

# User manual

# SMART TENS

**WARNING: SMART TENS IS  
A MEDICAL DEVICE.**

Consult your doctor before using SMART TENS  
if you suffer from health problems.



Read the user manual and the electrode position manual  
before using SMART TENS. Read the contraindications and  
warnings carefully.

**CE 0476** Manufactured in compliance with the 93/42/EEC (as amended by  
2007/47/EC) directive concerning medical devices by

IACER S.r.l. via S. Pertini 24/A, 30030 Martellago (Venezia) –  
Italy: [iacer@iacer.it](mailto:iacer@iacer.it)

## USER MANUAL – TABLE OF CONTENTS

<b>1. SMART TENS kit contents (photo)</b>	<b>Page 27</b>
<b>2. Purpose</b> Contraindications and side effects	<b>Page 27</b>
<b>3. Warnings</b>	<b>Page 27</b>
<b>4. Legend of symbols marked on SMART TENS and found in the manual</b>	<b>Page 29</b>
<b>5. How to use SMART TENS</b> Preliminary instructions – Operating instructions	<b>Page 31</b>
<b>6. Battery substitution</b>	<b>Page 32</b>
<b>7. SMART TENS maintenance and storage</b>	<b>Page 32</b>
<b>8. Resolution of problems and questions</b>	<b>Page 33</b>
<b>9. Electrostimulation and stimulation intensities</b>	<b>Page 34</b>
<b>10. T.E.N.S. / rehabilitation programs</b>	<b>Page 35</b>
<b>11. EMS Programs</b>	<b>Page 40</b>
<b>12. Self-adhesive electrodes</b>	<b>Page 43</b>
<b>13. Technical specifications</b>	<b>Page 43</b>

## 1. SMART TENS kit contents



## 2. Purpose.

The SMART TENS electronic stimulator is a medical device specifically intended for adults with adequate knowledge of the device acquired from reading the manual for domestic use.

SMART TENS is used to apply electrical microimpulses, capable of producing energy, to the human body. This energy, modulated in accordance with parameters typical to each impulse, can be used for various purposes, from pain reduction to winding-down exercises, from muscle strengthening to relax, from isotonic exercises to treating haematomas.

### **Contraindications.**

This device must not be used by people with a pace-maker, epileptics, pregnant women, people with a high temperature, anxious people or people suffering from heart disease, phlebitis, thrombophlebitis or serious illnesses.

In the event of injury, muscle stress or any other health problem consult your doctor before using the device and only use it under medical supervision.

### **Side effects**

No significant side effects are known of. Some particularly sensitive people have reported skin redness in the area where the electrodes were positioned: the redness usually disappears a few minutes after the end of the treatment. Should the redness persist please consult a doctor.

In rare cases, stimulation carried out in the evening can cause some people to experience difficulty in falling asleep. If this occurs, suspend the treatment and consult a doctor.

## 3. Warnings.

SMART TENS has been designed and manufactured to be operated exclusively with AAA Size batteries.

- The device must not be used in the presence of patient monitoring equipment.
- Do not use SMART TENS with electrosurgical or shortwave or microwave therapy equipment

- Use of the device is prohibited to persons known to be of unsound mind, or suffering from sensibility disorders, to permanently or temporarily disabled persons unless assisted by qualified personnel (e.g. a doctor or therapist).
- Use of the device is prohibited in the presence of signs of deterioration of the device itself.

Should any foreign materials penetrate the device contact the retailer or manufacturer immediately. If dropped down, check that the housing is not cracked or damaged in any way; if so, contact the retailer or manufacturer.

Should you notice any changes in the device's performance during treatment, interrupt the treatment immediately and consult the retailer or manufacturer (patients being treated in a centre must also be informed of the event).

- Use of the device is prohibited in combination with other medical devices.
- Use of the device is prohibited close to flammable substances or in environments with high concentrations of oxygen.
- Consult a doctor before using SMART TENS with metallic osteosynthesis devices.







Muscle heaviness and cramps may be experienced in the event of prolonged muscle stimulation. Should this occur we recommend to suspend treatment with SMART TENS for a few days and then to continue with EMS P04 RELAX program.

- It is forbidden to position the electrodes in such a way that the current crosses the heart area (e.g. a black electrode on the chest and a red electrode on the shoulder blade); however electrodes can be positioned along the muscular fascia of the heart area, as used for pectoral strengthening.
- Use of the device is prohibited with electrodes positioned on or close to injuries or cuts.
- The electrodes must not be positioned on the carotid sinuses (carotid) or genitals.
- The electrodes must not be positioned close to the eyes; make sure that the current delivered does not cross the eyeball (one electrode diametrically opposite to the other in relation to the eye); keep a distance of at least 3 cm. from the eyeball.
- When using the electrodes, follow the instructions given in this manual and on the package of the electrodes. Use single-patient electrodes, supplied exclusively by the manufacturer, and take care to avoid the exchange of electrodes between different users. SMART TENS has been tested and guaranteed for use with the electrodes supplied.
- Insufficiently sized electrode sections can cause skin reactions or burns. Only use the round electrodes supplied by the manufacturer for facial applications.
- Do not use electrodes when damaged, even if they stick to the skin well.
- Electrodes must not be used when they no longer stick to the skin. Repeated use of the same electrodes can compromise the safety of the stimulation, in fact it can cause skin redness that can last for many hours after stimulation.
- Warning! During treatment with round and 41x41 mm. electrodes, current density may be in excess of 2 mA/cm<sup>2</sup> for each electrode. In these cases take special care regarding any skin redness.




**Warning:** device supplies current over 10 mA.

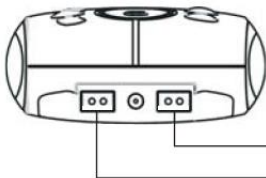
## 4. Legend of symbols marked on SMART TENS and found in the manual.

