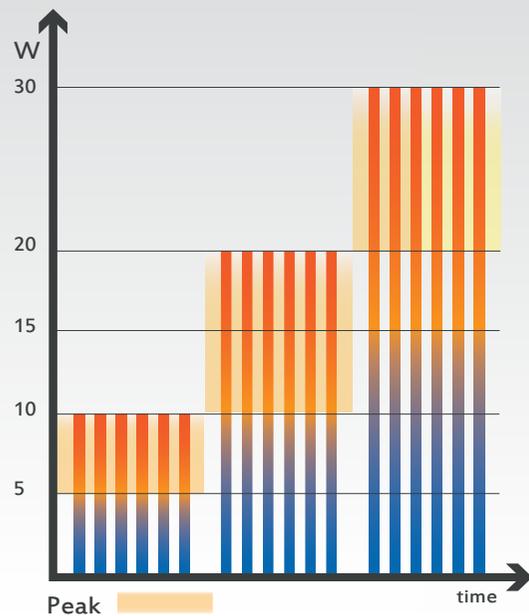


## ANTINF MODE

### Fighting Inflammation

Pulsed mode with specific anti-inflammatory setting. The process of nitric oxide release is fundamental to the rebalancing of micro-circulation.

Through controlled vasodilation, the process of angiogenesis ensures the reactivation of lymphatic peristalsis and the collection of catabolites from the inflammatory process.

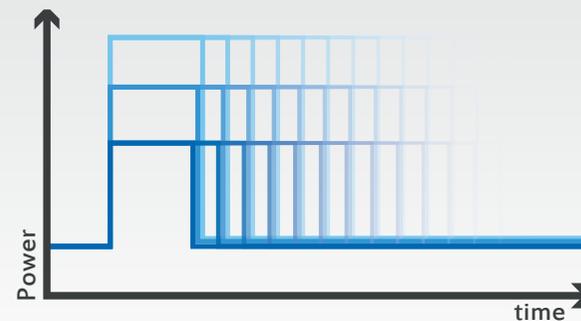


## CUSTOM MODE

### Tailor - made emission

The need for energy which is ever more controlled and harmonized is met by the Custom emission mode.

It is possible to personalise the emission by adjusting the Duty Cycle and Frequency parameters, allowing the 'design' of the pulsed and super-pulsed modes according to the required characteristics of the therapy.



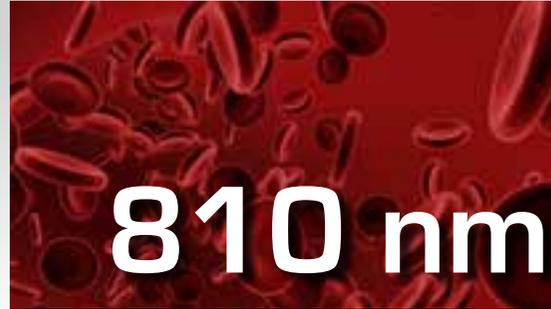
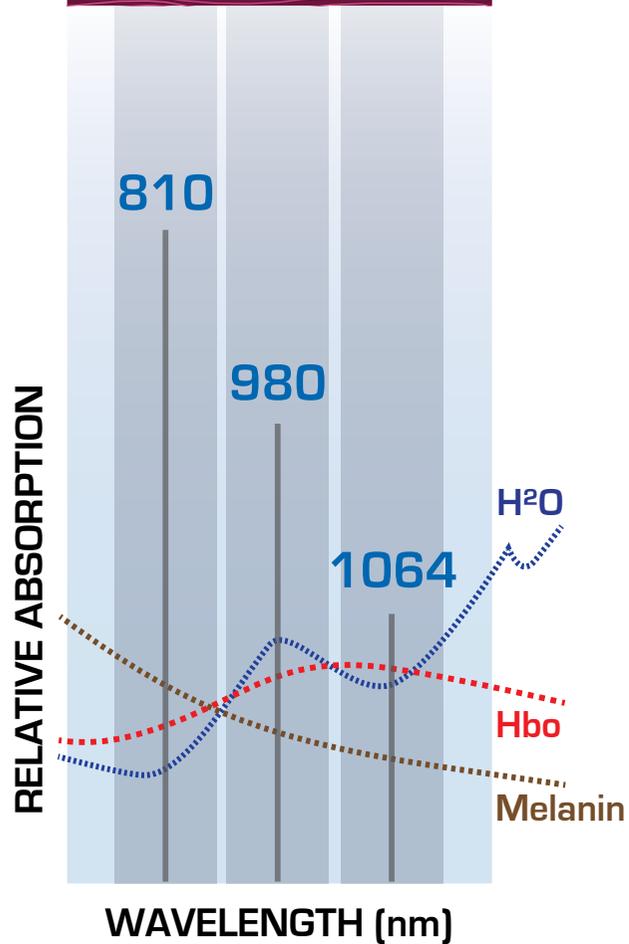
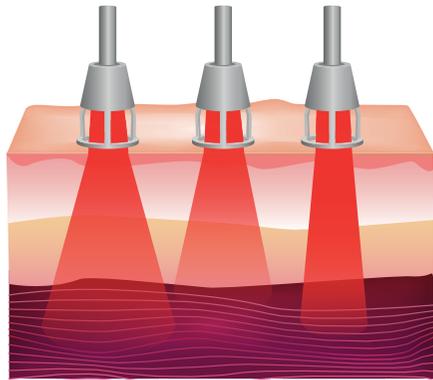


