

emotion tecar

BEYOND HEAT



Therapeutic Effectiveness
Repeatability
Safety

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technology for health

THERAPEUTIC EFFECTIVENESS

beyond heat

Exploiting heat for therapeutic purposes is common to all the tecartherapy devices, **Emotion tecar** included. However, the biostimulation of tissues, fundamental for the therapeutic effectiveness of this method, is not only linked to heat, but also to the exposure of the tissues to an electromagnetic field which is able to interact with the cells and their metabolism.

To this purpose a voltage higher than 100 V is required and, in order to penetrate the cellular membrane, it must be modulated with frequencies of the order of hundreds of KHz. With conventional Tecar, when this voltage is reached, overheating of the tissues occurs, often not tolerated by patients.

Emotion tecar overcomes this limit thanks to the PWM technology of its generator.



Emotion tecar

provides the

MAXIMUM BIOSTIMULATION

without generating irritating heat for the patient, maintaining the voltage at a **MAXIMUM VALUE of 440 V** throughout

the duration of the treatment and the

AVERAGE ELECTRICAL CURRENT

ALWAYS CONSTANT

REPEATABILITY of the treatment and Therapeutic Dose

Aside from the constant tension, specific to the PWM modulation, Emotion Tecar also ensures that the mean electric current is constant throughout the application. This ensures the control of the power delivered to the patient (**THERAPEUTIC DOSE**) and provides a further security check against potentially dangerous electrical current values.



Patient and operator SAFETY

CONTINUOUS CONTROL OF THE PARAMETERS

The electronics of the device provide a complete check of operation and operating conditions, making it possible to detect (within 3 milliseconds) any significant deviation in the operating parameters.

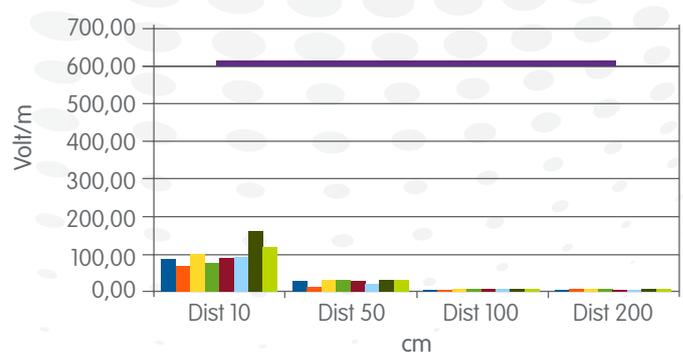
Therefore, the following are continuously monitored:

- the voltage and electrical current in the electrodes
- the internal operating conditions
- the quality of the contact between patient and neutral electrode
- the possible detachment of the active electrode
- the presence of excessive voltage/electrical current fluctuations, indication of poor contact between electrode and patient.

Whenever one of these abnormalities is detected, the system corrects it or suspends treatment in order to prevent unsafe or inconvenient conditions for the patient.

Particular care has been paid to the shield of the device, the electrodes and relevant cables, in order to assure the safety of the operator in respect to the electromagnetic field dose they are subjected to during daily use. Measurements carried out at an independent external laboratory have shown that the maximum levels of the exposure threshold values (as indicated by Italian Legislative Decree of 9 April 2008, No.81) are never exceeded and that the detected emissions are far below the required limit.

ELECTROMAGNETIC FIELD MT100



STATIC ELECTRODES

Thanks to the technology that assures the above performance, **e**motion tecar allows static electrodes to be applied safely.



It is possible to carry out **treatments which are operator independent** and increase the **productivity** of the Centre, reducing the time spent by the operator next to the patient.

It is possible to carry out **treatments on the spinal column** with the patient in supine position, particularly indicated in acute conditions



It is possible to carry out a complementary treatment between **manual therapy**, both active and passive, and the **instrumental therapy**



emotion tecar in:

PHYSIOTHERAPY

- Osteoarticular pathologies
- Shoulder, ankle, knee, spine
- Painful pathologies
- Arthrosis and lower back pain



MANUAL THERAPY AND OSTEOPATHY

POST-SURGICAL REHABILITATION

- Re-absorption of oedema
- Pain reduction
- Improvement of wounds and scars
- Stimulation of the healing of ligaments and tendons
- Increase in bone calcification



AESTHETIC MEDICINE

- Post-surgical scars

SPORT MEDICINE

- Muscle oxygenation
- Post-race recovery (lactic acid removal and other build-up from the muscle)
- Quick elimination of contractures
- Particularly suitable in the treatment of sprains, strains, tendinitis, capsulitis, bursitis, pubalgia, haematoma, oedema, meniscal and ligament injuries, distortions, dislocations and fractures



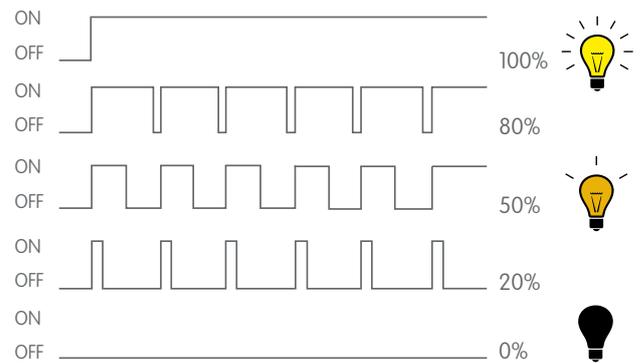
EXCLUSIVE TECHNOLOGIES of eemotion tecar

PWM TECHNOLOGY

(Pulse Width Modulation)

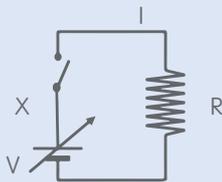
it is a square wave with constant repetition frequency and variable duration (duty cycle) that makes it possible to control, with extreme precision, the power absorbed by an electric load (the treated tissues), varying (modulating) the duty cycle.