### CE LABEL

	Produced in compliance with the 93/42/EEC (amended by 2007/47/EC)
	Internally powered device with type BF applied parts
	Warning. Device capables to generate current over 10mA rms
	Product subject to WEEE regulations concerning separate waste collection of electronic equipment
	Follow instructions for use
	Month/year manufacturing date

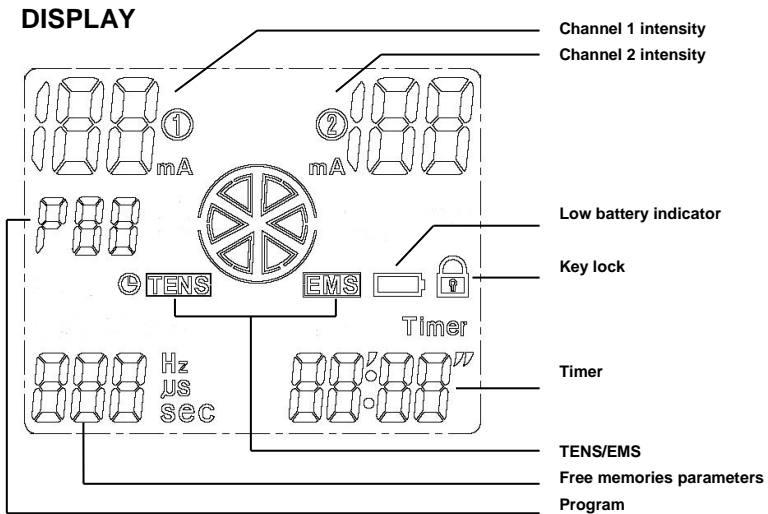
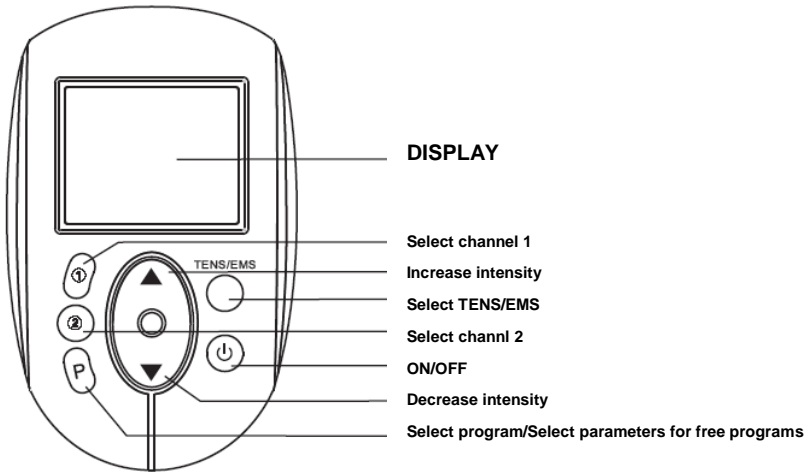
### CONTROL KEYPAD

	On and off button; press this button while the program is running to interrupt the program
<b>TENS/EMS</b>	Select program group: Tens, Beauty or Fitness
<b>P</b>	Program selector keys: the key is used to proceed with the selection process
	Keys used to increase Channel 1 and Channel 2 output current intensity
	Keys used to decrease Channel 1 and Channel 2 output current intensity



Channel 2 output

Channel 1 output








## 5. How to use SMART TENS.


### Preliminary instructions.

Before start using SMART TENS clean the skin in the treatment zone; connect the cables to the electrodes; place the electrodes on the skin (see electrodes position at the end of the manual); connect the cables to the outputs (CH1 and/or CH2) and switch on SMART TENS.

**Warning:** make sure that SMART TENS is switched off before disconnecting the electrodes at the end of the treatment.

### Operating instructions (N.B. read the whole manual before using the equipment)

1. Switch on SMART TENS pressing ON/OFF button .
2. Select TENS or EMS program using **TENS/EMS** button.
3. Confirm the program pressing **P** button.
4. Start the program selecting the channel (press  or  button) and then increase intensity using .
5. Increase the intensity for the selected channel till the personal tolerance limit (stimulation comfort). If the intensity is too high or uncomfortable, decrease it with  button.
6. At the end of the treatment SMART TENS will return to the main menu, decreasing the intensity to zero.

**Stop the program:** to stop the treatment press once the ON/OFF  button. The timer resets and the channel output stops.

### Key Lock

Key lock can be used to avoid accidental modifications to parameters during the treatment. To active key lock follow this steps:


- Select the parameter and start treatment as suggest above;
- Keep pressed **P** button and simultaneously press **TENS/EMS** button: all the

buttons will be locked and the display will show key lock icon .

To unlock the key lock function, keep pressed **P** button and then press once **TENS/EMS** button: all the buttons will be unlocked and the icon on the display will disappear.

## 6. Batteries substitution.

SMART TENS is supplied by 4 AAA Size 1.5V Alkaline batteries. Display will show low

battery indicator  only when the batteries are low: **this is a graphic icon appearing only when the battery is too low, and there is no indication on the display regarding the batteries status during the treatment.**

To substitute the batteries follow these steps:

1. Unlock the belt clip on the back side of SMART TENS.




2. Open battery compartment.

3. Extract the batteries from the compartment.

4. Insert 4 new AAA Size batteries (we recommend to always substitute the 4 batteries at the same time) respecting the polarity as reported on the battery compartment.

5. Close battery compartment.

6. Lock the belt clip.

7. Check the functioning of SMART TENS pressing ON/OFF  button (see the chapter "Preliminary instruction")

## 7. SMART TENS maintenance and storage.

We recommend that SMART TENS is switched off and the cables are removed from the connectors at the end of every session. SMART TENS should be kept in the carry bag supplied, together with the rest of the equipment supplied with it, and carefully stored on a secure surface and protected from situations listed in the *Warnings* paragraph.

SMART TENS should be stored in the following conditions:

Temperature: from -5°C to +40°C

Maximum relative humidity: from 10% to 93%

Atmospheric pressure: from 700 hPa to 1060 hPa

**Cleaning:** only clean the device using a dry cloth.

We recommend a functional test carried out by the manufacturer every 24 months.

The manufacturer retains that the SMART TENS device cannot be repaired by personnel external to its own company. Any work of this nature carried out by personnel not authorised by the manufacturer will be classed as tampering with the device, freeing the manufacturer from responsibility for the warranty and hazards that the operator or user may be exposed to.

**N.B.** disconnect the cables before placing the electronic stimulator in the bag. If not, the cables will bend excessively close to the connectors. This may damage the cables.



## 8. Resolution of problems and questions.

Any type of work on SMART TENS must be carried out exclusively by the manufacturer or by an authorised dealer. In any event, any presumed malfunction of SMART TENS must be verified before sending the device to the manufacturer.

Here below are some typical situations:

### **SMART TENS cannot be turned on:**

- Check batteries status (if possible) and eventually substitute them (see chapter 6).
- Check the proper closing of battery compartment (SMART TENS has a safety control and does not permit the use with battery compartment opened).
- Check that the ON/OFF button has been pressed correctly (held down for at least one second).