## FLEXIBILITY AND CONTROL

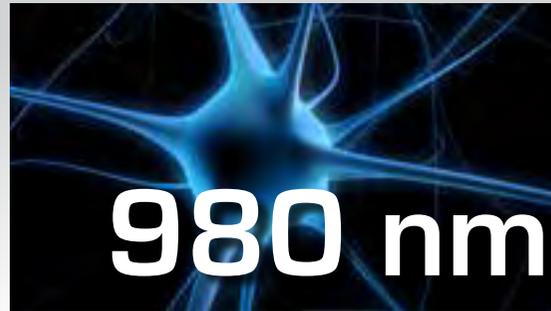
### Patented System with 3 Wavelengths

**The patented Triax system allows the combination of three lasers in a single device: three wavelengths, three energy declinations, and three different interactions with biological tissues.**

The three wavelengths: 810 nm, 980 nm and 1064 nm, even if contained within the therapeutic window, have different characteristics, above all in their specific interaction with chromophores. Triax allows these three different emissions to be combined, offering even better effects on tissues.



the 810nm wavelength allows rapid activation of the process of haemoglobin oxygenation: transferring the correct energetic supply to muscles and tendons, facilitating regeneration.



The 980nm wavelength optimizes the action on thermo and mechanical receptors. When associated with the E<sup>2</sup>C mode it ensures correct interaction with the peripheral nervous system, activating the Gate Control mechanism for a rapid analgesic effect.



the wavelength with the least dispersion within biological tissues. Its high level of directionality allows the correct dose of energy to be aimed directly at the noxa. The result is a perfect synergy which harmonises the rapid analgesic effect with the control of inflammatory processes and the deep activation of metabolic processes vital for all cellular activities.

# TREATMENT MANAGEMENT

**MecOS software:**  
therapeutic innovation

## Pathology library

The library includes over 60 pathologies with relative interactive protocols, subdivided by phase. The software also gives immediate graphical feedback, which shows power, time, and effective energy supplied by the system.





## Treatment guide

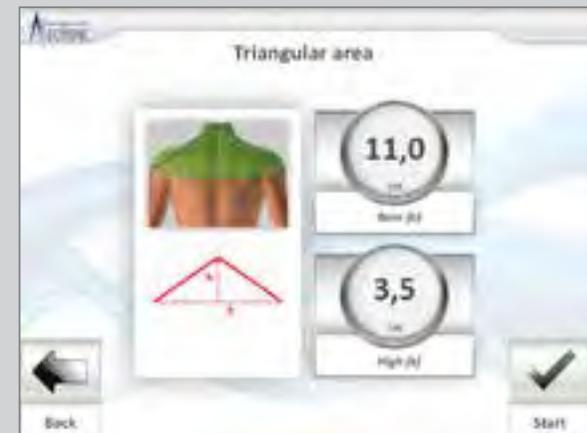
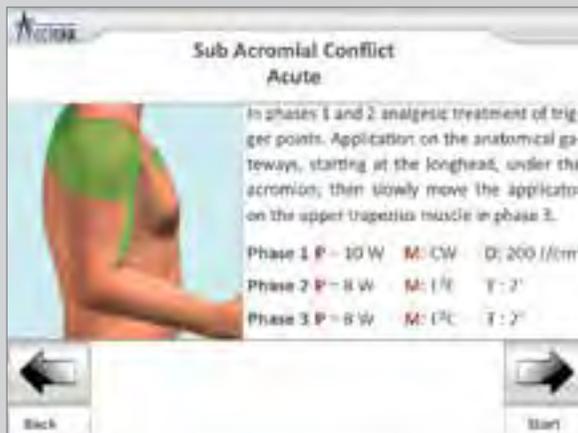
The pathology library includes a dedicated protocol for each pathology, both acute and chronic. The graphics clearly show how to treat the patient and the written description explains how to perform the treatment.