SQUARE WAVE DUTY CYCLE



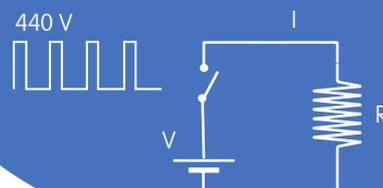
Conventional Tecar devices

To increase the power, resistance (of the tissues) being equal, it is required to increase the voltage applied, but the biological response of the tissues varies with the voltage, which should be kept constant. Furthermore, the increase in voltage leads to an increase in the electrical current, which however generates heat dissipation at the skin level. Since this heat is often unbearable to the patient, the operator is forced to limit the levels of power applied, decreasing the voltage, and consequently affecting the biological effect on tissues and the therapeutic efficacy.



PWM TECHNOLOGY eemotion tecar

THE DEVICE WORKS AT THE MAXIMUM AND CONSTANT VOLTAGE, IN THE OPTIMAL CONDITIONS FOR INTERACTION WITH TISSUES, BUT IN AN INTERMITTENT MANNER. THE AVERAGE POWER IS THEREFORE ADJUSTABLE BY VARYING THE DURATION OF THE EMISSION PERIOD (DUTY CYCLE).



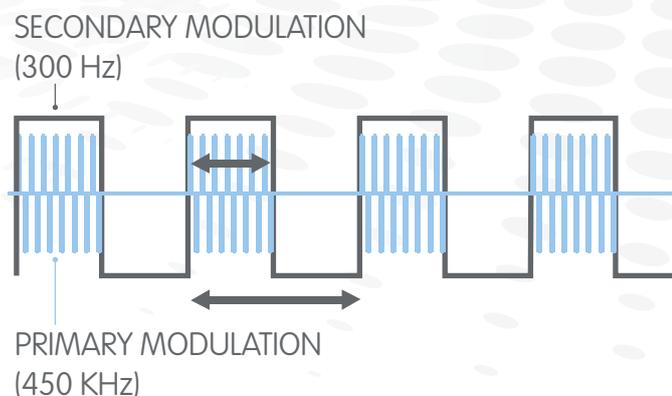
The **PWM TECHNOLOGY** drastically reduces power dissipation, thus allowing the generation of heat to be kept in check at an acceptable level for the patient, without limiting the average power delivered. In this way, by controlling the heat input associated with the biostimulation effect, which is always there, the operator can selectively promote the vasomotor phenomena which are secondary to thermal input, maximizing interaction with the tissues and the therapeutic effect. Thus, “**cold stimulation**” treatments are possible alongside traditionally thermal ones.



PEMF TECHNOLOGY

(Pulsed Electro Magnetic Field)

The emitted PWM signal is over-modulated with a low frequency signal (hundreds of Hz). This promotes the respiratory mechanisms of the cells, increasing the metabolic reactions and releasing substances (fibroblasts) that stimulate tissue repair processes (Nikolaev 1984).



PHASE LOCK TECHNOLOGY

Through a special circuit, the working frequency automatically adjusts (+/- 10%) to the tissue impedance variations in order to maintain an optimal sinusoidal wave for better energy transfer.

TRANSDERMAL VEHICULATION OF ACTIVE PRINCIPLES

The voltage applied by **emotion tecar** makes it possible to exploit the skin electroporation phenomenon to promote the absorption of active principles by the tissues underlying the treated area. This is in fact actual mesotherapy, but the one provided by **emotion tecar** affords a more consistent distribution of the active principle across the treated area and better absorption of the same through appropriate control of the delivered power.

eemotion tecar

mod. MT100

SPECIFICATIONS	
Power Supply	100 - 240 Vac, 500 VA
Outputs	4 - neutral - dynamic electrodes (res/cap) - static electrodes (res/cap) with automatic identification
Working Frequencies	2 Frequencies (450 KHz and 680 KHz)
Output Power	350 W RMS capacitive 250 W RMS resistive
Power setting (duty cycle)	0-100% in 1% steps
Safety	Check of output current parameters, patient electrode contact, system abnormalities, causing automatic discontinuation of treatment upon exceeding safety limits
Dimensions	H=210, L= 430, D=400 (mm)
Weight	12 Kg
Colour Touch Display	7"



FUNCTIONAL FEATURES

- Instantaneous power measurement
- Instantaneous impedance measurement
- Duty Cycle Control: 5-100%, 1% steps
- PEMF (Pulsed Electro Magnetic Field) Mode
- Phase Lock Mode
- Automatic protocols of use and customizable programs.

ACCESSORIES

Kit of Capacitive Electrodes

- Short stylus Capacitive Handpiece
- Kit of Capacitive Electrodes
ø20-40-60-80 mm

Kit of Resistive Electrodes

- Short Stylus Resistive Handpiece
- Kit of Resistive Electrodes
ø20-40-60-80 mm

Kit of Static Electrodes:

- Large Static Capacitive Electrode
- Small Static Capacitive Electrode
- Spinal Static Capacitive Electrode
- Large Static Resistive Electrode
- Small Static Resistive Electrode
- Spinal Static Resistive Electrode

Kit of Neutral Electrodes:

- Neutral plate with cable
- 15 Disposable Return Electrodes
- 2 Elastic Bands (1500 mm-600 mm)
- Patient safety button
- 3 tubes of cream (1 Kg)