### **SMART TENS does not transmit electric impulses:**

- Check that the cable jacks have been inserted in the electrodes and that the plastic protection has been removed from the electrode.
- Check that the cables have been connected correctly (connector well inserted in the device).
- Check the electrodes status: damage or poor quality electrodes cannot properly transmit electrical impulses. Substitute the electrodes if necessary.

**Warning:** SMART TENS has a safety output control to check the correct connection of cables and electrodes, and also the correct transmission of the current to the patient. In case of uncorrect connection is not possible to exceed 9mA intensity: SMART TENS will stop erogation and return to main screening.

Check cables and electrodes status (eventually substitute them) and the correct connction to the patient. If the problem persists contact the manufacturer.

### **SMART TENS switches off during operation:**

- We recommend to substitute the batteries (see chapter 6) and restart the treatment. If the problem persists contact the manufacturer

### **Disposal**

To protect the environment, the device, its accessories and above all the batteries must be disposed of in areas equipped for that purpose or as special waste.



Product subject to WEEE regulations concerning separate waste collection: when disposing this product, please use the designated areas for disposing electronic waste or contact the manufacturer.

## 9. Electrostimulation and stimulation intensity.

Electrostimulation consists of the transmission of electric microimpulses to the human body.

Fields of application of electrostimulation are: pain therapy, recovery of muscle trophism after injury or a surgical operation, athletic preparation and beauty treatments. Specific electric impulses are used for every one of these applications.

**The stimulation intensity** is displayed on the SMART TENS screen for each channel in a scale progressing from 0 to 60.

Once the initial intensity has been set, SMART TENS will proceed until it reaches the end of the program and does not require any further action from the user.

The types of impulses can be classified as follows:

1. **Tens impulse:** for tens programs, the intensity should be adjusted to a level between the thresholds of perception and pain. The maximum limit is reached when the muscles surrounding the area treated begin to contract. We recommend to stay below that limit.
2. **Warming-up impulse:** stimulation intensity must be increased gradually to improve the metabolism of the muscle concerned progressively. A bit like like a car: the engine needs warming-up before it is taken to full speed.
3. **Toning, training, strength, speed, atrophy contraction impulse:** the muscle treated must visibly contract during a training impulse. The fact that the muscle tends to stiffen and increase in volume will be visible. Intensity should be increased gradually (in the first contraction) to enable you to identify the right level of stimulation comfort. Intensity can be increased up to the personal tolerance threshold during the second training contraction; this operation is then repeated during each contraction until the workload reaches the level of intensity recommended in the description of the single programs. We recommend that you record the level of intensity reached in order to try to improve the level of stimulation and consequently your performance.
4. **Relax, draining:** intensity must be adjusted gradually to massage the muscle treated. The level of intensity should be sufficient to obtain a comfortable massage. There is no need to endure high intensity levels in this case as it is meant to be a massage, meaning that intensity can be increased gradually without excesses.

## 10. T.E.N.S. / rehabilitation programs.



### **WARNING!**

It must be remembered that an electronic stimulator is a very effective analgesic instrument and that pain can indicate various types of medical conditions!  
The programs described in this paragraph are analgesic. You are advised to read the manual carefully before using SMART TENS.

**REMEMBER THAT PAIN IS A SIGN:  
consult a doctor to identify the medical condition before using SMART TENS!**

TENS is a therapeutic technique mainly used for analgesic purposes to counter the effects (usually pain) of a wide variety of medical conditions. For this purpose it finds application in treating everyday ailments troubling mankind: neck pain, arthrosis, myalgia, neuritis, back pain, peri-arthritis, heaviness in legs, muscle weakness, just to mention a few.

### **Position of electrodes and intensity levels.**

The electrodes should be positioned to form a square surrounding the painful area using Channel 1 and Channel 2 as shown in illustration 1 (red up/black down are not important for therapeutic purposes, follow instructions on electrodes position manual). The intensity should be adjusted to a level between the thresholds of perception and pain: the maximum intensity level is the moment in which the muscles surrounding the area treated begin to contract; over this limit stimulation does not become more effective, just more irritating, so it is best to stop before that point.

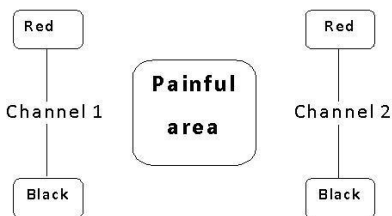


illustration 1



### **WARNING**

Create a square area with the electrodes, over the painful zone. Keep 4cm minimum distance between electrodes.

### **P01 • Endorphinic TENS (Medical program)**

This type of stimulation produces two types of effects according to how the electrodes are positioned: positioning the electrodes in the dorsal region, see photo 08 in the positions manual, promotes the endogenous production of morphine-like substances capable of raising the pain perception threshold; positioning the electrodes to form a

square above the painful area as shown in illustration 1 produces a vascularizing effect. Vascularization increases arterial flow and consequently aids the removal of algogenic substances and helps to restore normal physiological conditions.

Treatment duration 30 minutes, frequency 2Hz, impulse width 250µs.

**Do not position the electrodes close to inflamed areas.**

**Intensity** adjusted for good solicitation of the part stimulated, the sensation must be similar to that of a massage.

## **P02 • Sequential TENS** (Medical program)

The program alternates continuous cycles with different frequency and impulse width for 30 minutes. The program alternates 3 seconds at 100 Hz – 150 µs (tens conventional) and 3 seconds at 2 Hz – 200 µs (tens endorphinic) to reduce pain and increase the blood and oxygen flow on treatment area. This program is suggested for generic pain not related to inflammatory situation. These impulses aid muscular trophism on treatment area (useful in Periarthritis, for example).

**Position of electrodes:** form a square above the painful area as shown in illustration 1.

**Intensity** adjusted for good solicitation of the part stimulated, the sensation must be similar to that of a massage.

## **P03 • Conventional TENS** (Medical program)

Program also called **fast tens**, used for analgesic purposes; its purpose is to induce the organism into blocking pain at the spine, in accordance with the “Gate Control Theory” by Melzack and Wall. Pain impulses leave part of the body (for example the hand) and run along the nerve tracts (through small-diameter nerve fibres) until they reach the central nervous system where the impulses are interpreted as pain. Conventional tens activates large-diameter nerve fibres, blocking the path of small-diameter nerve fibres at the spine. So action is mainly taken against the symptom: to simplify it further, the wire transmitting pain information is obstructed.