## A focused solution

The need for correct dosage demands control of the energy transferred to the tissue. Compared to analogue systems, iLux guarantees greater therapeutic efficiency thanks to the level of accuracy that the software is able to offer.



Thanks to the new functionality of the Mec OS RealTime software it is possible to enter the precise dimensions of the area to be treated, guaranteeing the correct therapeutic dose. To this end Mecronic Medicae supplies a useful tool to help with the entry of data regarding the area to be treated.



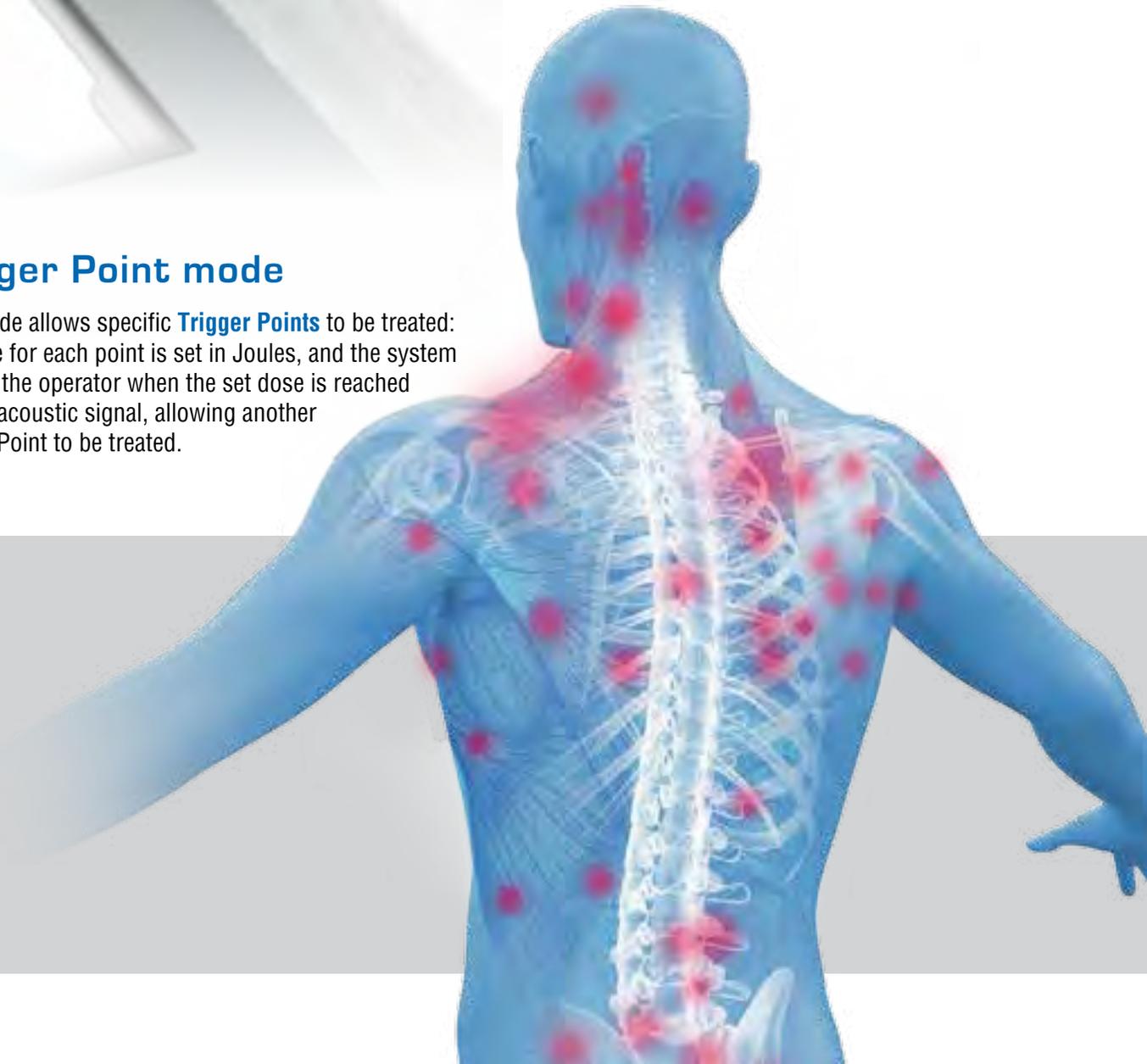


## Joule/timer mode

With iLux the emission can be set according to the parameters **Timer** and **Joule**. In the first case the operator can indicate the duration of the therapy, and iLux stops the supply when the set duration is reached. In Joule mode, the operator can set the energetic dose of the therapy; the supply ends when the set value is reached.