Treatment duration should be no less than 30/40 minutes. **Conventional tens is a current that can be used to treat general everyday pain.** The average number required to benefit from the treatment is 10/12 per day (there are no contraindications for up to double this amount).

The program has a duration of 30 minutes in a single phase, 110 Hz and 180µs. The program can be repeated at the end of the session for particularly persistent pain. The nature of the impulse means that the patient may experience an “**addictive**” effect due to which the impulse will be felt less and less: if necessary the intensity can be increased by one level to counter this effect.

**Position of electrodes:** form a square above the painful area as shown in illustration 1.

## **P04 • Modulated TENS – frequency modulation** (Medical program)

The waveform frequency continuously varies from 10Hz to 100 Hz, with impulse width of 250µs: the sensation is quite different from the one of constant frequency (P03). The peculiarity of this impulse is that it can stimulate muscular fibers of different diameters. It has great antalgic purposes. The patient can choose P03 or P04 as preferred. The limit of this program is that it cannot be used during inflammatory conditions.

**Position of electrodes:** form a square above the painful area as shown in illustration 1.

**Intensity** adjusted for good solicitation of the part stimulated, the sensation must be similar to that of a massage.

### **P05• Medium frequency TENS (Medical program)**

Medium frequency TENS with an effect similar to TENS conventional, with the stimulation of muscular fibers of different diameters. To be used when TENS conventional does not produce appreciate results.

Treatment duration 30 minutes, frequency 35Hz, impulse width 200µs.

**Position of electrodes: form a square above the painful area as shown in illustration 1.**

Adjust the **intensity** until a tingling feeling is produced in the area treated; avoid contracting the surrounding muscles.

### **P06• TENS Burst (Medical program)**











This stimulation produces a training TENS effect by using the conventional TENS frequencies. Commonly used for pain therapy. The action is similar to that of the endorphinic TENS program, and the treatment time is 30 minutes in a single phase, 4 Hz.

**Position of electrodes:** form a square above the painful area as shown in illustration 1.  
**Intensity** adjusted for good massage of the part stimulated.


### **PC1• TENS programmable (Medical program)**

Use this program if you need to set you own program, even with the parameters suggest by your physician.

The treatment time can be setted from 10 to 90 minutes, with adjustable frequency from 2 to 120 Hertz and impulse width from 50 to 400 microseconds. Follow these steps to set your parameters:

1. Switch on SMART TENS pressing ON/OFF button ;
2. Select TENS programs using **TENS/EMS** button (the display shows TENS icon);
3. Select PC1 program and confirm it pressing **P** button;
4. Keep pressed P button for 3 seconds: the timer icon on the lower right side will start flashing;
5. Adjust therapy time using  and  buttons and confirm pressing P button;
6. Adjust frequency (flashing icon Hz on the lower left side) using  and  buttons and confirm pressing P button;
7. Adjust impulse width (flashing icon µs on the lower left side) using  and  buttons and confirm pressing P button;
8. SMART TENS is now ready for the treatment with desired parameters. Press  and/or  button (the icon of selected channel will start flash) to chose the channel and increase intensity pressing  button;

9. Increase intensity using ▲ button till you reach the tolerance limit (comfortable stimulation). If the intensity is too high increase it using ▼ button;
10. At the end of the treatment SMART TENS will return to the main menu, decreasing the intensity to zero.

**Stop the program:** to stop the treatment press once the ON/OFF  button. The timer resets and the channel output stops.

## Treatment program for the most common medical conditions.

### TENS.

Medical condition	Program	No. of treatments	Treatment frequency	Position of electrodes	Intensity
Algodistrophy	P04	15/20	Once or twice a day	On the painful area	***
Arthritis	P03	15/20	Once or twice a day	On the painful area	***
Arthrosis	P03	15/20	Once or twice a day	On the painful area	***
Cervicogenic headache	P01 or P05	10/12	Daily, even twice a day	Photo 25	***
Cervicalggy	P03 or P05	10/15	Daily, even twice a day	Photo 25	***
Condropathy	P03 or P05	10/15	Daily, even twice a day	On the painful area	***
Cruralgia	P03	15/20	Daily, even twice a day	Photo 27	***
Ankle sprain	PC1 120Hz-300µs-5min	10/12	Daily, up to 2/3 times a day	Photo 32	****
Knee pain	P03	10/20	Daily, even twice a day	Photo 31	***
Hip pain	P03	10/20	Daily, even twice a day	Photo 30	***
Articular pain	P03	15/20	Daily, even twice a day	On the painful area	***
Muscular pain (no strain)	P06	15/20	Daily, even twice a day	On the painful area	***
Dorsalgia	P03 or P05	12/15	Daily	Photo 25 but with all electrodes placed 10 cm lower	***
Edema	P04	10/20	Daily	On the painful area	***
Epicondylitis	P03	15/20	Daily, even twice a day	Photo 29	***
Lumbago	P03 or P05	12/15	Daily	Photo 27	**
Myalgia	PC1 70Hz-50µs-20min	till pain disappearance	Daily, even twice a day	On the painful area	*
Periarthritis	P03+P02	15/20	Daily	Photo 26	***
Pubalgy	P03	15/20	Daily	On the painful area	***
Sciatic pain	P03	15/20	Daily, even twice a day	Photo 28	**
Tendinitis	P03	12/15	Daily, even twice a day	On the painful area	**
Carpal tunnel syndrome	P03	15/20	Daily, even twice a day	Photo 33	***
Wryneck	P03 or P05	12/15	Daily	Photo 25	**

## Intensity regulation legend:

- \* under perception threshold (increase intensity till perception and then decrease a little bit)
- \*\* hardly perceptible
- \*\*\* tingling feeling
- \*\*\*\* under the level of muscular contraction
- \*\*\*\*\* under pain threshold

## 11. EMS Programs

### IMPORTANT!

Stimulation intensity during the contraction: the muscle must contract well without causing pain. It is recommended to voluntarily contract the muscle during contractions induced by the electronic stimulator to reduce the sense of discomfort and improve the proprioceptive response: In this way, after electrostimulation, the muscle will be capable of contracting all of the muscle fibres stimulated by electrostimulation and the parameters of strength and resistance will improve.

Contraction should increase as you pass through the following programs:

- Resistance
- Basic strength
- Fast strength

### P01 • Speed

This program is designed to increase speed in fast athletes and develop it in athletes lacking the quality. Program duration: 30 minutes, in 3 phases as reported on EMS chart.

The exercise assumes a fast pace and the contraction is short, as is the recovery. It is usually best to complete a four-week basic strength cycle of increasing intensity before using this program. Then continue with four weeks of fast strength three times a week at high intensity, almost past endurance during the contraction.

PRG	PHASE 1	PHASE 2	PHASE 3
P01	120 sec	24 min 30''	3 min 30''
FAST	6Hz	3'' 66Hz 310 µs	3Hz 260 µs
STRENGTH	260 µs	3'' pause	

### P02 • Basic strength

The Basic strength program is used in sport to develop basic strength, which for definition is the maximum tension that a muscle can exert against constant resistance. The contractions alternate with periods of active recovery during the work phase, allowing the muscle to be trained without subjecting it to stress and improving oxygenation of the same muscle. Program duration: 30 minutes, in 3 phases as reported on EMS chart.

The following basic procedure will enable you to obtain the first results: two sessions per week (for each muscle region) for the first 2 weeks at medium/low intensity, three sessions per week for the next three weeks at high **intensity**.



Intensity must be increased gradually treatment by treatment, without overstraining the muscles. Suspend training for a few days in the event of fatigue and proceed P04 program.

PRG	PHASE 1	PHASE 2	PHASE 3
P02	120 sec	24 min 30''	3 min 30''
BASIC	6Hz	3'' 55Hz 370 µs	3Hz 300 µs
STRENGTH	300 µs	3'' pause	

### P03 • Endurance/Tonification

The Endurance/Tonification program is used in sports and beauty to increase muscle resistance, acting mainly on slow-twitch fibres.

Program indicated for endurance sports: marathon runners, cross-country skiers, ironman, etc. Program duration: 30 minutes, in 3 phases as reported in EMS chart. Stimulation **intensity** during the contraction: if not particularly fit, start with a low intensity then increase gradually. For practised athletes the intensity used should be enough to produce visible muscle contractions. In the event of muscle ache after stimulation, use the P04 program.

PRG	PHASE 1	PHASE 2	PHASE 3
P03	120 sec	24 min 30''	3 min 30''
RESISTANCE	6Hz	3'' 28Hz 230 µs	3Hz 200 µs
	200 µs	3'' pause	

### P04 • Relax

Can be used for all sports, after competitions or the most demanding training sessions, in particular after long and intense exertion. To be used immediately after exertion. Helps drainage and capillarization, improving muscle oxygenation and helping to discharge synthetic substances produced during exertion. Program duration: 30 minutes, in 3 phase as reported in EMS chart.. Stimulation **intensity**: medium-low, increased during the last 3 minutes.

PRG	PHASE 1	PHASE 2	PHASE 3
P04	120 sec	25 min	3 min
RELAX	7Hz	5Hz	3Hz
	370 µs	370 µs	370 µs

### P05 • Warm up

Program suitable for use before training sessions or competitions, very useful for sports involving maximum effort right from the start. Program duration: 30 minutes. Position of electrodes from photo 1 to photo 20. Recommended stimulation **intensity**: medium; the muscle must work without strain.

PRG	PHASE 1
P05	30 min 8Hz 260µs
WARMING UP	

### PC1• EMS programmable

Use this program if you need to set you own program, even with the parameters suggest by your physician.

The treatment time can be setted from 10 to 90 minutes, with adjustable frequency from 2 to 120 Hertz and impulse width from 50 to 400 microseconds. Follow these steps to set your parameters:

1. Switch on SMART TENS pressing ON/OFF button ;

2. Select **EMS** programs using **TENS/EMS** button (the display shows EMS icon);
3. Select PC1 program and confirm it pressing **P** button;
4. Keep pressed **P** button for 3 seconds: the timer icon on the lower right side will start flashing;
5. Adjust therapy time using ▲ and ▼ buttons and confirm pressing **P** button;
6. Adjust frequency (flashing icon **Hz** on the lower left side) using ▲ and ▼ buttons and confirm pressing **P** button;
7. Adjust impulse width (flashing icon **µs** on the lower left side) using ▲ and ▼ buttons and confirm pressing **P** button;
8. SMART TENS is now ready for the treatment with desired parameters. Press ① and/or ② button (the icon of selected channel will start flash) to chose the channel and increase intensity pressing ▲ button;
9. Increase intensity using ▲ button till you reach the tolerance limit (comfortable stimulation). If the intensity is too high increase it using ▼ button;
10. At the end of the treatment SMART TENS will return to the main menu, decreasing the intensity to zero.

**Stop the program:** to stop the treatment press once the ON/OFF  button. The timer resets and the channel output stops.

## Treatment programs for muscle strength.

Muscle	Photo	Weekly training program				No. Of weeks
		Day 1	Day 3	Day 5	Day 7	
Tonification	On desired muscle	P03	P03	P03	P04	6
Refirming	On desired muscle	PC1 Time 20 min 50Hz 250µs	P04	PC1 Time 10min 35Hz 250µs	P04	5
Draining (cellulite)	Electrodes on muscles to be drained	P04	P02 (Tens)	P04	P02 (Tens)	6
Resistance	On desired muscle	P03	P03	P03	P04	6
Basic strength	On desired muscle	P02	P02+P04	P02	P02+P04	5
Fast strength	On desired muscle	P01	P01+P04	P01	P01+P04	4
Muscular recovery after training	On desired muscle	P04	P04	P04	P04	2
Muscular trophis recovery	On desired muscle	PC1 Time 10 min 35Hz 250µs	P04	PC1 Time 10min 35Hz 250µs	P04	5

**WARNING: MODERATE INTENSITY DURING THE FIRST TWO WEEKS, INCREASING IN THE FOLLOWING WEEKS**

## 12. Self-adhesive electrodes.

The position of the electrodes is shown at the end of the manual.

The electrodes supplied are top quality, pre-gelled and ready for use, they are particularly suitable for electrostimulation treatments.

They are very flexible making it easy to treat all areas. Remove the protective plastic from the electrode before use, position it on the skin as shown in the manual and replace the plastic after use.

Electrode duration is determined by the skin's pH value; we recommend no more than 20/30 applications using the same electrode.

Repeated use of the same electrodes can compromise stimulation safety, which is why electrodes must not be used when they no longer stick to the skin; in fact it can cause skin redness that can last for many hours after stimulation. Consult a doctor if this occurs.

For a safe use please refer to indications and warnings on electrodes package and in "Warning" paragraph.