## Trigger Point mode

This mode allows specific **Trigger Points** to be treated: the dose for each point is set in Joules, and the system informs the operator when the set dose is reached with an acoustic signal, allowing another Trigger Point to be treated.





## Phototype

Skin has a range of characteristics which can influence the absorption of the laser by the tissue; therefore with iLux it is possible to set the skin phototype closest to that to be treated, thus changing the therapeutic protocol parameters.

## Protocols for effects

To support the operator, iLux features specific modes to obtain the 5 main effects of laser therapy. When each mode is selected iLux guides the operator in setting the treatment most suitable to reach the required results; each protocol can also be personalized according to the area to be treated.

It is, in fact, possible to set a precise protocol through the input of the dimensions of the area to be treated. In Analgesic mode the operator is supported by the display of the VAS scale, a useful tool for the setting and control of the treatment.



- **Bio-stimulant Effect**
- **Analgesic Effect**
- **Anti-inflammatory Effect**
- **Anti-edema Effect**
- **Tension Relief Effect**

# FUNCTIONALITY AND DESIGN



## Precision and control: the foundations of correct therapy

Mectronic Medicale has fitted its devices with a **calibration system** which always checks the effective emission of the laser; the calibration is precise, as it is carried out directly **at the exit of the handpiece** (in accordance with CEI EN 60601-2-22). Therapists who choose iLux know that correct treatment is also the result of understanding the equipment that they use: precision and control should never be compromised.

A further safety system which iLux features is **temperature control at the laser head**, to constantly check correct function.



## ScanX Mode: time optimization

Thanks to a patented magnetic cone, iLux can easily be used as an operator-independent laser. With one simple command it is possible to change mode. Flexibility, practicality, and high therapeutic performance: iLux is the ideal partner for your daily working routine.

## Dedicated protocols

The **ScanX** mode features a dedicated pathology library with over 60 pathologies and relative interactive protocols, sub-divided by phase.

## ScanX cone applicator

The **ScanX** applicator is made of a special biocompatible material, perfectly tolerable by the patient.

## Safety button

The **ScanX** mode provides the patient with the ability to interrupt the treatment thanks to the innovative and practical safety button.

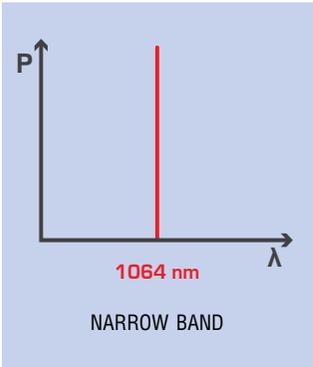
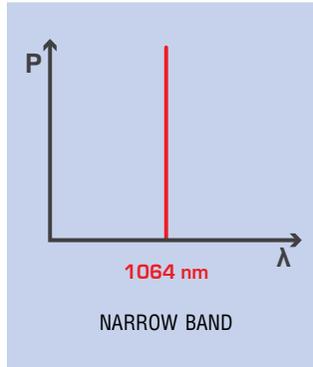
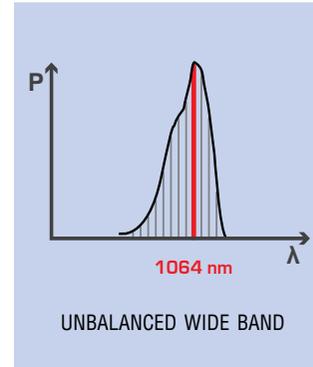
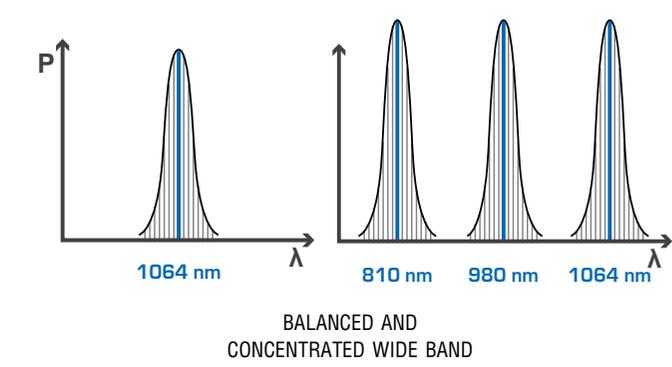
## Practical and functional accessories

iLux features practical patented magnetic spacers: fitted with ease – as is the ScanX cone.