## 13. Technical specifications.


<i>Risk class:</i>	Class II in accordance with the 93/42/EEC directive (amended by 2007/47/EC).
<i>Isolation class:</i>	Internally powered device with type BF applied parts, in accordance with the EN 60601-1 standard.
<i>Classification:</i>	IPX0, based on the penetration of liquids and powder; equipment not protected.
<i>Housing:</i>	ABS.
<i>Power Supply:</i>	4 AAA Size 1.5V batteries.
<i>Limitations:</i>	equipment not suitable for use in environments with a high concentration of oxygen and/or flammable liquids and/or flammable gas; do not use with equipment for electrosurgery or short-wave or microwave therapy.
<i>Operation:</i>	equipment suitable for continuous operation.
<i>Output channel:</i>	2 channels, independent and galvanically isolated.
<i>Output current:</i>	maximum power 60mA with 1Kohm load.
<i>Type of impulse:</i>	compensated, biphasic, rectangular.
<i>Frequency:</i>	operates with a range of impulses from 2 Hz to 120 Hz.
<i>Impulse amplitude:</i>	from 50 $\mu$ s to 400 $\mu$ s.
<i>Display:</i>	reflective LCD display.
<i>Control keypad:</i>	6-key keypad in ABS.
<i>Dimensions:</i>	110X65X20 mm.
<i>Weight:</i>	150 gr. including batteries.

*Maintenance  
and storage:*


refer to the instructions in Chapter 7 "Maintenance and storage of SMART TENS".

**Warning:** the equipment delivers current in excess of 10mA.




**CE** 0476 Produced in compliance with the 93/42/EEC (amended by 2007/47/EC) directive concerning medical devices

SMART TENS. All rights reserved. SMART TENS and  logo are owned by IACER Srl and are registered.




**01 Addominali**



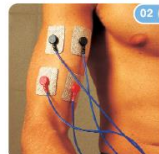
- Abdominals
- Abdominaux
- Bauchmuskulatur
- Abdominales
- Buikspieren




35 x 45 mm    35 x 45 mm  
45 x 50 mm    45 x 50 mm




**02 Bicipite brachiale**



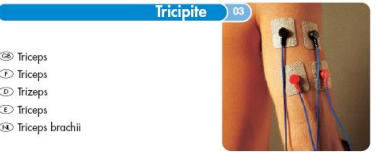
- Biceps brachii
- Biceps brachial
- Armbeizeps
- Biceps braquial
- Biceps brachii




35 x 45 mm    35 x 45 mm  
45 x 50 mm    45 x 50 mm




**03 Tricipite**



- Triceps
- Triceps
- Trizeps
- Triceps
- Triceps brachii

35 x 45 mm    35 x 45 mm  
45 x 50 mm    45 x 50 mm

**04 Estensori della mano**



- Extensors: hand
- Extenseurs de la main
- Streckmuskeln der Hand
- Extensores de la mano
- Strekkers van de hand





35 x 45 mm    35 x 45 mm  
45 x 50 mm    45 x 50 mm





**05 Flessori della mano**



- Flexors: hand
- Flexisseurs de la main
- Beugemuskeln der Hand
- Flexores de la mano
- Buigders van de hand



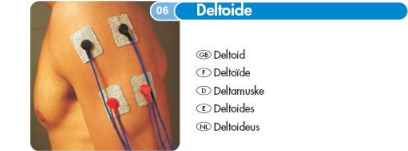


35 x 45 mm    35 x 45 mm  
45 x 50 mm    45 x 50 mm











**06 Deltoide**




- Deltoid
- Deltoïde
- Deltamuskel
- Deltoïdes
- Deltoideus

35 x 45 mm    35 x 45 mm  
45 x 50 mm    45 x 50 mm

**07 Pettorale**



- Pectoral
- Pectoral
- Pectoral
- Borstspieren
- Brustmuskulatur

**ATTENZIONE:** Non posizionare gli elettrodi in modo che il filo di contatto attraversi l'area cardiaca (c.c.). Evitare cioè di collegare 2 elettrodi nello stesso braccio.

**WARNING:** Do not place the electrodes so that the contact leads through the cardiac area (c.c.). Avoid connecting 2 electrodes on the left.

**ATTENZIONE:** Non posare le elettrode de mbraccio sullo stesso braccio.





**ATTENTION:** Do not place the electrodes on the same arm (c.c.).

**ACHTUNG:** Die Elektroden dürfen nicht an einem Arm (c.c.) angeschlossen werden.





**ATTENZIONE:** No collegare le elettrode de mbraccio de un braccio attraverso el area cardiaca (c.c.). Evitare cioè di collegare 2 elettrode nello stesso braccio.

**LET OP:** Niet de elektrode van dezelfde arm door het hartgebied (c.c.) heen leggen.

**ATTENZIONE:** Non collegare le elettrode di un braccio sopra l'altro.

35 x 45 mm    35 x 45 mm  
45 x 50 mm    45 x 50 mm

**08 Trapezi**



- Trapezius
- Trapeze
- Kapuzenmuskel
- Trapecio
- Trapezium

**ATTENZIONE:** per usare gellettrode utilizzare il ovale in direzione verso spagione di altoparlante, al fine di evitare che il contatto linea sotto in corrosione.






40 x 90 mm    40 x 90 mm  
50 x 90 mm    50 x 90 mm





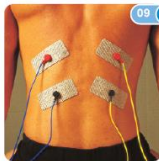

35 x 45 mm    35 x 45 mm  
45 x 50 mm    45 x 50 mm









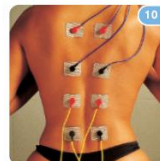



**09 Gran dorsale**

- Ⓢ Large dorsal (latissimus dorsi)
- Ⓣ Grand dorsal
- Ⓞ Großer Rückenmuskel
- Ⓞ Dorsal mayor
- Ⓢ Latissimus dorsi



**ATTENZIONE:** per questa applicazione utilizzare i cavi in dotazione senza spingere gli elettrodi. Al fine di evitare lesioni controllare attentamente i contatti.



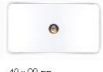
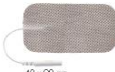
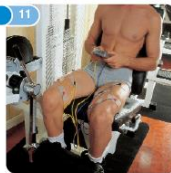
**10 Paravertebrali**

- Ⓢ Paravertebrals
- Ⓣ Zones paravertébrales
- Ⓞ Wirbelbereich
- Ⓞ Paravertebrales
- Ⓢ Lange rugspieren



**11 Quadricipiti**

- Ⓢ Quadriceps
- Ⓣ Quadriceps
- Ⓞ Quadrizeps
- Ⓞ Cuadriceps
- Ⓢ Quadriceps



40 x 90 mm  
50 x 90 mm

40 x 90 mm  
50 x 90 mm

**12 Bicipiti femorali**

- Ⓢ Biceps femoris
- Ⓣ Biceps cruraux
- Ⓞ Oberschenkelbizeps
- Ⓞ Biceps femorales
- Ⓢ Biceps femoris



40 x 90 mm  
50 x 90 mm

40 x 90 mm  
50 x 90 mm



**13 Polpacci**

- Ⓢ Calves
- Ⓣ Mollets
- Ⓞ Wade
- Ⓞ Pantorrilla
- Ⓢ Kuitlen



35 x 45 mm  
45 x 50 mm

35 x 45 mm  
45 x 50 mm



**14 Tibiale anteriore**

- Ⓢ Anterior tibial
- Ⓣ Jambier antérieur
- Ⓞ Schienbein
- Ⓞ Tibial anterior
- Ⓢ Tibialis anterior



**ATTENZIONE:** per questa applicazione utilizzare i cavi in dotazione senza spingere gli elettrodi. Al fine di evitare lesioni controllare attentamente i contatti.

35 x 45 mm  
45 x 50 mm

35 x 45 mm  
45 x 50 mm



**15 Braccia (bicipite)**

- Ⓢ Arms (biceps)
- Ⓞ Braz (biceps)
- Ⓞ Arme (biceps)
- Ⓢ Brazos (biceps)
- Ⓞ Arman (biceps)

**ATTENZIONE:** per questa applicazione utilizzare i cavi in dotazione senza spingere gli elettrodi. Al fine di evitare lesioni controllare attentamente i contatti.



35 x 45 mm  
45 x 50 mm

35 x 45 mm  
45 x 50 mm



**16 Braccia (tricipite)**

- Ⓢ Arms (triceps)
- Ⓞ Braz (triceps)
- Ⓞ Arme (triceps)
- Ⓢ Brazos (triceps)
- Ⓞ Arman (triceps)

**ATTENZIONE:** per questa applicazione utilizzare i cavi in dotazione senza spingere gli elettrodi. Al fine di evitare lesioni controllare attentamente i contatti.



35 x 45 mm  
45 x 50 mm

35 x 45 mm  
45 x 50 mm

**17 Seno**



- Ⓢ Breast
- Ⓣ Poirtrine
- Ⓤ Brust
- Ⓛ Seno
- Ⓜ Borstern



35 x 45 mm  
45 x 50 mm



35 x 45 mm  
45 x 50 mm



35 x 45 mm  
45 x 50 mm

**ATTENZIONE:** Non posizionare gli elettrodi in modo che il filo di connessione attraversi il cavo torace. 2 elettrodi non sovrapporre 2 elettrodi consecutivi.

**WARNING:** Do not place the electrodes so that the connection line through the chest area and two adjacent electrodes are overlaid. 2 adjacent electrodes must not overlap.

**ATTENTION:** Ne positionez pas les électrodes de sorte que le fil de connexion traverse le torse et ne chevauche pas 2 électrodes consécutives. 2 électrodes consécutives ne doivent pas se chevaucher.

**ACHTUNG:** Die Elektroden dürfen nicht übereinander liegen und dürfen nicht überlappen. 2 benachbarte Elektroden dürfen nicht überlappen.

**ATENCIÓN:** No coloque los electrodos de modo que el hilo de conexión atraviese el tórax cuando se superponen 2 electrodos consecutivos o se superponen los cables de conexión.

**LET OP:** Place de électrodes ne chevauchent les électrodes consécutives ou les câbles de connexion. 2 électrodes consécutives ne doivent pas se chevaucher.

**18 Cosce (quadricipiti)**



- Ⓢ Thighs (quadriceps)
- Ⓣ Cuisses (quadriceps)
- Ⓤ Schenkel (Quadrizeps)
- Ⓛ Muscles (quadriceps)
- Ⓜ Dijsbeen (quadriceps)



35 x 45 mm  
45 x 50 mm



35 x 45 mm  
45 x 50 mm




35 x 45 mm  
45 x 50 mm




40 x 90 mm  
50 x 90 mm

**19 Glutei**


- Ⓢ Gluteus
- Ⓣ Fessiers
- Ⓤ Gesäßmuskeln
- Ⓛ Glúteos
- Ⓜ Bilspielen




35 x 45 mm  
45 x 50 mm





35 x 45 mm  
45 x 50 mm




35 x 45 mm  
45 x 50 mm

**20 Addominali**


- Ⓢ Abdominals
- Ⓣ Abdominaux
- Ⓤ Bauchmuskulatur
- Ⓛ Abdominales
- Ⓜ Buikspieren

35 x 45 mm  
45 x 50 mm



35 x 45 mm  
45 x 50 mm



35 x 45 mm  
45 x 50 mm

Foto 21 non presente-Image 21 not available-Image 21 non-présente-Image n 21 non disponibile-Bild 21nicht vorhanden

**22 Obliquo dell'addome**

- Ⓢ Oblique: abdomen
- Ⓣ Oblique de l'abdomen
- Ⓤ Schräger Bauchmuskel
- Ⓛ Abdominal obliquo
- Ⓜ Schuine buikspieren




35 x 45 mm  
45 x 50 mm



35 x 45 mm  
45 x 50 mm



35 x 45 mm  
45 x 50 mm

**23 Cuscinetti/anca**

- Ⓢ Area: fat deposits/hips
- Ⓣ Zone: bourrelets/hanches
- Ⓤ Bereich: Polsterchen/Becken
- Ⓛ Zona: pliegues /cadera
- Ⓜ Zone: heup




35 x 45 mm  
45 x 50 mm



35 x 45 mm  
45 x 50 mm



35 x 45 mm  
45 x 50 mm

**24 Microlifting Faciale**

- Ⓢ Microlifting: facial muscles
- Ⓣ Microlifting muscle facial
- Ⓤ Mikrolifting Gesichtsmuskulatur
- Ⓛ Microlifting músculo facial
- Ⓜ Microlifting gezichtspiieren




Ø 24 mm  
Ø 30 mm



Ø 24 mm  
Ø 30 mm



Ø 24 mm  
Ø 30 mm

**ATTENZIONE:** Non posizionare gli elettrodi in modo che il filo di connessione attraversi il cavo torace. 2 elettrodi non sovrapporre 2 elettrodi consecutivi.