# THE EVOLUTION OF LASER THERAPY

# iLux™

	Continuous Nd:Yag	Pulsed Nd:Yag	Diode laser	AuSn Quantum Bonding Technology	AuSn Quantum Bonding Technology Triax
Characteristics of the laser beam	 <p>1064 nm NARROW BAND</p>	 <p>1064 nm NARROW BAND</p>	 <p>1064 nm UNBALANCED WIDE BAND</p>	 <p>1064 nm 810 nm 980 nm 1064 nm BALANCED AND CONCENTRATED WIDE BAND</p>	
Emission mode	<ul style="list-style-type: none"> <li>Continuous</li> <li>Pulsed 1÷5 Hz (Long Pulse)</li> </ul>	<ul style="list-style-type: none"> <li>Pulsed 5÷100 Hz (Short Pulse High Density)</li> </ul>	<ul style="list-style-type: none"> <li>Continuous</li> <li>Pulsed 1÷20000 Hz (Short &amp; Long Pulse)</li> </ul>	<ul style="list-style-type: none"> <li>Continuous</li> <li>Pulsed 0.1÷30000 Hz (Short &amp; Long Pulse)</li> <li>Pulsed 0.1÷30000 Hz (Short &amp; Long Pulse - High Density)</li> <li>Patented E<sup>2</sup>C stochastic</li> </ul>	
Maintenance	Lamp change : € 2000* EVERY 300 HOURS	Lamp change : € 2000* EVERY 300 HOURS	0 €	0 €	
Analgesic effect	■ ■	■ ■ ■ ■	■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■ ■
Anti-inflammatory effect	■ ■ ■ ■	■ ■	■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■ ■
Bio-stimulant effect	■ ■ ■ ■	■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■ ■

\*Approximate information based on a comparison with Nd:YAG lasers available on the market







MODEL	WAVELENGTH	POWER	CODE
iLux 810+980	810 nm +980 nm	5W	iLD5
		10W	iLD10
		15W	iLD15
iLux 1064	1064 nm	10 W	iLYag10
		15 W	iLYag15
iLux TRIAX	810 nm +980 nm+1064 nm	10 W	iLTriax10
		15 W	iLTriax15
iLux Red	650 nm	500 mW	iLRed500
		2000 mW	iLRed2000

## Technical specifications

<b>Technology</b>	Mectronic's own MecOS Real-Time Operating System
<b>Wavelength*</b>	650 nm 810 nm + 980 nm 1064 nm 810 nm + 980 nm+1064 nm
<b>Guide Light</b>	650 nm - 3 mW
<b>Laser power*</b>	Up to 15 W
<b>Emission</b>	Continuous (CW), Pulsed, Super-pulsed, and E2C (patented stochastic mode)
<b>Operation mode</b>	Manual, Single Pulse, Burst and Custom mode
<b>Special modes</b>	Joule mode, Timer mode, Trigger Point mode
<b>Effect Mode</b>	5 specific emission modes to maximise the 5 main effects of laser therapy: Bio-stimulant, Analgesic, Anti-inflammatory, Anti-edema, and Tension Relief.
<b>Pathologies</b>	Over 60 pathologies with interactive illustrations and protocols sub-divided by phase
<b>Calibration</b>	normativa Graphic and acoustic control system for laser emission at handpiece exit in accordance with norm. CEI EN 60825-1
<b>Display</b>	"Colour TFT 5.7" Touch - screen
<b>Supply</b>	100÷240V 50÷60Hz
<b>Absorption</b>	160 VA
<b>Dimensions</b>	320 x 245 x 130 mm
<b>Weight</b>	3 kg
<b>Laser Class</b>	IV
<b>Conformity</b>	IEC/EC 60601-1 60601-1-2
<b>Certification</b>	CE0068
<b>Directive 93/42</b>	Classification IIb

\* according to model (table on the left).



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TRAINING

## Training courses

Training and refresher courses held with experts and professionals from the sector. Our workshops are organized throughout the country.

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