**WARNING:** Do not place the electrodes so that the connection line through the chest area and two adjacent electrodes are overlaid. 2 adjacent electrodes must not overlap.

**ATTENTION:** Ne positionez pas les électrodes de sorte que le fil de connexion traverse le torse et ne chevauche pas 2 électrodes consécutives. 2 électrodes consécutives ne doivent pas se chevaucher.



**ACHTUNG:** Die Elektroden dürfen nicht übereinander liegen und dürfen nicht überlappen. 2 benachbarte Elektroden dürfen nicht überlappen.

**ATENCIÓN:** No coloque los electrodos de modo que el hilo de conexión atraviese el tórax cuando se superponen 2 electrodos consecutivos o se superponen los cables de conexión.


**LET OP:** Place de électrodes ne chevauchent les électrodes consécutives ou les câbles de connexion. 2 électrodes consécutives ne doivent pas se chevaucher.

**25 Cervicale**  
(per programma medicale)


- Ⓢ Area: cervical (for medical programme)
- Ⓣ Zone: cervicale (pour programme médical)
- Ⓤ Bereich: Halswirbel (medizinisches Programm)
- Ⓛ Zona: cervical (para programa médico)
- Ⓜ Zone: hals (geneeskundig programma)

35 x 45 mm  
45 x 50 mm



35 x 45 mm  
45 x 50 mm



35 x 45 mm  
45 x 50 mm



**Spalla (periartrite) 26**

(per programma medicale)

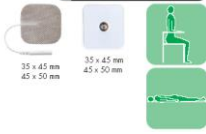
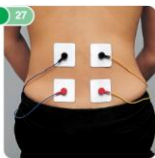
- Ⓔ Area: shoulder (peri-arthritis) (for medical programme)
- Ⓛ Zone: épaule (periarthrite) (pour programme médical)
- Ⓛ Bereich: Schulter (Periarthritis) (medizinisches Programm)
- Ⓛ Zona: hombro (periartritis) (para programa médico)
- Ⓛ Zone: schouder (periarthritis) (geneskundig programma)



**Lombare (lombalgia) 27**

(per programma medicale)

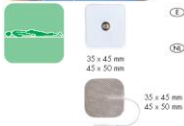
- Ⓔ Area: lumbor (lombalgia) (for medical programme)
- Ⓛ Zone: lombaire (lombalgie) (pour programme médical)
- Ⓛ Bereich: Lenden (Lendenschmerzen) (medizinisches Programm)
- Ⓛ Zona: lumbor (lumbago) (para programa médico)
- Ⓛ Zone: lenden (lage rugpijn) (geneskundig programma)



**Lunghezza gamba (sciatalgia) 28**

(per programma medicale)

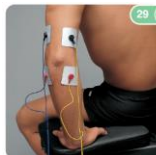
- Ⓔ Area: the length of the leg (sciatica) (for medical programme)
- Ⓛ Zone: la longueur de la jambe (sciatalgie) (pour programme médical)
- Ⓛ Bereich: Bein in der Länge (Ischias) (medizinisches Programm)
- Ⓛ Zona: la longitud de la pierna (ciática) (para programa médico)
- Ⓛ Zone: het hele been (ischialgie) (geneskundig programma)



**Gomito (epicondilitie) 29**

(per programma medicale)

- Ⓔ Area: elbow (epicondylitis) (for medical programme)
- Ⓛ Zone: coude (epicondylite) (pour programme médical)
- Ⓛ Bereich: Ellenbogen (Tennisarm) (medizinisches Programm)
- Ⓛ Zona: codo (epicondilitis) (para programa médico)
- Ⓛ Zone: elleboog (epicondilitis) (geneskundig programma)



**Anca (dolori all'anca) 30**

(per programma medicale)

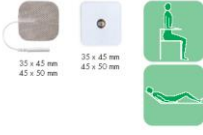
- Ⓔ Area: hip (hip pain) (for medical programme)
- Ⓛ Zone: hanche (douleurs à la hanche) (pour programme médical)
- Ⓛ Bereich: Becken (Beckenschmerzen) (medizinisches Programm)
- Ⓛ Zona: cadera (dolores de cadera) (para programa médico)
- Ⓛ Zone: heup (heuppijn) (geneskundig programma)



**Ginocchio (dolori al ginocchio) 31**

(per programma medicale)

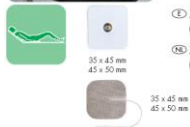
- Ⓔ Area: knee (knee pain) (for medical programme)
- Ⓛ Zone: genou (douleurs au genou) (pour programme médical)
- Ⓛ Bereich: Knie (Kniebeschmerzen) (medizinisches Programm)
- Ⓛ Zona: rodilla (dolores de rodilla) (para programa médico)
- Ⓛ Zone: knie (kniepijn) (geneskundig programma)



**Caviglia (distorsione/contusione) 32**

(per programma medicale)

- Ⓔ Area: ankle (sprains/bruising) (for medical programme)
- Ⓛ Zone: cheville (entorse/contusion) (pour programme médical)
- Ⓛ Bereich: Fessel (Verstauchung/Prellung) (medizinisches Programm)
- Ⓛ Zona: tobillo (distorsión/contusión) (para programa médico)
- Ⓛ Zone: enkel (verzwikking/kneuzing) (geneskundig programma)



**Polso (tunnel carpale) 33**

(per programma medicale)

- Ⓔ Area: wrist (carpal tunnel) (for medical programme)
- Ⓛ Zone: poignet (tunnel carpien) (pour programme médical)
- Ⓛ Bereich: Handgelenk (Handwurzelstunnel) (medizinisches Programm)
- Ⓛ Zona: muñeca (túnel carpiano) (para programa médico)
- Ⓛ Zone: pols (carpale tunnel) (geneskundig programma)





**I.A.C.E.R S.r.l.**

*Sede operativa:*

30030 Martellago (VE) - Via. S. Pertini 24/A  
Tel +39 041 5401356 - Fax +39 041 5402684

---

*Sede legale:*

S. Marco 2757 - 30124 Venezia  
Cod. Fisc./P.IVA IT 00185480274  
R.E.A. VEN. 120250 - M. VE001767  
Cap.Soc. € 110.000,00 i.v.  
[www.itechmedicaldivision.com](http://www.itechmedicaldivision.com) - [iacer@iacer.it](mailto:iacer@iacer.it)